

**SERVANTS OF INDIA SOCIETY'S LIBRARY,  
POONA 4,  
FOR INTERNAL CIRCULATION**

To be returned on or before the last date stamped below

1 APR 1967

Dhananjayrao Gadgil Library



GIPE-PUNE-012498

**INDIAN TARIFF BOARD**

**Written Evidence**

recorded during the enquiry into the

**SUGAR INDUSTRY.**

**Volume III-A**

**Replies received from the Local  
Governments and Indian States**



DELHI: MANAGER OF PUBLICATIONS

1939

## List of Agents in India from whom Government of India Publications are available.

### (a) PROVINCIAL GOVERNMENT BOOK DEPOTS.

- MADRAS** :—Superintendent, Government Press, Mount Road, Madras.
- BOMBAY** :—Superintendent, Government Printing and Stationery, Queen's Road, Bombay.
- SIND** :—Manager, Sind Government Book Depot and Record Office, Karachi (Sadar).
- UNITED PROVINCES** :—Superintendent, Government Press, Allahabad.
- PUNJAB** :—Superintendent, Government Printing, Punjab, Lahore.
- CENTRAL PROVINCES** :—Superintendent, Government Printing, Central Provinces, Nagpur.
- ASSAM** :—Superintendent, Assam Secretariat Press, Shillong.
- BIHAR** :—Superintendent, Government Printing, P. O. Gulzarbagh, Patna.
- NORTH-WEST FRONTIER PROVINCE** :—Manager, Government Printing and Stationery, Peshawar.
- ORISSA** :—Press Officer, Secretariat, Cuttack.

### (b) PRIVATE BOOK-SELLERS.

- Advani Brothers, P. O. Box 100, Cawnpore.
- Aero Stores, Karachi.\*
- Banbhaya & Co., Ltd., Station Road, Ajmer.
- Bengal Flying Club, Dum Dum Cantt.\*
- Bhatia Book Depot, Saddar Bazar, Ranikhet.
- Bhawani & Sons, New Delhi.
- Bombay Book Depot, Charni Road, Girgaon, Bombay.
- Book Company, Calcutta.
- Booklover's Resort, Talikad, Trivandrum, South India.
- Burma Book Club, Ltd., Rangoon.
- Butterworth & Co. (India), Ltd., Calcutta.
- Carens, Mohini Road, Lahore.
- Chatterjee & Co., 8, Bacharam Chatterjee Lane, Calcutta.
- Chukerverty, Chatterjee & Co., Ltd., 18, College Square, Calcutta.
- City Book Club, 98, Phayre Street, Rangoon.
- Das Gupta & Co., 54/3, College Street, Calcutta.
- Dastard Brothers, Home Service, 456, Raviwar Peth, Poona 2.
- Delhi and U. P. Flying Club, Ltd., Delhi.\*
- English Book Depot, Ferozapore.
- English Book Depot, Taj Road, Agra.
- English Bookstall, Karachi.
- English Bookstores, Abbottabad, N.-W. F. P.
- Fakir Chand Marwah, Peshawar Cantt.
- Fono Book Agency, Simla.
- Gautama Brothers & Co., Ltd., Weston Road, Cawnpore.
- Higginbothams, Madras.
- Hindu Library, 137/E, Balaram De Street, Calcutta.
- H. L. College of Commerce Co-operative Stores, Ltd., Ahmedabad.
- Hyderabad Book Depot, Chaderghat, Hyderabad (Deccan).
- Imperial Book Depot and Press, near Jama Masjid (Machhi-walan), Delhi.
- Indian Army Book Depot, Dayalbagh, Agra.
- Indian Book Shop, Benares City.
- Indian School Supply Depot, Central Avenue, South, F. C. Dharamtala, Calcutta.
- Insurance Publicity Co., Ltd., Lahore.
- International Book Service, Poona 4.
- Jacques & Co., Kamptee Road, Nagpur, Messrs. Neston.
- Jaina & Bros., Mori Gate, Delhi and Connaught Place, New Delhi, Messrs. J. M.
- Karnata Book Depot, 15, College Square, Calcutta.
- Karnataka Publishing House, Bangalore City.
- Kesla & Co., 65, Britto Road, Karachi (Sadar).
- Keshao Bookstall, Khadiabazar, Belgaum.
- Kitchistan, 17-A, City Road, Allahabad.
- Krishnaswami & Co., Teppakulam F. O., Trichinopoly Fort, Messrs. S.
- Lehri & Co., Ltd., Calcutta, Messrs. S. K.
- Local Self-Govt. Institute, Bombay.
- London Book Co. (India), Arbab Road, Peshawar, Murree, Newshera and Rawalpindi.
- Mackwin & Co., Booksellers, Stationers and News Agents, Inverarity Road, off Elphinstone Street, Karachi (Sadar).
- Malhotra & Co., Post Box No. 24, Lahore, Messrs. U. P.
- Malik & Sons, Sialkot City.
- Mathur, B. S., Book-seller, Civil Lines, Jodhpur.
- Minerva Book Shop, Anarkali Street, Lahore.
- Modern Book Depot, Bazar Road, Sialkot Cantonment and Napier Road, Jullunder Cantonment.
- Mohani Dossabhai Shah, Rajkot.
- Mohendra Bros., Laska, Gwalior State, Messrs.
- Nandkishore & Bros., Chowk, Benares City.
- New Book Co. "Kitab Mahal", 192, Hornby Road, Bombay.
- Newman & Co., Ltd., Calcutta, Messrs. W.
- Oxford Book and Stationery Company, Delhi, Lahore, Simla, Meerut and Calcutta.
- Parikh & Co., Baroda, Messrs. B.
- Pioneer Book Supply Co., 20, Shih Narayan Das Lane, Calcutta, and 219, Cloth Market, Delhi.
- Popular Book Depot, Grant Road, Bombay.
- Punjab Religious Book Society, Lahore.
- Raghnath Prasad & Sons, Patna City.
- Ram Krishna Bros., Opposite Bishrambag, Poona City.
- Ram Narsin Lal, Katra, Allahabad.
- Rama Krishna & Sons, Book-sellers, Anarkali, Lahore.
- Ramesh Book Depot & Stationery Mart, Kashmir Gate, Delhi.
- Ray & Sons, 48, K. & L. Edwardes Road, Rawalpindi, Murree and Peshawar, Messrs. J.
- Roy Chowdhury & Co., 72, Harrison Road, Calcutta, Messrs. N. M.
- Saraswati Book Depot, 15, Lady Hardinge Road, New Delhi.
- Sarcar & Sons, 15 College Square, Calcutta, Messrs. M. C.
- Sarkar & Co., Ltd., 6, Hastings Street, Calcutta, Messrs. P. C.
- Sharda Mandir Ltd., Nai Sarak, Delhi.
- Standard Book Depot, Lahore, Dalhousie and Delhi.
- Standard Bookstall, Karachi.
- Standard Bookstall, Quetta.
- Standard Law Book Society, 69, Harrison Road, Calcutta.
- Tara & Sons, Razmak (India), Messrs. B. S.
- Taraporevala Sons & Co., Bombay, Messrs. D. B.
- Thacker & Co. Ltd., Bombay.
- Thacker, Spink & Co., Ltd., Calcutta and Simla.
- Tripathi & Co., Book-sellers, Princess Street, Kalbadevi Road, Bombay, Messrs. N. M.
- University Book Agency, Kachari Road, Lahore.
- Upper India Publishing House, Ltd., Literature Palace, Ammuddaula Park, Lucknow.
- Varadachary & Co., Madras, Messrs. P.
- Venkatasubban, A., Law Book-seller, Vellore.
- Wheeler & Co., Allahabad, Calcutta and Bombay, Messrs. A. H.
- Young Man & Co., Egerton Road, Delhi.

\* Agents for publications on Aviation only.

### Personnel of the Board.

President . Sir Geoffrey Bracken, K.C.I.E., C.S.I., I.C.S.

Members { Mr. Fazal I. Rahimtoola.  
{ Dr. L. C. Jain, M.A., LL.B., Ph.D., D.Sc. (London),

Secretaries { Mr. K. B. Bhatia, I.C.S. (up to 5th December, 1937).  
{ Rai Sahib H. C. Sen (from the 6th December, 1937).

X9(F68):53.2

G7.3-A

12498

## TABLE OF CONTENTS.

	PAGE.
1. Government of India, Department of Commerce, Resolution No. 127-T. (1)/37, dated the 27th March, 1937 . . . . .	1
2. Press Communiqué issued by the Tariff Board on the 5th April, 1937 . . . . .	2
3. Questionnaires issued by the Tariff Board—	
No. 1—General Questionnaire . . . . .	3
No. 2—Questionnaire for Local Governments . . . . .	10
No. 3—Questionnaire for manufacturers of sugar by the open pan system and khandsars . . . . .	13
No. 4—Questionnaire for sugar refineries . . . . .	14
No. 5—Questionnaire for gur/jaggery merchants . . . . .	14
4. Letter issued to Local Governments and States—	
(1) Letter No. 147, dated the 30th April, 1937, to all Local Governments in India and Chief Commissioner, Delhi; requesting to (a) collect figures for prices and imports of gur/jaggery and sugar, (b) furnish information regarding unfair treatment by sugar factories to the growers of sugarcane . . . . .	16
(2) Letter No. 172, dated the 11th May, 1937, to all Local Governments, forwarding a set of Questionnaire . . . . .	16
(3) Letter No. 171, dated the 11th May, 1937, to Indian States, forwarding a set of Questionnaire . . . . .	17
(4) Letter No. 181, dated the 15th May, 1937, to all Local Governments, requesting to furnish the Board with information regarding interest on money borrowed by cultivators . . . . .	18
(5) Letter No. 303, dated the 18th June, 1937, to all Local Governments and States, regarding information about molasses consumed by distilleries . . . . .	18
5. Replies to Questionnaire received from the Government of Assam—	
(1) Letter dated the 26th June, 1937, enclosing replies to some of the Questionnaires forwarded by the Director of Agriculture and Director of Industries, Assam . . . . .	18
(2) Replies to Questions 3, 4, 5 and 34 of the Questionnaire for Local Governments forwarded with letter dated the 13th December, 1937 . . . . .	24
(3) Letter dated the 1st July, 1937, regarding information about molasses consumed by distilleries and other concerns manufacturing rectified or denatured spirit . . . . .	25
6. Replies received from the Government of Bengal—	
(1) Letter dated the 29th June, 1937, forwarding replies furnished by the Director of Agriculture and Registrar, Co-operative Societies . . . . .	25
(2) Letter dated the 12th July, 1937, forwarding the reply furnished by the Director of Industries, Bengal . . . . .	31
(3) Letter dated the 29th October, 1937, forwarding the replies furnished by the Government of Bengal . . . . .	40

	PAGE.
(4) Letter dated the 26th July, 1937, furnishing information regarding the interest at which cultivators can borrow money . . . . .	40
(5) Letter dated the 17th August, 1937, furnishing information regarding molasses consumed by distilleries and other concerned manufacturing rectified or denatured spirit . . . . .	41
(6) Letter dated the 17th August, 1937, forwarding an extract from the letter of the Director of Agriculture, Bengal, regarding unfair treatment by the sugar factories to grower of sugarcane . . . . .	41
(7) Letter dated the 8th September, 1937, furnishing statistics of retail prices of sugar and gur in different districts of Bengal . . . . .	42
(8) Statement showing the retail prices of sugar and gur in the different districts in the Province, supplied by the Director of Industries . . . . .	43
(9) Note on the position and prospect of the Confectionery Industry in Bengal, supplied by the Director of Industries . . . . .	48
(10) A memorandum to the Tariff Board on Sugar forwarded by the Director of Industries . . . . .	51
(11) Letter dated the 9th October, 1937, from the Director of Agriculture, enclosing a copy of the scheme proposed to be started in connection with the utilisation of Government of India grant from the Sugar Excise Tax . . . . .	61
<b>7. Replies received from the Government of Bihar—</b>	
(1) Letter dated the 19th August, 1937, forwarding Replies to Questionnaire given by the Local Government, Director of Industries, Director of Agriculture and Registrar, Co-operative Societies . . . . .	62
(2) Letter dated the 3rd February, 1936, from the Government of Bihar and Orissa, Education and Development Department, to the Director of Industries, Bihar and Orissa, regarding Scheme for the working of the Sugarcane Act, 1934, and the rules made thereunder in Bihar . . . . .	147
(3) Letter dated the 3rd February, 1936, from the Government of Bihar and Orissa, Education and Development Department, to the Director of Agriculture, Bihar and Orissa, regarding scheme for the improvement of sugarcane cultivation in Bihar and Orissa . . . . .	154
(4) Letter dated the 3rd February, 1936, from the Government of Bihar and Orissa, Education and Development Department, to the Registrar, Co-operative Societies, Bihar and Orissa, regarding scheme for the organisation and operation of Cane-growers Co-operative Societies . . . . .	160
(5) Letter dated the 28th June, 1937, forwarding statements showing the prevailing rates of interest at which cultivators can borrow money . . . . .	165
(6) Letter dated the 5th July, 1937, forwarding supplementary statement showing the prevailing rates of interest . . . . .	165
(7) Letter dated the 8th September, 1937, forwarding a statement regarding molasses consumed by distilleries and other concerns manufacturing rectified or denatured spirit . . . . .	166

	PAGE.
(8) Letter dated the 18th September, 1937, forwarding a supplementary note for the Sugar Tariff Board . . . . .	168
(9) Memorandum circulated by the Government explaining proposal for legislation to regulate the supply of cane to sugar factories . . . . .	169
(10) Letter dated the 22nd September, 1937, from the Secretary, Tariff Board, requesting to furnish information regarding the number of large planters and the approximate total acreage in the plantations . . . . .	175
(11) Letter dated the 28th January 1938, in reply to Tariff Board letter dated the 22nd September, 1937 . . . . .	176
(12) Letter dated the 23rd October, 1937, from the Tariff Board, enquiring the basis of the fixation of minimum price for sugarcane . . . . .	176
(13) Letter dated the 28th October, 1937, from the Government of Bihar, Development Department, enclosing copies of Notifications in reply to Tariff Board letter dated the 23rd October, 1937 . . . . .	178
<b>8. Replies received from the Government of the United Provinces—</b>	
(1) Letter dated the 30th June, 1937, forwarding replies furnished by the Director of Industries, Director of Agriculture and Registrar, Co-operative Societies . . . . .	179
(2) Letter dated the 12th July, 1937, forwarding replies of the Provincial Government . . . . .	205
(3) Letter dated the 19th July, 1937, enclosing two schemes prepared by Khan Bahadur Sayed Mohammed Hadi, regarding cost of manufacturing sugar . . . . .	226
(4) Letter dated the 22nd July, 1937, enclosing statement showing the area, outturn and value of the principal crops grown in the United Provinces . . . . .	232
(5) Letter dated the 30th July, 1937, enclosing notes regarding the rate of interests at which cultivators can borrow money . . . . .	234
(6) Letter dated the 30th July, 1937, forwarding a statement showing the consumption of molasses by distilleries in the United Provinces . . . . .	237
(7) Letter dated the 11th September, 1937, from the Director of Industries, enclosing a list showing the number of open pan factories during the last seven years . . . . .	239
(8) Letter dated the 22nd September, 1937, from the Director of Agriculture, enclosing a note on the details of the costs of production of sugarcane . . . . .	239
(9) A brief account of the Research work pertaining to sugarcane in the United Provinces, forwarded by the Economic Botanist (Sugarcane and Paddy), United Provinces . . . . .	251
(10) Note on the possibilities of Zonal distribution of cane supply within the Gorakhpur district supplied by Mr. Rajeswari Prasad Mathur, Deputy Collector, Gorakhpur . . . . .	272
(11) Letter dated the 8th October, 1937, enclosing a note on the payment of a bonus above the minimum price for sugarcane of superior quality . . . . .	274
(12) Letter dated the 28th October, 1937, from the Director of Industries, furnishing details of the loans granted to sugar factories . . . . .	279



	Page.
(13) Memorandum by Sir William Stampe, I.S.E., Chief Engineer, Irrigation Development, dated Lucknow, August 31st, 1937 . . . . .	279
(14) Letter dated the 4th December, 1937, from the Superintending Engineer, Development Circle, Meerut, enclosing a copy of Sir William Stampe's preliminary note on village gur-making plants . . . . .	281
<b>Replies received from the Government of the Punjab—</b>	
(1) Letter dated the 2nd August, 1937, forwarding (a) replies to Questionnaire furnished by the Local Government, (b) enclosing a statement showing the fortnightly retail prices of gur/jaggery and sugar at important markets in the Province and (c) appending a note supplied by Mr. Kailash Chandra of Abdullapur . . . . .	286
(2) Letter dated the 6th August, 1937, regarding the rate of interest at which cultivators can borrow money . . . . .	357
(3) Letter dated the 23rd August, 1937, from the Marketing Officer, Punjab, forwarding information supplementary to oral evidence . . . . .	357
(4) Letter dated the 11th September, 1937, from the Marketing Officer, Punjab, regarding comparative cost of producing cane . . . . .	375
(5) Note on the Sugarcane Research Scheme in the Punjab supplied by the Deputy Director of Agriculture, Punjab, Lyallpur . . . . .	375
(6) Letter dated the 5th October, 1937, forwarding a statement showing the quantity of molasses consumed, sources of supply and the price paid . . . . .	381
(7) Letter dated the 23rd October, 1937, from the Director of Land Records, Punjab, forwarding a statement showing fortnightly prices of sugar, raw and refined . . . . .	383
(8) Statement showing the estimated output of open pan concerns and khandsaris working in the Punjab during the year 1936-37 . . . . .	385
(9) Letter dated the 19th August, 1937, from the Director of Industries, regarding the production of sugar of the Punjab Mills during 1936-37 . . . . .	388
(10) Letter dated the 21st September, 1937, supplementing the information furnished in letter dated the 19th May, 1937 . . . . .	388
<b>10. Replies received from the Government of Bombay—</b>	
(1) Letter dated the 10th June, 1937, from the Superintending Engineer, Deccan Irrigation Circle, to the Secretary to the Government of Bombay, General Department, Bombay, enclosing replies to Tariff Board Questionnaire . . . . .	388
(2) Memorandum dated the 17th June, 1937, supplied by the Public Works Department, Bombay, supplementing replies given by the Superintending Engineer, Deccan Irrigation Circle, Poona . . . . .	392
(3) Letter dated the 21st June, 1937, from the Director of Agriculture, Bombay, to the Secretary to the Government of Bombay, General Department, furnishing replies to Tariff Board Questionnaire . . . . .	393
(4) Letter dated the 3rd July, 1937, from the Director of Industries, Bombay, forwarding replies to Questionnaire . . . . .	441

	PAGE.
(5) Letter dated the 16th July, 1937, from the Registrar, Co-operative Societies, Poona, forwarding a copy of letter dated the 14th June to the Government of Bombay, General Department, furnishing replies to some of the Tariff Board Questionnaire . . . . .	448
(6) Letter dated the 8th August, 1937, from the Government of Bombay, Public Works Department, enclosing a note on the importance of the establishment of sugar factories in the Deccan Canal Circle . . . . .	449
(7) Letter dated the 28th October, 1937, enclosing the views of the Government of Bombay on the Questionnaire issued by the Tariff Board . . . . .	457
(8) Letter dated the 17th July, 1937, from the Director of Agriculture, forwarding statements regarding the average rainfall and cost of cultivation of sugarcane . . . . .	461
(9) Letter dated the 24th July, 1937, from the Commissioner of Excise, Bombay, regarding consumption of molasses in the Bombay Presidency . . . . .	465
11. Replies received from the Government of Madras—	
(1) Letter dated the 3rd June, 1937, enclosing statements showing the retail prices of jaggery and sugar . . . . .	467
(2) Letter dated the 25th June, 1937, enclosing a note prepared by the Director of Industries, Madras, on the present position of the Palmyra sugar industry in the Madras Presidency . . . . .	480
(3) Letter dated the 30th June, 1937, forwarding replies to the Questionnaire for Local Government . . . . .	484
(4) Note on the Economic Condition of the Tapper in the Madras Presidency supplied by the Director of Industries, Madras . . . . .	564
(5) Letter dated the 28th August, 1937, furnishing an estimate of the sugarcane-producing area transferred to Orissa . . . . .	575
(6) Letter dated the 21st September, 1937, forwarding further representation on the exemption of Palmyra sugar industry from excise duty . . . . .	575
(7) Letter dated the 9th October, 1937, from the Tariff Board to Director of Agriculture, Madras, regarding the sucrose content of some of the varieties of sugarcane . . . . .	576
(8) Letter dated the 15th October, 1937, from the Director of Agriculture, Madras, in reply to the Tariff Board letter dated the 9th October, 1937 . . . . .	576
(9) Letter No. 442, dated the 11th July, 1937, from the Secretary, Tariff Board, to the Government of Madras, requesting to supplement the reply of the Local Government as promised during the evidence given by the Directors of Agriculture and Industries . . . . .	576
(10) Letter No. 449, dated the 11th July, 1937 from the Secretary, Tariff Board, to the Government of Madras, Development Department, requesting to explain the method of calculation of sucrose content . . . . .	577
(11) Letter No. 456, dated the 12th July, 1937, from the Secretary, Tariff Board, to the Government of Madras, Development Department, requesting to send the figures for sugarcane in the area serving Nellikuppam factory . . . . .	577
(12) Letter dated the 8th October, 1937, in reply to Tariff Board letters Nos. 442, 449 and 456 . . . . .	577

	Page.
(13) Letter dated the 25th October, 1937, forwarding a statement showing the water-rates for sugarcane cultivation in certain areas . . . . .	611
(14) Letter dated the 6th December, 1937, forwarding information regarding total production of cane in the Nellikuppam area . . . . .	614
(15) Letter dated the 27th July, 1937, forwarding information about molasses consumed by distilleries . . . . .	615
(16) Letter dated the 26th May, 1937, forwarding information about the prevailing rate of interest at which cultivators can borrow money . . . . .	617
(17) Letter dated the 21st June, 1937, from the Agricultural Demonstrator, Mangalore, forwarding replies to Questionnaire for Jaggery Merchants, Mangalore . . . . .	617
<b>12. Replies received from the Government of Orissa—</b>	
(1) Letter dated the 4th/6th August, 1937, forwarding replies to Questionnaire for Local Government . . . . .	619
(2) Letter dated the 14th August, 1937, forwarding letters from the Director of Development, Orissa, regarding retail prices of gur and the rates of sugarcane irrigation . . . . .	624
(3) Letter dated the 1st October, 1937, forwarding a statement showing the retail and wholesale prices of sugar and gur in Berhampur during the 3 years 1935 to 1937 . . . . .	626
(4) Letter dated the 28th/30th June, 1937, furnishing information about the interest on the money borrowed by the cultivators for the purchase of seeds, etc. . . . .	626
(5) Letter dated the 31st August, 1937, furnishing information about molasses consumed by distilleries and other concerns manufacturing rectified and denatured spirit . . . . .	626
<b>13. Replies received from the Government of the Central Provinces and Berar—</b>	
(1) Letter dated the 9th July, 1937, forwarding replies to Questionnaire for Local Government . . . . .	627
(2) Letter dated the 28th May, 1937, furnishing information about the rate of interest at which cultivators can borrow money . . . . .	633
(3) Letter dated the 10th July, 1937, furnishing information regarding number of distilleries, molasses consumed therein, etc. . . . .	634
(4) Letter dated the 26th August, 1937, from the Director of Agriculture furnishing information about the area in acres under ratoon sugarcane in the Central Provinces and Berar . . . . .	634
(5) Letter dated the 17th September, 1937, from the Director of Agriculture, enclosing a statement showing the details of the cost of making gur per maund . . . . .	634
(6) Letter dated the 17th June, 1937, from the Superintendent, Government Seed Farm, Betul, forwarding replies to Questionnaire for manufacture of sugar by the open pan system and khandsars . . . . .	635
<b>14. Replies received from the Government of Sind—</b>	
(1) Letter dated the 19th June, 1937, enclosing a letter from the Collector of Customs, Karachi, furnishing information regarding the retail prices of (a) gur/jaggery and (b) sugar of different qualities . . . . .	635

	PAGE.
(2) Letter dated the 2nd July, 1937, forwarding replies to Questionnaire for Local Government by (a) Director of Agriculture, (b) Registrar, Co-operative Societies and (c) Assistant Director of Industries . . . . .	636
(3) Letter dated the 15th July, 1937, forwarding a statement showing the prices of sugar in Karachi market . . . . .	641
(4) Letter dated the 14th August, 1937, forwarding replies of the Government to the Questionnaire for Local Government . . . . .	642
(5) Letter dated the 14th August, 1937, furnishing information about molasses consumed by distilleries . . . . .	648
(6) Letter dated the 23rd July, 1937, from the Tariff Board, requesting to supply figures for the costs of cultivation per acre in details . . . . .	648
(7) Letter dated the 4th September, 1937, forwarding a copy of letter from the Director of Agriculture, in reply to Tariff Board letter dated the 23rd July . . . . .	648
15. Replies received from the Government of the North-West Frontier Province--	
(1) Letter dated the 23rd June, 1937, forwarding replies to Questionnaire received from the Deputy Commissioner, Mardan and Bannu . . . . .	649
(2) Letter dated the 12th July, 1937, forwarding replies to Questionnaire received from the Director of Agriculture and Allied Departments . . . . .	655
(3) Letter dated the 5th July, 1937, forwarding information about molasses consumed by distilleries and other concerns manufacturing rectified or denatured spirit . . . . .	661
16. Replies received from the Chief Commissioner, Delhi--	
(1) Letter dated the 7th July, 1937, enclosing (a) statements showing the average monthly prices of gur/jaggery, (b) replies to the Questionnaires to be answered by Local Government . . . . .	661
(2) Letter dated the 29th June, 1937, furnishing information about distilleries or other firms manufacturing rectified or denatured spirit . . . . .	665
(3) Letter dated the 9th July, 1937, furnishing the average prevailing rate of interest at which cultivators can borrow money . . . . .	665
17. Replies received from the States--	
(1) Replies to Questionnaire for Local Government furnished by the Government of H. E. H. The Nizam of Hyderabad . . . . .	666
(2) Replies to Questionnaire for Local Government furnished by the Government of H. H. the Maharaja of Mysore . . . . .	688
(3) Letter dated the 26th October, 1937, from the Government of H. H. the Maharaja of Mysore, forwarding a statement showing the consumption of molasses by distilleries and other concerns manufacturing rectified or denatured spirit . . . . .	704
(4) Replies to Questionnaires furnished by the Government of H. H. the Nawab of Bhopal . . . . .	704
(5) Letter dated the 7th July, 1937, from the Government of H. H. the Nawab of Bhopal, furnishing information about molasses consumed by the distilleries and other concerns manufacturing rectified or denatured spirit . . . . .	711

	PAGE.
(6) Letter dated the 4th July, 1937, from the Tariff Board, to the Government of H. H. the Nawab of Bhopal, enquiring the size of the proposed factory at Bhopal . . .	711
(7) Letter dated the 3rd August, 1937, from the Government of H. H. the Nawab of Bhopal in reply to Tariff Board letter dated the 4th July, 1937 . . .	711
(8) Letter dated the 21st June, 1937, from the Hon'ble Revenue and Finance Minister, Rampur State, forwarding replies to Questionnaire for (a) manufacturers of Sugar by the open pan system and khandsars, (b) gur/jaggery merchants . . .	712
(9) Letter dated the 6th July, 1937, from the Hon'ble Revenue and Finance Minister, Rampur State, enclosing replies to Questionnaire for Local Governments . . .	714
(10) Letter dated the 5th August, 1937, from the Special Officer of Industries, Rampur State, forwarding a statement showing the number of distilleries, total quantity and prices of molasses . . .	717
(11) Letter dated the 16th September, 1937, from the Assistant to Resident in Kashmir, forwarding a note containing replies to the Questionnaire for gur/jaggery merchants . . .	718
(12) Letter dated the 25th November, 1937, from the Assistant to Resident in Kashmir, explaining the reason why the Government of Kashmir are not concerned with any question either directly or indirectly . . .	719
(13) Letter dated the 30th July, 1937, from the Minister of the Baroda State, enclosing a note containing the views of His Highness' Government on various points raised in the Questionnaire . . .	719
(14) Letter dated the 26th July, 1937, from the Government of Baroda, regarding information about molasses consumed by distilleries and other concerns . . .	723
(15) Letter dated the 29th August, 1937, from the Tariff Board to the Hon'ble the Resident, Central India States, Gwalior, enclosing copies of Questionnaires and requesting to send information regarding the position of sugar industry in Jaora State . . .	723
(16) Letter dated the 13th September, 1937, from the Secretary to the Resident for Central India, in reply to Tariff Board letter dated the 29th August, 1937 . . .	723
(17) Letter dated the 22nd September, 1937, from the Tariff Board to the Secretary to the Resident, Central India States, enquiring about the import or export duty levied in the Jaora State . . .	723
(18) Letter dated the 15th January, 1938, from the Secretary to the Resident for Central India States, forwarding a letter from the Chief Minister and Vice-President, State Council, Jaora, regarding duty levied on imports and exports of sugar by the Jaora Durbar . . .	724
(19) Letter dated the 1st July, 1937, from the Dewan, Phaltan State, enclosing replies to Questionnaire for Local Governments together with views of the Phaltan Durbar on some of the points raised therein . . .	724
(20) Letter dated the 1st July, 1937, from the Dewan, Phaltan State, furnishing information about molasses in the Phaltan State . . .	731

	PAGE.
(21) Letter dated the 11th January, 1938, from the Foreign and Political Department, Bikaner State, furnishing replies to the Questionnaire for Local Governments . . . . .	731
(22) Letter dated the 21st July, 1937, from the Foreign Minister to His Highness the Maharaja of Kapurthala, forwarding replies to Questionnaire for (a) Local Governments, (b) manufacturers of sugar by open pan system and khandsars and (c) gur/jaggery merchants . . . . .	736
(23) Letter dated the 13th July, 1937, from the Foreign Minister to His Highness the Maharaja of Kapurthala, furnishing information regarding consumption of molasses . . . . .	748
(24) Replies to Questionnaire for Local Governments furnished by the Prime Minister, Kolhapur State . . . . .	749
(25) Replies to Questionnaires for gur/jaggery merchants furnished by the Prime Minister, Kolhapur State . . . . .	750
(26) Letter dated the 20th July, 1937, from the Dewan of Travancore, furnishing information regarding molasses consumed by distilleries and other concerns. . . . .	751
(27) Extracts from letter dated the 7th August, 1937, from the Government of H. H. the Maharaja of Travancore urging the continuance of the present rate of protection on cane-sugar . . . . .	751
18. Letter dated the 23rd November, 1937, from the Government of India, Department of Commerce, forwarding representation submitted by the Taikoo Sugar Refining Co., Ltd. . . . .	752
19. Demi-official letter R. Dis. No. 76-C-Exc./37, dated the 20th September, 1937, from the Central Board of Revenue, enclosing copies of correspondence with the Indian Sugar Mills' Association regarding export of sugar outside India. . . . .	753

APPENDIX I.

*Estimated cost of cultivation of sugarcane per acre.*

	Gorakhpur District.						Wair Buland Shahr.	Sārai Sunderpur Pilibhit.	Jaetpur-Gurur Moradabad District.	
	Shyamderwa.	Dhara.	Lola- chupra.	Deokaun.	Khadda.	Baluohaha.			Rs. A. P.	Rs. A. P.
	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.			Rs. A. P.	Rs. A. P.
1. Preparatory Tillage . . .	12 0 0	13 7 0	11 10 0	15 10 0	16 3 0	10 10 0	5 1 8	28 0 0	6 0 0	16 0 0
2. Sowing . . . . .	3 7 0	3 7 0	3 6 0	3 7 0	3 6 0	3 6 0	1 14 0	2 8 8	2 7 6	2 6 0
3. Interculture . . . . .	6 12 0	6 12 0	3 6 0	12 3 0	5 10 0	4 8 0	5 4 0	11 8 8	10 14 0	17 12 0
4. Harvesting . . . . .	0 10 0	0 15 0	0 13 0	0 15 0	0 15 0	0 13 0	1 9 9	..	..	..
5. Cost of seed . . . . .	12 8 0	12 8 0	12 8 0	12 8 0	12 8 0	12 8 0	5 10 9	11 5 1	7 0 0	6 4 0
6. Cost of fertilizers . . . . .	9 0 0	8 4 0	7 8 0	7 8 0	10 0 0	5 0 0	6 3 3	12 12 8	9 8 0	12 0 0
7. Irrigation . . . . .	8 7 0	6 5 0	..	11 4 0	..	..	0 8 11	2 14 8	7 13 9	16 12 0
8. Irrigation rates . . . . .	..	..	..	..	..	..	0 10 7	10 0 0	..	..
9. Land revenue or rent . . . . .	3 6 0	5 1 0	3 2 0	4 8 0	3 12 0	3 12 0	13 7 7	5 1 1	5 4 0	7 8 0
10. Other cesses if any . . . . .	2 12 0	3 0 0	2 4 0	3 8 0	3 0 0	2 8 0	..	..	..	..
Total visible cost . . . . .	58 14 0	59 11 0	44 9 0	71 7 0	55 6 0	43 1 0	49 3 9	84 12 5	48 15 3	78 12 0

11. Implement charges . . .	0 12 0	0 12 0	0 12 0	0 12 0	0 12 0	0 12 0	1 3 3	2 12 5	1 0 0	1 0 0
12. General charges . . .	4 2 0	4 8 0	4 2 0	3 1 0	4 2 0	4 0 0	1 8 0	3 0 0	4 0 0	4 4 0
13. Interest on capital . . .	6 0 0	7 8 0	6 0 0	5 0 0	7 8 0	6 0 0	6 3 8	9 0 0	6 0 0	10 0 0
<hr/>										
Real cost on field . . .	69 12 0	72 7 0	55 7 0	80 4 0	67 12 0	53 13 0	58 2 3	99 8 10	59 15 8	94 0 0
14. Add cost of transportations for marketing.	25 12 6	28 2 0	14 1 0	21 14 0	18 12 0	15 10 0	12 14 0	28 2 0	13 2 0	25 0 0
15. Add insurance against Crop failure (15%).	10 7 2	10 13 10	8 5 0	12 0 7	10 2 7	7 15 2	8 11 6	14 7 8	8 15 10	14 1 7
<hr/>										
Grand Total . . .	105 15 8	111 6 10	77 13 0	114 2 7	96 10 7	77 6 2	79 11 9	142 2 6	82 1 1	133 1 7
<hr/>										
Yield per acre (Maunds)	275 0 0	300 0 0	225 0 0	350 0 0	300 0 0	250 0 0	206 0 0	405 0 2	210 0 0	400 0 0
Cost per 100 maunds . . .	38 8 9	37 2 3	34 9 4	32 9 0	32 3 6	30 15 3	38 11 3	39 9 5	39 1 3	34 4 0
Cost per maund . . .	0 6 2	0 5 11	0 5 6	0 5 2 1/2	0 5 1	0 4 11	0 6 4	0 5 0	0 6 3	0 5 4
Cost per maund excluding 14 and 15.	0 4 0	0 3 10	0 3 11	0 3 8	0 3 7	0 3 5	0 4 6	0 3 11	0 4 6	0 3 9
Total visible cost per maund.	0 3 5	0 3 2	0 3 2	0 3 3	0 2 11	0 2 9	0 3 9	0 3 4	0 3 9	0 3 2



## APPENDIX II.

*Cost of Cultivation Enquiry, United Provinces.*

Name of Circle and Village.	(SUGARCANE NOW.)			
	Average yield per acre.	Average cost of production.		Average income per acre.
		Per acre.	Per maund,	
	Mds. Srs.	Rs. A.	As. P.	Rs. A.
<i>Meerut Circle—</i>				
Bhaunra (Buland-Shahr)	254 0	112 15	7 1	84 13
Bilaspur (Buland-Shahr)	298 11	86 14	4 3	99 2
Parsaul (Buland-Shahr)	205 39	74 7	5 9	65 15
Wair (Buland-Shahr)	277 11	120 12	6 11	86 9
Jalalabad (Meerut)	504 38	104 2	3 4	183 10
Baksar (Meerut)	247 30	91 6	5 11	87 1
Average	298 1	98 7	5 7	101 3
<i>Bareilly Circle—</i>				
Abheyrajpur (Bareilly)	338 7	83 0	3 11	129 4
Gopalpur (Bareilly)	327 6	75 13	3 8	125 2
Sarai Sunderpur (Pilibhit)	285 20	92 13	5 2	57 1
Gurair (Moradabad)	360 25	82 5	3 8	109 3
Jaitpur Patti (Moradabad)	467 28	93 15	3 2	160 13
Gadapur (Shahjahanpur)	392 30	44 0	1 10	134 0
Average	361 39	78 10	3 7	125 15
<i>Gorakhpur Circle—</i>				
Dharabuzurg	349 37	112 11	5 2	142 4
Deokuan	299 5	90 7	4 10	115 8
Balucchaha	316 36	55 2	2 9	109 7
Khada Kalan	309 16	66 15	3 5	108 8
Lalachhapra	238 21	60 4	4 0	87 11
Shyamdurwa	349 8	96 7	4 5	121 13
Average	310 20	80 5	4 1	114 3
Average of All Circles	323 20	85 13	4 5	113 12

(SUGARCANE RATOON.)				
<i>Meerut Circle—</i>				
Baksar (Meerut)	163 14	44 12	4 8	55 8
Jalalabad (Meerut)	326 18	52 11	2 7	85 3
Bhaunra (Buland-Shahr)	141 8	39 11	4 6	43 10
Parsaul (Buland-Shahr)	274 0	61 7	3 7	85 11
Bilaspur (Buland-Shahr)	177 30	40 1	3 7	65 8
Wair (Buland-Shahr)	106 35	36 5	5 6	34 4
Average	196 24	45 13	4 1	61 10

APPENDIX II—*contd.*(SUGARCANE RATOON)—*contd.*

Name of Circle and Village.	Average yield per acre.	Average cost of production.		Average income per acre.
		Per acre.	Per maund.	
	Mds. Srs.	Rs. A.	As. P.	Rs. A.
<i>Bareilly Circle</i>	...	...	...	...
<i>Gorakhpur Circle—</i>				
Baluchaha . . . . .	243 20	18 4	1 2	82 14
Deokuan . . . . .	469 25	50 10	1 9	192 15
Dharaburg . . . . .	145 0	28 4	3 1	57 5
Khada Kalan . . . . .	164 5	18 12	1 10	58 6
Lalachhapra . . . . .	223 26	25 1	1 9	78 7
Shyamdurwa . . . . .	443 18	60 5	2 2	155 10
Average	281 22	33 9	2 0	102 9
Average of All Circles	239 3	29 11	3 0	82 2

## APPENDIX III.

*Cost of growing an acre of sugarcane under cultivators conditions in irrigated areas of Gorakhpur and Meerut-Muzaffarnagar.*

	Gorakhpur.	Meerut-Muzaffarnagar.
	Rs. A.	Rs. A.
1. Rent of one acre land . . . . .	10 0	25 0
2. Preparation of land . . . . .	5 0	8 0
3. Cost of manure and manuring at 10 to 15 carts . . . . .	10 0	15 0
4. Artificial manure (one maund) . . . . .	4 10	...
5. Cost of seed . . . . .	15 0	12 8
6. Labour for sowing . . . . .	...	1 8
7. Irrigation dues . . . . .	11 4	10 0
8. Hoeing . . . . .	3 0	6 0
9. Hainga . . . . .	1 0	...
10. Trying of cane, etc. . . . .	2 0	2 0
11. Harvesting . . . . .	1 4	2 8
12. Miscellaneous including gratification . . . . .	...	4 0
Total cost	63 2	86 8
Yield per acre (maunds) . . . . .	325	600
Cost per maund (total visible cost) . . . . .	As. 3-1	As. 2-9

## APPENDIX III—contd.

Average cost of cultivation of sugarcane per acre on cultivator's field in Rohilkhand tract.

	Labour.	
	At 5 As. per day.	At 3 As. per day.
	Rs. A.	Rs. A.
<i>Ploughing and preparation—</i>		
1. 15 ploughings by desi plough at Re. 1 per ploughing . . . . .	15 0	15 0
<i>Manuring—</i>		
2. 5 carts loads of cattle dung at Rs. 1-4 per cart . . . . .	6 4	6 4
3. 4 labourers for application of manure . . . . .	1 4	0 12
<i>Planting of cane—</i>		
4. 50 maunds of seed at 5 annas per maund . . . . .	15 10	15 10
5. 6 labourers for planting . . . . .	1 14	1 2
<i>Irrigation—</i>		
6. Canal dues (two or three irrigations are generally given) . . . . .	10 0	10 0
7. 4 men for irrigating the field for 1 day . . . . .	1 4	0 12
<i>Hoeings—</i>		
8. 5 hoeings (6 men for each hoeing—total number of men required 30) . . . . .	9 6	5 10
9. Land rent for one acre . . . . .	10 0	10 0
	70 10	65 2
10. Tying of cane . . . . .	3 4	2 0
11. Harvesting . . . . .	3 2	1 14
Total visible cost . . . . .	77 0	69 0
Yield per acre 450 maunds.		
Cost per maund (total visible cost) . . . . .	As. 2-9	As. 2-5

## APPENDIX IV.

Average cost of cultivation of cane per acre when planted in trenches at Government Farm, Shahjahanpur.

	Labour.	
	At 5 As. per day.	At 3 As. per day.
	Rs. A. P.	Rs. A. P.
<i>Ploughing and preparation—</i>		
1. 2 ploughings by desi plough for sowing sanai (2 men and 2 pairs of bullocks for 1 day) . . . . .	4 2 0	3 14 0
2. Ploughing in of sanai by soil turning Punjab or Victory plough (6 men and 1 pair of bullocks) . . . . .	3 10 0	2 14 0
3. 10 ploughings by desi plough (10 men and 10 pairs of bullocks for 1 day) . . . . .	20 10 0	19 6 0

## APPENDIX IV—contd.

Average cost of cultivation of cane per acre when planted in trenches at Government Farm, Shahjahanpur—contd.

	Labour.	
	At 5 As. per day.	At 3 As. per day.
	Rs. A. P.	Rs. A. P.
<i>Ploughing and preparation—contd.</i>		
4. 8 plankings by 2 men and 2 pairs of bullocks	4 2 0	3 2 0
5. Trench making 20 men for 1 day	6 4 0	3 12 0
6. Sub-soiling 12 men for 1 day	3 12 0	2 4 0
7. Two subsequent hoeing 5 before planting (14 men at 5 annas)	4 6 0	2 10 0
<i>Manuring—</i>		
8. 1 maund of sanai seed at Rs. 3 per maund	3 0 0	3 0 0
9. 15 maunds of castor cake at Rs. 1-4 per maund	18 12 0	18 12 0
10. 3 men for spreading manure	0 15 0	0 9 0
<i>Planting cane—</i>		
11. 40 maunds of cane seed at 5 annas per maund	12 8 0	12 8 0
12. Planting cane 6 men per acre	1 14 0	1 2 0
<i>Irrigation—</i>		
13. Canal dues	4 0 0	4 0 0
14. Five irrigations	7 10 6	7 10 6
15. 10 labourers for conducting irrigation	3 2 0	2 13 0
16. One skilled man for two days at Re. 1 per day	2 0 0	0 6 0
<i>Hoeing and interculture—</i>		
17. 5 hoeings after irrigation (7 men at each hoeing, i.e., total 35 men)	10 15 0	6 9 0
18. 5 subsequent hoeing (each irrigation is followed by two hoeings) 5 men at each hoeing—25 men	7 13 0	4 11 0
19. Earthing at 12 men per acre	3 12 0	2 4 0
20. Rent	10 0 0	10 0 0
21. Miscellaneous charges—watching, etc.	14 0 0	10 0 0
	147 3 6	122 2 6
22. Cutting, etc.	1 14 0	1 2 0
	A 149 1 6	123 4 6
23. Depreciation and interest	20 0 0	8 0 0
24. Supervision	15 14 6	...
	B 175 0 0	131 4 6
Yield 950 maunds.		
Cost per maund (total visible cost)	A 2-5 annas.	2-08 annas.
Real cost on field	B 2-95 "	2-21 "

## APPENDIX IV—contd.

*Cost of cultivation of cane per acre when sown on flat followed by Earthing at the Government Farm, Shahjahanpur.*

	Labour.	
	At 5 As. per day.	At 3 As. per day.
	Rs. A. P.	Rs. A. P.
<i>Ploughing and preparation—</i>		
1. Two ploughings by desi plough for sowing sanai (2 men and 2 pairs of bullocks for 1 day) . . . . .	4 2 0	3 14 0
2. Ploughing in sanai by a soil turning Punjab or Victory plough (6 men and 1 pair of bullock) . . . . .	3 10 0	2 14 0
3. 15 ploughings by desi plough trenches) 15 men and 15 (5 extra ploughings than in pairs of bullocks) . . . . .	30 15 0	29 1 0
4. Plantings (12) 3 men and 3 pairs of bullocks . . . . .	6 3 0	5 11 6
<i>Manuring—</i>		
5. 15 maunds of castor cake at Rs. 1-4 per maund . . . . .	18 12 0	18 12 0
6. 4 men for spreading manure . . . . .	1 4 0	0 12 0
7. 1 maund sanai at Rs. 3 per maund . . . . .	3 0 0	3 0 0
<i>Planting cane—</i>		
8. Seed cane 45 maunds at 5 annas per maund (generally sown at 3½ feet apart and hence more seed) . . . . .	14 1 0	14 1 0
9. Planting cane by 6 men per acre . . . . .	1 14 0	1 2 0
10. Canal dues . . . . .	4 0 0	4 0 0
11. 5 irrigations including Palewa irrigation . . . . .	7 10 0	7 10 0
12. Labour required for irrigation (ten) . . . . .	3 2 0	1 9 0
13. One skilled man for 2 days . . . . .	2 0 0	0 6 0
<i>Hoeings and interculture—</i>		
14. 4 hoeings one after each irrigation—7 men at each hoeing—total 28 men . . . . .	8 12 0	5 4 0
15. 6 hoeings subsequently—5 men at each hoeing—total 30 men . . . . .	9 6 0	5 10 0
16. Earthing by 14 men . . . . .	4 6 0	2 10 0

## APPENDIX IV—concl'd.

*Cost of cultivation of cane per acre when sown on flat followed by Earthing at the Government Farm, Shahjahanpur—cont'd.*

	At 5 As. per day.		As 3 As. per day.	
	Rs. A. P.		Rs. A. P.	
	Rs.	A. P.	Rs.	A. P.
17. Rent . . . . .	10	0 0	10	0 0
18. Miscellaneous charges, watching, etc. . . . .	14	0 0	10	0 0
	<hr/>		<hr/>	
	147	1 0	126	1 6
19. Cutting, etc. . . . .	1	14 0	1	2 0
	<hr/>		<hr/>	
	A	148 15 0	127	3 6
20. Depreciation and interest . . . . .	10	0 0	8	0 0
21. Supervision . . . . .	15	11 0	...	
	<hr/>		<hr/>	
	B	175 0 0	135	3 6
	<hr/>		<hr/>	
Yield 930 maunds.				
Cost per maund (total visible cost) . . . . .	A	2·5 annas.	2·1 annas.	
Real cost on field . . . . .	B	2·95 „	2·2 „	

(9) *A brief account of the Research Work pertaining to Sugarcane in the United Provinces forwarded by the Economic Botanist (sugarcane and paddy) to Government United Provinces.*

Research work on Sugarcane in the United Provinces is mainly in progress at Shahjahanpur and at two Sub-stations, namely, Muzaffarnagar and Gorakhpur. The three Stations are typical representatives of the chief cane growing tracts in the United Provinces, namely, the Central, Western and the Eastern tract. Besides these, most of the Government Experimental Farms in the Provinces, conduct yield tests of the varieties recommended for propagation in respective localities, by the Central Research Station at Shahjahanpur.

From the outset it has been the policy of the Station to concentrate all its researches on one main object, *i.e.*, the improvement of sugarcane crop. All the researches, therefore, are dedicated to a very definite problem and converge towards the solution of this crucial matter of how to improve the general condition of the sugarcane crop.

The work embraces all aspects of economic and scientific investigations comprising:—

- (1) Selection of new varieties and their relative performance.
- (2) Agronomic trials in connection with practices of cultivation and irrigation as well as manurial and cultural requirements with a view to explore their economic possibilities.
- (3) Chemical work for ascertaining the time of maturity and the analysis of juice and soil content under different conditions.
- (4) Physiological work on sugarcane.
- (5) Entomological investigations on sugarcane crop.
- (6) Seed distribution of the improved varieties.

The above items now need a brief description in turn.

## (1) SELECTION OF NEW VARIETIES AND THEIR RELATIVE PERFORMANCE.

The selection of new varieties is made from the plants raised at Government Sugarcane Research Station, Shahjahanpur, from the setts imported from Coimbatore as well as from the imported Coimbatore seedlings.

*Coimbatore Sett Canes.*—After a preliminary selection at Coimbatore, promising varieties are given the Station numbers and despatched in the form of setts for further trials at Shahjahanpur. At Shahjahanpur these varieties are grown on a larger scale and undergo rigid tests of performance in the first two years. Only the more promising varieties are selected for the final yield tests to be conducted in the third year on proper randomised system of replicated lay-out.

In 1935-36 only seven different varieties were received from Coimbatore as compared to 36 in 1934-35. From the 36 varieties two early (Co. 423 and Co. 508) and four medium and late varieties (Co. 421, Co. K. 10, Co. 431 and Co. 514), were selected in 1935-36 for final yield tests to be carried out in 1936-37.

*Coimbatore Seedlings.*—The Central Institute at Shahjahanpur communicates its requirements to the Sugarcane Expert at Coimbatore who very kindly effects crosses between different varieties of cane for raising a progeny suiting our demand; the crossing of sugarcane varieties being not possible in Northern India on account of adverse climatic conditions.

The importing of seedlings from Coimbatore and their study at Shahjahanpur has only been possible with the financial aid of the Imperial Council of Agricultural Research. The old practice of importing new varieties from Coimbatore in the form of setts has the disadvantage of getting varieties whose performance is tested under varied meteorological conditions. There is, therefore, every possibility of a variety being discarded on account of its poor performance at Coimbatore which might have flourished under conditions prevailing in Northern India. For selecting all the desirable plants for Northern India conditions from the progeny of the crosses it was decided to import 3-4 months old F seedlings and conduct all subsequent studies at Shahjahanpur. This line of action has been quite successful ever since its inception about five years ago. Transportation of the seedlings, however, is cumbersome and only a limited amount of material can be brought. In order to overcome this difficulty actual seed of desired crosses is now being requisitioned for the last two years. The seeds is then germinated under controlled conditions at Shahjahanpur and seedlings are subjected to necessary tests for making a final selection of new varieties.

In 1935-36 three lots of material were under study. The 1933 lot was secured from a general collection comprising that of Co. 285, Co. 290 and Co. 312. There were 49 types available in all out of which four earlies (Co. S. 48, Co. S. 50, Co. S. 53 and Co. S. 73) were selected for final trials. From the 1934 lot consisting of 161 plants raised from the cross Co. 290 × Co. 281, 48 plants were selected for further studies. The third lot was 5,000 seedlings, raised from two crosses (Co. 349 × Co. 312 and Co. 349 × Co. 313) which were imported from Coimbatore in 1935. 3,000 of these survived. Besides these there were 800 seedlings raised at Shahjahanpur by germinating the seed of the above crosses. A total of 180 seedlings from the entire stock deserved further propagation.

From the final trial of 13 varieties in 1935-36, Co. 378 (early) Co. 393 and Co. 411 (medium) warranted distribution to the Government Experimental Farms in the Provinces.

In the improvement of agriculture, varieties play an important part. Consequently, varieties are being produced to suit different conditions, e.g., drought, water-logging, frost, poor and intensive cultivation conditions, varieties resistant to the attacks of various pests and diseases.

In order to extend the crushing period of Sugar factories, it has been the policy of the Station to produce and bring into extensive cultivation some very early maturing varieties, varieties medium in maturity and some very late ripeners.

(2) *Agronomic trials.*

Besides the work on varieties, other problems concerning improvements in crop are under investigation and efforts are being made for devising manurial and cultural methods to suit every purse.

*Manurial trials.*

Some urgent problems of economic importance needing imminent solution were tackled. All experiments were conducted on proper randomised block system of replicated lay-out and the results were analysed by Fisher's method of Analysis of Variance. The experiments conducted at Shahjahanpur together with the results achieved are enumerated below:—

(a) *Complete Nutrient Experiment.*—Three doses of N. (0 lb., 100 lbs. and 200 lbs. per acre) three of  $P_2O_5$  (0, 75, and 150 lbs. per acre) and three of K. (0, 75 and 150 lbs. per acre) were given in all combinations. After analysis the results indicate:—

- (i) The profitable limit of N. application is reached at 100 lbs.
- (ii) There is no effect of  $P_2O_5$  or K. on yield.
- (iii) The quality of juice deteriorates with the increase of N.
- (iv) There is no effect of either  $P_2O_5$  or K. on the quality where N. remains at 100 lbs. or below.  $P_2O_5$  and K. improve the quality of juice at 200 lbs. of N. which clearly shows the effectiveness of  $P_2O_5$  and K. only at higher doses of N.

(b) *Effect of green manure in combination with other manures.*—Efficiency of green manure alone and in combination with castor cake, Ammonium Sulphate and Cow-dung was tested. The combined effect proved to be superior to green manure alone, but significance between various combinations was negligible.

(c) *Molasses as manure.*—Three quantities of molasses namely 90, 180 and 270 maunds to an acre were applied alone and in combination with Castor cake or Ammonium Sulphate each at 60 lbs. N. basis per acre. 270 maunds of molasses gave the best yield, the two combinations with Ammonium Sulphate and Castor cake were equal in themselves but superior to Molasses alone.

(d) *Water requirement and its relation to N.*—Four different numbers of irrigations (3, 4, 5 and 6 irrigations) were combined with three doses of N. (60, 100 and 200 lbs.). The two factors produced an independent effect with no interaction. Progressive increase in yield was noticed with increased number of irrigations upto 6 irrigations and profitable limit of N. was reached at 100 lbs. The quality of juice deteriorates with increase in N. but the number of irrigations has no effect on juice quality.

(e) *Spacing and fertility of soil.*—Three spacings (1½', 2½' and 3½') were given between rows and four grades of N. fertility (0, 50, 100, 200 lbs. per acre) were secured. The limit of profitable application of manure is reached at 100 lbs. of N. and there seems no effect of spacing on yield. There is an interaction between spacing and fertility; the richer the soil, the broader should be the spacing and *vice versa*. The quality of juice deteriorates with increase in fertility but there is no effect of spacing on quality of juice.

(f) *Methods of planting.*—Planting in trenches was compared with that on flat followed by earthing up of the cane and no earthing, with different distances (3', 3½' and 4'). Neither the method of planting nor earthing had any effect on yield while with the increase in distance there was an increase in yield. The quality of juice slightly deteriorates both in trenches and with earthing while distance does not effect the juice.

(g) *Interculture of Sugarcane.*—Different depths (surface about 1", shallow 2½" and deep 4") of hoeing were combined with different number of hoeings



(1, 2 and 3) after each irrigation. Hoeing was found to be very necessary for obtaining good yield, depth of hoeing being more important than the number of hoeings. Two deep hoeings after each irrigation gave the best results. Quality of juice is not affected either by the depth or number of hoeings.

(h) *Time of planting and portion of cane used as seed.*—Four dates of planting (in January, February, March and April) were combined with three types of seed (from top portion of cane only, whole cane used as seed and the lower portions only). Yield decreased with later planting; the best time of planting being from end January to end February. Uptil March, it did not matter what portion of cane was planted but in the April planting, top portion gave the best yield. The general trend is one of lower sucrose with late planting but the results are not significant. There is, however, no effect of seed on quality of juice. In the Western districts, however, best results are obtained when the crop is shown from 15th February to 15th of March. The effect of late planting is more marked on the early varieties than on the lates. Selection of varieties capable of giving satisfactory yield even when sown late is in progress.

(i) *Time of application of manure.*—For this purpose manures will have to be divided in two categories:—

(1) *Organic manures.*—These require proper fermentation in the soil before their manurial constituents are available to the plant. Therefore these should be applied well in advance of planting season.

(2) *Inorganic manures.*—These may be applied any time from planting to end of May, which will depend on manurial scheme. If inorganic manures have to be applied alone, then they should preferably be applied in two doses, viz., one at planting time or at germination (2) by the end of May. If it is a combination of an organic manure and an inorganic manure then the best policy is to apply organic manure well in advance of the planting season and the inorganic manure by the end of May.

(j) *Ratooning.*—Ratooning finds an important place in the economics of Sugarcane production. The problem has been taken up by the Station and it is hoped that important results will follow.

The Sub-station at Muzaffarnagar is being run with the financial grants made by the Imperial Council of Agricultural Research. The main object of the Station is to investigate the suitability of Cane varieties received from Coimbatore and those considered promising at Shahjahanpur, when grown under conditions prevalent in the Western part of the United Provinces with due regard to disease, insect pests and drought resistance; also to investigate the manurial, water and cultural requirements of the varieties as well as their best relations. The experiments are as under:—

(a) *Different combination of manures.*—Farm yard manure, Neem cake and Ammonium Sulphate were applied singly and in various combinations at a total N. basis of 120 lbs. per acre. The results indicate that the inorganic manures can be best utilized in combinations with the organic manures. Well balanced manures give a better purity of juice.

(b) *Relative efficiency of Molasses, F. Y. M. and Neem cake as manures.*—The three manures were applied at uniform N. basis, i.e., 47 lbs. N. per acre. Neem cake and molasses proved superior to F. Y. M. and the Control. It seems, however, doubtful if the use of molasses as manure will be economical in localities, far away from the sugar factories on account of heavy expenditure on cartage. Under favourable conditions molasses can be profitably used as manure.

(c) *Manure and varieties.*—Differential response of varieties (Co. 244, Co. 300 and Co. 312) to varying quantities of N. (0, 60, 120 and 180 lbs. per acre) was tested. Co. 312 shows the highest response and 244 is least affected by heavy doses of N. Definite interaction exists between the varieties and N. quantities. Response to N. beyond 60 lbs. per acre is not

appreciable in the case of Co. 244. Purity of juice differs in different varieties. Co. 300 having the highest purity. Juice purity is also effected though not quite as appreciably as with the varieties, by increasing N. quantity; no manure being better than the plots supplied with N.

(d) *Yield tests of different varieties.*—**EARLIES.**—Seven new varieties were compared with the standard on a well designed layout of field plots. In yield Co. 312 proved best of all. Co. 385 though inferior to Co. 312 in yield, is the earliest of the group and is fit for crushing in the middle of October. Co. 370 is slightly better yielder but not quite so early. Co. 313 has good yield but is more susceptible to mosaic. Co. 350 equals Co. 385 in yield but is not quite so early and drought resistant as Co. 385.

**MEDIUM AND LATES.**—Eight varieties were put under trial. Co. 312 again showed its superiority over others—Co. 331 was significantly superior to all except Co. 312. Under normal conditions of fertility Co. 331 does not seem to be superior to Co. 312 but it is expected that Co. 331 might prove its worth better under high fertility and water-logged conditions.

(e) *Spacing and Seed rate.*—The experiment indicated that closer spacing 2½' to 3' with more seed rate (10,000 to 12,000 setts per acre) will give better yield than 3½' spacing with 8,000 setts. It appears that spacing will depend upon manuring and perhaps on the variety as well.

(f) *Irrigation experiment.*—At Muzaffarnagar no significant interaction was found due to high fertility of soil and water—5 irrigations gave better results than 4 irrigations and 180 lbs. N. was better than 60 lbs. N.

A detailed report on the work of the Sugarcane Research Station at Muzaffarnagar has been submitted separately.

#### *Experiments at the Government Agricultural Farm, Gorakhpur.*

For testing the performance of different varieties and manures under varying meteorological conditions some varietal and manurial experiments are being carried at Gorakhpur.

(a) *Relative efficiency of different manures and their economics.*—Castor, Mahua and Neem cakes were applied both at uniform N. basis and at uniform price basis. When each was used supplying 74 lbs. N. per acre, Castor cake gave the best results. Whereas when the three were applied at uniform price basis (Rs. 20 worth of each manure per acre) Mahua cake proved most profitable, followed by castor cake and Neem cake in order of merit.

(b) *Effect of Molasses and Castor cake on ratoon Sugarcane.*—The two manures were applied singly. Castor cake proved superior to Molasses and Molasses gave a significantly higher yield over the control.

(c) *Yield tests of varieties.*—The experiment was conducted on ten varieties under different conditions of fertility—medium and rich.

Under medium fertility, Co. 393 gave the highest yield. Co. 331 and Co. 395 followed in the order of merit. Co. 312 proved a failure, with lowest yield.

On rich soil, however, Co. 395 was heaviest in yield, the sequence of merit of the other varieties was in the order of Co. S. 5, Co. 356, Co. 331. Co. 312 was again a failure; thus the cane does not seem to be suitable at least for Gorakhpur conditions.

#### *Chemical Studies.*

Besides the routine work of juice analysis of different varieties and testing the effect of various factors involved in the agronomical trials, on juice quality, investigations on a few other problems of economic importance are in progress, which are:—

(a) The different stages of fermentation and production of N. by the application of molasses.

(b) Estimation of suitable age for burying *Sanai* for green manuring purposes in the locality. *Sanai* was buried after 30, 40, 50

and 60 days of growth and production of N. in the soil in all the cases was studied. The sequence of merit, as far as N. conservation is concerned, is in the order of 50, 60, 40 and 30 days' growth.

(c) Different portions of *Sanai* crop for green manuring:—

Different portions, viz., whole plant, above ground portions only and roots only were used for green manuring. The production of N. at different periods and the total N. content of the different treatments were estimated. Whole plant results were significantly superior to other treatments but there was no significant difference between the above ground portion and the roots.

Broadly speaking an average crop of sun hemp (1) yields about 200-250 maunds of green matter (2) supplies about 60 lbs. of N. (3) increases the yield of cane by about 200 maunds per acre over the control plots.

(3) CHEMICAL WORK.

Prior to the 1932 Sugarcane sowing season when the Government Sugarcane Farm, Shahjahanpur, was under the charge of late K. B. Naib Husain, Deputy Director of Agriculture, Rohilkhand Circle, experiment on "The Utilization of green manure for Sugarcane" formed the major part of the work done in the Laboratory. A plot of land about 2 to 3 acres in area was taken for the experiment and was divided into two equal portions, half of which was green manured and the other half was left un-manured in both these plots a strip of land of 30 ft. width was left uncropped to determine Nitrate and total organic Nitrogen in the soil. The modern system of layout of the field experiments was first started in 1932 when the farm was under the charge of the Economic Botanist. In 1933-34, the experiment on "The Utilization of green manure for sugarcane" was repeated in a replicated and randomised scheme, but that year unfortunately Nitrates and Nitrogen were not estimated, only the yield of sugarcane was carried out. The broad inferences drawn from these experiments were that the crop (i) yields about 200-250 maunds of green matter, (ii) supplies about 60 lbs. of N. and (iii) increases the yield of cane by about 200 maunds per acre. In June, 1934, the problem of—

I. "The Utilization of different portions of *Sanai* (*Crotolaria Juncea*), for Nitrogen fixation in soil and also for sugarcane crop, maturity of cane, sucrose contents and yield, etc.", was started on a replicated and randomized scheme and continued for 2 years, i.e., for 1935 and 1936, the details of which are as under:—

In order to ascertain the various nutritive values, in the role of Nitrogen, of the different parts of *Sanai*, four different treatments were resorted to, e.g., (i) Whole *Sanai*, (ii) Top *Sanai*, i.e., stem and leaves, (iii) Roots and (iv) Control, no *Sanai*, which were replicated 4 times and randomised. The area of such plots being about 1/20th of an acre. *Sanai* was sown in June and inverted in the beginning of August. It was thought interesting to see what is the percentage of *Sanai* left in the ground, in the form of roots and the cut stem (after the cutting of the *Sanai*). To achieve this end, several pounds of *Sanai* were uprooted from the ground, the adhering particles of foreign matter were removed by washing with a gentle stream of water which was subsequently removed firstly by drying with a piece of cloth and finally by means of filter papers. All the green manuring yields per acre, the always mentioned, without taking into account the portion left in the soil, so this method was a sort of innovation, in finding the percentage of error introduced into the yield. Then the *Sanai* was cut, approximately at the line of demarcation of the roots and stems (as is usually done by means of a scythe when cutting the *Sanai* for weighing) and the two portions were separately weighed. From this data, (root and cut stem) percentage was calculated and was found to be about 8 per cent.

of the stem and leaves, so that all the green-manuring yields, generally given, upto now, should be corrected by the addition of 8 per cent. of the total weight found. The analysis of the whole *Sanai*, top portions of the *Sanai* and the roots with regards to dry matter and nitrogen content at the time of their being ploughed in the soil were done. Whole plant contained about 21 per cent. dry matter, followed by about 22 per cent. in roots and 22.5 per cent. in stems and 20.5 per cent. in leaves. The nitrogen percentage, as would be expected, were greatest in leaves, about 3 per cent. followed by whole *Sanai* about 1.6 per cent., stems about 0.9 per cent. and roots about 0.7 per cent. The yield of whole *Sanai* was about 290 maunds per acre, tops were about 262 maunds and the roots about 26 maunds. Monthly soil sampling, upto 1st and 2nd foot for the estimation of nitrogen and available nitrogen was undertaken from October till August. The data so obtained are shown in graphs, which in addition contains the soil Nitrogen data, before sowing of *Sanai*, as it is thought that this would bring out a clear conception of the progress of nitrogen accumulation in the soil. In April, analysis of each bed of the four treatments were resorted to so as to find out the deviation in the percentage of N. from plot to plot. The data were statistically analysed and it was found that whole *Sanai* is better than roots and Control (no *Sanai*), and both roots and tops are better than control (no *Sanai*). The data obtained corroborates last 2 years' findings namely that the accumulation of nitrogen, due to different treatments of *Sanai*, goes on increasing for 2 to 3 months after being buried in the soil and the consequent rotting of the leaves and fibrous materials contained therein; then it keeps a sort of constant level for a few months, followed by a gradual decline. The sequence of merit, as far as N. conservation is concerned is in the order of whole *Sanai*, top *Sanai* roots and Control (no *Sanai*). The nitrates data also follows the same order as that of total organic nitrogen. The accumulation of nitrates, goes in increasing from October till May and June when it reaches its maximum value and afterwards follows a gradual decline.

Juice analysis for Brix, sacrose and glucose percentage and purity co-efficient were undertaken every month from November till March. The results obtained are given in table and the data are also statistically analysed. No manure has been found better than whole and top *Sanai*, whereas the differences manifested between whole *Sanai* and roots are insignificant. The yield of Cane, borne by the various treatments was determined and statistically analysed. The difference in yield between whole *Sanai*, Top *Sanai* and Control was found to be significant, that between whole *Sanai* and roots were not actually significant but highly suggestive.

From 1935, another Green Manuring Experiment, viz. :—

(II) "Effect of ploughing in *Sanai* after 30, 40, 50 and 60 days' growth on the Nitrogen fixation in soil, maturity of cane, sacrose contents and yield, etc.", has been started. There are 5 treatments of this experiment. (i) Control, No *Sanai*, (ii) Ploughing in of *Sanai* after 30 days' growth, (iii) Ploughing in of *Sanai* after 40 days' growth, (iv) Ploughing in of *Sanai* after 50 days' growth and (v) Ploughing in of *Sanai* after 60 days' growth. It was found that the percentage of stem to the whole plant increased, while the percentage of roots and leaves to the whole plant and of roots to tops decreased, as the age of *Sanai* advanced. The dry matter percentage in all the cases increased with the age of *Sanai*. The method of procedure followed was exactly the same as that outlined in Experiment I previously. Monthly sampling of the soil up to 1st and 2nd foot, for the estimation of total organic nitrogen and available nitrogen were undertaken from September till August. The data so obtained is illustrated by means of graphs in which is incorporated the data of the sample taken before sowing of *Sanai*. In April, analysis of each bed of the various treatments was resorted to so as to find out the deviation in the percentage of nitrogen from plot to plot of the same treatment. The data are statistically analysed. The results obtained show that the amount of nitrogen turned in; in the form of *Sanai* is the largest in the case of 50 days' growth followed by

60, 40 and 30 days' growth. The yield of *Sanai*, both in 50 and 60 days' growth, is about the same. The accumulation of total organic nitrogen goes on increasing for 2 to 3 months, except in the case of 30 days' growth when it is for 1 to 2 months, after the inversion of *Sanai* and the consequent rooting of the leaves and fibrous materials contained therein; then it keeps a sort of constant level for a few months, followed by a gradual decline. The sequence of merit, as far as nitrogen conservation is concerned, is in the order of 50, 60, 40 and 30 days' growth, and indications are forthcoming that the nitrate accumulation in the soil follows the same order as that of total organic nitrogen.

This year, i.e., in 1936, this experiment is repeated but with slight alterations, viz., the treatments are of 50, 60, 75 and 90 days' growth. The same method of procedure is adopted.

(III) *Effect of Organic and Inorganic manures on the maturity of Cane, sucrose contents, yield, etc., and to find out Selective Absorption of common manurial ingredients at different periods of life of the Cane.*

The Experiment has been carried out for two successive years, treatments were as follows:—

- (a) Farmyard manure at the rate of 120 lbs. of nitrogen per acre.
- (b)  $\text{Am}_2\text{SO}_4$  to supply 120 lbs. of N. per acre; Superphosphate and Potassium Sulphate to provide  $\text{P}_2\text{O}_5$  and  $\text{K}_2\text{O}$  equivalent to the amounts contained in farmyard manure.

For the first part of the Experiment, Brix, per cent. sucrose and per cent. glucose in juice, Expression and Purity co-efficient were determined every month from November till March. The data is given in Table I and illustrated by means of a graph. It seems that the organic manure is slightly better than the balanced chemical manure. The yield of the crop for both the manures was determined and was found to be statistically insignificant. For the second part of the Experiment, chemical analysis of cane after every month of growth for the 1st year and after every two months of growth for the 2nd year, were resorted to and consisted of dry matter per cent., Organic N. per cent., Ash per cent.,  $\text{P}_2\text{O}_5$  per cent. CaO per cent., and  $\text{K}_2\text{O}$  per cent. The data are given in Table II. The intake of plant foods, i.e., N,  $\text{P}_2\text{O}_5$ ,  $\text{K}_2\text{O}$  and CaO, were computed from the above data, at every two months of growth. The results are tabulated in Table III and illustrated by means of graph. It is observed that the intake of all the plant foods, i.e., N,  $\text{P}_2\text{O}_5$ , CaO and  $\text{K}_2\text{O}$  is more in the early stages of the growth of cane. Again from November onwards, when the cane begins to mature, the intake of the mineral ingredients especially  $\text{K}_2\text{O}$  increases. Chemical analysis of soil, upto 1st and 2nd foot was undertaken before sowing of cane and after harvesting of the crop and consisted of moisture per cent., loss on ignition per cent., total organic N per cent., total  $\text{P}_2\text{O}_5$  per cent., total  $\text{K}_2\text{O}$  per cent., available  $\text{K}_2\text{O}$ , available  $\text{P}_2\text{O}_5$  and available nitrogen. The results obtained are given in Table IV. It would be observed the plants used up nutrients more from the first than from the second foot soil and in fact the drain of the ingredients in the order of increasing amounts being N., CaO,  $\text{P}_2\text{O}_5$  and  $\text{K}_2\text{O}$ .

(IV) *To study the effect of application of molasses on denitrification or otherwise and also on the Nitrogen fixation in the soil, maturity of cane, sucrose contents and yield, etc.*

There have been differences of opinion between different workers, regarding the value of Sugar (Molasses) in increasing soil fertility and incontestable proof for the fixation of Nitrogen by the application of molasses is still lacking. "Increased yields of sugarcane have followed the application of molasses to soils at the Station Agronomigne and on Mr. Ebbel's estate in Mauritius, where the residual effect is well shown and also in Antigna. Peck in Hawaii, on the other hand, observed marked losses of Nitrate, as also did Harrison in British Guiana." It is with an idea of throwing more light on the vexed question of nitrogen fixation or otherwise in soils on

the application of molasses that this experiment of 10 treatments was undertaken. This experiment has already been carried out for two years and will be continued for the third year, this year in December. Molasses were incorporated to the plots in December as Preliminary experiments carried out here, showed that molasses should be applied to the fields at least 2 or 3 months before the sowing of cane, in order to get the best effects by its incorporation to the soil. The treatments of three different doses of molasses of 90 maunds, 180 maunds and 270 maunds per acre alone and in combination with (i) Castor cake and (ii)  $\text{Am}_2\text{SO}_4$ , to supply 60 lbs. of N. per acre, and no molasses (Control) were 4 time replicated and randomised. Area of each plot being equal to about 1/20th of an acre. Monthly soil sampling up to 1st and 2nd foot, for the estimation of total organic Nitrogen and Nitrates, was undertaken from December till August. The data is presented in a collective form (Table) and is illustrated by means of graphs of the results so obtained. In April, analysis of each bed of the various treatments, was resorted to so as to find out the deviation in the percentage of Nitrogen from plot to plot of the same treatment. It was observed that the conservation of nitrogen is the greatest in the plots receiving a doze of 270 maunds of molasses per acre, followed by 180 maunds, 90 maunds and no molasses (Control). Denitrification, i.e., loss of Nitrates sets in after a month of the incorporation of the molasses to the plots. This low level of Nitrates in the molassed plots keeps on for further 3 to 4 months, after which the values in the molassed as well as in the non-molassed, i.e., control plots become the same, followed by an accumulation of more nitrates in the former than in the latter plots. The Nitrates data of the various treatments, from December till August are given in tables.

Juice analysis for Brix, percentage of sucrose and glucose, expression and purity co-efficient was undertaken from November till March. The results so obtained are given in table and the data are statistically analysed. The differences observed between (1) 90 maunds and 180 maunds and (2) 180 maunds and 270 maunds are significant. The differences observed between different forms (Castor cake +  $\text{Am}_2\text{SO}_4$ ) are insignificant, but the interaction between molasses and nitrogen is significant.

The yield of all the 10 treatments was estimated and statistically interpreted. The difference in yield between Control (no molasses) and all the other 9 treatments is significant; the difference between 180 maunds and 270 maunds of molasses per acre and 90 maunds and 270 maunds of molasses, are also significant. It is rather interesting to note that the application of 90 maunds of molasses per acre is by far the most economical; addition of another 90 or 180 maunds of molasses per acre does not increase the yield in the same proportion.

The experiment is going to be continued for 3rd year, in December, 1936.

(V) Pot culture experiments were arranged to test on sugarcane the *fertiliser value of the molasses ash* supplied by Messrs. W. J. Alcock & Co., Calcutta (1935-36), especially the availability of the potash content wash tested. Eight combinations in pots were accordingly set up consisting of 3 different doses of molasses ash, with an without nitrogen at the rate of 120 lbs. per acre. The mediums chosen were sand and loam. Representative samples of the sand, the loam soil and the molasses ash were analysed, before sowing of cane in pots for total organic nitrogen, total phosphate, total potash and available potash to get an idea of the common manurial ingredients present in them. Judging from the analytical figures, one would expect the molasses ash to be a good fertiliser and definite indications are forthcoming from the data obtained by analysis of Brix, sucrose percentage in juice, expression and purity co-efficient of the various treatments that the molasses ash is easily assimilable. In combination with nitrogen in the form of  $\text{Am}_2\text{SO}_4$ , at the rate 120 lbs. per acre, this effect is manifested in much higher yield than the control, i.e. (no molasses ash), in some case this increase being 100 per cent. Hastening of maturity was also observed.

*Influx of work owing to the Sugarcane season from October till April.—*

In addition to the above about 1,000 samples in 1934-35 and 2,000 samples in 1935-36, have been analysed for Brix, sucrose percentage and glucose percentage in juice, expression and purity co-efficient. In the current season 1936-37 about 2,800 samples are going to be thus analysed. These samples are the outcome of the Agronomic, Chemical, Physiological Experiments laid down at the Government Farm, Shahjahanpur, only. Three rounds of trials of the Experiments at Government Farms, Gorakhpur and Muzaffarnagar have been carried out and will be continued this year also.

*Miscellaneous samples.*—Numbering easily a hundred, of varied nature, have been analysed. Nitrogen, phosphate, potash, available phosphate, available potash, available Nitrogen, Iron, Lime, Polarization, per cent. sucrose, per cent. glucose, moisture per cent. loss on ignition, etc., have thus been estimated in the samples received from Muzaffarnagar, Nagina, Gorakhpur, Sultanpur (from Khan Bahadur S. M. Hadi), Lucknow (from the Registrar of Co-operative Societies) and Shahjahanpur.

*B. Scheme of work to be carried out in the near future.*

*Experiment No. I.*—"The Utilisation of different portions of *Sanai*, for Nitrogen fixation in soil, and also for sugarcane crop, maturity of cane, sucrose contents and yield, etc." (3rd year, started in June, 1936).

Soil sampling, up to 1st and 2nd foot, for the estimation of Nitrogen, Nitrates and Carbon/Nitrogen ratio (for the 1st foot soil), from October, 1936, till August, 1937, is to be done for the various treatments. In April analysis of separate beds of the various treatments up to 1st and 2nd foot, for the estimation of N, NO<sub>3</sub>, and C/N ratio is to be carried out for Statistical Interpretation.

For the 2nd year of the same experiment, i.e., which has been laid down in June, 1935, juice analysis for Brix, percentage sucrose and glucose, expression and purity co-efficient, every month from November, 1936 till April, 1937, of separate beds, is to be done. Statistical analysis of the sucrose data is to be carried out.

*Experiment No. II.*—"Effect of ploughing in of *Sanai*, after 50, 60, 75 and 90 days of growth, on the nitrogen fixation in the soil, maturity of cane, sucrose contents and yield, etc."

Soil sampling, up to 1st and 2nd foot, for the estimation of nitrogen, Nitrates and Carbon/Nitrogen ratio (for the 1st foot soil) from October, 1936, till August, 1937, is to be done for the various treatments. Statistical Interpretation of the results, obtained from separate beds of the various treatment, up to 1st and 2nd foot, in April, 1937, is to be done.

For last year's experiment, i.e., started in June, 1935, Juice Analysis for Brix, per cent. sucrose and per cent. glucose, expression, purity co-efficient, every month from November, 1936, till April, 1937, of separate beds, is to be carried out. Statistical analysis of the sucrose data is to be also done.

*Experiment No. III.*—"Green manuring Experiment".—New Experiment, started on the suggestion from the Director of Agriculture, United Provinces. There are 9 treatments for this investigation, but we are concerned with only 7 treatments.

Analysis of soils, as outlined in Experiments II and III, will be carried out in this case as well.

*VI. To study the effect of application of molasses on denitrification or otherwise and also on the Nitrogen fixation in the soil, maturity of cane, sucrose contents and yield, etc.* (3rd year, to be started in December, 1936).

Soil sampling, up to 1st and 2nd foot, for the estimation of Nitrogen, Nitrate, Ammonia, Carbon/Nitrogen ratio and PH value, every month from December, 1936, till August, 1937, is to be carried out. Statistical Interpretation of the data obtained from separate beds of the various treatments, up to 1st and 2nd foot, in April, is to be carried out.

For the 2nd year of this experiment, *i.e.*, the experiment which was laid down in December, 1936, Juice analysis will be done as outlined in Experiments II and III. Statistical analysis of the sucrose data is also to be carried out.

From October, 1936, till April, 1937, about 2,800 samples of juice are to be analysed.

VII. *The PH estimation* of the soils, representative of various plots, at Shahjahanpur, Nagina, Muzaffarnagar and Gorakhpur, are to be carried out.

VIII. *The mechanical Analysis* of the soils at Shahjahanpur, Nagina, Muzaffarnagar and Gorakhpur are to be carried out. *As time permits.*

IX. *The chemical analysis* of the soils mentioned in VII and VIII, are to be completed as far as possible.



TABLE I.—*Sugarcane juice analysis—Variety : Co. 290.*

Date.	Particulars.	Organic beds.				Mean.	Inorganic Beds.				Mean.
		Bed No. I.	Bed No. IV.	Bed No. V.	Bed No. VIII.		Bed No. IV.	Bed No. III.	Bed No. VI.	Bed No. VII.	
31st Oct. 1934.	Brix . . . . .	14.57	14.18	14.57	14.67	14.75	14.37	14.48	14.17	14.17	14.30
	Per cent. Sucrose in juice . . . . .	11.38	11.52	11.55	12.15	11.65	11.36	11.86	11.03	11.08	11.33
	Per cent. Glucose in juice . . . . .	1.97	1.95	2.03	1.60	1.89	2.18	2.16	2.13	2.16	2.16
	Purity co-efficient . . . . .	78.11	81.24	79.27	82.82	80.36	79.05	81.90	77.84	78.19	79.25
1st Dec. 1934.	Brix . . . . .	15.68	15.36	15.91	15.10	15.76	15.53	15.80	15.71	15.44	15.62
	Per cent. Sucrose in juice . . . . .	13.08	12.79	13.54	13.46	13.22	12.74	12.82	13.03	12.49	12.77
	Per cent. Glucose in juice . . . . .	1.47	1.49	1.30	1.42	1.42	1.47	1.44	1.52	1.57	1.50
	Purity co-efficient . . . . .	83.42	83.27	85.10	83.60	83.85	82.03	81.86	82.94	80.89	81.93
5th Jan. 1935.	Brix . . . . .	16.33	16.83	16.33	17.46	16.74	16.73	16.43	16.83	16.33	16.58
	Per cent. Sucrose in juice . . . . .	14.32	14.95	14.09	15.92	14.82	14.90	14.49	14.92	14.46	14.69
	Per cent. Glucose in juice . . . . .	0.79	0.69	1.00	0.78	0.81	0.74	0.72	0.92	0.91	0.82
	Purity co-efficient . . . . .	87.69	88.83	86.28	91.18	88.50	89.06	88.19	88.65	88.55	88.61
1st Feb. 1935.	Brix . . . . .	17.70	18.16	18.12	18.22	18.05	17.70	18.10	18.12	17.72	17.91
	Per cent. Sucrose in juice . . . . .	15.43	16.02	16.16	16.33	15.99	15.40	15.60	15.64	15.43	15.52
	Per cent. Glucose in juice . . . . .	0.63	0.52	0.45	0.43	0.51	0.65	0.74	0.90	0.89	0.75
	Purity co-efficient . . . . .	87.18	88.21	89.18	89.63	88.55	87.01	86.21	86.31	87.08	86.65
1st Mar. 1935.	Brix . . . . .	19.27	19.57	19.83	19.89	19.64	19.97	19.47	20.03	19.19	19.67
	Per cent. Sucrose in juice . . . . .	17.28	17.47	17.85	18.28	17.72	18.04	17.13	17.82	17.03	17.51
	Per cent. Glucose in juice . . . . .	0.37	0.33	0.32	0.24	0.32	0.32	0.40	0.54	0.56	0.46
	Purity co-efficient . . . . .	89.67	89.27	90.02	91.91	90.22	90.34	87.98	88.97	88.74	89.01
1st Apl. 1935.	Brix . . . . .	21.04	20.94	19.98	21.24	20.80	21.74	21.24	20.44	21.24	21.17
	Per cent. Sucrose in juice . . . . .	18.19	18.63	17.59	19.14	18.39	18.89	18.37	18.11	18.73	18.53
	Per cent. Glucose in juice . . . . .	0.74	0.48	0.69	0.34	0.54	0.86	0.65	0.85	0.77	0.78
	Purity co-efficient . . . . .	86.45	88.97	88.04	90.11	88.39	86.89	86.49	88.60	88.18	87.54

TABLE II.—Chemical analysis of plants (Co. 290) after every two months' growth. (Plot : D. 1.)

Date of taking sample.	Particulars.	Mean Percentage in the green matter.	Organic manure beds.				Mean.	Mean Percentage in the green matter.	Inorganic manure beds.				Mean.
			Bed No. I.	Bed No. IV.	Bed No. V.	Bed No. VIII.			Bed No. II.	Bed No. III.	Bed No. VI.	Bed No. VII.	
4th May 1934.	Percentage Dry matter	..	23.59	22.28	21.87	23.37	22.78	..	23.82	23.34	23.85	23.62	23.66
2 months' growth.	Organic Nitrogen . . . . .	0.312	1.340	1.366	1.388	1.379	1.368	0.329	1.383	1.399	1.401	1.379	1.391
	Ash . . . . .	..	11.44	11.91	11.920	11.50	11.69	..	11.72	11.29	11.72	11.55	11.57
	Phosphate P <sub>2</sub> O <sub>5</sub> . . . . .	0.219	0.904	0.984	1.003	0.952	0.961	0.216	0.919	0.883	0.938	0.921	0.915
	Potash K <sub>2</sub> O . . . . .	0.162	0.771	0.811	0.800	0.780	0.791	0.173	0.756	0.694	0.743	0.734	0.732
	Lime CaO . . . . .	0.157	0.690	0.709	0.676	0.684	0.690	0.143	0.626	0.581	0.626	0.590	0.606
4th July 1934.	Percentage Dry matter	..	15.29	14.87	15.34	16.17	15.42	..	15.12	14.20	16.00	14.20	14.88
4 months' growth.	Organic Nitrogen . . . . .	0.189	1.151	1.255	1.253	1.253	1.228	0.194	1.349	1.360	1.191	1.303	1.301
	Ash . . . . .	..	9.83	9.84	12.21	10.65	10.63	..	12.63	11.95	12.46	10.77	11.95
	Phosphate P <sub>2</sub> O <sub>5</sub> . . . . .	0.081	0.473	0.486	0.560	0.577	0.524	0.096	0.631	0.623	0.663	0.662	0.645
	Potash K <sub>2</sub> O . . . . .	0.089	0.572	0.591	0.553	0.600	0.579	0.071	0.494	0.480	0.457	0.480	0.478
	Lime CaO . . . . .	0.101	0.624	0.601	0.731	0.668	0.656	0.096	0.686	0.630	0.662	0.607	0.646

Date of taking sample.	Particulars.	Mean Percentage in the green matter.	Organic manure beds.				Mean.	Main Percentage in the green matter.	Inorganic manure beds.				Mean.
			Bed No. I.	Bed No. IV.	Bed No. V.	Bed No. VIII.			Bed No. II.	Bed No. III.	Bed No. VI.	Bed No. VII.	
4th Sept. 1934.	Percentage Dry matter	..	17.60	17.23	18.63	17.02	18.12	..	17.30	16.79	16.04	17.29	16.86
6 months' growth. Percentage in the dry matter.	Organic Nitrogen	0.108	0.587	0.636	0.587	0.587	0.594	0.101	0.612	0.602	0.576	0.594	0.596
	Ash	6.97	7.10	7.82	6.75	7.16	..	6.74	6.27	5.96	6.04	6.25	6.25
	Phosphate P <sub>2</sub> O <sub>5</sub>	0.100	0.577	0.545	0.548	0.587	0.552	0.110	0.652	0.642	0.653	0.664	0.653
	Potash K <sub>2</sub> O	0.049	0.321	0.224	0.258	0.274	0.269	0.030	0.179	0.177	0.189	0.167	0.178
	Lime CaO	0.065	0.356	0.371	0.381	0.340	0.362	0.063	0.389	0.347	0.380	0.382	0.375
4th Nov. 1934.	Percentage Dry matter	..	25.32	27.49	26.03	25.42	23.07	..	23.06	20.93	24.37	24.41	23.19
8 months' growth. Percentage in the dry matter.	Organic Nitrogen	0.102	0.412	0.391	0.386	0.389	0.395	0.103	0.445	0.512	0.408	0.412	0.444
	Ash	5.02	4.86	4.25	4.11	4.56	..	3.885	4.625	3.435	3.575	3.88	3.88
	Phosphate P <sub>2</sub> O <sub>5</sub>	0.084	0.320	0.328	0.328	0.312	0.322	0.058	0.244	0.276	0.225	0.257	0.251
	Potash K <sub>2</sub> O	0.069	0.286	0.299	0.255	0.242	0.271	0.064	0.235	0.244	0.222	0.224	0.231
	Lime CaO	0.065	0.280	0.248	0.232	0.235	0.249	0.057	0.240	0.262	0.236	0.242	0.245
3rd Jan. 1935.	Percentage Dry matter	..	27.16	27.80	26.65	23.34	26.24	..	27.28	26.90	27.98	28.38	27.64
10 months' growth. Percentage in the dry matter.	Organic Nitrogen	0.081	0.322	0.336	0.269	0.312	0.310	0.106	0.375	0.356	0.413	0.394	0.385
	Ash	3.18	3.72	3.25	3.40	3.38	..	4.34	5.11	4.31	4.00	4.44	4.44
	Phosphate P <sub>2</sub> O <sub>5</sub>	0.093	0.321	0.350	0.364	0.387	0.356	0.103	0.362	0.388	0.369	0.367	0.372
	Potash K <sub>2</sub> O	0.170	0.637	0.664	0.636	0.672	0.650	0.190	0.698	0.707	0.698	0.640	0.686
	Lime CaO	0.068	0.240	0.259	0.259	0.274	0.258	0.088	0.336	0.314	0.327	0.297	0.319

TABLE III.—*Selective absorption of common manurial ingredients at different stages of life of the sugarcane plant.*

Particulars.	Mean percentage in the green matter (Sugarcane.)					Intake of plant food per 100 mds. of cane in lbs.				
	2 months' growth. 4th May 1934.	4 months' growth. 4th July 1934.	6 months' growth. 4th Sept. 1934.	8 months' growth. 4th Nov. 1934.	10 months' growth. 3rd Jan. 1935.	2 months' growth. 4th May 1934.	4 months' growth. 4th July 1934.	6 months' growth. 4th Sept. 1934.	8 months' growth. 4th Nov. 1934.	10 months' growth. 3rd Jan. 1935.
<b>Organic manure—</b>										
Organic Nitrogen . . . . .	0·312	0·189	0·108	0·103	0·081	25·68	15·55	8·89	8·48	6·67
P <sub>2</sub> O <sub>5</sub> . . . . .	0·219	0·081	0·100	0·084	0·093	18·02	6·67	8·23	6·91	7·65
K <sub>2</sub> O . . . . .	0·162	0·089	0·049	0·069	0·170	13·33	7·32	4·03	5·68	13·99
CaO . . . . .	0·157	0·101	0·065	0·065	0·066	12·92	8·31	5·35	5·35	5·80
<b>Inorganic manure—</b>										
Organic Nitrogen . . . . .	0·329	0·194	0·101	0·103	0·106	27·08	15·97	8·31	8·48	8·72
P <sub>2</sub> O <sub>5</sub> . . . . .	0·216	0·096	0·110	0·068	0·103	17·78	7·90	9·05	4·77	8·48
K <sub>2</sub> O . . . . .	0·173	0·071	0·030	0·054	0·190	14·24	5·84	2·47	4·44	15·64
CaO . . . . .	0·143	0·096	0·063	0·057	0·088	11·77	7·90	5·18	4·69	7·24

TABLE IV.—*Chemical analysis of soil before sowing of cane and after harvesting of the crop.*

Particulars.	Before sowing of cane.				After harvesting of cane.			
	Percent. on air dry soil.				Percent. on air dry soil.			
	Organic bed I foot.	Organic bed II foot.	Inorganic bed I foot.	Inorganic bed II foot.	Organic bed I foot.	Organic bed II foot.	Inorganic bed I foot.	Inorganic bed II foot.
Moisture . . . . .	1·025	2·01	0·92	1·825	0·74	1·00	0·72	1·02
Loss on ignition . . . . .	1·303	1·430	1·197	1·263	1·102	1·348	1·189	1·214
Total N . . . . .	0·0487	0·0486	0·0470	0·0467	0·0428	0·0446	0·0420	0·0452
Total P <sub>2</sub> O <sub>5</sub> . . . . .	0·783	1·033	0·770	1·076	0·595	0·656	0·570	0·759
Total K <sub>2</sub> O . . . . .	0·887	0·784	1·040	0·680	0·438	0·625	0·507	0·666
Total CaO . . . . .	0·916	0·803	0·825	8·791	0·732	0·795	0·692	0·704
Available P <sub>2</sub> O <sub>5</sub> . . . . .	0·0552	0·0552	0·0811	0·0547	0·048	0·0514	0·0516	0·0504
Available K <sub>2</sub> O . . . . .	0·0117	0·0115	0·0131	0·0127	0·0105	0·0100	0·0120	0·0113
Available N, i.e., Nitrates (Parts per million).	3·0	1·5	3·0	0·6	0·2	0·4	0·2	0·4

## (4) PHYSIOLOGICAL STUDIES.

This scheme of work is being financed by the Imperial Council of Agricultural Research. The investigations in progress chiefly concern the interaction of three important factors, i.e., the quantity of N., water and the time of planting. It also aims at discovering the water relations of different cane varieties, the relative importance of various plant food elements in the growth of sugarcane and lastly the correlation of various meteorological factors with the growth of the cane plant.

Detailed report is as follows:—

*Introduction.*—The Scheme for Physiological research at the Sugarcane Research Station, Shahjahanpur, commenced in January, 1934. Besides the Cane Physiologist, the Staff consists of a Research Assistant, a Fieldman, a Laboratory Assistant and an Attendant. The first six months were largely occupied in procuring and fitting up the laboratories with apparatuses for meteorological observations and other works. The principal problem of cane growth and yield resolved into a detailed study of the various external factors, nutritional, cultural and climatic which limit growth and production.

With a view to study the affects of the different factors on cane growth, singly as well as in combination, the following lines of investigations have been carried out during 1934 to 1935:—

- I. Interrelationship of Nitrogen and water-duty.
- II. Interrelationship of Nitrogen, water-duty and time of planting.
- III. Interrelations of Nitrogen and Spacing.
- IV. Climatic conditions at Shahjahanpur and their relation to cane growth.

In addition, work in progress also consists of—

- V. Studies in the water relations of cane varieties and VI. Pot culture studies in the nutrition of the cane plant.

*I. Nitrogen and Water-duty.*—For the purposes of this study three levels of Nitrogen application (no additional—N<sub>1</sub>, 100 lbs.—N<sub>2</sub> and 200 lbs.—N<sub>3</sub>, per acre) were combined with three of water-duty (W<sub>1</sub>—240,000; W<sub>2</sub>—360,000 and W<sub>3</sub>—540,000 gallons per acre, per year) giving in all nine different treatments each replicated four times over an area of 2.5 acres. In the plants thus grown, tiller production, the accumulation of fresh weights, the increase in leaf areas was periodically determined. Data with regard to height, thickness and number of internodes, arrowing, sucrose and reducing sugars was also collected.

*Tiller numbers* increase as the quantity of nitrogen applied to cane is increased. The effect of increasing water is seen to be more marked where nitrogen is supplied in increasing amounts.

As indicated by the *fresh weights* of the sampled plants there is a marked response to an addition of nitrogen at the rate of 100 lbs. per acre; a further increase to 200 lbs. reflects no proportionate increase. At all levels of water-duty plants show a marked response to nitrogen application, also at all levels of nitrogen, enhanced water-duty increases the utility of nitrogen.

*Leaf area* on the plant depends chiefly on nitrogen, and a better utilisation of the increased nitrogen supply takes place with heavier water-duty. Where nitrogen is deficient a heavier application of water leads to a decreased leaf area. Individual leaves also are larger in size where nitrogen is in excess.

*Height* of canes similarly increases with the first 100 lbs. per acre of nitrogen, no proportionate increase being obtained when the dose is doubled; actually with low and medium water-duty height shows a decrease with increased nitrogen. *Thickness* of canes, on the other hand, increases consistently with increasing nitrogen at all levels of water and same is true

of the *quantity* of juice expressed. Any increase in water does not appear to effect the thickness materially.

Increasing nitrogen, however, progressively lowers the *sucrose* content and "*purity*" of the juice and proportionately, the *reducing sugars* increase. Minimum nitrogen when combined with minimum water-duty provides the highest *sucrose* in the plants grown.

Marked differences in the flowering of sugarcane are noticeable as a result of nitrogen application. Largest number of "arrows" shown on plants grown under a deficiency of nitrogen while none appear in heavily manured plants.

*Final yield* of cane clearly shows that at all levels of water, plants respond markedly to an application of nitrogen and the increase obtained by increasing the dose of nitrogen to 200 lbs. is not proportional. Further, at all levels of nitrogen, increased application of water increases the efficiency of nitrogen. Optimum yield is obtained when maximum nitrogen is combined with medium water, a further increase in water lowering the yield appreciably. Delaying the harvest of plants to April amounts to a general decline in plant weights in all treatments of nitrogen and water. Under high nitrogen ( $N_3$ ), however, the decline is very marked, so much so, that the yields in lower nitrogen series ( $N_1$ ) are found to be more. Dryage or water loss with advance in season would therefore appear to vary with increase in nitrogen.

II. *Nitrogen, Water-duty and time of planting.*—The planting of sugarcane was carried out at five-week intervals on February 1 ( $S_1$ ), March 8 ( $S_2$ ) and April 12 ( $S_3$ ). The levels of nitrogen and water-duty have already been indicated.

The time taken to reach maximum *germination* depends on the time of planting cane, maxima being reached earlier by several weeks as the time of sowing is delayed. Late sowing on the whole gives considerably better germination than early planted series.

On the other hand, irrespective of the quantity of nitrogen and water the number of *tillers* formed per plant decreases as the sowing time is delayed after February; better tillering being obtained in crop planted early. In all sowing dates tillers decrease with increase in water duty. Further with respect to tillering the individual effectiveness of both nitrogen and water, has been found to decline with the delay in planting.

For both nitrogen series ( $N_1$  and  $N_2$ ) optimum *leaf areas* and *yields* are obtained in plants sown early and the weights decline under subsequent sowings. The effectiveness of nitrogen application is clearly brought out for all water levels and at all sowing dates but it seems to fall off as the time of planting is postponed. With minimum water-duty ( $W_1$ ), additional nitrogen does not provide any increase in plant weights, in fact, a slight decrease is noticeable in all the three sowing dates, till before the rains commence. With low nitrogen, in all the sowing dates considered, optimum yield obtains with medium watering.

Nitrogen significantly increases the *height*, *width* and *internode length* of canes cultured in all sowing dates, increasing water does not affect to the same degree. As sowing time is delayed height, thickness and internode lengths gradually decrease. Additional nitrogen decreases the *number* of internodes throughout.

The quantity of juice in cane ("*extraction*"); its *quality* and *sucrose* content are all lowered in plants sown later and in all planting dates nitrogen leads to an increase in juice quantity and a decrease in "*quality*" and *sucrose*.

III. *Nitrogen and Spacing.*—Three spacings between plants ( $Sp_1$ ,  $Sp_2$ , and  $Sp_3$ ; respectively 15, 19½ and 24 inches apart in rows) combined with two levels of nitrogen (low and high) have been tried and data so far obtained goes to show that under low nitrogen conditions optimum *tiller* numbers are reached with medium spacing. The numbers decline on either side whether spacing is decreased or increased. When nitrogen supply is

enhanced this maximum shifts to a higher spacing or in other words given a ready supply of nitrogen, tillering increases with increase in spacing between plants.

With respect to final plant yields too similar relationships are noticeable. Optimum yields are obtained in the case of medium and maximum spaced plants under low and high nitrogen, respectively. At all spacings, application of nitrogen is effective in increasing the number of tillers formed and final cane yields. The effectiveness of additional dose of nitrogen, as reflected by the increased weights obtained, increases with increase in spacing.

Sucrose content early in the season, January and February, contrary to conventional expectations, is higher when nitrogen is increased for all the spacings considered. In the March sample conditions are actually reversed, the low nitrogen series ripens quickly attaining, finally, a higher percentage of sucrose in the juice. Spacing of plants affects sucrose formed in January in as much as it is lowered by increased spacing, both under low and high nitrogen. With the advance of season to February more sucrose is found to accumulate in the higher spaced plants till in March, sucrose increases progressively with spacing. Optimum with respect to sucrose content falls when high spacing is combined with a low supply of nitrogen. Yield in weight, as already pointed out, is optimal when along with the highest spacing additional nitrogen is also given.

Height of canes is greatest when maximum spacing and medium nitrogen are combined and same is true of the thickness and the number of internodes formed in canes. When the level of nitrogen is low, optimum height of plants, internode lengths and numbers occur in medium spaced plants. A general shifting of the maxima to lower spacing as nitrogen diminishes is clearly noticeable once more. Further in all spacings, additional nitrogen leads to taller and thicker canes with greater number of internodes which in their turn are considerably larger in size.

#### IV. Climatic conditions at Shahjahanpur in relation to cane growth.—

With regard to growth of cane, in addition to the nutritional and cultural factors, climatological factors namely, Solar radiation, rainfall, wind, atmospheric and soil temperatures, humidity, saturation deficiency, evaporation, etc., are being examined and certain data obtained are very briefly outlined below.

(i) *Solar Radiation*.—A Kipp and Zonens' Solarigraph is being used for recording the radiation from the sun. The total energy received reaches a maximum in May and June, declines appreciably during the monsoon and shows a secondary but much lower maximum at the end of that period in September. The minimum occurs in December followed by a rise which culminates in the summer maximum. The duration of sunshine is similarly, maximum in May and June and the period falls to a minimum in December and January rising again, till the length of the day reaches its height in May and June.

The intensity of radiation, on cloudless days, is generally, greatest at about 12 o'clock (midday) irrespective of the season. The absolute total quantity of energy registered as already mentioned, is maximum during the summer, but the absolute rate is found to be largest, usually, during the bright clear periods in the monsoon months of July and August.

(ii) *Rainfall*.—The total rainfall in 1934 was 38.04 inches, the major part (32.12 inches) being received during June, July and August. August contributed 16.14" and the heaviest shower during a single day amounted to 3.90". Rainfall for 1935 reached a total of 25.75" only which was 12.29" less than the preceding year. The months of June, July and August contributed 17.67" the heaviest record for a day being 1.75". The current year has been peculiarly characterised by an earlier outbreak of the monsoon, by at least a month giving 3.69" in May against 0.00" and 0.06" during 1934 and 1935. Further, the rainfall for June alone amounts to 25.27" of which, at least



9.72" came down in a single day, causing the well known unprecedented floods in the locality:

(iii) *Wind*.—The velocity of wind is greatest during May or June reaching a minimum in October followed by a gradual rise till February. The rise in velocity during February and March is very sharp, and slows off again till the maximum is reached.

(iv) *Atmospheric Temperature*.—During 1935 the highest average temperature which occurs in May, reached 93.1° F. Temperatures fall off in the earlier and later parts of the year and reached a minimum of 53.9° in January. Highest temperature of 114.5° F. was attained on May 23 and the number of days during the year when the maximum temperature touched 105° F. and above was fifty. Minimum temperature was lowest on January 19, touching 23° F. and there were not more than seven days when the temperature went to 32° F. and below.

A typical day is characterised by the minimum temperature epoch occurring just before sunrise and the maximum about 2 o'clock, i.e., about two hours after the time of maximum solar intensity. Atmospheric humidity finds an inverse relationship with temperature with respect to the time of its occurrence; maximum temperature and minimum humidity and *vice versa*, i.e., minimum temperature and maximum humidity occur at the same time.

The atmospheric temperature rises sharply after sunrise and when the maximum epoch is passed, it falls off equally abruptly. The fall in temperature after sunset is only gradual.

At Shahjahanpur, leaving aside the monsoon period (June to September, when it fluctuates from 15 to 26° F.) average daily fluctuations of temperature throughout the year appear to be similar, varying from 32 to 37° F., except for March when the average (42.4° for 1935) is widest.

(v) *Humidity*.—From an average figure of 71.5 per cent. in January (1935), the humidity falls each month to a minimum of 25.9 per cent. in May and rises during the rainy season to 89.5 per cent. in July and August. Humidity decreases once again in September, reaching a much lower secondary minimum of 62.6 per cent. in November.

(vi) *Evaporation*.—A self recording Evaporimeter is being used to register the evaporation from a free water surface. Largest evaporation seems to occur in April and smallest in December. From December onwards there is a gradual rise and after the high evaporation as experienced in April, May and June there is a sharp decline from 509.8 to 111.0 gms. per 400 Sq. Cm. due to the onset of the monsoon.

(vii) *Saturation Deficiency*.—Saturation is highest during January and steadily falls afterwards, in other words, the dryness of the atmosphere increases reaching a maximum about May and drops off sharply at the commencement of monsoon in July. After a secondary minimum of the same magnitude in August values increase till the beginning of the cold weather. The "Saturation Deficiency" of the atmosphere during rains it is interesting to find is of much the same magnitude as during the cold months of December and January.

(viii) *Growth Data*.—Germination is retarded when cane planting is practiced early in the season and the time taken decreases with advancing sowing dates. For February, March and April sowings germination was first noticed respectively, after 4, 3 and 2 weeks.

*Tillering*.—Irrespective of the time of planting of cane maximum tiller numbers are reached just at the beginning of the monsoon period about July in other words both early and late planted canes reach their respective maxima at about the same time. Their absolute numbers, however, as already pointed out vary with the time of planting, April and March sown plants showing very much reduced numbers. Under optimum conditions of nitrogen, water and sowing date tillers increase very rapidly during May and June, the numbers culminating in the July maximum. As the monsoon

advances further tillering stops and actually a decrease is noticeable. This decline also corresponds to the time when the plants resume a rapid growth in height.

*Plant weights.*—Absolute quantity of plant matter does not accumulate to any appreciable amount till the end of June, continues to rise during July and August, when tillering has completely stopped and speaking generally obtains a maximum at the beginning of the cold weather. During winter growth remains stationary and in December the fresh weights commence to decrease which is, in all probability due to the rising evaporation and consequently increasingly greater loss in dryage. The proportion of dead leaves continues to increase and that of green leaves decrease during this period.

*Leaf area.*—Maximum leaf area on the plants is similarly reached at the end of monsoon in early September about 9 to 10 weeks later than the time for maximum tiller numbers.

*Final yield and cane height.*—Maximum yield is obtained by harvesting cane in February and figures for subsequent harvests fall off each month, showing a loss in tonnage. Canes reach at their maximum with respect to height and thickness at the beginning of cold weather in November, no further increase being obtained afterwards.

*Expression.*—Quantity of juice extracted increases steadily from December onwards, reaches an optimum value in February, just about the time when maximum tonnage also occurs. Towards March the quantity declines.

*Sugars.*—Sucrose content from January to March increases continuously, as the atmospheric temperatures increase. The reducing sugars on the other hand show correspondingly a fall, reaching a minimum value in February. In the end of March the invert sugars rise once again.

Broadly it would appear that *maximum* yield is attained in the beginning of February earlier in the life of the cane plant, is followed in the latter part of February by *minimum reducing sugars* and in the end of March by *maximum sucrose*. Thus where largest tonnage determines the maximum returns, early harvesting may be advisable, but where maximum sucrose be the end in view, final harvest may be delayed considerably.

V. *Studies in the water relations of cane varieties.*—Eleven different varieties of cane have been selected on the basis of their established characteristics with respect to drought resistance or otherwise. The varieties are being grown under minimum and optimum conditions of water supply. Detailed studies are being carried out periodically with a view to study varietal differences concerning germination, tillering, yields, leaf areas, leaf length and widths and water content. By this method it is hoped certain characters, morphological or otherwise would be available to form a basis for the classification of varieties of unknown performance into drought resistant or susceptible types. The method is likely to be of assistance to cane breeders who desire to sort out plants raised from first year seedlings on these characteristics.

VI. *Pot culture studies in the nutrition of the cane plant.*—About 100 glazed pots are being used for a sand culture experiment. Plants are being grown on a complete nutrient solution and series deficient in nitrogen, potash, phosphorous, magnesium, calcium, manganese, iron and boron are under study.

*Problems which require investigation and the probable enhancement of equipment needed.*

Besides further work on the lines suggested above it seems necessary that physiological research be also directed to the study of the undermentioned problems:—

VII. *Interrelation of various cane varieties to levels of nitrogen and water.*—Besides critical physiological observations detailed chemical analyses of plants would be necessary to find out the uptake of nutrients by varieties under different condition.

VIII. *Drought Resistance*.—The principal problems which require plant physiological investigation consist in:—

- (i) Establishing methods for evaluating degree of xerophytism in cane varieties. This is likely to enable cane breeders to assess the value of existing varieties with facility and without which a quantitative estimate of varieties can not be made.
- (ii) Finding methods for increasing drought resisting qualities in cane. Under these conditions the plant should not only survive, but possess faculty to produce greatest possible yield especially under prolonged dry periods.

It would be necessary to regulate the period of exposure to drought artificially and the resistance of the varieties recorded. Under present conditions of equipment a control of this nature is not practicable, particularly when the tropical monsoon period is likely to set at a complete stop any studies of this nature. A glass house with sufficient accommodation for pot and soil culture experiments is especially needed.

IX. The differential *water requirement of cane varieties* requires attention. Work on these lines in pot culture would again require a glass house to eliminate the influence of natural rains during the monsoon period.

The present annual allotment for contingencies amounts to Rs. 1,240 and if a sufficient field of the physiological problems concerning cane culture is to be covered, a proportionate increase in the annual grant would be essential. With the increased work both physiological and chemical, an additional research assistant and a laboratory assistant would seem appropriate.

#### (5) ENTOMOLOGICAL INVESTIGATIONS ON SUGARCANE CROP.

This line of study too, is in progress with the financial grants made by the Imperial Council of Agricultural Research. The work is being conducted at the Sugarcane Research Station, Muzaffarnagar. Detailed studies on the sugarcane insect pests chiefly on the cane borers, leaf hoppers, white fly, white ants, etc., are being made. Their life histories, incidence of attack and effect upon various canes grown under different cultural treatments and control measures either by parasites or by mechanical and chemical methods are being worked out. Observations on the nature, life histories and economical value of their natural parasites are also being taken. Detailed report has been submitted separately.

#### (6) SEED DISTRIBUTION.

Seed of different improved varieties suiting different requirements and meteorological conditions is being multiplied and distributed all over the provinces by the Agriculture Department.

(10) *Note on the possibilities of zonal distribution of cane-supply within the Gorakhpur District, supplied by Mr. Rajeswari Prasad, Mathur, Deputy Collector, Gorakhpur.*

Rule 6 (2) of the United Provinces Sugarcane Rules, 1936, requires factories to make purchases of cane within a radius of five miles of the factory from the grower direct [or his authorised representative or a co-operative society for cane supply]. In furtherance of this Policy Rule 6 (3) prohibits purchasing agents from operating within this area. Instruction 6 (page 30) indicates the lines which a factory will have ordinarily to adopt in order properly to discharge its responsibilities in respect of such purchases survey of the area, preparation of a list of recognised growers, issue and regulation of passes. This rule will take full effect from the next season.

2. A glance at the map of Gorakhpur and the location of factories would show that any distribution of the 5 mile basis would be impracticable. In many cases the factories are at a distance of less than 10 miles from each other, which means that the 5 mile circles would intersect each other. There are also at least 3 stations having a factories each, and at these factories there can be no question of distribution on the 5 mile basis. It may also be stated that if the intention of the 5 mile rule is to encourage the factories to organise their cane-supply it appears necessary to devise methods which would lead to the organisation of the whole and not part of a factor's supply. To attempt organisation of only part of supply would defeat its purpose because the unorganised supply would upset all attempts at organisation of the selected areas. It follows, therefore, that the factories should be asked to arrange the whole of their supply on the ticket system and not only a part of it.

3. This raises the question of zonal distribution. No factory can confidently take up a costly process of cane organisation unless it is sure of its area of supply. With the approval of the Collector of Gorakhpur I have discussed this question with almost all the factories in this district. Nearly all the factories welcome the idea of being allotted a zone which be called their own. Some consider that such an arrangement is possible by an agreement among the factories themselves and some are definitely sceptical about it. One factory has said definitely that it will agree to a system of zoning only if the Government force it by means of legislation or rules. It seems, therefore, that time is ripe for a serious discussion of zonal distribution within this district.

4. I may briefly state the out-lines of a possible system of zone as they have occurred to me:—

- (a) The principle of formation of zone should be somewhat as follows. Suppose there are 2 factories, A and B. Join AB and draw a perpendicular line bisecting AB. This line represents the line of zonal division between the 2 factories. The principle underlying this division is that a particular village should go to the factory situated nearest to it.
- (b) Since it is not feasible to allot compact areas to each of the 2 factories situated at one station a joint compact zone should first be allotted to these factories. The factories can make a village-wise distribution among themselves.
- (c) A division similar to (b) above may be made where the factories are less than 5 miles apart.
- (d) Since the Bihar factories have been making considerable purchases in this district and since some factories of this district get part of their supply from Bihar, a zone or zones might be set apart towards the East of the district for purchases by Bihar factories. I suggest areas round Taria Sujan, Bharpar, Bhatpar, Rani and Bankata.
- (e) In order to redress inequalities in division, which would inevitably arise out of the suggested zonal distribution areas might be set apart for the purpose of adjusting these deficits. I suggest areas round Barhaj, Satraon, Salimpur and Lar Road Stations; areas round Dudahi station; and possibly some other might be added after discussion.

NOTE.—I have drawn out zonal lines on a sketch map of Gorakhpur and find that distribution on the lines indicated above is quite a practicable proposition.

5. After a distribution of areas satisfactory to all parties a number of questions will arise. What will be the powers of factories within their areas, what will be their duties and what their obligations? What protection will they get against intrusion or any other acts of hostility by a neighbouring factory, etc? The grower, too, would be entitled to ask many

questions affecting his interests. How is he to be protected against the misuse of this monopoly by the factory concerned? What assurances about the minimum price and what guarantee for the purchase of cane shall be given by the factories. Will he not be subjected to the tyranny of the capitalists?

6. My view is that these questions should be raised with a view to find a solution and not in order to create insurmountable obstacles in the way of zoning. Zoning should be looked at not so much from the point of view of the difficulties connected with it but from the view point of numerous benefits that will accrue from it to all the interests. For instance, the Mill owners will be assured of measured supply of cane; they would get fresh cane of high purity; they can introduce improvement in the quality of cane in their area; they can establish direct touch with the grower; and they can introduce improved means of communications. The grower would not have to wait for long days and nights; he will have to pay less towards cart-hire; his bullocks will be saved from premature death; and he will get into direct touch with the factory without the necessity of relying on middlemen, which is another word for swindlers. From the Government view-point the administration of Sugarcane Rules would become easier and many of the present abuses would disappear. Of course, it would be necessary to maintain for sometime at least a special Government staff for guiding and co-ordinating organisation by the various factories, and probably it would be necessary to frame special rules laying down the principles for ticket distribution. I make this suggestion because a number of factories made a hash of the ticket system of cane-supply this year.

7. I have drawn the briefest out-line of the picture. The details have to be filled in with much labour and precision. I am frankly very optimistic about the working of zones and would commend to the factories to pool their heads and to give the scheme at least a trial.

---

(11) *Letter dated the 8th October, 1937, from the Government of the United Provinces, Industries Department, Lucknow.*

I am directed to enclose for the information of the Tariff Board a copy of a note, prepared by the Provincial Director of Agriculture, on the payment of a bonus above the minimum price for sugarcane of superior quality.

2. I am also to state, for the information of the Tariff Board that during the last season the produce of some 11,000 acres of sugarcane is estimated to have been destroyed in this province or fed to cattle as fodder because it could not otherwise be disposed of. Half this area is in the Gorakhpur district, 1,100 acres are reported from Azamgarh where there are no factories, 500 from Gonda, 600 from Bahraich, 300 from Barabanki, 1,200 from Kheri, 600 from Sitapur, 200 from Moradabad and 500 from Saharanpur.

3. The provisional decision of the Provincial Governments of the United Provinces and Bihar as regards the minimum price is that during the coming season it should be As. 5-3, but a deduction of 3 pies may be allowed for rail-borne cane. There is also a proposal for levying a tax on cane and using the proceeds for helping to establish a suitable marketing organisation for sugar or for gur or for both. It has been decided to appoint a committee which will go into the question of a marketing organisation and another committee which will go into the question of zoning. A copy of a note on the latter subject which was placed before the recent conference is enclosed.

4. The Provincial Government are impressed by the necessity for doing something to enable the cane grower who makes gur to get a better price for it. In this connection they would like to suggest that the excise duty on sugar made in gur refineries may be reduced, so that the latter may be

induced to take up this work more extensively than they do at present. I am further to suggest that in order to enable khandsaris to pay a better price for cane, the excise duty levied on Khandsari sugar may be altogether abolished, provided that they are treated as factories for purposes of the Factories Act.

5. I am further to bring to the notice of the Tariff Board that it appears to be desirable to establish a suitable marketing organisation for sugar, for the whole of India under Government auspices, and to compel all factories in India to join the same, either by means of licensing or in some other suitable manner.

6. I am also to enclose for the information of the Tariff Board a proof copy of the Provincial Government's Bulletin entitled "A Survey of the Prospects of Sugar Industry in Rohilkhand".

**NOTE UPON THE PAYMENT OF A BONUS ABOVE THE MINIMUM PRICE FOR SUGARCANE OF SUPERIOR QUALITY.**

The criterion of value of sugarcane to the factory is the percentage of recovery in sugar to cane crushed. The standard cane for most of the province, which has constituted the bulk of the supplies to the sugar factories in recent years, is Co. 213. It may be assumed that the factory recovery figures from this cane are the basis upon which the minimum price was agreed. Co. 213 still represents the bulk of the cane of the centre and east of the province, but in the west of the province is being largely replaced by Co. 312. In assessing the relative merits and values of other canes, the sucrose in juice ratio of these two canes on the respective Government farms provides an appropriate datum line.

2. The ultimate determination of values must depend upon reliable factory data of recovery spread over the season and representative of the different cane tracts. Attempts to obtain comparative recovery figures for different canes from representative factories have met with little success. A number of causes is responsible for this; primarily that adequate stocks of newer canes, sufficient to provide for a full day's crushing at each trial, have not yet become available to most of the factories, and that factories are reluctant to put through commercial trials with smaller deliveries of these canes, as this naturally interferes with the factory efficiency through the stoppages entailed before and after the sample crushing. Such tests are definitely in the interest of the factories themselves, in determining the most suitable canes for their localities; and it is hoped in the future that full co-operation in this ultimate test of sugarcane values to the mills will become a regular practice. In the absence of such factory data the only reliable data upon which the base tentative conclusions are those derived from the periodical examinations for expression, sucrose in juice, and of purity, of routine samples of canes under experiment or trial on the Shahjahanpur, Muzaffarnagar, and Gorakhpur farms.

3. In the appended tables (Annexure A) are summarised the yield and sucrose percentage of cane varieties of these farms during 1936-37, along with such figures as are available from sugar factories, showing the yield per acre in maunds and the sucrose percentage in juice. Canes are classified as early, medium, and late—a classification based roughly upon the data at which a cane has been considered profitable for crushing. For the purpose of this discussion the figure of 13 per cent. has been arbitrarily chosen as the point at which the sucrose in juice provides profitable commercial crushing. As factory recovery is dependent also upon the juice to cane ratio (expression) and purity, the sucrose in juice percentage does not afford a true picture of factory values but is convenient to take in the absence of adequate factory data.

From the Shahjahanpur Experimental crushings the recoverable sugar has been computed from the 1936-37 data and is displayed in detail in the tables constituting Annexure B.

The data from farms are derived from small samples expressed by bullock mill. Factory expression is more efficient; and recovery would thus be greater for a given percentage sucrose in juice of similar purity.

So far as can be judged from the figures available, each increase of 1 per cent. sucrose in juice permits of recovery of an additional 0.6 to 0.8 sugar on cane, given efficient expression and factory technique. This is a matter upon which the factories—and they only—can give precise data. Until such is available, these figures may be accepted.

4. Examination of the sucrose data presented shows that for certain periods some of the canes available for development are markedly superior to those taken as standard. It is obviously in the interest of the factory that the growers should supply these canes at or about the period of maximum sugar recovery. In most cases this profitable period coincides with the few weeks before the peak of per cent. sucrose in juice and for a short time after the peak has been passed. This requires that the approved canes shall be grown in such proportion that there is a full and constant supply of each at its optimum. There appears to be two ways in which this can be achieved:—by paying a bonus, for each approved cane during its optimum period for sugar recovery, on its estimated excess sucrose over the standard canes; or by statutory regulation of the proportion in which these canes are to be grown by each sugar cultivator and fixing an average bonus on such approved canes over the whole season. Both require—

- (a) that the average increased value to the mill in terms of sugar recovered should be assessed;
- (b) that the proportion in which this is to be shared between grower and processor should be agreed.

Moreover, either will entail a regional variation in bonus, and possibly in data of application, according to the variations in behaviour under different regional conditions.

5. Taking Rs. 6 as an average price for sugar of all grades, and Rs. 1.8 as excise deduction, the net value per maund is Rs. 4.8.

The additional recovery on 1 per cent. increase in sucrose in juice has been taken to be between 0.6 and 0.8 per cent. of cane as the sucrose percentage rises. The value of such increased sugar recovered, per maund of cane is approximately—

- for 0.6 per cent. increase, 5.2 pies per maund;
- for 0.7 per cent. increase, 6 pies per maund;
- for 0.8 per cent. increase, 6.9 pies per maund,

or say, over the whole of the effective crushing season for the cane in question, half an anna per maund. If this is shared equally between grower and producer, the grower of the better cane would receive three pies above the market price for standard canes for every 1 per cent. by which the sucrose in juice has been found to exceed that of the standard canes during the period in which the improved cane is tenderable, and over the tract concerned. Thus a cane which, during the months of December-February, say, has been found to average 2 per cent. higher sucrose than Co. 213 or Co. 312 for the region would receive a bonus during those months of half an anna per maund. Actually this would represent less than half the value of the increased sugar, as fractions of 1 per cent. are not taken into consideration in the proposed calculation of bonus. It may, however, prove sufficient inducement to growers to cater for factory requirements voluntarily, in the requisite proportions indicated by the representatives of the factories, or development and sales associations working with them. It must, however, be remembered that the very early canes tend to have a low tonnage, and that late canes lose weight in the hot weather. If a seven months crushing season from October 15—May 15, is aimed at, it may therefore be necessary to offer the inducement of a further bonus

at the commencement and end of the season. The cultivator will naturally wish to grow heavy yielding, mid-season canes unless his earlies or lates pay him just as well. If factories want cane for early and late crushing they should be willing to pay extra for them; and indeed it is unlikely that they will be produced voluntarily in the absence of such inducement. This is, however, beside the point under consideration, which is bonus for crushing quality and not for "out of season" supply.

The alternative method of ensuring proportional supply of early, mid, and late canes would be preferable if practicable. This visualises the planting, within factory zones, of the approved canes in a determined proportion by each grower; and a spread of the bonus for high sucrose over the whole crop of the season. This would, however, require statutory enforcement, and presents so many difficulties and possibilities of dispute as to make its consideration at present more academic than practical. It may become a workable proposition in the future when both factories and growers have organised their zonal development and supplies.

6. Before discussing the ways and means of obtaining the best cane at the right time for each factory, attention is directed to some of the data provided. In annexure A, sheet 1, early maturing varieties, the standard canes Co. 213 and Co. 312 are displayed at the bottom. These are classed as mid-season canes, but are generally accepted by factories early in the season.

Co. 313 compared with standard, is seen to be, at least 1 per cent. better from the beginning of November to March at Shahjahanpur, representative of Rohilkhand conditions; while the muzaffarnagar figures, representative of the North-Western tract suggest that its superiority is not attained here until two or three weeks later.

Co. 385 at Shahjahanpur displays an average increase from October to March of between 2 per cent. and 3 per cent. at Shahjahanpur but up to the end of February only in Muzaffarnagar. The yield is 25 per cent. or more below that of the standard canes.

Co. 508 gives promise of being a wonder cane for the factory, crushable with profit in October, and holding its own with the best up to May. On the calculated increased sugar recovery, this cane with 4 per cent. increase of sucrose in juice is worth two annas per maund more than the standards from early October to end of March; of which one anna is assumed to go to the grower. This does not compensate him for decrease of 33 per cent. in yield.

Turning now to sheet 2, mid-season canes, another cane of outstanding promise is Co. S. 60. Muzaffarnagar farm figures only are available. This shows an increase in sucrose in juice of 2 per cent. to 3 per cent. from February to May; although it is crushable with profit from November. Its yield has not been established but it expected to be about 750 maunds under farm conditions.

It would appear desirable to develop such canes as Co. 508 for very early supply for October-January only, with appropriate bonus, and thereafter other canes in succession, with possibly less sucrose but higher output. In theory this is excellent but its application in practice involves a knowledge of growth behaviour and factory performance in detail for each cane in each tract of the province to determine which is the best cane and when and by how much better than the standards in each area. This is only possible by pooling the experience of the Department, the growers, and the factories and establishing regional committees by which quotas, values, and prices could be determined periodically.

The history of Co. 331 illustrates the impossibility of fixing a standard for the whole of the province. Data are given in sheet 3, late maturing varieties. In some areas it is a good late cane. It is everywhere popular with the growers, and in the West and Central tracts with the factories. Its factory performance falls off in the East, for reasons which are not



clear, but which brought forth requests to stop its distribution, especially in areas from which it might spread to Bihar.

8. It is clear that some canes are appreciably more valuable to the factories as raw material than others; it is evident that the best of these should be grown on a co-ordinated system to ensure a constant supply of raw material of the highest sugar producing quality consistent with the welfare of the growers; and it is obvious that a bonus can and should be paid for canes which are known to give better average recovery than the standards. How is the value to be assessed, the bonus determined and the supply assured

Departmental information is insufficient to assess values except on very general lines. Its chemist staff barely suffices to conduct the mass of routine examination of cane samples at Shahjahanpur and Muzaffarnagar farms; no such determinations being possible at other farms. The important eastern cane tract is thus largely unrepresented. Moreover, the data is derived from small samples, which may be subject to considerable error and thus not representative of the crop. Expression is by small mills lower in efficiency than good factory plant. Also the cane is grown under a standard of farming and fertility which is much higher than of the average good cultivator's field, affecting both yield—beneficially—and sucrose production—probably adversely.

Much more provision requires to be made for extending such scientific examination of sugarcane values, both in the present research farms, and by expansion in other cane areas, notably the Eastern Districts. This is necessary preliminary work to the widespread examination for yield and sugar survey under growers' and factory conditions. For this, representative factories, if not all factories, should undertake experimental crushings periodically—say monthly—of the trial canes in comparison with Co. 213 or Co. 312, previous arrangements for production having been made with bonded growers, or through the Cane Development or Supply organisations. The data for yield and sugar should be supplied to the advising authority as the basis for recommendation of the types to be grown, their quantities, the dates between which they are tenderable, and the bonus applicable to each. The recommendations if approved by Government would be duly notified for particular areas. The advising authority should also be empowered to determine the canes tenderable against minimum price for each area and to exclude for the whole or part of the season any type which had been proved to be below the standard canes in sugar recovery. Where any considerable change in cane production programme is indicated, two years notice from November would have to be given to enable the provision of seed cane.

Supply according to the desired factory programme must at present depend upon the relative return to the cultivator from standard or better canes. All that seems possible for the moment is that adequate seed cane supplies are arranged for by factory, development organisation, or sales society, and planting up to the full quota be determined by the growers according to the comparative returns from the approved canes.

8. The organisation for advising upon these matters should be a number of small committees one for each region, consisting of two factory and two growers representatives, with an official chairman. A Provincial Sugar Committee consisting also in the main of equal representation of growers and manufacturers, through which the regional proposals are submitted to Government for approval. This committee should co-ordinate, and if necessary modify the proposals of the regional bodies. It should also serve as an advisory body to Government on sugar research and development generally. In addition to the factories and growers, it should include representatives of the sugar trade and of Government. The Economic Botanist Sugarcane might well be its Secretary. He would require extra ministerial staff to deal with considerable tabulation of field and factory data and correspondence.

(12) *Letter dated the 28th October, 1937, from the Director of Industries and Commerce, United Provinces, Cawnpore.*

I have the honour to give below details of the two loans granted to the sugar factories by the Industries Department, referred to in the evidence tendered by me before the Tariff Board on 7th September, 1937:—

- (1) A loan of Rs. 6,00,000 was sanctioned under G. O. No. 879L, dated 25th October, 1922, to the Karundia Industrial Development Co., Ltd., Lucknow, for completing and working the Lucknow Sugar Mills. The amount was repayable in five instalments of Rs. 1,20,000 plus interest at 8 per cent. per annum up to December, 1928, the company paid only Rs. 1,94,000. In 1930 Government accepted Rs. 4,06,000 in full settlement of the loan and waived recovery of the balance due, viz., Rs. 2,23,781 plus all outstanding interest. The sugar mill was defective from the beginning and never worked successfully.
- (2) A loan of Rs. 1,20,000 was sanctioned under G. O. No. 2080, dated the 12th November, 1924, to the Shri Mahalakshmi Sugar Corporation Ltd., Lucknow, for the purchase of sugar machinery. The amount was recoverable in four equal instalments of Rs. 30,000. The company paid the first instalment in 1926-27 but subsequent payments were made by the People's Bank of India who paid Rs. 88,000. A sum of Rs. 2,000 plus all outstanding interest was written off. The loan was a failure.

(13) *Memorandum by Sir William Stampe, I. S. E., Chief Engineer, Irrigation Development and Secretary to Government, United Provinces, Irrigation Branch, dated Lucknow, August 31, 1937.*

*Introductory.*—Formal replies to questions nos. 2, 3, 20, 24, 47 and 50 of the Tariff Board questionnaire were sent to the Secretary, Industries, United Provinces, with my No. C-1245, dated June 19, 1937, and are presumably before the Board. The following additional information may be of value and will form the basis of the opinions I propose to state before the Board in my interview on September 1, 1937. In regard to my answer to question (2) and list B forwarded as above in June last, I would add that actual information as to the areas irrigated on the Western and Sarda Canals for the 1937-38 sugarcane crop is now available. On the Western Canals excluding Ramganga and tube-wells, the total area under cane is 468,076 acres of which 289,047 acres are new sugarcane and 179,029 acres are ratoon. Including the Ramganga canal and State tube-wells, the area under sugarcane is 589,030 acres against 450,828 last year. The total canal irrigated area in the Sarda tract is 174,000 acres against 246,000 acres last year and in the IV Circle 14,500 acres as against 16,500 acres last year.

2. My experience of sugarcane irrigation in the West United Provinces the main cane-growing area, is as follows:—

Superintending Engineer, I Circle, I. W. (the principal cane-growing circle), 1925 to 1930 inclusive.

Chief Engineer, Western Canals, 1931-1934 inclusive.

Chief Engineer, Development, including Hydro-electric, all tube-wells and developments works, 1935 to date.

I have thus had more than 12 years administrative experience of canals and electric irrigation dealing mainly with sugarcane.

3. Prior to 1933 when factories were first erected in the western sugarcane zones (i.e., west of Bareilly), practically the whole of the sugarcane grown on the western canals was converted into gur and only a very small proportion into country-made sugar.

By far the largest proportion of the total cane grown (i.e., between 75 and 90 per cent.) is still converted into gur and so-called desi sugar. Only in the immediate neighbourhood of factories such as the Meerut-Muzaffarnagar areas, does the factory demand really control the price of cane.

I have always held, and on the information available, I still hold that the gur situation really controls the demand for (and the price of) cane—not the sugar market as is frequently believed.

*Alleged over-production of 1936-37 season.*—It is a fact that during the last cane season (1936-37) more sugarcane was grown in the province as a whole than could be commercially absorbed by the existing methods of manufacture, i.e., (1) gur production and (2) white sugar making. There were to my mind two reasons for this (a) seasonal and (b) instrumental.

In regard to (a) the monsoon rainfall\* of 1936 began a month earlier than the normal (i.e., May 15 to 20 instead of June 15 to 22). It continued almost without intermission until October and was, broadly speaking, 60 per cent. above the average for the United Provinces. This resulted in a larger amount of cane being sown\* and matured than would normally be the case. Also considerable areas of "haphazard" cane were sown (i.e., that without irrigation) in the hope of getting some sort of yield under good rainfall conditions.

(b) River supplies were much above the average owing to early rainfall in the hills resulting in larger canal irrigated areas than usual. Further, between 300 and 400 additional State tube-wells, each irrigating 100 to 120 acres of cane, were installed in the west under the Irrigation Development Circle (West) tube-well programme. Moreover the 600 or 700 earlier tube-wells (completed in 1935-36) all irrigated increased areas. Briefly, means were provided for irrigating an additional 80,000 acres by tube-wells. There were also larger numbers of private tube-wells in operation in the Ganges Grid area.

*Absorption of cane into the market.*—When a crop such as cane expands due to the gradual completion of a large irrigation scheme (the Sarda Canal for instance) the increasing yield is absorbed year by year by the normal means of utilisation which develop *pari passu* with the crop. In 1936-37, the cultivators relied largely on the mills (or on the anticipated availability of bullock driven crushers or kolhus) for disposing of their cane. In the spring of 1937 both strings to the cultivators' bow failed, or, rather, did not come up to expectations. In many cases, the factories on having surplus cane at their gate or near at hand abandoned their contracts with the more distant cultivators. The season was then too far advanced for the cultivators to procure kolhus to crush the surplus themselves. Thus in many cases they were badly let down and Government had to step in with the result that the factories were persuaded to keep their mills running to absorb as much cane as possible (but at a lower purchase rate) from the cultivators. This certainly accentuated the trouble in several of the western cane tracts.

One possible solution of the cane problem, on which we have concentrated our attention lately in Development is as follows:—

Accepting the hypothesis that 75 to 95 per cent. of the cane is converted into gur, we have investigated how the cost of producing gur from cane can be lowered. Even at the present price of gur there is sufficient demand still unmet in Rajputana, Punjab and the North-West Frontier as well as in Nepal and the hill tracts of the United Provinces to absorb some of the surplus gur from the United Provinces, if better marketing facilities can be organised, e.g., direct booking from Railway Stations in the gur area, etc. Figures from the exporting railways show that the export of gur from the United Provinces into the Western States and the Punjab

\* The 1936 late rabi and early khariff rainfall was also abnormally high.

has increased by leaps and bounds of late years. But it is impossible on the statistics at present available to estimate the amount of gur which leaves the United Provinces *via* the cold weather "non-rail" routes, e.g., (1) bullock cart and camel across the Jumna, (2) pack ponies into the hills and (3) other methods. Nor is it possible to estimate the gur consumption of horses, cattle, etc. These animals undoubtedly absorb large quantities as the Jats of the Western United Provinces are in the habit of feeding their cattle with gur.

Figures obtained from the various hygiene and diet experts show the optimum quantity of gur which should be consumed by normally healthy people. There is still no doubt that the human consumption of gur is not yet as high as is desired. But the question of purchasing power (and its relation to the standard of living) comes into this so that we have been unable to proceed far on statistical lines. My definite impression is that even at a rate only slightly lower the market is capable of absorbing larger quantities of gur.

On the other hand if the price of gur can be lowered (with economy to the producer) as a result of reduction in the cost of production, the demand for gur would rise especially from the so-called "marginal consumer" who, at the present sale price in the Punjab, etc., cannot afford to eat as much as a healthy man requires.

One solution of the cane surplus problem thus is the introduction of cheaper means of gur production by the villagers themselves. Various methods are being examined:—

- (a) The Industries Department are endeavouring to procure additional bullock kolhus and pans of a more efficient type for gur production on the ordinary desi lines. There was a shortage of kolhus and pans also of trained boiler-men last season.
- (b) Hydrel current can be used for operating mechanical crushers (25 maunds per hour) at cheap rates. The normal rate for electric current in the grid area is 1 anna per unit for agricultural purposes. If the crusher is worked at "off-peak" time (i.e., when current is surplus to irrigation requirements), a cheaper rate can be quoted—6 pies per unit is proposed.

Provided that village gur societies can be organised to work electric crushers on the Committee system, it is believed that the manufacturing costs can be reduced. These experiments are now being organised. I can explain this in greater detail if the Committee so desire.

(14) *Letter dated the 4th December, 1937, from the office of the Superintendent Engineer, Development Circle, Meerut.*

At Sir William Stampe's request, I send you a copy of his preliminary note on village gur-making plants, together with analysis of the cost of making gur in the (late) West and East Development Circles according to method (a), which is actually being tried out this winter on four cane crusher plants in the West and three in the East.

#### PRELIMINARY NOTE REGARDING DEVELOPMENT OF VILLAGE INDUSTRIES ON THE GANGES GRID.

##### *Village Gur Making Plants.*

*Preliminary.*—Finance Department have intimated in their Un-official No. 104, dated April 27, 1937, that the last date for acceptance in Finance Department of notes for the schedules of new expenditure in 1937-38 in connection with the various development and village improvement proposals is May 20, 1937.

One of the proposals we are putting forward in connection with village development is for introducing village gur making plants in the grid area. A full note based on the results of preliminary experiments of the 1936-37 season is under preparation, but cannot be ready until all the data available from divisions have been correlated. A detailed note will be put up to H. M. R. in early June. In the meantime, in order to give Finance Department preliminary notice of our requirements under this head, the following précis of the case is submitted.

The last and the present Governments have approved in general of the preparation of a programme for various village improvements including the development of minor industries, both agricultural and "cottage" types.

A definite start can be made at once in this direction by developing gur-making plants in the grid area, and the experiments are already in progress as the outcome of H. E.'s suggestions during his inspection of the grid area in February, 1936.

Apart from the general question of improving the means of utilization of cane in areas where cane is surplus to present requirements, the introduction of village gur-making plants at the tube-wells furnishes a nucleus point for introducing other village industries. It is believed, for instance, that if cane crushing plants can be made an economic success in the cane areas village ginning plants and oil crushing installations will follow in other areas where these crops prevail.

*Crushing Plants.*—About a dozen crushing plants, some of which were also equipped with boiling pans, were installed in the grid area in the last cane season, but owing to their having been operated for only part of the season, full results are not yet available.

Briefly, it is proposed that additional 30 cane crushing plants, each consisting of a 25 maund per hour cane crusher and two sets of boiling pans, should be installed at the tube-wells in selected villages in the grid districts for the crushing season 1937-38. 12 will be required in Meerut, 12 in Moradabad and Bijnor and 6 in North Budaan. The total cost involved at Rs. 2,500 per plant will be Rs. 75,000.

The general idea of the proposal is that cultivators should have an alternative means of disposing of their cane other than selling it to (a) factories and (b) Khansaries. At present roughly 1/5th of the cane is sold to factories and 4/5th is crushed locally by means of bullock driven kolhus, the juice from which is made into gur directly by the cultivator or sold to Khansaries, who make high profits on the transaction.

Ordinarily bullock kolhus will only crush from 2 to 5 maunds per hour, and with the rapid increase of cane in the tube-well zones it has been found that there are insufficient cattle to work kolhus in addition to performing the normal agricultural operations.

Preliminary experiments show that if a rate of As. 1-9 per unit is charged for electrically operated kolhus including the cost of energy, interest, depreciation and working expenses on the crushers and boiling pans, there is a ready market for these crushers.

*Cheap rates for "off-peak" hour working.*—It has been lately proposed that a lower rate be offered for energy for use in crushing at night when the tube-wells are not generally in use, and spare current is therefore available on the grid. It is proposed to charge As. 1-6 for crushing during the so-called "off-peak" hours, from 8 P.M. to 10 A.M. the next morning.

The question of the most efficient means of letting out these gur plants to cultivators is under examination and will be considered at length in the report to follow. The alternatives are as follows:—

- (a) That the I. B. should provide the plants at tube-well centres where cane is at present in excess and operate them departmentally, the cultivators bringing their cane, crushing it at the

departmental rate, boiling it themselves and taking away the juice.

- (b) That the crushers should be provided by the I. B. maintained departmentally, but hired out to village Co-operative Societies, who would carry out the actual operation of the crushers and boiling plants themselves.
- (c) That the I. B. should provide the plants and hire them out on contract to village contractors, who would buy the cane locally, crush it and dispose of the resulting produce themselves.

There is something to be said for and against these different methods, but in view of the fact that our main object is to encourage the villager to process his own cane, we are inclined to recommend the adoption of method (a). This will be discussed in greater detail in the main report.

For the moment it is requested that an item of Rs. 75,000 may be included in the capital budget for development for the purchase of 25 gur-making plants. A preliminary financial statement is attached which indicates that allowing for working expenses, interest and depreciation, the plants are likely to be self-supporting.

*Village Electrification in the Ganges Grid area—Note on Tube-well Cane Crushing Plants—Approximate Estimate of Cost.*

	Rs.
(1) <i>Estimate of cost—</i>	
Crusher with motor and shafting (25 maunds per hour) . . . . .	1,200
Carriage, fixing and connection . . . . .	200
Boiling pans, 2 sets . . . . .	800
Sheds . . . . .	200
Juice pump . . . . .	100
	Total . 2,500
(2) <i>Working expenses for 1,500 hours running (100 days × 15 hours)—</i>	
(a) Operator for 4 months at Rs. 15 per mensem . . . . .	60
(b) Electric energy . . . . .	
750 hours "on peak" working at 6 units=4,500 units at 9 pies per unit . . . . .	211
750 hours "off peak" working at 6 units=4,500 units at 6 pies per unit . . . . .	141
(c) Oil and waste . . . . .	50
(d) Repairs . . . . .	75
(e) Interest on Rs. 2,500 at 3½ per cent. . . . .	87-8
(f) Depreciation on crusher and pump Rs. 1,300 at 15 per cent. . . . .	195
(g) Depreciation on pans Rs. 800 at 10 per cent. . . . .	80
	Total . 899-8
(3) <i>Annual Revenue—</i>	
Sale of 4,500 units "on peak" at As. 1-9 . . . . .	492
Sale of 4,500 units "off peak" at As. 1-6 . . . . .	422
	Total . 914

*Analysis of cost of making gur, "Development Circle, West".***I. Capital cost—**

	Rs.
(a) Crusher with motor, shaft and pulley (20 Mds. per hour) . . . . .	1,050
(b) Carriage, fixing and connection . . . . .	150
(c) Boiling pans, 2 sets . . . . .	700
(d) Sheds and furnaces . . . . .	200
(e) Juice pump with pipes . . . . .	90
<b>Total</b>	<b>2,190</b>

**II. Working expenses for 1,680 hours running (120 days x 14 hours)—**

(i) Operator for 4 months at Rs. 15 . . . . .	60
(ii) Electrical energy—	
120 x 6 = 720 hours "on peak" working at 6 units = 4,320 units at 9 pies per unit . . . . .	202-8
120 x 8 = 960 hours "off peak" working at 6 units = 5,760 units at 6 pies per unit . . . . .	180
(iii) Oil and waste . . . . .	40
(iv) Repairs . . . . .	40
(v) Interest on Rs. 2,190 at 3½ per cent. . . . .	77
(vi) Depreciation on crusher and pump (I, 1 & 5) Rs. 1,140 at 12½ per cent. . . . .	142-8
(vii) Depreciation on boiling pans at 10 per cent. . . . .	70
<b>Total</b>	<b>812</b>

**III. Annual revenue—**

Sale of 4,320 units "on peak" at As. 1-6 . . . . .	405
Sale of 5,760 units "off peak" at As. 1-3 . . . . .	450
<b>Total</b>	<b>855</b>

Thus, the revenue anticipated will cover expenditure.

Total cane crushed will be 30,240 maunds. Rate per maund of cane crushed =  $\frac{855 \times 192}{30,240} = 5.43$  pies. This compares fairly with the rate that works out for Bullock "Kolhus".

**Labour for making gur—**

2 men for bringing cane from stack and feeding crusher, at Rs. 8 per mensem, for 4 months . . . . .	64
1 Karigar with 2 assistants at Rs. 50 per mensem, for 4 months . . . . .	200
5 Trash driers and furnace feeders, at Rs. 8 per mensem, for 4 months . . . . .	160
<b>Total</b>	<b>424</b>

Cost of crushing 30,240 maunds will be  $\frac{424 \times 192}{30,240} = 2.7$  pies.

Therefore the total cost of making 1 maund of gur will be 8.1 pies per maund of cane crushed or As. 6 per maund of gur.

*Analysis of cost of making gur, "Development Circle, East V.*

**I. Capital cost—**

	Rs.
(1) Crusher with motor, shaft and pulley (25 Mds. per hour) . . . . .	1,050
(2) Carriage, fixing and connection . . . . .	150
(3) Boiling pans, 2 sets . . . . .	700
(4) Sheda and furnaces . . . . .	200
(5) Juice pump with pipes . . . . .	90
Total . . . . .	2,190

**II. Working expenses for 1,200 hours running (100 days x 12 hours)—**

(a) Operator for 4 months at Rs. 15 . . . . .	60
(b) Electrical energy—	
600 hours "on peak" working at 6 units=3,600 units at 9 pies per unit . . . . .	169
600 hours "off-peak" working at 6 units=3,600 units at 6 pies per unit . . . . .	112
(c) Oil and waste . . . . .	50
(d) Repairs . . . . .	75
(e) Interest on Rs. 2,190 at 3½ per cent. . . . .	77
(f) Depreciation on crusher and pump (I, 1 & 5) Rs. 1,140 at 12½ per cent. . . . .	142-8
(g) Depreciation on pans, Rs. 700, at 10 per cent. . . . .	70
Total . . . . .	755-8

**III. Annual revenue—**

Sale of 3,600 units "on peak" at As. 2 . . . . .	450
Sale of 3,600 units "off-peak" at As. 1-9 . . . . .	394
Total . . . . .	844

Total cane crushed = 1,200 x 25 = 30,000 maunds.

Rate per maund of cane crushed  $\frac{844 \times 192}{30,000} = 5.4$  pies.

The total cost of making gur will include the above charges *plus* the following men who are needed for crushing cane and making gur. This labour will be supplied by the users of the plant.

	Rs.
2 men for bringing cane from stack and feeding crusher at Rs. 8 per month . . . . .	64
1 Karigar with 2 assistants at Rs. 50 for 4 months . . . . .	200
5 Trash driers and furnace feeders, at Rs. 8 for 4 months . . . . .	160
Total . . . . .	424

If 30,000 maunds of cane and crushed this will involve labour rate of  $\frac{424 \times 192}{30,000} = 2.7$  pies per maund of cane crushed.

The total cost for the entire operation of "gur" making will thus be roughly 8.1 pies per maund of cane crushed, or As. 6 per maund of gur made.



### Replies from the Government of the Punjab.

- (1) *Letter dated the 2nd August, 1937, from the Government of the Punjab, Development Department, Lahore.*

*Subject:—PROTECTION REQUIRED BY THE INDIAN SUGAR INDUSTRY.*

I am directed to make the following observations on the various points raised in your letters No. 147, dated the 30th April, 1937, and No. 172, dated the 11th May, 1937.

#### I. *Letter No. 147, dated the 30th April 1937.*

1. The views of the Director of Industries, Punjab, the Director of Agriculture, Punjab, the Director of Land Records, Punjab, and the Registrar, Co-Operative Societies, Punjab, on the questions in the Questionnaire for Local Governments are being forwarded herewith.

2. Statements showing the fortnightly retail prices of gur, jaggery and sugar at important markets in the province, viz., Ambala, Rohtak, Jullunder, Amritsar, Gurdaspur, Sialkot and Lyallpur during 1930-36 are closed. Attention is also invited to the replies given to question Nos. 27 and 35 of the Questionnaire for Local Governments.

3. Confidential enquiries undertaken by the field staff of the Industries Department have not brought to light any of the evils complained of by you. The supply of sugarcane being smaller than the demand in this province, the supplier of cane has received a fair price for his cane and also fair treatment at the hands of the factory owners. The law requiring the fixation of minimum price for sugarcane under the Sugar Industry (Protection) Act, 1932, or the Sugarcane Act of 1934 has not been enforced in this province, and accordingly there has been no question here of the issue of false receipts for payments made or of surreptitious sale of passes to bring cane to the factories. Only one case of a refusal to take delivery of a consignment of sugarcane, whereby growers are reported to have suffered a loss, has so far been brought to the notice of the Director of Industries, Punjab, namely, at the Bhalwal Sugar Mills Company, Limited, Bhalwal, District Shahpur, in 1933-34. The Mill authorities, however, allege that the cane was damaged and of bad quality, and consequently they did not take delivery of it. A copy of a note supplied by Mr. Kailash Chandra, a cane-grower of Abdullapur, district Ambala, containing his suggestions for safeguarding the interests of cane-growers, etc., is appended. Attention is also invited to the reply given to question No. 15 of the Questionnaire for Local Governments.

4. There is no prominent cane-grower in this province and the majority of the ordinary small growers are illiterate. The Director of Industries, Punjab, has, however, recommended the name of Mr. Kailash Chandra of Abdullapur, district Ambala, who in his capacity as a progressive cane-grower, may be of assistance to the Board in their enquiry.

#### II. *Letter No. 172, dated the 11th May, 1937.*

1. The replies to the questions in the Questionnaire for Local Governments are enclosed herewith, with six spare copies of each.

2. The Punjab Government have no comments to make on any of the points raised in the Questionnaires. Replies to certain selected questions therefrom have, however, been received from the Director of Industries, Punjab, and are enclosed, herewith, for the information of the Board.

#### ANSWER TO THE QUESTIONNAIRE FOR LOCAL GOVERNMENTS.

1. The area under sugarcane in the Punjab during the last seven years is given below:—

Year.	Area.	Year.	Area.
1930-31 . . .	425,729	1934-35 . . .	462,442
1931-32 . . .	474,655	1935-36 . . .	474,200
1932-33 . . .	558,152	1936-37 . . .	554,300
1933-34 . . .	465,991		

The common improved varieties at present in the province are:—

Co. 205.

Co. 223.

Co. 285.

Co. 230.

Co. 213.

Co. 244.

More recent additions are Co. 312 and Co. 313, but the areas under them are not much yet. There is no means of ascertaining the approximate acreage under each improved variety. It is estimated that the total area under improved canes in the province is 250,000 acres approximately.

2. A statement showing area under sugarcane irrigated and unirrigated separately in each of the homogeneous blocks of the Punjab is attached

Homogeneous.	1930-31.		1931-32.		1932-33.		1933-34.		1934-35.		1935-36.		1936-37.	
	Irriga- ted.	Unirri- gated.	Irriga- ted.	Unirri- gated.	Irriga- ted.	Unirri- gated.	Irriga- ted.	Unirri- gated.	Irriga- ted.	Unirri- gated.	Irriga- ted.	Unirri- gated.	Irriga- ted.	Unirri- gated.
South Western dry tracts—														
Hissar . . .	568	..	1,062	..	1,704	1	1,077	..	758	..	1,263	9	2,678	..
Rohtak . . .	35,113	309	27,342	371	37,595	294	31,626	427	29,973	1,439	29,166	409	38,113	54
Gurgaon . . .	9,494	11	11,704	6	12,114	116	7,266	46	7,192	2,613	10,853	865	13,374	547
Karnal . . .	27,508	2,331	23,796	1,815	29,022	3,158	22,052	3,743	21,703	3,392	26,885	3,578	34,506	3,123
Ferozepore . . .	3,971	22	5,385	37	10,439	195	7,319	114	6,010	87	8,970	54	15,754	58
Total . . .	76,654	2,673	69,289	2,229	90,874	3,764	69,340	4,330	65,636	7,531	77,137	4,915	1,04,425	3,783
Hontons and Sub. Hontons—														
Simla . . .	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Kangra . . .	1,470	1,649	1,972	2,287	2,201	2,561	1,896	2,405	1,834	2,483	2,069	2,466	2,323	2,961
Ambala . . .	4,671	8,792	5,991	11,049	7,283	17,304	3,712	18,652	4,603	19,887	5,797	22,488	6,308	23,434
Hoshiarpur . . .	5,953	15,123	7,561	18,906	9,784	24,269	7,367	21,094	8,278	19,460	9,290	18,926	10,605	19,918

Gudaspur .	27,675	21,938	24,736	23,661	41,059	21,525	31,994	22,226	35,796	19,283	32,412	21,995	89,739	24,202
Sialkot .	27,991	6,804	27,202	5,618	31,718	5,910	31,567	5,691	32,129	5,477	30,546	5,840	35,436	7,585
Gujrat .	9,063	240	8,641	323	13,069	307	15,400	375	15,071	367	10,915	544	12,136	364
Total	78,823	54,546	86,103	61,844	1,05,114	78,876	91,936	70,449	97,711	66,957	91,029	71,659	1,06,630	78,464
South Western—														
Multan .	8,925	3	12,947	6	15,585	9	12,164	14	9,742	10	12,400	19	14,906	77
Dera Ghazi Khan.	102	..	127	..	168	..	200	5	138	..	190	..	383	..
Mianwali .	14	..	29	..	67	..	95	..	47	..	71	..	102	28
Montgomery .	13,138	..	19,801	..	19,775	..	13,544	1	11,378	..	12,913	..	14,497	1
Muzaffargarh	4,001	..	5,983	..	8,560	7	7,269	5	4,957	1	6,631	..	9,124	..
Total	26,180	3	38,887	6	44,155	16	33,302	25	26,262	11	32,205	19	39,012	106
Central—														
Lahore .	14,741	78	25,073	287	28,249	291	18,399	184	16,422	195	19,520	293	27,843	377
Amritsar .	20,691	1,374	24,386	1,372	30,977	1,542	27,149	1,575	28,645	1,387	27,624	1,208	28,928	1,061
Jullundur .	26,853	791	30,834	804	35,844	1,251	28,928	1,140	33,301	1,123	34,187	1,065	38,192	1,060
Gujranwala .	22,762	486	21,517	289	24,923	507	26,844	675	27,391	619	26,428	630	29,165	723
Sheikhpura .	19,732	72	19,637	123	21,846	377	21,539	251	17,970	300	15,921	519	20,028	465
Lajdhiana .	8,040	3,342	10,347	3,778	14,203	4,667	9,748	4,434	10,876	3,901	13,016	4,298	16,385	4,635
Total	1,12,819	6,143	1,31,794	6,653	1,56,042	8,635	1,32,607	8,259	1,34,605	7,525	1,36,596	8,013	1,60,541	8,321

Homogeneous.	1930-31.		1931-32.		1932-33.		1933-34.		1934-35.		1935-36.		1936-37.	
	Irriga- ted.	Unirri- gated.	Irriga- ted.	Unirri- gated.	Irriga- ted.	Unirri- gated.	Irriga- ted.	Unirri- gated.	Irriga- ted.	Unirri- gated.	Irriga- ted.	Unirri- gated.	Irriga- ted.	Unirri- gated.
North Western—														
Attock . . .	776	1	818	2	833	1	496	1	516	1	720	1	981	9
Rawalpindi . . .	62	..	73	..	85	1	98	..	94	3	87	27	73	24
Jhelum . . .	107	21	160	30	231	21	227	9	293	18	216	10	190	17
Total . . .	945	22	1,051	32	1,149	23	821	10	903	22	1,023	38	1,244	50
Jhang . . .	4,288	12	4,697	7	4,452	30	3,693	6	4,368	10	3,787	1	3,285	6
Lyallpur . . .	55,762	..	63,549	2	55,472	3	41,670	5	42,835	..	40,915	3	41,281	..
Shahpur . . .	8,822	37	8,455	57	9,497	50	9,468	70	8,240	26	6,837	23	7,124	44
Total . . .	68,872	49	76,701	66	69,421	83	54,831	81	55,243	36	51,539	27	51,690	50
Grand Total . . .	3,62,293	63,436	4,03,825	70,830	4,66,755	91,397	3,82,837	83,154	3,80,360	82,082	3,89,529	84,671	4,63,542	90,773

3. A statement giving the rates for sugarcane on the various canals of the province is attached. Irrigation rates are based on (a) water required for crops, (b) profits from cultivation of crops. In 1933-34 the rate for sugarcane was reduced by Rs. 1 per acre.

Statement showing the Occupiers' rates for sugarcane on the various canals in the Punjab.

Year.	Western Jumna Canal.	Sirhind Canal.	Upper Bari Doab Canal.	Lower Bari Doab Canal.	Upper Chenab Canal.	Lower Chenab Canal.	Upper Jhelum Canal.	Lower Jhelum Canal.	Pakpattan Canal.	Dipalpur Canal.	Eastern Canal.	Mailsi Canal.	Sidhnai Canal.	Chenab Inundation Canal.	Shahpur Inundation Canals.	Ghaggs Canals.	Indus Inundation Canals.	Muzaffargarh Inundation Canals.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
	Rs. 12	Rs. 12	Rs. a. p. 12 1 7	Rs. 12	Rs. 12	Rs. 12	Rs. 12	Rs. 12	Rs. 12	Rs. ..	Rs. ..	Rs. ..	Rs. a. ..	Rs. ..	Rs. a. ..	Rs. a. ..	Rs. a. ..	Rs. a. ..
1924-25 to Kharif 1933	P	12	12	12 1 7	12	12	12	12	12	..	..	..	2 1 (a)	..	..	..	..	..
	K	10	10	10 1 4	10	10	10	10	10	10	10	10	2 3 (b)	3	2 8	8 8	1 4	1 8
Rabi 1933-34 to-date.	P	11	11	11 0 0	11	11	11	11	11	..	..	..	1 15 (c)	..	..	..	..	..
	K	9	9	9 0 0	9	9	9	9	9	10	10	10	2 1 (a)	..	..	..	..	..
													2 3 (b)	3	2 8	8 8	1 4	1 8
													1 15 (c)					

(1) P denotes Perennial channels.

(2) K denotes Kharif channels.

(3) The above rates are for flow irrigation whereas for lift irrigation the rates are half of the above, except on Indus Inundation Canal where rates for flow and lift are the same. On Chenab Inundation Canals the rates for flow and lift irrigation are Rs. 3 and Rs. 2-4 respectively.

(4) The rate for Sugarcane on Lower Chautang Nala Canal (Western Jumna Canal) is Rs. 4-2.

(5) In the case of Lower Bari Doab Canal, only one Schedule rate has been taken.

(a) Sidhnai Canal proper—Multan tahsil.

(b) " " " Kabirwala and Khanewal tahsils.

(c) Subsidiary Canals in Kabirwala and Khanewal tahsils.

4. The following figures giving an estimate of the cost of cultivation of cane to the cultivator in Lyallpur, Jullundur and Gurdaspur districts during the years 1933-34, 1934-35 and 1935-36 are only available:—

District.	Class of area.	1933-34.	1934-35.	1935-36.
		Rs. a. p.	Rs. a. p.	Rs. a. p.
Lyallpur . . . . .	Canal Irrigated . . . . .	122 1 2	139 12 8	124 7 6
*Jullundur . . . . .	Well Irrigated . . . . .	225 4 11	234 12 5	236 15 5
†Gurdaspur . . . . .	Partly canal Irrigated and partly barani.	101 13 2	156 7 9	126 7 6

\* The high costs in Jullundur are due to high costs for lifting water.

† Separate figures for barani area are not available. The figures given above do not represent the actual outlay of the cultivator as many of the items included in the cost of cultivation are not items of actual expenditure (in cash) by the cultivator. The actual outlay (in cash) would be very much less than the figures above indicate.

No information is available as to variations in cost during the last seven years.

Only the following figures showing the average yield per acre are available:—

District.	1927-28 to 1931-32.	1933-34.	1934-35.	1935-36.
	Mds.	Mds.	Mds.	Mds.
23 districts . . . . .	32.4	...	...	...
Lyallpur . . . . .	...	25.6	33.1	32.2
Jullundur . . . . .	...	44.4	39.0	42.7
Gurdaspur . . . . .	...	18.5	19.7	16.3

The sucrose content of various canes in different districts of the province is as follows:—

District.	Average for Coimbatore varieties.	Average for local cane.
Lahore . . . . .	10.2	10.8
Montgomery . . . . .	10.8	10.2
Multan . . . . .	10.2	10.4
Lyallpur . . . . .	9.5	10.2
Sheikhupura . . . . .	9.6	9.3

A statement showing estimated cost of cultivation of sugarcane per acre in important cane-growing districts is also appended as furnished by the Director of Land Records, Punjab.

ANNEXURE A.

*Estimated cost of cultivation of sugarcane per acre in important cane-growing districts.*

Year.	Lyallpur.		Ambala,		Amritsar.		Gurdaspur.		Jullundur.		Rohtak.	
	Irriga- ted.	Unirri- gated.	Irriga- ted.	Unirri- gated.	Irriga- ted.	Unirri- ted.	Irriga- ted.	Unirri- gated.	Irriga- ted.	Unirri- gated.	Irriga- ted.	Unirri- gated.
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs. a.	Rs. a.	Rs.	Rs.
1930-31 . . . . .												
1931-32 . . . . .												
1932-33 . . . . .												
1933-34 . . . . .	70	..	60	50	50 to 70	..	80	60	105 12	84 12	57	27
1934-35 . . . . .												
1935-36 . . . . .												
1936-37 . . . . .												

22

805



5. A fair price for cane may be estimated at As. 5 to As. 5-6 per maund, according to the various conditions prevailing in the various parts of the province.

6. The reasons for marked variations in the cultivation of sugarcane (as recorded in the Season and Crop Reports) are noted below:—

Year.	Reasons.
1930-31	. Increase was due to favourable season and sufficient supply of canal water at sowing time.
1931-32	. Increase was due to favourable season and high prices of gur.
1932-33	. The increase, apart from favourable season at sowing time, was due to the fall in prices of cotton last year with a consequent decrease in the area of cotton.
1933-34	. The decrease was due to fall in the prices of gur last year.
1934-35	. The decrease was due to unfavourable season at the time of sowing.
1935-36	. The increase was due to good prices of gur and to a sufficient supply of canal water at the time of sowing.
1936-37	. The increase was due to sufficient rainfall at sowing time and good prices of gur obtainable last year.

7. The estimated production of gur in the Punjab in 1936-37 was 433,500 tons which was considerably more than that during the preceding three years, but was less than that in 1932-33 when it was 444,100 tons. The extent of increase in 1936-37 does not justify the imposition of any restriction on cultivation of cane in this province.

8. The principal competitor with sugarcane is cotton. The only figures available are reproduced below for what they are worth:—

*Gross income per acre.*

District.	1933-34.		1934-35.		1935-36.	
	Cotton.	Sugarcane.	Cotton.	Sugarcane.	Cotton.	Sugarcane.
	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.
Lyalpur	{ 44 15 1 (Desi) 55 15 11 (American)	{ 90 12 7	{ 40 14 4	{ 159 3 5	{ 53 12 3	{ 152 3 5
Jullundur	{ 23 1 9	{ 176 9 7	{ 49 10 4	{ 196 1 5	{ 55 11 9	{ 199 2 1
Gurdaspur	{ 20 13 3	{ 66 6 6	{ ..	{ ..	{ ..	{ ..

*Net income (profit or loss per acre.)*

Lyalpur	{ 8 13 7 (Desi) 19 15 2 (American)	{ 31 4 7	{ 3 6 3	{ 19 6 9	{ 11 10 1	{ 27 11 11
Jullundur	{ 25 2 3	{ 48 11 4	{ 17 14 0	{ 38 11 0	{ 4 3 7	{ 37 13 4
Gurdaspur	{ 10 1 7	{ 35 6 8	{ ..	{ ..	{ ..	{ ..

It will be observed that under net income on many occasions the crop has been produced at a net loss according to the above figures. In considering this matter, however, it must be borne in mind that figures of expenditure in all cases include various items many of which are not items of actual expenditure. The net income shown above, is, therefore, more theoretical than real.

A statement is also appended as furnished by the Director of Land Records, Punjab.

## ANNEXURE B.

District.	Crop.	Return	Expendi-	Balance.
		per acre.*	ture.	
		Rs. a.	Rs. a.	Rs. a.
Lyallpur . .	Cotton (irrigated) . . .	33 8	28 8	5 0
Amritsar . .	1. Cotton (irrigated) . . .	35 3	25 0	10 3
	2. Toria (irrigated) . . .	40 15	23 8	17 7
Gurdaspur . .	Cotton (irrigated) . . .	60 0	40 0	20 0
	„ (unirrigated) . . .	45 0	30 0	15 0
	Rice (irrigated) . . .	40 0	25 0	15 0
	Wheat { irrigated) . . .	70 0	40 0	30 0
	and Toria. { (unirrigated) . . .	50 0	32 0	18 0
Jullundur . .	Wheat (irrigated) . . .	..	73 8	..
	„ (unirrigated) . . .	..	42 0	..
	Cotton (irrigated) . . .	..	73 8	..
	„ (unirrigated) . . .	..	63 0	..
	Tobacco (irrigated) . . .	..	83 8	..
Rohtak . .	Cotton (Irrigated) . . .	45 0	..	..
	„ (unirrigated) . . .	33 8	..	..
Ambala . .	Cotton (irrigated) . . .	40 0	..	..
	„ (unirrigated) . . .	30 0	..	..

9. No separate figures are maintained for sugarcane as distinct from any other crop.

10. A grant of Rs. 31,740 was given by the Government of India from the Sugar Excise Fund during 1935-36 and it is expected that a further allotment of Rs. 25,500 will be made for expenditure during the current financial year. The contribution is used to employ staff for the spread of improved canes in the areas from which sugar factories draw their supplies; for an improvement in the methods of cultivation, manuring, etc., for chemical analyses of cane and for adopting measures to protect cane crops from insect pests and other diseases in those areas. The contribution is adequate.

\*After excluding land revenue and abiana.

11. Experiments have been carried out for very many years on all the principal experimental farms of the Agricultural Department. These experiments include the growing of very large numbers of improved canes imported from Coimbatore in order to determine those most suitable for local conditions; improved methods of cultivation, a study of the economics of manures, as well as a study of the life history and methods of control of the various insect pests which attack sugarcane.

12. The only financial assistance obtained was from the Imperial Council of Agricultural Research, which supplied the following:—

- (i) a grant of Rs. 13,060 for devising an improved sugarcane mill;
- (ii) a grant of Rs. 1,32,970 spread over five years for research into the improvement of sugarcane.

The funds are adequate for present purposes.

Large numbers of new seeding canes are obtained annually from the Coimbatore Sugarcane Research Station for testing in the province.

13. Only one factory, that at Sonapat, has co-operated with the Agricultural Department or made any attempt to introduce improved varieties of cane. For a number of years this factory imported into the area, from which it draws its supplies, improved varieties of cane from the United Provinces and some parts of the Punjab. It advanced this cane as seed to the growers after entering into a contract with them, collecting the cost after the crop had been harvested. The Agricultural Department assisted by meeting incidental expenses connected with the transport and distribution of these canes.

14. It is difficult to give exact figures. The bulk of the crop in the province is converted into gur. A certain amount is fed to cattle when there is a scarcity of ordinary fodder crops. Sale to factories is comparatively rare, except in those areas which adjoin the few sugar factories which exist. Such figures as were collected during the inquiry into the cost of production of cane indicated the following:—

	Per cent.
(1) Coimbatore seed cane—	
Made into gur or sold to factories . . . . .	80
Kept for seed . . . . .	about 15
Fed to cattle . . . . .	,, 5
(2) Co. Ratoon Cane—	
Made into gur or sold to factories . . . . .	,, 90
Kept for seed . . . . .	,, 3
Fed to cattle . . . . .	,, 7
(3) Desi Sugarcane—	
Made into gur or sold to factories . . . . .	,, 56
Kept for seed . . . . .	,, 12
Fed to cattle . . . . .	,, 32

No open pan sugar factories or khandaris worked in the province during the last season.

15. So far as cultivation is concerned the limiting factors are the availability of irrigation supplies, the manure required and the labour necessary. Under delivery to the factory the following difficulties are reported to be prevailing in the chief cane-growing districts:—

- (1) Bad roads which become impassable during rains.
- (2) Delay in taking delivery.
- (3) Defective weighing.

- (4) Delay in weighment.
- (5) Undue deduction in weighment and price.
- (6) No sheltering place at the factory for growers and their cattle.
- (7) Payment of lower prices by contractors than those fixed by the factory people.
- (8) Payment of lower rates by factory agents at local centres than those paid at the factory.
- (9) The terms of agreement for sale of cane between the factory and the grower are all one-side from contractors.
- (10) Difficulties in recovering payments from contractors.
- (11) Absence of information of the closure of the factory on account of damage to the machinery, etc.

16. As the funds allotted by the Government of India in 1935 were insufficient to finance the Co-operative as well as the Agricultural basis of the Cane-Growers Organizations proposed by the Punjab Government, provision could only be made for the latter. Co-operative Organizations of Cane-Growers has therefore not been possible, and no unions and societies of this nature are in existence. The ground has, however, been explored, and the organization could be started if funds were available.

17. Rules were framed in June, 1933, under the Sugar Industry (Protection) Act, 1932, *vide* copy of Punjab Government, Industries and Labour Department, notification No. 15730, dated the 1st June, 1933, appended as Appendix No. 1), requiring sugar factory owners to post notices on the morning of 1st and 15th days of every month during the cane crushing season, showing the price of cane worked out according to the prescribed scale on the "Cane Rate Notice" form (copy appended as Appendix II). It was proposed to enforce the rules as from the cane crushing season 1934-35. In view, however, of the extreme infancy of the industry and practical difficulties and disabilities of sugar factories, the Punjab Government thought it fit to cancel the rules in November, 1933. It has not been considered necessary so far to fix minimum prices for sugarcane under the Sugarcane Act for the undermentioned reasons:—

- (1) The supply of sugarcane is less than the market demand and the local growers are assured of a fair price by the interaction of the law of supply and demand.
- (2) The average yield of Punjab sugarcanes is lower than that of sugarcanes produced in United Provinces, Bihar, etc., and the sugar manufacturer in the Punjab is already at a disadvantage as compared with sugar manufacturers in most other parts of India where better quality canes grow. Even now he has to import cane from the United Provinces and distant places within the province and the price of imported canes to him varies from 6 to 7 annas per maund at the factory gate.

#### APPENDIX I.

##### INDUSTRIES AND LABOUR DEPARTMENT.

The 1st June, 1933.

No. 15730.—In exercise of the powers conferred by section 6 of the Sugar Industry (Protection) Act, 1932, the Punjab Government (Ministry of Local Self Government) is pleased to make the following rules under the said Act:—

1. These rules may be called "The Punjab Sugar Industry Protection Rules."

2. The owner of every sugar factory shall post notices on the morning of the first and fifteenth days of every month during the cane purchasing season at each entrance to the factory and in such conspicuous places, if any, near any such entrance as the Director of Industries, Punjab, may in each case appoint, containing the following information:—

- (i) The current rate of cane, delivered at the factory.
- (ii) The average fortnightly price of Java white sugar in the Amritsar market for the fortnights ending on the 7th and 21st days of each month, and
- (iii) The price of cane worked out according to the sliding scale described hereinafter, on the basis of the Amritsar price and the previous year's extraction:

3. The sliding scale for a particular factory shall be calculated by the following formula, on the assumption that the price of a maund (82·3 lbs.) of cane shall be equal to half the price of sugar made therefrom (on the basis of the Amritsar price of Java white sugar and the previous year's extraction of sugar per cent. cane for that factory):—

$$C = \cdot 08 \times S \times P.$$

where—

C=price of cane for purposes of the sliding scale (in annas per maund) delivered at the factory gate, including transport charges, dryage, commission and supervision charges.

S=average extraction of sugar per cent. cane for the factory during the previous working season, and

P=average fortnightly price in rupees per maund, as announced by the Director of Industries in the *Punjab Government Gazette* and the Director-General of Commercial Intelligence and Statistics, in the *Indian Trade Journal*, of Java white sugar at Amritsar during the immediate preceding fortnight, ending on the 7th or the 21st day of the month. Provided, however, that the price of cane (that is, the value of C in the above formula) shall not be below five annas per maund whatever the price and the extraction of sugar may be.

*Example 1.*—The average extraction of sugar in Factory A during the cane season 1931-32 was 9·35 per cent., and the average Amritsar price of Java white sugar during the fortnight ending 7th February, 1933, is Rs. 10-4-6 per maund.

The price of cane to be shown in the cane-rate notice during the period from the 15th February to the 28th February, 1933, shall be  $\cdot 08 \times 9 \cdot 35 \times 10 \cdot 9 / 32$  annas or seven annas six pies per maund.

*Example 2.*—Factory B had an extraction of 5·5 per cent. during 1931-32. The price of cane according to the formula for the period from 15th February to the 28th February, 1933, shall be  $\cdot 08 \times 5 \cdot 5 \times 10 \cdot 9 / 32$  annas or 4·77 annas. As this figure is below the minimum of 5 annas per maund the price to be shown in the cane-rate notice shall be five annas.

4. The cane-rate notice shall be in English in the form attached to the rules, a translation of which shall also be issued in Hindi, Urdu and Gurmukhi.

5. (a) An owner of the factory who fails to post the notices required by rule 2 in the manner required therein shall be punishable with a fine which may extend to rupees five hundred.

(b) An owner of a factory who contravenes the provisions of rule 4 shall be punishable with a fine which may extend to rupees fifty.

(c) No complaint of an offence under these rules shall be instituted save with the previous sanction of the District Magistrate of the district in which the factory is situated; and no magistrate other than a Magistrate of the 1st class shall have power to try such offence.

## APPENDIX II.

## DEPARTMENT OF INDUSTRIES AND LABOUR.

The 3rd August, 1933.

No. 20520.—The notice referred to in Rule 4 of the rules published with Punjab Government notification No. 15730, dated the 1st June, 1933, is reproduced below:—

## CANE-RATE NOTICE.

Name of factory.....

It is hereby notified under section 6 of the Sugar Industry (Protection) Act, 1932, and the rules framed by the Government of the Punjab, that the price of cane calculated on the basis of the Sliding Scale as applied to this factory, is annas per maund of 82·3 lbs., including transport charges, dryage, commission and supervision charges.

This price has been calculated for the period from to .

The price at which sugarcane is being actually bought by this factory is annas per maund.

Signature.

Date.

F. H. PUCKLE,

Secretary to Government, Punjab,  
Finance Department.

No. 20521 (Ind. & Lab.), dated 3rd August, 1933.

A copy is forwarded to the Director of Industries, Punjab, for information, with reference to his letter No. 8858, dated the 22nd July, 1933.

By order, etc.,

F. H. PUCKLE,

Secretary to Government, Punjab,  
Finance Department.

18. As the few sugar factories in the Punjab working with cane direct are situated at considerable distances from one another, there does not exist any competition among them in the purchases of their supplies of cane and accordingly the price of cane is not influenced by the conditions of competition except in the case of the factory at Abdullapur, which is situated very close to the eastern boundary of the province touching the United Provinces. The price of sugarcane here is affected by the competition of such United Provinces factories as The Ganga Sugar Corporation, Limited, Deoband; The Amritsar Sugar Mills, Nohana; Upper India Sugar Mills, Limited, Kathauli, and the Diwan Sugar Mills, Sekoti Tanda, all of which purchase their supplies *inter alia* at Sarsawa and Kalanaur, the former being only 10 miles from Abdullapur. Here the internal competition of the factories tends to maintain the price at a high level.

19. Competent interests consulted have been divided in their opinions on this question. I quote below *verbatim* the statement of the Manager, Saraawati Sugar Mills, Abdullapur.

“The superior, early and late varieties of cane have not proved very successful in our experience. On the 15th of April, the famous late ripening variety Co. 331 did not prove to be a great success. Even Co. 312 proved slightly better (Co. 312, 88 purity and Co. 331, 86) and the early variety like Co. 350 (the much acclaimed early

variety) has not given very satisfactory results. In some cases even Co. 213 has ripened earlier than Co. 315. Our result vary from field to field and therefore, the definite superiority of the so-called late and early varieties has not been established in our opinion and therefore no bonus is recommended.

The introduction of the bonus system for special varieties would have more difficulties in practical working also. The identification of the different varieties of cane would have to be left to the weighment clerks and disputes arising out of the identity of the cane become far more numerous."

The Assistant Manager of the Sonapat Sugar Factory, on the other hand, was of the opinion that the introduction of a system of bonus payments for superior, early or late varieties of cane will help in prolonging the duration of the crushing season and the encouragement to the cultivation of superior varieties will result in sugar factory owners obtaining higher percentages of sugar. He suggested a bonus of 3 to 6 pies per maund, for such varieties. Messrs. Gujranwala Sugar Mills Company, Limited, also supported the suggestion in principle but expressed a doubt whether the scheme will be successful in practice and whether the cultivators would take it seriously.

The supply of sugarcane being insufficient in the Punjab and generally of not very superior quality, the introduction of a system of bonus payment for superior early and late varieties of cane would certainly be of advantage to factory owners both in prolonging the crushing season which terminates much earlier in this province than elsewhere, and in getting a better yield of sugar.

20. The average cost of transportation of cane by carts in the Eastern and Southern Punjab is  $1\frac{1}{2}$  pies per maund per mile, while at Rahwali it is  $1\frac{1}{2}$  pies per maund per mile. At Bhalwal it was stated to be As. 1-3 per maund for places within a radius of 8 miles.

21. The cane-growers generally employ their own carts. Sometimes the carts are borrowed and the cultivator puts his own oxen to the carts. In Eastern and Southern Punjab the cost comes to about  $2\frac{1}{2}$  pies per maund per mile. At Rahwali and Bhalwal the average cost of hire of carts is about the same as given in reply to question No. 20 above. The hire of carts in Central Punjab varies from anna 1 to As. 1-6 per maund on the weight of cane.

22. Yes, but no special facilities have been effected for the object of transport of cane. Tramway systems do not exist but the feeder road system both metalled and unmetalled have been considerably extended and improved in recent years.

23-24. With the grant of protection to the sugar industry, the Department of Industries received a large number of requests for technical guidance in the establishment of small scale open pan factories from all over the province. Advice was rendered to such enquirers on such matters as most suitable plant for Punjab canes and names and addresses of suppliers thereof, proper localities for the establishment of open pan and other sugar factories, processes of manufacture, economics of the industry, literature bearing on the subject, etc. Financial assistance was rendered to 12 individuals by the grant of loans for the development of sugar industry in the Punjab under the Punjab Industrial Loans Act, 1923, of sums varying from Rs. 1,000 to Rs. 5,000. Particular assistance was rendered to sugar factories on the following counts:—

- (1) Purchase of 1,500 shares of the value of Rs. 1,50,000 in the Punjab Sugar Corporation, Sonapat, (now known as the Sonapat Sugar Factory, Sonapat), in 1929.
- (2) Reduction in the rate of terminal tax chargeable on sugarcane from As. 1-6 per maund to 6 pies per maund secured for the Punjab Sugar Corporation, Limited, Sonapat, in 1932.
- (3) Acquisition of site for the Bhalwal Sugar Mills Company, Limited, Bhalwal, secured in 1933.

- (4) Representation to Agent, North Western Railway, for reduction in freight charges on sugarcane imported by the Punjab Sugar Corporation Limited, Sonapat, over Gaziabad-Saharanpur Section in 1934. The relief asked for was not granted on the ground that further relief of 18 to 22 per cent. had been provided as from 1st September, 1934, over the rates in force prior to 1st September, 1934.
- (5) Representation to the Agent, North Western Railway, for the provision of siding terminating on the railway land for the sugar factory of Babu Jawar Singh & Sons at Bhutari in 1935. The siding was not granted on the ground that it was "against the policy of the Railway to provide such facilities for private firms wholly within the Railway land".
- (6) Representation to the Agent, North Western Railway, for reduction in freight charges on sugarcane imported from United Provinces to the level of freight rates charged on the East Indian Railway in 1935. The request was not acceded to but in order to give further relief to the sugar industry, it was informed that special wagon rates were being introduced for sugarcane from 1st November, 1935, in local booking over North Western Railway and from the 11th November, 1935, in through booking with foreign railways.
- (7) Acquisition of land measuring 10.94 acres for the disposal of the waste water secured for the Gujranwala Sugar Mills, Limited, at Rahwali in the Gujranwala District in 1936.
- (8) Representation to the Agent, North Western Railway, for the extension of siding for the sugar factory of the Amritsar Distillery Company, Limited, Amritsar, at Pattoki in 1936. The request was not acceded to as the extension of the existing shunting neck was not justified at that stage. Arrangements were, however, made to provide an approach road from the gate of the mills to the shunting neck of the siding.

Commercial and industrial intelligence has been supplied to sugar factory owners on such matters as statistics of production, import and export of sugar, lists of sugar factories in various provinces, prospects of the industry in the Punjab etc., etc. The Industrial Chemist of the Department rendered technical advice to the sugar factory at Bhalwal and to Batala sugar factory which was later converted with some modifications into a factory for the production of starch.

25. No co-operative sugar factory exists in the Punjab. The Punjab Sugar Corporation was widely advertized as partaking in co-operative principles, but they were never apparent.

26. The condition of labour in sugar factories is generally satisfactory. The rates of wages paid are adequate and residential quarters are generally provided by the larger concerns for their skilled labour. The unskilled labour drawn from the neighbouring villages retire to their homes after finishing their work at the factory. Some factories provide rented quarters for their workers. Skilled labour in some of the factories is imported from United Provinces and efforts are made to train the local workers in the various processes of the work.

27. *Director of Land Records.*—Statements showing the fortnightly wholesale and retail prices of raw sugar (gur) at Ambala, Jullundur, Amritsar, Gurdaspur, Sialkot and Lyallpur markets for seven years—1930-36 and wholesale prices of sugar (refined) for 1936 (figures prior to this year not available) are attached.

*Director of Agriculture.*—The wholesale prices for Jullundur for a little over six years, collected from Tahsil Records, and for Lyallpur market for a little over two years, collected from the market records, are attached herewith. No retail price data are available.



*Director of Industries.*—It has not been possible to collect at such a short notice the wholesale and retail prices of sugar at all important markets in the province. The following statements of wholesale and retail prices are appended at the end of the note:—

- (1) *Statement No. I* showing monthly the wholesale prices of sugar in rupees per maund at Sialkot from 1930 to 1937 (Maund=82½ lbs.).
- (2) *Statement No. II* showing monthly the retail prices of sugar in seers per rupee at Sialkot for the years 1930-31 to 1936-37.
- (3) *Statement No. III* showing wholesale and retail prices of sugar in rupees per maund at Lyallpur for the years 1930-31 to 1936-37.
- (4) *Statement No. IV* showing wholesale prices of sugar—Java imported, Indian Mill made and Khandsari in rupees per maund at Ludhiana for the years 1930-31 to 1936-37.
- (5) *Statement No. V* showing retail prices of sugar in annas per seer at Ludhiana for the years 1930-31 to 1936-37.
- (6) *Statement No. VI* showing wholesale prices of sugar in rupees per maund at Ambala for the years 1930-31 to 1936-37.
- (7) *Statement No. VII* showing retail prices of sugar in annas per seer at Rohtak for the years 1930-31 to 1936-37.

**DIRECTOR OF LAND RECORDS.**

*Statement showing the wholesale prices of raw sugar (gur) in rupees per maund during the years 1930 to 1936.*

Fortnight.	Ambala.			Jullundur.			Amritsar.			Gurdaspur.			Sialkot.			Lyallpur.		
	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.
<i>1930.</i>																		
15th Jan.	6	4	0	8	0	0	8	0	6	2	0	6	5	0	5	9	0	
31st Jan.	6	0	0	8	0	0	7	0	6	8	0	5	11	6	5	8	0	
15th Feb.	5	14	0	8	0	0	7	0	6	0	0	4	11	3	5	12	0	
28th Feb.	5	8	0	8	0	0	7	0	6	0	0	4	11	3	5	12	0	
15th Mar.	6	0	0	8	0	0	7	0	5	8	0	5	0	0	5	4	0	
31st Mar.	6	8	0	8	14	3	7	0	...	...	...	5	0	0	5	12	0	
15th Apr.	6	8	0	8	14	3	6	0	6	0	0	5	0	0	5	0	0	
30th Apr.	7	0	0	9	6	9	6	4	7	0	0	5	0	0	6	8	0	
15th May	7	4	0	9	6	9	8	0	6	4	0	5	0	0	6	4	0	
31st May	7	4	0	9	6	9	9	0	8	0	0	5	0	0	6	4	0	
15th June	8	0	0	9	6	9	9	0	8	0	0	5	5	3	6	2	0	
30th June	8	0	0	8	14	3	9	0	8	0	0	6	2	6	6	4	0	
15th July	7	0	0	8	14	3	9	12	8	0	0	7	4	3	6	8	0	
31st July	7	0	0	8	14	3	8	0	7	0	0	7	4	3	6	0	0	
15th Aug.	7	0	0	8	14	3	9	0	7	8	0	...	...	...	6	4	0	
31st Aug.	7	0	0	8	14	3	9	0	8	0	0	6	10	9	6	0	0	
15th Sep.	6	6	0	9	6	6	9	0	8	0	0	6	10	9	6	8	0	
30th Sep.	6	6	0	8	14	3	9	0	7	8	0	6	10	9	5	8	0	
15th Oct.	5	12	0	8	14	3	7	8	7	0	0	7	4	3	5	8	0	
31st Oct.	7	4	0	8	0	0	7	0	5	0	0	7	4	3	6	0	0	
15th Nov.	7	4	0	6	10	9	7	0	5	0	0	6	6	3	5	8	0	
30th Nov.	5	8	0	5	11	6	4	3	4	4	0	6	2	6	4	0	0	
15th Dec.	5	0	0	5	0	0	3	7	3	4	0	3	15	3	3	4	0	
31st Dec.	4	0	0	...	...	...	4	0	4	0	0	3	1	3	3	12	0	

Statement showing the wholesale prices of raw sugar (gur) in rupees per maund during the years 1930 to 1936—contd.

Fortnight.	Ambala.	Jullundur.	Amritsar.	Gurdaspur.	Sialkot.	Lyallpur.
	Rs. A. P.	Rs. A. P.	Rs. A.	Rs. A. P.	Rs. A. P.	Rs. A. P.
<i>1931.</i>						
15th Jan.	. 5 2 0	5 11 6	4 0	4 0 0	3 14 6	3 14 0
31st Jan.	. 5 2 0	5 0 0	4 8	4 0 0	4 3 3	3 12 0
15th Feb.	. 4 12 0	5 0 0	4 8	3 12 0	3 10 3	3 12 0
28th Feb.	. 4 12 0	5 0 0	4 7	3 12 0	3 7 6	3 8 0
15th Mar.	. 4 12 0	5 0 0	4 7	3 12 0	3 8 9	3 8 0
31st Mar.	. 4 8 0	5 0 0	4 7	3 12 0	3 10 3	3 8 0
15th Apr.	. 4 12 0	5 0 0	4 12	3 8 0	3 5 3	3 4 0
30th Apr.	. 4 12 0	5 0 0	4 4	3 8 0	3 7 6	3 4 0
15th May	. 4 12 0	5 0 0	4 4	3 8 0	3 7 6	3 6 0
31st May	. 4 12 0	5 0 0	4 4	3 8 0	3 6 6	3 6 0
15th June	. 4 12 0	5 0 0	4 14	3 12 0	3 8 9	3 8 0
30th June	. 4 12 0	5 0 0	4 14	3 8 0	3 8 3	3 8 0
15th July	. 4 12 0	5 0 0	4 14	3 8 0	3 6 6	3 6 0
31st July	. 4 12 0	5 0 0	4 14	3 12 0	3 6 6	3 8 0
15th Aug.	. 4 12 0	5 0 0	4 14	3 12 0	3 10 3	3 12 0
31st Aug.	. 4 12 0	5 0 0	4 14	3 12 0	3 8 9	3 14 0
15th Sep.	. 4 12 0	5 11 6	5 0	3 12 0	3 8 3	4 0 0
30th Sep.	. 4 12 0	5 11 6	5 0	3 12 0	3 14 6	4 4 0
15th Oct.	. 5 0 0	5 8 0	5 0	3 8 0	3 11 6	4 8 6
31st Oct.	. 5 0 0	4 7 0	5 0	4 0 0	3 9 6	4 12 0
15th Nov.	. 5 0 0	4 0 0	5 0	4 8 0	4 11 3	4 4 0
30th Nov.	. 5 0 0	5 8 6	4 12	3 10 0	4 9 0	3 0 0
15th Dec.	. 4 3 0	4 0 0	4 0	3 8 0	3 8 9	3 0 0
31st Dec.	. 4 0 0	4 11 3	4 0	4 0 0	4 1 6	3 8 0
<i>1932.</i>						
15th Jan.	. 4 3 0	4 0 0	3 12	3 10 0	3 11 6	3 12 0
31st Jan.	. 3 14 6	4 0 0	3 12	3 10 0	3 15 3	3 6 0
15th Feb.	. 3 8 0	4 0 0	4 0	3 10 0	3 7 6	3 0 0
29th Feb.	. 3 8 0	3 11 3	3 14	3 5 0	3 10 9	3 0 0
15th Mar.	. 3 6 0	3 10 9	3 8	3 4 0	3 3 3	2 12 0
31st Mar.	. 3 0 0	3 10 3	3 8	3 0 0	3 0 9	2 12 0
15th Apr.	. 3 0 0	3 10 3	3 8	2 12 0	3 1 3	2 12 0
30th Apr.	. 3 0 0	3 5 3	3 8	2 12 0	3 6 6	2 12 0
15th May	. 2 12 0	3 10 3	3 0	2 12 0	3 5 3	3 0 0
31st May	. 2 5 0	3 10 3	3 0	2 12 0	3 0 3	2 12 0
15th June	. 2 12 0	3 10 3	3 0	2 10 0	2 13 9	2 8 0
30th June	. 2 12 0	3 1 3	3 8	2 4 0	2 13 9	2 4 0
15th July	. 2 10 0	2 8 0	3 8	2 8 0	2 13 9	2 4 0
31st July	. 2 12 0	2 8 0	3 8	2 12 0	2 13 9	2 8 0
15th Aug.	. 3 2 0	3 1 3	3 10	2 12 0	2 13 9	2 4 0
31st Aug.	. 3 4 0	3 5 3	3 10	2 14 0	2 12 0	2 4 0
15th Sep.	. 3 4 0	3 10 3	3 8	3 0 0	2 15 3	2 4 0
30th Sep.	. 3 4 0	3 5 3	3 14	3 1 0	3 1 3	2 8 0
15th Oct.	. 3 0 0	3 13 0	3 14	3 2 0	3 1 3	3 8 0

Statement showing the wholesale prices of raw sugar (gur) in rupees per maund during the years 1930 to 1936—contd.

Fortnight.	Ambala.	Jullundur.	Amritsar.	Gurdaspur.	Sialkot.	Lyalpur.
	Rs. A. P.	Rs. A. P.	Rs. A.	Rs. A. P.	Rs. A. P.	Rs. A. P.
1932—contd.						
31st Oct.	3 0 0	3 13 0	3 12	3 5 0	3 1 3	3 8 0
15th Nov.	3 0 0	3 13 0	4 7	3 1 0	3 1 3	3 8 0
30th Nov.	3 0 0	3 10 3	4 0	3 0 0	3 1 3	3 0 0
15th Dec.	2 12 0	3 5 3	4 0	2 7 0	3 0 0	2 8 0
31st Dec.	2 12 0	3 5 3	3 12	2 8 0	3 2 9	2 8 0
1933.						
15th Jan.	3 1 0	4 0 0	3 8	2 7 0	3 5 3	2 8 0
31st Jan.	2 12 0	3 10 3	3 4	2 6 0	3 2 3	2 8 0
15th Feb.	2 12 0	3 10 3	3 8	2 11 0	3 1 3	2 11 0
28th Feb.	2 4 0	3 10 3	3 8	2 4 0	3 0 3	2 4 0
15th Mar.	2 4 0	3 10 3	3 4	2 4 0	3 3 3	2 4 0
31st Mar.	2 0 0	3 10 3	3 0	2 8 0	3 5 3	2 4 0
15th Apr.	2 8 0	3 1 3	3 8	2 8 0	3 3 3	2 4 0
30th Apr.	2 12 0	3 5 3	3 8	3 5 0	3 3 3	3 0 0
15th May	2 4 0	4 0 0	3 12	3 5 0	3 5 3	3 0 0
31st May	2 4 0	4 7 0	4 0	3 3 0	3 0 3	2 8 0
15th June	2 8 0	4 7 0	4 0	3 1 0	3 10 3	3 4 0
30th June	3 4 0	4 7 0	4 0	3 3 0	3 10 3	3 0 0
15th July	3 0 0	4 7 0	4 4	3 1 0	4 0 0	3 8 0
31st July	3 0 0	4 7 0	4 8	3 3 0	4 7 0	3 0 0
15th Aug.	3 0 0	5 0 0	4 8	3 1 0	4 3 3	3 4 0
31st Aug.	3 0 0	5 0 0	4 0	2 14 0	4 3 3	2 12 0
15th Sep.	3 0 0	4 11 3	5 0	2 15 0	4 3 3	3 0 0
30th Sep.	2 12 0	4 11 3	5 0	3 3 0	4 3 3	2 12 0
15th Oct.	2 12 0	4 11 3	4 0	3 3 0	4 3 3	2 12 0
31st Oct.	2 8 0	5 0 0	4 0	3 3 0	4 0 0	3 0 0
15th Nov.	2 12 0	...	4 0	3 3 0	5 5 3	2 8 0
30th Nov.	2 12 0	5 0 0	4 0	3 10 0	4 0 0	3 8 0
15th Dec.	2 12 0	4 0 0	4 0	2 14 0	3 5 3	3 4 0
31st Dec.	3 8 0	4 0 0	4 0	2 14 0	3 1 3	3 0 0
1934.						
15th Jan.	3 8 0	3 13 0	3 10	2 12 0	2 8 0	3 8 0
31st Jan.	4 0 0	3 10 3	3 10	3 0 0	2 8 0	3 10 0
15th Feb.	3 0 0	3 10 3	3 10	3 0 0	2 10 9	3 8 0
28th Feb.	3 0 0	3 10 3	3 12	3 0 0	2 10 9	3 4 0
15th Mar.	3 0 0	3 10 3	4 0	3 4 0	3 1 3	3 1 0
31st Mar.	3 8 0	3 10 3	4 0	3 4 0	3 5 3	3 4 0
15th Apr.	3 8 0	3 5 3	4 0	3 8 0	3 1 3	3 6 0
30th Apr.	3 12 0	3 5 3	4 14	4 8 0	3 10 3	3 8 0
15th May	3 12 0	4 0 0	5 8	4 8 0	3 10 3	4 4 0
31st May	4 0 0	4 0 0	5 8	4 8 0	4 7 0	4 8 0
15th June	4 0 0	4 7 0	5 8	4 4 0	4 7 0	5 0 0
30th June	4 12 0	5 0 0	5 8	4 8 0	5 0 0	5 4 0

Statement showing the wholesale prices of raw sugar (gur) in rupees per maund during the years 1930 to 1936—contd.

Fortnight.	Ambala.	Jullundur.	Amritsar.	Gurdaspur.	Sialkot.	Lyallpur.
	Rs. A. P.	Rs. A. P.	Rs. A.	Rs. A. P.	Rs. A. P.	Rs. A. P.
1934—contd.						
15th July	5 0 0	5 11 6	...	4 4 0	5 0 0	5 0 0
31st July	6 4 0	5 11 6	...	4 8 0	5 5 3	4 12 0
15th Aug.	5 8 0	5 3 3	...	4 8 0	5 11 6	4 12 0
31st Aug.	5 8 0	6 10 6	...	4 4 0	5 11 6	5 6 0
15th Sep.	7 0 0	6 10 6	...	5 8 0	5 11 6	5 8 0
30th Sep.	7 8 0	8 0 0	8 0	7 4 0	5 11 6	5 8 0
15th Oct.	7 8 0	6 6 6	7 0	5 8 0	5 2 6	5 12 0
31st Oct.	7 0 0	7 4 6	6 0	5 0 0	5 2 3	5 0 0
15th Nov.	7 0 0	6 10 9	6 0	6 2 0	5 0 0	4 12 0
30th Nov.	6 0 0	6 2 3	6 0	4 8 0	5 1 3	5 2 0
15th Dec.	5 8 0	...	6 8	3 8 0	5 0 0	4 0 0
31st Dec.	4 4 0	4 0 0	5 4	3 8 0	4 7 0	4 0 0
1935.						
15th Jan.	4 8 0	4 7 0	5 12	3 8 0	5 0 0	4 6 0
31st Jan.	5 0 0	6 2 0	5 0	5 8 0	4 11 3	5 4 0
15th Feb.	5 0 0	5 5 3	6 0	5 2 0	4 8 0	5 0 0
28th Feb.	5 5 0	5 11 6	6 0	5 4 0	4 9 3	5 0 0
15th Mar.	5 4 0	5 11 6	5 12	5 0 0	4 7 0	4 12 0
31st Mar.	5 4 0	5 5 3	5 12	5 0 0	5 0 0	5 0 0
15th Apr.	5 4 0	5 0 0	5 12	5 8 0	5 0 0	5 2 0
30th Apr.	5 4 0	5 5 3	6 4	5 8 0	5 11 6	5 8 0
15th May	6 0 0	5 5 3	6 4	5 8 0	5 11 6	5 4 0
31st May	5 8 0	6 0 0	6 8	5 8 0	5 11 6	5 4 0
15th June	5 4 0	6 0 0	6 8	5 8 0	5 11 6	5 8 0
30th June	5 4 0	5 11 6	6 8	5 4 0	5 11 6	5 4 0
15th July	5 4 0	5 11 6	6 0	5 4 0	6 10 9	5 2 0
31st July	...	5 11 6	6 0	5 5 0	6 10 9	5 5 0
15th Aug.	5 4 0	5 11 3	5 8	...	6 10 9	5 6 0
31st Aug.	4 12 0	5 9 0	5 8	...	6 10 9	5 6 0
15th Sep.	4 12 0	5 9 0	5 8	5 0 0	6 10 9	5 12 0
30th Sep.	4 12 0	5 8 0	5 8	5 8 0	6 11 0	5 4 0
15th Oct.	5 4 0	5 0 0	7 0	5 8 0	8 0 0	5 4 0
31st Oct.	5 4 0	5 4 6	7 0	4 12 0	7 4 3	5 4 0
15th Nov.	5 0 0	7 4 0	6 8	5 0 0	6 10 9	5 10 0
30th Nov.	5 8 0	5 12 0	5 0	5 5 6	6 2 6	4 12 0
15th Dec.	4 4 0	5 0 0	5 0	4 0 0	5 11 6	4 1 0
31st Dec.	4 2 0	4 7 0	4 0	4 0 0	4 11 3	3 14 0
1936.						
15th Jan.	4 1 0	4 7 0	4 4	3 14 0	5 0 0	4 0 0
31st Jan.	4 1 0	4 7 0	3 14	4 3 6	4 0 0	3 12 0
15th Feb.	4 1 0	4 7 0	3 14	4 3 0	...	3 12 0
29th Feb.	4 1 0	4 7 0	3 14	4 0 0	4 0 0	3 12 0
15th Mar.	3 12 0	4 0 0	3 14	3 12 0	4 0 0	3 14 0

*Statement showing the wholesale prices of raw sugar (gur) in rupees per maund during the years 1930 to 1936—contd.*

Fortnight.	Ambala.	Jullundur.	Amritsar.	Gurdaspur.	Sialkot.	Lyallpur.
	Rs. A. P.	Rs. A. P.	Rs. A.	Rs. A. P.	Rs. A. P.	Rs. A. P.
1936—contd.						
31st Mar.	3 12 0	4 0 0	3 13	4 1 0	4 7 0	3 15 0
15th Apr.	4 0 0	5 0 0	3 13	4 0 0	5 0 0	3 14 0
30th Apr.	4 0 0	4 7 0	4 0	4 0 0	4 7 0	3 15 0
15th May	4 8 0	5 0 0	4 0	4 0 0	4 7 0	3 11 0
31st May	4 8 0	4 3 6	4 2	4 0 0	4 0 0	3 14 0
15th June	4 0 0	4 0 0	4 0	4 0 0	4 7 0	3 14 0
30th June	3 12 0	4 0 0	4 0	3 8 0	4 7 0	3 14 0
15th July	3 12 0	4 0 0	4 0	3 8 0	5 0 0	3 14 0
31st July	3 12 0	4 0 0	3 12	3 5 3	4 0 0	3 12 0
15th Aug.	3 14 0	4 7 0	4 4	3 1 3	4 7 0	3 12 0
31st Aug.	3 14 0	4 7 0	4 8	3 5 3	4 0 0	3 12 0
15th Sep.	3 14 0	4 7 0	5 0	3 12 0	4 7 0	3 10 0
30th Sep.	3 14 0	4 7 0	5 4	3 12 0	5 0 0	3 6 0
15th Oct.	4 0 0	5 0 0	5 4	4 4 0	5 11 6	4 4 0
31st Oct.	4 0 0	5 5 3	5 8	4 0 0	5 11 6	4 8 0
15th Nov.	4 4 0	5 5 3	5 8	4 0 0	5 14 9	4 6 0
30th Nov.	4 8 0	4 3 3	4 0	3 10 0	4 7 0	3 8 0
15th Dec.	3 12 0	4 11 3	4 0	3 7 3	5 0 0	3 8 0
31st Dec.	3 8 0	5 0 0	4 0	3 1 3	5 0 0	3 12 0

*Statement showing the retail prices of raw sugar (gur) in seers per rupee during the years 1930 to 1936.*

Fortnight.	Ambala.	Jullundur.	Amritsar.	Gurdaspur.	Sialkot.	Lyallpur.
	Srs. ohs.	Srs. ohs.	Srs. ohs.	Srs. ohs.	Srs. ohs.	Srs. ohs.
1930.						
15th Jan.	6 2	4 0	5 0	7 8	6 12	6 8
31st Jan.	6 6	4 8	5 8	7 8	7 0	6 8
15th Feb.	6 0	4 8	5 8	6 8	8 8	6 0
28th Feb.	7 0	4 8	5 8	6 8	8 8	6 0
15th Mar.	6 6	4 8	5 8	7 0	8 0	6 9
31st Mar.	5 14	4 8	5 8	7 0	8 0	6 8
15th Apr.	5 14	4 8	6 8	6 8	8 0	6 8
30th Apr.	5 6	4 8	6 4	6 0	8 0	6 0
15th May	5 4	4 4	4 12	6 0	8 0	6 0
31st May	5 4	4 4	4 4	5 0	8 0	6 0
15th June	4 12	4 4	4 4	5 0	7 8	6 0
30th June	4 12	4 4	4 4	5 0	6 8	6 0
15th July	5 7	4 8	4 0	5 0	5 8	6 0
31st July	5 7	4 8	4 12	5 8	5 8	6 0
15th Aug.	5 7	4 8	4 4	5 8	5 12	5 8
31st Aug.	5 7	4 4	4 4	5 0	6 0	5 8
15th Sep.	6 0	4 4	4 4	4 12	6 0	5 8

Statement showing the retail prices of raw sugar (gur) in seers per rupee during the years 1930 to 1936—contd.

Fortnight.	Ambala.	Jullundur.	Amritsar.	Gurdaspur.	Sialkot.	Lyallpur.
	Srs. chs.	Srs. chs.	Srs. chs.	Srs. chs.	Srs. chs.	Srs. chs.
<i>1930—contd.</i>						
30th Sep.	6 0	4 4	4 4	5 0	6 0	6 8
15th Oct.	6 10	4 8	5 0	5 12	5 8	6 8
31st Oct.	6 10	4 8	5 8	7 8	6 8	6 0
15th Nov.	5 4	5 0	5 8	7 8	6 4	6 0
30th Nov.	7 0	6 0	9 0	9 0	6 8	10 0
15th Dec.	7 12	6 8	11 0	11 0	10 2	10 0
31st Dec.	9 12	6 8	9 12	9 0	13 0	9 0
<i>1931.</i>						
15th Jan.	7 8	8 0	9 8	9 0	10 4	8 0
31st Jan.	7 8	8 0	8 12	9 0	9 8	9 0
15th Feb.	8 4	8 0	8 12	9 8	11 0	9 0
28th Feb.	8 4	7 0	8 12	10 0	11 8	9 0
15th Mar.	8 4	7 0	8 12	10 0	11 4	10 0
31st Mar.	8 8	7 0	8 12	10 0	11 0	10 0
15th Apr.	8 4	8 0	8 12	10 0	11 4	10 0
30th Apr.	8 4	8 0	9 0	10 0	11 8	11 0
15th May	8 4	8 0	9 0	10 0	11 8	10 0
31st May	8 4	8 0	9 0	10 0	11 12	10 0
15th June	8 4	8 0	8 0	10 0	11 4	10 0
30th June	8 4	8 0	8 0	10 0	11 6	10 0
15th July	8 2	7 0	8 0	10 0	11 12	10 0
31st July	8 2	7 0	8 0	10 0	11 12	10 0
15th Aug.	8 2	7 0	8 0	10 0	11 0	10 0
31st Aug.	8 2	7 0	8 0	10 0	11 4	9 8
15th Sep.	8 2	7 0	8 0	10 0	10 6	9 0
30th Sep.	8 2	7 0	8 0	10 0	10 4	9 0
15th Oct.	7 12	9 0	8 0	11 0	10 12	8 0
31st Oct.	7 12	9 0	8 0	11 0	11 2	7 8
15th Nov.	7 12	7 0	8 0	11 0	8 8	8 0
30th Nov.	7 12	7 0	8 0	11 0	8 12	11 0
15th Dec.	9 4	9 0	10 0	11 0	11 4	10 0
31st Dec.	9 12	8 0	10 0	9 8	9 12	10 0
<i>1932.</i>						
15th Jan.	9 4	9 0	10 0	10 8	10 12	10 0
31st Jan.	10 0	9 0	10 0	10 8	10 2	10 0
15th Feb.	11 4	9 0	9 12	11 0	11 8	11 0
29th Feb.	11 4	10 0	10 0	11 0	10 14	11 0
15th Mar.	10 8	10 0	11 0	11 8	12 8	13 0
31st Mar.	13 0	10 0	11 0	12 0	13 2	13 0
15th Apr.	13 0	10 0	11 0	12 0	13 0	13 0
30th Apr.	13 0	10 0	11 0	12 0	11 12	13 0
15th May	14 0	10 0	13 0	12 0	12 0	12 8

Statement showing the retail prices of raw sugar (gur) in seers per rupee during the years 1930 to 1936—contd.

Fortnight.	Ambala.	Jullundur.	Amritsar.	Gurdaspur.	Sialkot.	Lyalpur.
	Srs. chs.	Srs. chs.	Srs. chs.	Srs. chs.	Srs. chs.	Srs. chs.
<i>1932—contd.</i>						
31st May	16 8	10 0	13 0	14 0	13 4	13 0
15th June	14 4	10 0	13 0	14 0	14 0	14 0
30th June	14 4	10 0	11 0	17 0	14 0	14 0
15th July	14 8	15 0	11 0	15 0	14 0	14 0
31st July	14 0	15 0	11 0	14 0	14 0	14 0
15th Aug.	12 0	13 0	10 8	14 0	14 0	15 0
31st Aug.	12 0	11 0	10 8	13 0	14 8	14 0
15th Sep.	12 4	10 8	11 0	13 0	13 8	15 0
30th Sep.	12 4	10 8	10 0	12 8	13 0	15 0
15th Oct.	13 0	10 0	10 0	12 0	13 0	10 0
31st Oct.	13 0	10 0	10 0	11 8	13 0	10 0
15th Nov.	13 0	10 0	8 12	12 8	13 0	10 0
30th Nov.	13 0	10 0	9 12	12 0	13 0	13 0
15th Dec.	14 4	10 0	9 12	16 0	13 4	13 0
31st Dec.	14 4	10 0	10 0	15 0	12 10	13 0
<i>1933.</i>						
15th Jan.	12 12	9 0	11 0	16 0	12 8	14 0
31st Jan.	15 8	9 0	12 0	16 0	12 12	13 0
15th Feb.	14 0	10 0	11 0	14 8	13 0	13 0
28th Feb.	17 0	10 0	11 0	17 0	13 4	15 0
15th Mar.	17 0	10 0	12 0	17 0	12 8	16 0
31st Mar.	19 0	10 0	13 0	15 8	12 0	16 0
15th Apr.	15 0	11 0	11 4	15 8	12 8	16 0
30th Apr.	14 0	11 0	11 4	11 8	12 8	13 0
15th May	17 8	10 0	10 4	11 8	12 0	13 0
31st May	17 0	8 0	10 0	12 0	12 0	13 0
15th June	15 8	8 0	10 0	12 8	11 0	12 0
30th June	12 0	8 0	10 0	12 0	11 0	12 0
15th July	13 0	9 0	9 4	12 8	10 0	11 0
31st July	13 0	9 0	8 12	12 0	9 0	12 0
15th Aug.	13 0	8 0	8 12	12 8	9 8	12 0
31st Aug.	13 0	8 0	10 0	13 8	9 8	13 0
15th Sep.	13 0	8 0	8 0	13 0	9 8	13 0
30th Sep.	14 4	8 0	8 0	12 0	9 8	13 0
15th Oct.	14 8	8 0	9 0	12 0	9 8	13 0
31st Oct.	15 8	8 0	9 8	12 0	10 0	13 0
15th Nov.	14 0	8 0	9 8	12 0	7 8	13 0
30th Nov.	14 0	8 0	9 8	10 8	10 0	11 0
15th Dec.	14 0	10 0	9 8	13 0	12 0	12 0
31st Dec.	15 8	10 0	10 0	13 0	13 0	13 0
<i>1934.</i>						
15th Jan.	11 4	10 0	11 0	12 12	16 0	13 0
31st Jan.	9 12	11 0	10 0	12 0	16 0	12 0
15th Feb.	12 12	10 0	10 0	12 0	15 0	11 0

Statement showing the retail prices of raw sugar (gur) in seers per rupee during the years 1930 to 1936—contd.

Fortnight.	Ambala.	Jullundur.	Amritsar.	Gurdaspur.	Sialkot.	Lyallpur.
	Srs. chs.	Srs. chs.	Srs. chs.	Srs. chs.	Srs. chs.	Srs. chs.
1934—contd.						
28th Feb.	12 12	11 0	10 0	12 8	15 0	12 0
15th Mar.	12 12	10 0	10 0	12 0	13 0	12 0
31st Mar.	11 0	10 0	10 0	12 0	12 0	11 8
15th Apr.	11 0	10 0	10 0	11 0	13 0	11 0
30th Apr.	10 4	9 0	8 0	8 12	11 0	11 0
15th May	10 4	8 8	7 0	8 12	10 0	9 0
31st May	9 12	8 8	7 0	8 8	9 0	8 0
15th June	9 12	8 0	7 0	9 0	9 0	7 8
30th June	8 0	6 8	7 0	8 8	8 0	7 8
15th July	7 8	6 8	...	9 0	8 0	8 0
31st July	6 6	6 4	...	8 0	7 8	8 0
15th Aug.	7 4	5 8	...	7 8	7 0	7 8
31st Aug.	7 4	5 12	...	7 8	7 0	7 0
15th Sep.	5 4	5 0	...	7 4	7 0	7 0
30th Sep.	5 0	5 12	5 0	7 4	7 0	7 0
15th Oct.	5 0	5 8	5 8	7 0	6 10	8 8
31st Oct.	5 0	5 0	6 0	8 0	7 12	5 12
15th Nov.	5 0	6 0	6 8	6 8	8 0	8 0
30th Nov.	6 4	6 0	6 8	8 4	7 14	7 0
15th Dec.	7 0	9 0	6 0	11 0	8 0	9 0
31st Dec.	9 0	6 0	7 8	11 4	8 8	8 8
1935.						
15th Jan.	8 8	6 0	7 0	11 4	9 0	8 8
31st Jan.	7 12	6 4	8 0	7 12	8 8	7 8
15th Feb.	7 12	6 8	6 8	...	8 14	7 8
28th Feb.	7 4	6 0	6 8	7 8	8 12	7 8
15th Mar.	7 10	6 8	6 12	8 0	9 0	8 0
31st Mar.	7 10	6 8	6 12	8 0	7 0	8 0
15th Apr.	7 4	7 0	6 12	7 4	8 0	7 12
30th Apr.	7 4	7 0	6 4	7 4	7 0	7 8
15th May	6 6	7 0	6 4	7 4	7 0	7 8
31st May	7 0	6 0	6 0	7 0	7 0	7 8
15th June	7 4	6 0	6 0	6 12	7 0	7 0
30th June	7 4	6 0	6 0	7 8	7 0	7 8
15th July	7 4	6 0	6 8	7 8	6 0	7 8
31st July	7 4	6 0	6 0	7 8	6 0	7 0
15th Aug.	7 4	6 0	7 0	7 12	6 0	7 0
31st Aug.	8 4	6 0	7 0	8 0	6 0	7 0
15th Sep.	8 4	6 0	7 0	7 0	6 0	7 0
30th Sep.	8 4	7 0	7 0	7 0	6 0	6 8
15th Oct.	7 4	6 0	5 8	7 0	5 0	7 8
31st Oct.	7 4	6 0	5 8	8 0	5 8	6 12



Statement showing the retail prices of raw sugar (gur) in seers per rupee during the years 1930 to 1936—concl'd.

Fortnight.	Ambala.	Jullundur.	Amritsar.	Gurdaspur.	Sialkot.	Lyallpur.
	Srs. chs.	Srs. chs.	Srs. chs.	Srs. chs.	Srs. chs.	Srs. chs.
1935—contd.						
15th Nov.	7 12	5 8	6 0	7 8	6 0	6 8
30th Nov.	7 12	6 0	8 0	7 4	6 8	7 8
15th Dec.	9 0	7 0	8 0	9 8	7 0	9 4
31st Dec.	9 8	7 0	9 8	9 8	9 8	9 8
1936.						
15th Jan.	9 8	8 0	9 4	10 0	8 0	9 8
31st Jan.	9 8	8 0	10 0	9 4	10 0	9 12
15th Feb.	9 8	8 0	10 0	9 4	10 0	10 0
29th Feb.	9 8	7 0	10 0	10 0	10 0	10 0
15th Mar.	10 4	9 0	10 0	10 0	10 0	9 8
31st Mar.	10 4	9 0	10 0	9 8	9 0	9 8
15th Apr.	9 12	7 8	10 0	9 8	8 0	10 0
30th Apr.	9 2	8 0	10 0	9 8	9 0	9 8
15th May	8 8	7 0	10 0	9 8	10 0	10 0
31st May	8 8	8 8	10 0	9 8	10 0	9 0
15th June	...	9 0	10 0	9 8	9 0	9 0
30th June	10 4	9 0	10 0	11 4	9 0	9 0
15th July	10 4	9 0	10 0	11 4	8 0	9 0
31st July	10 4	9 0	10 0	11 12	10 0	10 0
15th Aug.	10 1	8 0	8 8	12 8	9 0	10 0
31st Aug.	10 1	8 0	8 0	11 8	10 0	10 0
15th Sep.	10 0	8 0	8 0	10 8	9 0	10 0
30th Sep.	10 0	8 0	7 0	10 4	8 0	11 0
15th Oct.	9 12	8 0	7 0	9 4	7 0	8 0
31st Oct.	9 12	7 0	7 0	9 12	7 0	8 0
15th Nov.	9 2	7 0	7 0	9 12	6 12	8 8
30th Nov.	8 8	9 0	9 8	10 12	9 0	9 0
15th Dec.	10 4	8 0	9 8	11 0	8 0	9 8
31st Dec.	10 12	8 0	9 8	12 8	8 0	9 8

Statement showing the wholesale prices of sugar (refined) in rupees per maund during the year 1936.

Fortnight.	Ambala.	Jullundur.	Amritsar.	Gurdaspur.	Sialkot.	Lyallpur.
	Rs. A.	Rs. A.	Rs. A.	Rs. A. P.	Rs. A. P.	Rs. A.
1936.						
15th Jan.	9 0	9 8	...	10 0 0	...	...
31st Jan.	9 8	9 0	...	10 0 0	...	...
15th Feb.	10 0	9 0	...	10 0 0	...	...
29th Feb.	10 0	9 0	9 8	...	10 10 9	...
15th Mar.	9 0	9 0	9 8	10 0 0	10 10 9	...

Statement showing the wholesale prices of sugar (refined) in rupees per maund during the year 1936—contd.

Fortnight.	Ambala.	Jullundur.	Amritsar.	Gurdaspur.	Sialkot.	Lyallpur.
	Rs. A.	Rs. A.	Rs. A.	Rs. A. P.	Rs. A. P.	Rs. A.
1936—contd.						
31st Mar.	9 8	9 0	9 4	10 0 0	13 5 3	...
15th Apr.	9 8	9 0	9 4	10 0 0	10 10 9	...
30th Apr.	9 8	8 14	9 4	10 0 0	11 6 9	...
15th May	9 8	8 14	9 4	10 0 0	11 6 9	...
31st May	9 8	...	9 4	9 10 0	11 6 9	...
15th June	9 0	8 12	9 4	9 6 0	10 0 0	...
30th June	9 0	8 12	9 8	9 4 0	10 0 0	...
15th July	8 0	8 12	9 4	9 4 0	10 0 0	...
31st July	9 0	8 12	9 4	9 6 6	10 0 0	...
15th Aug.	9 0	8 12	9 8	9 4 0	10 0 0	...
31st Aug.	8 0	8 8	9 8	9 2 0	10 10 9	...
15th Sep.	8 0	8 12	9 8	9 1 0	10 0 0	...
30th Sep.	9 8	8 12	9 8	9 2 0	10 0 0	...
15th Oct.	8 12	8 12	9 8	9 2 0	10 0 0	...
31st Oct.	8 0	8 12	10 0	9 2 0	10 0 0	...
15th Nov.	8 8	8 12	10 0	9 2 0	10 0 0	7 6
30th Nov.	9 0	8 12	10 0	9 2 0	10 0 0	7 8
15th Dec.	8 8	8 12	9 0	8 14 0	10 0 0	8 0
31st Dec.	8 8	8 0	9 0	8 0 0	10 0 0	8 0

NOTE.—The price of sugar (refined) are not available from 1930 to 1935.

#### DIRECTOR OF AGRICULTURE.

Average monthly wholesale prices of sugar and gur per maund in rupees at Jullundur.

Year & Month.	Sugar		Gur.	
	I Grade.	II Grade.	I Grade.	II Grade.
	Rs. A.	Rs. A. P.	Rs. A.	Rs. A.
1931.				
January	10 0	...	6 3	5 0
February	10 5	...	6 0	5 0
March	...	10 7 0	6 11	4 12
April	10 10	10 5 0	6 11	5 0
May	...	10 11 0	...	5 0
June	...	11 1 0	...	5 0
July	...	10 14 0	8 14	5 0
August	...	10 14 0	8 14	5 0
September	...	11 1 0	8 14	5 11
October	...	12 4 0	8 0	4 7
November	...	12 6 0	7 4	4 0
December	...	12 12 0	7 4	4 7

*Average monthly wholesale prices of sugar and gum per maund in rupees at Jullundur—contd.*

Year & Month.	Sugar.		Gur.	
	I Grade.	II Grade.	I Grade.	II Grade.
	Rs. A.	Rs. A. P.	Rs. A.	Rs. A.
<b>1932.</b>				
January . . . . .	...	12 8 0	7 4	4 0
February . . . . .	...	12 8 6	7 4	3 10
March . . . . .	...	12 2 0	...	3 10
April . . . . .	...	11 8 0	...	3 5
May . . . . .	...	11 12 0	...	3 10
June . . . . .	...	11 11 0	...	3 6
July . . . . .	...	12 0 0	...	4 0
August . . . . .	...	11 8 0	...	2 14
September . . . . .	...	11 10 0	...	3 5
October . . . . .	...	12 1 0	...	3 13
November . . . . .	...	11 12 0	...	3 13
December . . . . .	...	11 8 0	3 10	3 5
<b>1933.</b>				
January . . . . .	11 8	...	4 0	3 10
February . . . . .	10 8	10 4 0	...	3 10
March . . . . .	10 10	10 9 0	...	3 10
April . . . . .	10 9	10 4 0	3 5	3 1
May . . . . .	11 4	10 6 0	4 7	4 0
June . . . . .	...	10 8 0	...	4 7
July . . . . .	...	10 8 0	...	4 7
August . . . . .	...	10 8 0	5 0	4 7
September . . . . .	...	10 8 0	5 0	4 7
October . . . . .	...	10 8 0	5 11	5 0
November . . . . .	10 12	10 8 0	7 4	5 11
December . . . . .	10 8	...	4 3	4 0
<b>1934.</b>				
January . . . . .	10 4	9 4 0	4 0	3 10
February . . . . .	9 0	...	4 0	3 10
March . . . . .	9 8	...	...	3 10
April . . . . .	9 12	9 4 0	...	3 5
May . . . . .	10 7	...	...	4 0
June . . . . .	10 4	...	...	5 1
July . . . . .	10 0	...	...	5 11
August . . . . .	10 0	...	5 0	4 7
September . . . . .	10 8	...	...	7 6
October . . . . .	10 4	...	7 4	6 11
November . . . . .	10 4	...	...	6 2
December . . . . .	9 8	...	...	4 0
<b>1935.</b>				
January . . . . .	9 4	...	...	4 7
February . . . . .	9 10	...	5 11	5 0
March . . . . .	9 8	...	...	3 10

*Average monthly wholesale prices of sugar and gur per maund in rupees at Jullundur—concd.*

Year & Month.	Sugar.		Gur.	
	I Grade.	II Grade.	I Grade.	II Grade.
	Rs. A.	Rs. A. P.	Rs. A.	Rs. A.
<i>1935—contd.</i>				
April	9 4	...	...	3 5
May	9 15	...	...	5 11
June	10 4	...	...	5 11
July	9 8	...	...	5 11
August	9 8	...	...	5 11
September	9 8	...	...	5 6
October	10 9	...	...	6 11
November	10 4	...	...	7 10
December	10 0	...	...	4 11
<i>1936.</i>				
January	9 8	...	...	5 0
February	9 0	...	...	4 7
March	9 0	...	...	4 0
April	9 0	...	...	4 7
May	9 15	...	...	5 11
June	8 12	...	...	4 0
July	8 12	...	...	4 0
August	...	...	...	4 7
September	8 12	...	...	4 7
October	8 12	...	...	4 7
November	10 12	...	...	4 3
December	8 12	...	...	4 7
<i>1937.</i>				
January	8 0	...	...	5 0
February	8 4	...	...	4 7
March	8 8	...	...	4 11
April	8 4	...	...	3 5
May	7 10	...	...	3 10

*Fortnightly wholesale prices of sugar in the Lyallpur market per maund of 82½ lbs.*

Date.	Mahol.	Bajner.	Dhampur.
	Rs. A. P.	Rs. A. P.	Rs. A. P.
<i>1935.</i>			
15th January	...	...	...
31st January	...	...	...
15th February	8 13 0	9 1 0	9 1 0
28th February	8 14 0	9 2 0	9 2 0
15th March	8 15 0	9 1 0	9 3 0
31st March	8 15 6	9 2 0	9 5 0

Fortnightly wholesale prices of sugar in the Lyallpur market per maund of 82½ lbs.—contd.

Date.	Maholi.	Bajnor.	Dhampur.
	Rs. A. P.	Rs. A. P.	Rs. A. P.
<i>1935—contd.</i>			
15th April . . . . .	9 0 0	9 2 0	9 5 6
30th April . . . . .	9 1 0	9 3 0	9 6 0
15th May . . . . .	9 1 0	9 3 0	9 6 3
31st May . . . . .	9 0 6	9 3 0	9 5 6
15th June . . . . .	8 15 0	9 2 0	9 4 0
30th June . . . . .	8 15 0	9 2 6	9 4 0
15th July . . . . .	8 10 0	9 2 0	9 4 3
31st July . . . . .	8 15 0	...	9 4 3
15th August . . . . .	8 14 6	...	9 4 0
31st August . . . . .	8 15 6	9 2 0	9 6 0
15th September . . . . .	9 4 0	...	9 10 0
30th September . . . . .	9 10 0	...	10 0 0
15th October . . . . .	9 14 0	...	10 8 0
31st October . . . . .	9 6 0	...	10 3 0
15th November . . . . .	9 4 0	9 9 0	9 8 0
30th November . . . . .	9 1 0	9 7 0	9 7 0
15th December . . . . .	8 10 0	8 10 0	8 10 0
31st December . . . . .	8 10 0	8 10 0	8 10 0
<i>1936.</i>			
15th January . . . . .	8 6 6	8 10 0	8 9 0
31st January . . . . .	8 6 6	8 10 0	8 9 0
15th February . . . . .	8 5 0	8 7 0	8 7 0
29th February . . . . .	8 2 0	8 5 0	8 4 0
15th March . . . . .	8 4 6	8 8 0	8 8 0
31st March . . . . .	8 4 0	8 8 0	8 8 0
15th April . . . . .	8 4 6	8 8 0	8 8 0
30th April . . . . .	8 1 0	8 7 0	8 6 0
15th May . . . . .	...	...	...
31st May . . . . .	7 14 0	8 2 0	8 1 0
15th June . . . . .	7 12 0	8 0 6	8 0 0
30th June . . . . .	7 12 0	8 1 6	8 1 0
15th July . . . . .	7 11 0	7 14 0	7 15 0
31st July . . . . .	7 11 0	7 14 0	7 13 0
15th August . . . . .	7 10 6	7 14 6	7 14 0
31st August . . . . .	7 11 0	...	8 0 0
15th September . . . . .	7 11 6	...	7 15 0
30th September . . . . .	7 12 0	7 15 0	7 14 0
15th October . . . . .	7 12 0	7 15 0	7 12 0
31st October . . . . .	7 12 0	7 15 0	7 12 0
15th November . . . . .	7 3 0	7 5 0	7 4 0
30th November . . . . .	7 2 0	7 4 0	7 3 0
15th December . . . . .	6 10 0	6 13 0	6 13 0
31st December . . . . .	6 11 0	6 15 0	7 0 0

*Fortnightly wholesale prices of sugar in the Lyallpur market per maund of 82½ lbs.—concl'd.*

Date.	Maholi.	Bajnor.	Dhampur.
	Rs. A. P.	Rs. A. P.	Rs. A. P.
<i>1937.</i>			
15th January . . .	6 12 0	6 15 0	7 0 0
31st January . . .	6 10 0	6 15 0	7 1 0
15th February . . .	6 7 0	6 12 0	6 13 0
28th February . . .	6 6 0	6 10 0	6 13 0
15th March . . .	6 9 0	6 13 0	6 13 0
31st March . . .	6 9 0	6 12 0	6 13 0
15th April . . .	6 8 0	6 12 0	6 12 0
30th April . . .	6 5 0	6 8 0	6 8 0

*N.B.*—The abovementioned prices are the quotations of the rates at the mill godowns. The following amounts are the overhead charges per maund to bring sugar from the mills to the Lyallpur market:—

Maholi—Rs. 1-6. Bajnor—Rs. 1-0-9. Dhampur—Rs. 1-1.

In order to ascertain the wholesale prices of sugar at Lyallpur, these overhead charges should be added to the quotations given in the statement.

DIRECTOR OF INDUSTRIES.

STATEMENT No. I showing monthly the wholesale prices of sugar in rupees per maund at Sialkot from 1930 to 1937 (Maund=82½ lbs.)

Name of the month.	1930.	1931.	1932.	1933.	1934.	1935.	1936.	1937.
	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.
January . . . . .	..	10 2 0	12 9 6	12 5 3	10 3 0	9 12 0	9 14 0	7 15 3
February . . . . .	..	10 6 0	12 10 3	11 6 9	9 5 0	10 0 0	9 11 0	7 12 3
March . . . . .	..	10 8 0	12 10 3	11 3 6	9 12 0	10 8 0	9 10 3	7 12 3
April . . . . .	..	10 9 9	12 3 9	11 0 3	9 12 9	10 2 6	9 8 0	7 8 4
May . . . . .	..	10 9 9	12 3 9	10 13 0	10 9 9	10 6 6	9 4 6	7 5 6
June . . . . .	..	11 0 3	12 3 9	11 0 3	10 9 9	10 3 0	9 3 0	..
July . . . . .	..	10 14 3	12 3 9	11 3 6	10 9 9	10 8 0	8 15 9	..
August . . . . .	..	10 14 3	12 3 9	11 3 6	10 11 6	9 14 6	8 15 9	..
September . . . . .	11 4 3	11 1 0	12 3 9	10 11 6	10 13 0	10 7 3	8 15 9	..
October . . . . .	11 0 3	12 7 0	12 5 9	10 3 0	10 11 6	10 8 0	8 12 6	..
November . . . . .	10 0 0	12 5 6	12 3 0	10 9 9	10 9 9	10 6 6	8 9 3	..
December . . . . .	9 14 6	12 11 3	12 3 9	10 9 9	10 9 9	10 8 0	8 2 9	..
Average for the year . . . . .	10 9 0	11 2 0	12 6 0	11 0 0	10 5 0	10 4 6	9 2 6	7 11 0

N.B.—Prices kindly supplied by Messrs. Gokal Chand Jagan Nath, Sugar Merchants, Sialkot.

STATEMENT No. II showing monthly the retail prices of sugar in seers per rupee at Sialkot for the years 1930-31 to 1936-37.

Name of the month.	1930-31.	1931-32.	1932-33.	1933-34.	1934-35.	1935-36.	1936-37.
	Srs. chs.	Srs. chs.	Srs. chs.	Srs. chs.	Srs. chs.	Srs. chs.	Srs. chs.
March	3 4	3 7	3 0	3 4	3 12	3 4	3 7
April	3 4½	3 7	3 0	3 4	3 2	3 12	4 0
May	3 5	3 4	3 1	3 8	3 0	3 11	4 0
June	3 2	3 6	3 1	3 4	3 0	3 10	4 0
July	3 2	3 6	3 1	3 8	3 0	3 9	4 0
August	3 4	3 6	3 1	3 2	3 0	3 12	4 0
September	3 3	3 6	3 0	3 8	3 0	3 8	4 0
October	3 4	3 0	3 0	3 8	3 0	3 7	4 0
November	3 8	3 0	3 1	3 8	3 9	3 6	4 0
December	3 12	2 14	3 1	3 12	3 8	3 11	4 0
January	3 10	3 0	3 4	3 13	3 11	3 12	4 0
February	3 8	3 0	3 8	4 0	3 8	3 14	4 8
Price per seer	As. 4-9	As. 5	As. 5-2	As. 4-7	As. 5	As. 4-5	As. 4

N.B.—Prices obtained from Tahsil Records of current prices.

STATEMENT No. III showing wholesale and retail prices of sugar in rupees per maund at Lyallpur for the years 1930-31 to 1936-37.

Year.	Wholesale price per maund.	Retail price per seer.
	Rs. A.	As. P.
1930-31	10 12	5 0
1931-32	10 8	4 9
1932-33	10 2	4 6
1933-34	9 14	4 3
1934-35	9 8	4 3
1935-36	9 6	4 3
1936-37	7 7	3 6

STATEMENT No. IV showing wholesale prices of sugar—Java (imported), Indian Mill-made and Khandasari in rupees per maund at Ludhiana for the years 1930-31 to 1936-37.

Years.	Sugar—Java (imported).	Indian Mill-made sugar.	Khandasari sugar (Open pan).
	Rs. A.	Rs. A.	Rs. A.
1930-31	14 0	11 0	11 8
1931-32	14 0	11 0	11 8
1932-33	14 0	10 8	11 0
1933-34	14 0	10 0	10 8
1934-35	13 0	9 8	9 12
1935-36	12 4	8 6	8 12
1936-37	11 0	7 2	7 8

NOTE.—There is no arrival of imported (Java) sugar in the Ludhiana town from the last 3 years due to its high price. The figures given for these years only represent the prices at which the sugar would be had. These prices have been obtained from the records of Messrs. Hans Raj Ramji Das, Sugar Merchants, Ludhiana.



STATEMENT No. V showing retail prices of sugar in annas per seer at Ludhiana for the years 1930-31 to 1936-37.

Year.	Price.	
	As.	P.
1930-31	4	9
1931-32	5	0
1932-33	5	3
1933-34	5	0
1934-35	5	0
1935-36	5	0
1936-37	4	0

NOTE.—In retail prices, figures for different qualities are not available. The figures given above were obtained from Tahsil Records.

STATEMENT No. VI showing wholesale prices of sugar in rupees per maund at Ambala for the years 1930-31 to 1936-37.

Year.	Sugar made of Indian Mill.		Khandsari sugar (Open pan).	
	Rs. A.	Rs. A.	Rs. A.	Rs. A.
1930-31	14 0	to 18 0	12 4	to 13 0
1931-32	14 0	to 18 0	11 4	to 12 0
1932-33	10 0	to 12 0	10 0	to 10 8
1933-34	8 0	to 10 8	9 8	to 10 8
1934-35	10 0	to 10 12	9 4	to 11 0
1935-36	9 0	to 10 8	9 8	to 10 4
1936-37	7 4	to 9 0	7 8	to 9 4

N.B.—These prices have been obtained from the Tahsil Records.

STATEMENT No. VII showing retail prices of sugar (Desi) in annas per seer at Rohtak for the years 1930-31 to 1936-37.

Year.	As. P.	
	As.	P.
1930-31	4 0	to 4 6
1931-32	5 0	to 5 6
1932-33	4 3	to 4 9
1933-34	4 0	to 4 9
1934-35	4 0	to 4 6
1935-36	3 9	to 4 0
1936-37	3 6	

NOTE.—These prices have been obtained from the Tehsil Records.

28. *Director of Industries.*—A comparative statement showing the wholesale and retail prices of sugar at Sialkot, Lyallpur and Ludhiana is attached. It will show the relative movements of wholesale and retail prices at these stations. While at Sialkot and Lyallpur the retail prices follow the downward course of wholesale prices fairly closely, at Ludhiana the retail price does not exhibit this tendency, although the wholesale price falls gradually from Rs. 11 per maund in 1931-32 to Rs. 7-2 per maund in 1936-37. In spite of the fall in the wholesale price between 1933-34 and 1935-36 the retail price remains stationary which accounts for the lack of co-relation in the figures of wholesale and retail prices at this centre.

*Director of Land Records.*—There are no marked variations between the wholesale and retail prices.

Statement showing wholesale and retail prices of sugar at Sialkot, Lyallpur and Ludhiana.

Year.	Sialkot.				Lyallpur.				Ludhiana.			
	Whole- sale.	Vari- ation 1930-31 =100.	Retail.	Vari- ation 1930-31 =100.	Whole- sale.	Vari- ation 1930-31 =100.	Retail.	Vari- ation 1930-31 =100.	Whole- sale.	Vari- ation 1930-31 =100.	Retail.	Vari- ation 1930-31 =100.
	Rs. A.		As. P.		Rs. A.		As. P.		Rs. A.		As. P.	
1930-31 . . . . .	10 7	100.0	4 9	100.0	10 12	100.0	5 0	100.0	11 0	100.0	4 9	100.0
1931-32 . . . . .	11 11	112.0	5 0	105.3	10 8	97.7	4 9	95.0	11 0	100.0	5 0	105.3
1932-33 . . . . .	12 2	116.2	5 2	108.8	10 2	94.2	4 3	85.0	10 8	95.5	5 3	115.3
1933-34 . . . . .	10 9	101.2	4 7	96.5	9 14	91.9	4 3	85.0	10 0	90.9	5 0	105.3
1934-35 . . . . .	10 5	98.8	5 0	105.3	9 8	88.4	4 3	85.0	9 8	86.4	5 0	105.3
1935-36 . . . . .	10 3	97.6	4 5	93.0	9 6	87.2	4 3	85.0	8 6	76.1	5 0	105.3
1936-37 . . . . .	8 11	83.3	4 0	84.2	7 7	69.2	3 6	70.0	7 2	64.7	4 0	84.2
Average of 5 months January to May 1937.	7 11	73.7	..	..	..	..	..	..	..	..	..	..

Notes.—Variation in prices in different centres due to different qualities of sugar placed in market.

29. *Director of Land Records.*—The figures of approximate consumption of sugar in the Punjab during the last seven years 1930-31 to 1936-37 are given below:—

Year.	Tons.	Year.	Tons.
1930-31	405,300	1934-35	404,900
1931-32	404,900	1935-36	408,200
1932-33	404,900	1936-37	408,200
1933-34	404,900		

The consumption is likely to increase with the rise in the general standard of living.

*Director of Industries.*—An approximate idea of the normal consumption of sugar in the Punjab may be formed from the figures of net imports of sugar in the province as available in the "Accounts relating to the Inland (Rail and River-borne) Trade of India" published by the Department of Commercial Intelligence and Statistics, India, and by adding thereto the quantity of sugar produced by the local sugar factories. The average net import of sugar in the Punjab during the last three years for which figures are available is shown below:—

Year.	Imports.	Exports.	Net Import.
	Mds.	Mds.	Mds.
1933-34	5,232,164	61,230	5,170,884
1934-35	5,079,020	29,445	5,049,575
1935-36	5,405,613	28,512	5,377,101
Average net import during the three years	...	...	5,199,187
Add 541,193 maunds representing local production during 1936-37 (Figures of local production for previous years are not available)	...	...	541,193
Total approximate consumption of sugar in the Punjab	...	...	5,740,380

The consumption of sugar in the Punjab is reported to have increased steadily as a result of the fall in its price though not to the extent of the fall in the price. If the price of sugar continues to be low its consumption may be expected to increase further in such industries as syrups and sharbats, preserved fruits, jams and jellies, confectionery of the type of lemon and peppermint drops, etc., etc.

30. There are no large scale manufacturers of confectionery in the Punjab. Best sweetmeats are made by *halvais* all over the province and almost the entire quantity of sugar used is Indian mill-made. A few individuals have started the production of lemon drop type of confectionery and sugar coated almonds, etc., on a small experimental scale. They use Indian mill-made white sugar.

31. (i) As already stated above in reply to Questions 7 and 18 the sugar factories established in the Punjab are situated at considerable distances from one another and the local production of cane is both insufficient and inferior in quality, which necessitates the importation of cane by factory owners from distant places and in some cases from the United Provinces. The introduction of zone system allotting special areas to different factories for the supply of cane to them would not accordingly be of any practical value in this province. The factory owners consulted

also do not consider that a zone system for the supply of cane is called for at this stage of the development of the sugar industry in the Punjab.

(ii) Opinion is divided on the question of fixation of quota for sugar manufacture by the existing factories. The Gujranwala Sugar Mills Company, Limited, have expressed themselves in favour of the suggestion. The fixation of quota would prevent over-production which is detrimental to the interests of sugar manufacturers and is responsible for bringing the price of sugar to the present low level. In fixing quotas due consideration should be given to the quality of raw materials available in different localities, recovery of sugar from cane, duration of the cane season and accessibility to the consuming markets. The guiding principle should be in prevention of over-production so as to stop the cut throat competition. The formula for the fixation of quotas should be so framed as to enable easy readjustment in the event of a natural calamity like wide spread failure of rain or other extraneous causes.

(iii) Opinion is divided on the question of licensing of new factories and extension of existing factories. Some are not in favour of the suggestion while others favour it. The Gujranwala Sugar Mills Company, Limited, are in favour of the licensing of new factories and in the exercise of strict control in the establishment of new sugar mills. They have further added that with the home production already in excess of the demand, there is no reason why in the interests of sugar industry any additions should be allowed in the number of existing factories. There should be no objection to existing factories extending their plants to suit local conditions of the industry.

The question is not of vital concern to the Punjab. The development of the sugar industry in this province has been cut short even in its infancy chiefly on account of the insufficiency and poor quality of cane grown here. The introduction of a system of "zones" for the supply of cane would not suit the Punjab. The fixation of quotas in the production of sugar is, however, welcomed by the sugar manufacturers and would afford some relief to them, while the restrictions on the establishment of new factories would check over-production, and help to maintain prices on an economic level. It would also lead to the consolidation of the existing industry. There should be no restrictions on the extensions of existing factories as those who have already invested capital in the industry should not be debarred from improving their positions.

32. There exist good possibilities of starting the industry of sweets, syrups, fruit preservation and canning, etc., in this province, and there exists an extensive local market for their consumption. Sweets and syrups are already produced. In sweets there is a keen competition from Sukkar and Cawnpore factories. Syrups are mainly made for local markets. Attempts have been made in fruit preservation and canning but they have not generally succeeded owing to foreign competition and lack of technical knowledge. The Fruit Specialist of the Department of Agriculture, Punjab, has conducted researches in these lines and efforts are being made by him to popularise these industries by arranging demonstrations and short courses of training.

33. An estimate of production of gur for the last seven years in the Punjab is given below:—

	Tons.		Tons.
1930-31 . . . . .	301,600	1934-35 . . . . .	326,200
1931-32 . . . . .	367,800	1935-36 . . . . .	359,600
1932-33 . . . . .	444,100	1936-37 . . . . .	433,500*
1933-34 . . . . .	364,300		

34. Gur and jaggery are not known to be produced from any other material than cane in the Punjab.

\* According to final sugarcane forecast, 1936-37.

35. A statement showing the wholesale prices of gur in rupees per maund at Sialkot, Lahore, Ludhiana and Ambala together with the area under sugarcane is given below:—

*Statement showing wholesale prices of gur in Rupees per maund at Sialkot, Lahore, Ludhiana and Ambala and the area under Sugarcane in the Punjab for the years 1930-31 to 1936-37.*

Wholesale price of <i>desi</i> gur at Sialkot.		Wholesale price at Lahore.	Wholesale price at Ludhiana.	Wholesale price at Ambala.	Area under Sugarcane.
	Rs. A.	Rs. A.	Rs. A.	Rs. A. P.	Acres.
1930-31.					
Highest rate . . .	October, 1930 . . . 6 6	Highest . . . 5 8	Desi . . . 7 8	Highest . . . 8 0 0	425,729
Lowest " . . .	February, 1931 . . . 3 1	Lowest . . . 4 13	Purbi . . . 6 8	Lowest . . . 5 8 0	
Average . . .	4 4				
1931-32.					
Highest rate . . .	November, 1931 . . . 4 4	Highest . . . 4 14	Desi . . . 5 0	Highest . . . 5 0 0	474,655
Lowest " . . .	July, 1931 . . . 3 2	Lowest . . . 4 6	Purbi . . . 4 4	Lowest . . . 3 4 0	
Average . . .	3 8				
1932-33.					
Highest rate . . .	December, 1932 . . . 2 14	Highest . . . 2 12	Desi . . . 3 4	Highest . . . 3 2 0	558,152
Lowest " . . .	June, 1932 . . . 2 7	Lowest . . . 1 8	Purbi . . . 4 2	Lowest . . . 1 10 6	
Average . . .	2 11				

		1933-34.								
V-III	Highest rate . . .	November, 1933 . . .	4 8	Highest . . .	2 4	Desi . . .	3 6	Highest . . .	3 7 0	465,991
	Lowest " . . .	January, 1934 . . .	2 8	Lowest . . .	1 6	Purbi . . .	3 4	Lowest . . .	2 6 0	
	Average . . .		3 3							
		1934-35.								
	Highest rate . . .	August, 1934 . . .	5 4	Highest . . .	2 12	Desi . . .	6 8	Highest . . .	7 8 0	462,442
	Lowest " . . .	March, 1934 . . .	3 0	Lowest . . .	2 9	Purbi . . .	5 4	Lowest . . .	3 8 0	
	Average . . .		4 3							
		1935-36.								
	Highest rate . . .	October, 1935 . . .	5 10	Highest . . .	3 12	Desi . . .	5 12	Highest . . .	5 4 0	474,200
	Lowest " . . .	January, 1936 . . .	3 8	Lowest . . .	2 12	Purbi . . .	5 9	Lowest . . .	3 12 0	
	Average . . .		4 13							
		1936-37.								
	Highest rate . . .	November, 1936 . . .	4 12	Highest . . .	Not available.	Desi . . .	4 12	Highest . . .	4 8 0	Figures not available at the time of writing.
	Lowest " . . .	January: February 1937 . . .	3 6	Lowest . . .	Do.	Purbi . . .	4 10	Lowest . . .	3 12 0	
	Average . . .		3 14							

It will be observed that with the extension in the area under cultivation from 1930-31 to 1932-33 the price of gur continued to fall gradually in these years. The price of gur was the lowest in 1932-33 and remained at about the same level in 1933-34 though inclining towards a slightly upward tendency, which is explained by the fact that the area under cane fell heavily and the crop was damaged by floods and extensive rains in the low lying areas of some districts and "top borar" damaged it in some parts of Rohtak, Gurgaon and Karnal. The total outturn according to the Report on Season and Crops of the Punjab was 18 per cent. less than last year. The area under reference fell again in 1934-35 and prices of gur registered an appreciable increase as compared with the 1933-34 level. The cane crop was also poor. According to the Report on the Season and Crops of the Punjab for 1934-35 "Top borar" and 'pyrilla' insect pests and frost damaged the crop in parts of some districts. The percentage of the estimated yield per acre varied from 50 to 100 of the normal on irrigated and 40 to 100 on unirrigated areas. The total outturn was 326,200 tons or 2 per cent. below normal". The price of gur was generally better in 1935-36 as compared with 1934-35 in spite of the increase in area and better average outturn per acre which was 8 per cent. above the normal. It would thus appear that while the increase in area under cane has tended to bring the price of gur down and the damage to cropping has tended to force the price up, the changes in prices are not found to rise and fall in mathematical proportion to the conditions of cropping.

As regards the effect of competition of India factory sugar on the price of gur it will be observed from the prices of sugar given in answer to Question No. 27 above that while the latter have maintained a steady downward tendency since 1932 the price of gur has been erratic in its movement. The people in the trade also maintain that the movements of the prices of gur are independent of the variations in the price of sugar.

The following statistics of retail prices of gur are given below:—

- (a) Statement showing retail prices of *desi* and *purbi* gur in annas per seer at Ludhiana for the years 1930-31 to 1937.
- (b) Statement showing retail prices of gur and shakkar in annas per seer at Ambala for the years 1930-31 to 1936-37.
- (c) Statement showing retail prices of gur in annas per seer at Rohtak for the years 1930-31 to 1936-37.
- (d) Statement showing monthly retail prices of *desi* gur produced in the Sialkot district in seers and chataks per rupee for the years 1930-31 to 1936-37.

(a) Statement showing the retail prices of gur/jaggery at Ludhiana for the last seven years.

Year.	Desi Gur	Purbi Gur
	per seer.	per seer.
	As. P.	As. P.
1930-31	3 0	2 6
1931-32	2 0	1 9
1932-33	1 4½	1 6
1933-34	1 4½	1 6
1934-35	2 3	2 0
1935-36	2 3	2 3
1936-37	1 9	1 6

NOTE.—Figures for gur have been obtained from the Tehsil Records. Retail prices of shakkar are not available anywhere.

(b) Statement showing the retail prices of gur/jaggery at Ambala for the last seven years.

Year.	Gur per seer.		Shakkar per seer.	
	As. P.	As. P.	As. P.	As. P.
1930-31	2 0	to 3 0	1 9	to 3 3
1931-32	1 6	to 2 0	1 6	to 2 3
1932-33	0 10½	to 1 4½	1 0	to 1 6
1933-34	1 0	to 1 6	1 1½	to 1 9
1934-35	1 6	to 3 0	2 0	to 3 6
1935-36	1 6	to 2 3	1 7½	to 2 3
1936-37	1 6	to 1 9	1 9	to 2 0

NOTE.—These prices have been obtained from the Tehsil Records.

(c) Statement showing the retail prices of gur at Rohtak during the last seven years.

Year.	Gur per seer.		Year.	Gur per seer.	
	As. P.	As. P.		As. P.	As. P.
1930-31	1 6	to 2 6	1934-35	1 0	to 1 6
1931-32	1 6	to 2 9	1935-36	1 0	to 2 0
1932-33	0 9	to 1 0	1936-37	1 0	to 1 6
1933-34	0 9	to 1 0			

NOTE.—These prices have been obtained from the Tehsil Records.

(d) Retail prices of gur per rupee for the years 1930-31 to 1936-37 at the headquarters of Sialkot District.

Name of the month.	1930-31.		1931-32.		1932-33.		1933-34.		1934-35.		1935-36.		1936-37	
	sr. ch.	sr. ch.	sr. ch.	sr. ch.	sr. ch.	sr. ch.	sr. ch.	sr. ch.	sr. ch.	sr. ch.	sr. ch.	sr. ch.	sr. ch.	sr. ch.
Mar.	7 4	11 0	13 2	12 0	12 8	8 0	9 12							
Apr.	8 0	11 8	11 12	12 8	11 8	7 8	9 0							
May	8 0	11 12	14 0	12 0	9 8	7 0	10 0							
June	7 0	11 6	14 0	11 0	9 0	7 0	9 0							
July	5 6	11 12	14 0	9 8	7 12	6 0	10 0							
Aug.	5 14	11 4	14 0	9 8	7 0	6 0	9 8							
Sep.	6 0	10 4	13 0	9 8	7 0	6 0	9 0							
Oct.	6 0	11 2	13 0	9 10	7 6	5 6	7 4							
Nov.	6 12	8 12	13 0	8 0	7 15	6 2	8 0							
Dec.	11 8	9 12	12 15	13 4	8 4	7 13	10 8							
Jan.	9 8	10 2	12 10	15 9	8 12	8 14	10 8							
Feb.	11 8	10 14	13 2	15 8	8 13	10 4	10 8							

N.B.—Prices obtained from Tehsil Records.

36. The figures of consumption of gur are not recorded by any agency in this province. An idea of the consumption of gur may be formed from



the figures of the actual estimated weight of gur produced as recorded in the Season and Crops Reports of the Punjab given below:—

Year.	*Estimated actual weight of gur produced in tons as available in the Reports on the Seasons and Crops of the Punjab.	Area in acres under Sugarcane.
1929-30 . . . . .	203,600	306,696
1930-31 . . . . .	301,600	425,729
1931-32 . . . . .	367,800	474,655
1932-33 . . . . .	444,100	558,152
1933-34 . . . . .	364,300	465,991
1934-35 . . . . .	326,200	462,442
1935-36 . . . . .	359,600	474,200

The variations in the estimated actual weight of gur produced are primarily due to the variations in the area under sugarcane crop. The area continued to increase up to the year 1932-33 as there existed considerable demand for sugarcane by the large number of open pan factories and other large major factories which had sprung up immediately after the grant of protection to the sugar industry. With the imposition of the Excise in 1933-34 and the gradual fall in the price of sugar almost all the open pan factories were obliged to close their doors and the demand for sugarcane also received a set back.

The fall in the direct consumption of gur is also partly due to the lowering of the price of Indian mill sugar.

37-38. There is no agency in the Punjab for recording the statistics of import and export trade of the province in gur/jaggery. The figures of imports of "gur, rab, molasses and jaggery, etc." into the Punjab (which includes Delhi and North-West Frontier Province) and the figures of export of these commodities from the Punjab as available in the "Accounts relating to the Inland (Rail and River-borne) Trade of India for the years 1933-34, 1934-35 and 1935-36" are given below:—

*Statement showing imports of gur, rab, molasses and jaggery, etc., in the Punjab in maunds.*

Province or Indian State from which Imported.	1933-34.	1934-35.	1935-36.
Bengal . . . . .	8	14	9
Bihar and Orissa . . . . .	89,901	183,627	217,204
United Provinces . . . . .	2,555,610	2,383,313	3,326,907
Sind and Baluchistan . . . . .	1,697	1,617	2,253
Central Provinces . . . . .	361	135	8
Bombay . . . . .	1,375	32	2
Rajputana . . . . .	776	1,845	320
Central India . . . . .	5	...	154
Calcutta . . . . .	700	8	18
Bombay Port . . . . .	115	1	...
Karachi . . . . .	849	103	22
Kashmere . . . . .	5	...	12
<b>Total</b>	<b>2,651,402</b>	<b>2,570,695</b>	<b>3,546,909</b>

\* The figures do not represent the actual amount of gur produced, but only an approximate estimate of production based on the average quality of cane produced.

It will be observed that the preponderating proportion of the imports come from the United Provinces with Bihar and Orissa as the second largest supplier. Imports from other parts of the country are negligible.

The following table shows the exports of gur, rab, molasses and jaggery from the Punjab in maunds:—

Province or Indian State to which Exported.	1933-34.	1934-35.	1935-36.
Bengal . . . . .	234	9,753	...
Bihar and Orissa . . . . .	660	231	169
United Provinces . . . . .	66,124	14,971	2,624
Sind and Baluchistan . . . . .	90,892	67,326	64,947
Central Provinces . . . . .	4,889	2	236
Bombay . . . . .	3,515	360	56,094
Madras . . . . .	...	1	...
Rajputana . . . . .	158,777	103,437	99,717
Central India . . . . .	8,204	408	109
Nizam's territory . . . . .	1,942	1	1
Kashmere . . . . .	18,625	23,025	4,189
Calcutta . . . . .	7	325	185
Bombay Port . . . . .	382	176	4
Karachi . . . . .	1,592	66	343
Madras Port . . . . .	...	154	...
<b>Total</b> . . . . .	<b>355,843</b>	<b>220,236</b>	<b>228,617</b>

39. A comparative statement showing the wholesale price of gur and of sugar at Sialkot, Ludhiana and Ambala is given below. A cursory glance at the statement will show that no relation whatsoever, exists between the prices of gur and those of sugar. While the price of sugar for instance at Sialkot was the highest in the seven years from 1930-31 the price of gur was the lowest, viz., Rs. 2-11 per maund and while the price of sugar was the lowest in the six years 1930-31 to 1935-36, viz., Rs. 10-3. The price of gur was the highest, viz., Rs. 4-13 per maund. As already stated above in reply to Question No. 35 the movements in the price of gur are independent of the variations in the price of sugar and vice versa.

Comparative statement showing wholesale prices of gur and sugar at Sialkot, Ludhiana and Ambala for the years 1930-31 to 1936-37.

Year.	Sialkot.		Ludhiana.		Ambala.	
	Whole-sale price of Gur.	Whole-sale price of Sugar.	Whole-sale price of Gur.	Whole-sale price of Sugar.	Whole-sale price of Gur.	Whole-sale price of Sugar.
	Rs. A.	Rs. A.	Rs. A.	Rs. A.	Rs. A. P.	Rs. A.
1930-31 . . . . .	4 4	10 7	7 8	11 0	5 8 0 to 8 0 0	14 0 to 18 0
1931-32 . . . . .	3 8	11 11	5 4	11 0	3 4 0 to 5 0 0	14 0 to 18 0
1932-33 . . . . .	2 11	12 2	3 4	10 8	1 10 6 to 3 2 0	10 0 to 12 12
1933-34 . . . . .	3 3	10 9	3 6	10 0	2 6 0 to 3 7 0	8 0 to 10 8
1934-35 . . . . .	4 3	10 5	6 8	9 8	3 8 0 to 7 8 0	10 0 to 10 12
1935-36 . . . . .	4 13	10 3	5 12	8 6	3 12 0 to 5 4 0	9 0 to 10 8
1936-37 . . . . .	3 14	8 11	4 12	7 2	3 12 0 to 4 8 0	7 4 to 9 0

40. Reliable statistics of the consumption of sugar and gur/jaggery are not available for this province. The figures of net imports of sugar in the Punjab have been given in reply to Question No. 29 above. They are reproduced below along with the figures of net imports of "gur, rab, molasses, jaggery, etc.", which are also taken from the Accounts relating to the Inland (Rail and River-borne) Trade of India:—

Year.	Sugar.			Gur, rab, molasses and jaggery, etc.		
	Imports.	Exports.	Net Imports.	Imports.	Exports.	Net Imports.
	Mds.	Mds.	Mds.	Mds.	Mds.	Mds.
1933-34 . . . . .	5,232,164	61,280	5,170,884	2,651,402	356,082	2,295,320
1934-35 . . . . .	5,079,020	20,445	5,049,575	2,570,696	220,235	2,350,461
1935-36 . . . . .	5,405,613	28,512	5,377,101	3,546,909	228,617	3,318,292

The figures of net imports of sugar as well as of gur, rab, molasses and jaggery in 1935-36 show a considerable increase over the figures of the two previous years. No definite conclusions can, however, be based on them. As a result of the enquiries made from dealers in sugar and gur conflicting reports have been received on the point. The general opinion is that there is no competition between sugar and gur. The consumption of sugar has increased slightly at the expense of shakkar, but the consumption of gur is stated to have remained generally unaffected except perhaps in some towns. Some dealers in Sialkot, however, maintain that as a result of the cheapening of the price of sugar the demand for gur in that area (which imports gur for its local consumption from United Provinces, North-West Frontier Province and other districts of the Punjab) has decreased and its price has gone down in those parts. The replacement of gur by sugar is, however, not very consequential.

41. The main experiments so far have been directed to an improvement in the country furnaces, with a view to reduce the time taken in the manufacture of gur and the quantity of fuel necessary.

42. (i) A list of open pan factories set up in the Punjab after the grant of protection to the sugar industry is given below to show their locations. All of them closed down by the end of 1933-34:—

Name and location of factory.	Capital invested including machinery, land, etc.
1. Saini Sugar Mills, Tanda (Jullundur)	1,200 (Land on rent).
2. Anant Ram Valaiti Ram Sugar Factory, Mandi, Tehsil Phillaur (Jullundur)	... Not available.
3. Kapila Works, P. O. Santokhgarh Fort, Tehsil Una (Hoshiarpur)	9,250
4. Basant Ram Amat Nath Sugar Factory, Upra, Tehsil Phillaur (Jullundur)	... Not available.
5. Pandit Nanak Chand and Sons' Sugar Factory, Jandiala Manjike (Jullundur)	4,500
6. The Swadeshi Sugar Factory, Batala	10,000 (Building on rent).
7. Ram Rakha Mal Sugar Factory, Sujanpur	950
8. Nainkot Sugar Factory, Nainkot (Gurdaspur)	6,155
9. G. M. Bassi Sugar Factory, Nawan Shahr Doaba	4,500
10. Lachman Das Sugar Factory, Dasuya	9,150
11. The Batala Sugar Factory, Batala	12,000
12. Raja Sansi (Sugar Factory) Mills Company, Raja Sansi, Amritsar	8,080
13. Mandi Sugar Factory, Gurdaspur	3,000
14. The Saini Sugar Factory, Manak Kalan, near Tanda Urmar	3,000
15. Amin Chand & Sons' Sugar Factory, Landra, Tehsil Phillaur	... Not available.
16. S. A. Hussain Sugar Mills, Jallowal, (Jullundur)	25,000
17. Grover Sugar Factory, Nawan Shahr Doaba	5,000 (Building rented).
18. Sindh Swadeshi Sugar Factory, Village Yari, P. O. Shahabad (Karnal)	15,000
19. Durga Lakshmi Sugar Factory, Village Bir Balsoe (Karnal)	10,000

Name and location of factory.	Capital invested including machinery, land, etc.
20. Jagat Ratan Sugar Factory, Shahabad Markanda . . . . .	35,000
21. Tej Farm Tarori (Karnal) . . . . .	7,000
22. Pir Ali Ahmad & Sons' Sugar Factory, Shahabad, Markanda . . . . .	5,000
23. Sugar Factory Ghantal (Sialkot) . . . . .	8,000
24. Colyana Estate Sugar Factory, Okara . . . . .	4,510
25. The Military Farm Sugar Factory, Okara . . . . .	19,350
26. The Indar Cotton and Sugar Factory, Mian Channu . . . . .	7,500

(ii) (a) In 1935-36 there were three Khandsari sugar factories. Two of them closed down during the year. Khandsari sugar produced was 530 cwt.

(b) The third factory worked up to the end of June 1936 and Khandsari sugar produced during 1936-37 was 31 cwt.

(c) At present no Khandsari sugar factories are working in the province.

43. No open pan sugar factory has worked in the Punjab after 1933-34. An estimate of the present cost of manufacture of sugar in open pan factories is accordingly not available. In 1933-34 the cost of production of 1 maund of sugar by the open pan system was estimated at Rs. 8 to Rs. 10 according to local conditions and efficiency of plant and methods. Rough details of the cost of production at the open pan factory of Lala Durga Das at Batala for the year 1933-34 are given below:—

	Rs. A.
Cost of 300 maunds of cane . . . . .	75 0
Commission (1 per cent. on the value of cane) . . . . .	0 12
Labour for 1 day . . . . .	10 0
Cost of crude oil for engine . . . . .	6 0
Cost of firewood in addition to bagasse . . . . .	15 0
Rent of factory, overhead and other miscellaneous charges . . . . .	5 0
Total . . . . .	111 12

Sugar obtained from 300 maunds of cane=11 maunds and 10 seers.

Cost of production of 1 maund of sugar Rs. 9-15.

No khandsari is working in the Punjab. The average yield of sugar seldom exceeded 4½ per cent. of the weight of cane.

44. *Director of Industries.*—About 30 open pan sugar factories were set up in the Punjab in 1931-32 and 1932-33. Almost all of them had closed down by 1933-34. The main reasons for the closures of these small scale open pan factories were the competition of factory sugar and the imposition of the excise in 1934. The other contributory causes were the cessation of demand for molasses, the increased demand for cane for larger factories and the poor quality of cane. No open pan factory or khandsari is now working in the Punjab.

*Director of Agriculture.*—The development on a large scale of sugar manufacture by vacuum pan system in some parts of India is probably entirely responsible for the closing down of open pan factories, since the latter cannot compete with them in sugar extract, etc.

45. For reasons stated in answer to Question No. 44 above there is no scope for open pan sugar factories and khandsaris in the Punjab and such factories cannot be made to work successfully in the Punjab at the present low market rates of sugar and under the other existing disabilities.

46. No research has been undertaken in the Industrial Research Laboratory attached to the Department of Industries, Punjab, to improve the open pan system and the manufacture of rab. Some years ago the Agricultural Department, however, carried out various experiments on the best type of furnace; the most suitable number and size of pans; the suitability of different centrifugal machines, etc., but for the last few years this work has been closed down, as the open pan system has not proved profitable.

47. (a) The sugar excise duty of 1934 as stated above was to a certain extent responsible for the closure of open pan factories and thereby it hit the cane-grower whose sales of cane to such factories were stopped. The additional duty imposed in 1937 had the effect of further reducing the price of cane which fell rather too shortly in certain areas as will be seen from the figures of average prices per maund paid by the Saraswati Sugar Mills, Abdullapur, and the Sonepat Sugar Factory Sonepat given below:—

Year.	Average price per maund paid at the gate by Saraswati Sugar Mills, Abdullapur.		Average price per maund paid at the gate by Sonepat Sugar Factory, Sonepat.	
	As.	P.	As.	P.
1930-31	...	...	6	0
1931-32	...	...	5	6
1932-33	...	...	5	6
1933-34	6	3-8	5	3
1934-35	6	0-17	5	0
1935-36	6	1-47	4	3
1936-37	4	11-42	3	9

The cane-growers of Shahabad-Markanda are reported to have suffered very heavily in respect of their 1936-37 crop and some of their fields had not been cut even by the beginning of June as they had not the means to have them cut. Some sent rail carts to Delhi for sale which fetch only Rs. 6 per rail cart load.

(b) The imposition of the excise dealt a heavy blow to the infant sugar industry of the province and some of the sugar manufacturers represented to the Punjab Government in 1935 requesting permanent remission of the excise duty or in the alternative remission of the duty for at least five years and an interim order for the immediate refund of the excise duty paid during the current (1934-35) year. I enclose as Appendix III a copy of my report to the Punjab Government on the representations of the sugar factory owners in which I recommended to the Punjab Government that in view of the heavy losses suffered by the industry and the interests of the development of the sugar industry in this province the Punjab factories may be exempted from the payment of the excise for at least two years for the time being. No remission was however granted. The additional duty imposed in 1937 has further crushed the industry. The price of sugar has continued to fall and after providing and paying the excise duty most of the sugar mills are unable to reserve anything even towards depreciation of plant and similar other charges. Of the factories which worked in 1936-37 some may not work next year.

(c) The dealers anticipated a rise in the price of sugar as a result of the enhancement of the excise in 1937, but the price continues to remain on a low level with a downward trend. Those who accumulated stocks in anticipation of the rise in price are reported to have suffered losses.

(d) The consumer has benefited from the persistent fall in the price of sugar. The excise of 1934 and the enhancement in the rate of excise in 1937 are not reflected in the price of sugar and have exerted no influence in determining the price of sugar.

## APPENDIX III.

*Copy of an Un-Official No. 1276, dated the 31st July, 1935, from the Director of Industries, Punjab, to the Secretary to Government, Punjab, Electricity Department.*

I attach herewith a statement showing the name and location of each sugar factory established in the Punjab, the quantity of sugar produced in maunds during the years 1933-34 and 1934-35, the amount of excise paid and the profit and loss account as shown by the balance sheets of limited concerns or as ascertained from the factory management. Copies of available balance sheets are also enclosed.

The inter-relation of the figures of the amount of excise paid and the quantity of sugar produced as shown in columns 4 and 3 respectively of the statement requires a word of explanation. The figures in column 4 represent the amount paid by way of excise on sugar actually issued from the factory after 1st April, 1934, and do not take into consideration the stocks in the godowns of factories unless otherwise stated.

Taking up the points raised in the note of Secretary Electricity:—

The manufacture of sugar is an infant industry in this province, which appears to have been strangled in its infancy. Prior to the grant of protection there were the following seven factories in operation in the Punjab:—

1. Amritsar Sugar Mills Company, Limited, Amritsar: Refinery.
2. Harkishen Sugar Mills, Amritsar: Refinery.
3. The Punjab Sugar Works and Carbonic Acid Gas Company, Sujampur: Refinery and manufacture direct from cane.
4. L. Keshav Ram Sugar, Oil and Rice Mill, Bajaura (Kulu): Manufacture direct from cane.
5. Sugar Factory at Shahabad (District Karnal): Manufacture direct from cane.
6. Sugar Factory at Yari near Shahabad (District Karnal): Manufacture direct from cane.
7. Sonepat Sugar Factory (District Rohtak): Refinery and manufacture from cane direct.

As a result of the grant of protection to the industry in 1931-32, the manufacture of sugar received certain amount of impetus and a large number of open-pan plants and centrifugals were installed throughout the province, and a number of large-scale factories working both with cane direct and cane and gur were established. The number of regular factories with an investment of Rs. 5,000 or over, besides the smaller plants in 1932-33 increased to 32. Owing, however, to the fall in the price of sugar in 1933-34 and the cessation of demand for molasses almost all the small scale sugar factories had to close down and barely 12 factories worked during this season. The statement enclosed herewith shows that only 11 factories worked during 1934-35 and that most of them worked only fitfully owing to shortage in the supply of cane, damage to the cane crop and high price of gur which made it unprofitable for the refineries to continue working on full pressure. The Amritsar Sugar Mills Company, Limited, Amritsar (a refinery), and the Military Farm Sugar Factory, Okara (working with cane), are the only two concerns which made a profit during this year. I give below the available facts regarding the sugar factories mentioned in the statement to illustrate their difficulties and the causes which have been responsible for their working at a loss during the last two sugar seasons.

*The Gujranwala Sugar Mills Company, Limited, Rahwali, and the Bhalwal Sugar Mills Company, Limited, Bhalwal, are designed to manufacture sugar from cane and the Phulerwan Oil and Sugar Mills Company, Limited, Phulerwan, both from sugarcane direct and gur. The cane crop grown in the neighbouring areas of these factories has been found quite insufficient to feed them and consequently the factories were obliged to import large*

quantities of cane from distant places by rail and motor lorries. In spite of this, these concerns could not get enough cane to keep their factories working at full capacity. The crushing capacity of the Gujranwala Sugar Mills Company, Limited, Rahwali, is 300 tons of cane in a day of 24 hours. The factory was completed towards the close of the cane season in 1933-34 and worked for only 10 days in which it produced 2,870 maunds of sugar. During the season 1934-35 the factory worked from 18th November, 1934, to the end of February, 1935, and crushed 273,000 maunds of cane which was just sufficient for about 32 days if the factory had worked at full capacity. The price of cane paid at the gate was As. 5 per maund. It imported cane from Sangla Hill, Chillianwala and Qadian. Including railway freight the price of cane imported by the factory from outstations worked out at As. 6 to As. 7-6 per maund. The average price realised for sugar during 1933-34 by this factory was Rs. 10 per maund and during 1934-35 Rs. 9-8 per maund. The average yield of sugar during 1933-34 was 5-4 per cent. and during 1934-35 7-5 per cent. The high yield during 1934-35, however, contained for the major portion second class sugar. The investment of the factory is about Rs. 10 lakhs and no dividend has been paid to the share-holders so far, nor is there any prospect of a dividend in the near future. The entire amount of the excise has been paid from the capital of the Company.

The Bhalwal Sugar Mills Company, Limited, Bhalwal, has a crushing capacity of 100 tons of sugarcane daily. The factory worked for 40 days during 1933-34 and crushed only about 58,000 maunds of cane. During 1934-35 the factory worked for 25 days and crushed only 40,000 maunds of cane which, were the factory to work at full capacity, should have been crushed in 10 working days. The average price paid for cane by this factory during 1933-34 was As. 4-6 and during 1934-35 As. 5 per maund. The average price of sugar per maund realised was Rs. 8-8 in 1933-34 and Rs. 9 per maund in 1934-35. The factory has worked at a loss as will appear from the statement enclosed. The entire amount of the excise has been paid from the capital of the Company. No dividends have been paid to the share-holders nor will the Company be in a position to pay any dividends for some time, if at all.

The Phulerwan Oil and Sugar Mills, Limited, Phulerwan, worked during 1933-34 only and closed down in 1934-35. The Company imported gur from the United Provinces on account of the low percentage of sucrose in Punjab gur. Due to rise in the price of gur imported from the United Provinces the Company found it unprofitable to work their factory. This fact coupled with the imposition of the excise obliged the concern to go into voluntary liquidation during this year. The factory has since been purchased by Rahon Sugar and General Mills, Limited.

The Military Farm Factory at Okara was equipped with an open-pan plant till 1933-34. A vacuum pan and a crusher were added to it in 1934-35. As the factory made only a meagre profit of Rs. 2,000 on the season's working, the Army Department has decided to close it down.

The two refineries at Lyallpur, viz., the Lyallpur Sugar Mills, Lyallpur, and the Punjab National Sugar Factory, Lyallpur, worked under full pressure during 1932-33 with gur imported from Bihar and Orissa and made good profits. In 1934 the price of gur began to rise and at one time touched Rs. 5 per maund as compared with Rs. 2-6 per maund in 1932. The high price of gur coupled with the burden of the excise forced these factories to close down. The Lyallpur Sugar Mills, however, once again resumed work for about 2 months in 1935, but is now lying idle without any hopes of re-starting work in the near future. The proprietors of these factories feel that they cannot resume work in their factories at the existing high rates for gur and the low price of sugar with the excise on. Their sugar sells at a discount as compared with cane-sugar.

The Surat Sugar Factory, Lyallpur, which has an open-pan plant did not work during 1934-35 owing to the cane crop having been spoiled by frost and the imposition of the excise.



Of the three refineries in Amritsar, the Amritsar Sugar Mills Company, Limited, has worked at a profit though very largely reduced by the payment of the excise. The Lakshmi Sugar and Oil Mills, Limited, Amritsar, was closed down in 1934-35 on account of the rates of gur being unworkable, and the consequent determination of the proprietor to erect another factory at Harodi in the United Provinces. The Harkishen Sugar Mills, Amritsar, also closed down owing to the death of its proprietor. This factory is not likely to resume work on account of want of working capital with the present owner and no lessee appears to be forthcoming.

The sugar plant of the Punjab Sugar Works and Patent Carbonic Acid Gas Company, Limited, Sujampur, has remained idle for many years.

The Sri Guru Arjan Dev Sugar Mills, Butari, worked its crusher for 5 days only towards the end of March 1935 during 1934-35. The cane in the neighbouring areas was spoilt by frost and pests and therefore the yield was very poor. The Mills purchased cane at As. 4 per maund the cost at the factory gate being As. 5-6 per maund.

The Dina Nagar Sugar Mills, Dina Nagar, worked for only 20 days in January, 1935, during the year 1934-35 and had to close down at a loss due to inadequate supply of cane and low percentage of sucrose. The factory paid As. 4 to As. 5 per maund of peeled cane. The price of sugar realised by it was Rs. 9-8 per maund.

The Saraswati Sugar Mills, Limited, Abdullapur, worked for 25 days in 1933-34 and 92 days in 1934-35. It crushed 307,784 maunds of cane in 1933-34 and 899,991 maunds in 1934-35, obtaining a yield of 28,337½ maunds of sugar in 1933-34 and 58,292½ maunds in 1934-35. This factory could pay only if it crushed 1,800,000 maunds of cane in a season. The average extraction of this factory was 8-24 per cent. in 1933-34 and 6-5 per cent. in 1934-35. The low yield in this year was due to frost which spoiled the cane and affected the purity of the juice. The supply of cane was also inadequate. The average price for sugar realised in 1933-34 ranged between Rs. 8-2 to Rs. 10 per maund and Rs. 9 to Rs. 9-12 per maund in 1934-35, and for molasses 6 pies to 1 anna in 1933-34 and 9 pies to As. 1-6 per maund in 1934-35. This factory paid As. 5-6 per maund for cane in 1933-34 and As. 5 to As. 6 per maund in 1934-35. The factory suffered a loss of Rs. 90,987-14 in 1933-34 and about Rs. 1,10,000 in 1934-35.

The Punjab Sugar Corporation worked for 139 days in 1933-34 and 88 days in 1934-35. Other relevant statistics regarding this factory are given below:—

	1932-33.	1933-34.	1934-35.
Average price paid for cane . . . . .	As. 5-4½ per md.	As. 5-4 per md.	As. 5 to As. 6 per md.
Cane crushed . . . . .	632,663 mds. .	814,575 mds. .	521,409 mds.
Sugar produced . . . . .	44,950 mds. .	59,528 mds. .	26,821 mds.
Average extraction obtained . . . . .	7-1 per cent. .	7-3 per cent. .	5-2 per cent.
Price realised for sugar . . . . .	Rs. 9-8-1 per md.	Rs. 8-7-8½ per md.	Rs. 7-13-6 per md.
Price realised for molasses . . . . .	As. 12 per md. .	As. 2 to As. 5 per md.	As. 3 to As. 5-3 per md.

The factory has worked at a loss during the past three years, the net loss being Rs. 14,611-14-6 in the year ending 30th April, 1933, and Rs. 20,695-3-3 in the year ending 30th April 1934. The net loss for the

year ending 30th April, 1935, is Rs. 1,63,225. The Board of Directors have just decided to go into liquidation.

The Muslim Sugar Factory, Shahabad Markanda (District Karnal), is a small open-pan sugar factory. It has continued working as its proprietor owns a cane plantation and is keen on making his own sugar. The Saraswati Sugar Mills, Limited, Abdullahpur, offered to purchase the cane of this plantation at As. 6 per maund but the proprietor refused to accept any offer of less than As. 8 per maund. This factory suffered a loss of Rs. 500 in 1933-34 and about Rs. 2,000 in 1934-35.

It would be abundantly clear from the foregoing account that the sugar industry never got a secure foot-hold in the province. The small-scale open-pan plants and centrifugals which were set up even in remote villages were all obliged to close down as a result of the establishment of large-scale factories which in their turn could not carry on owing to the shortage of supply of cane, damage to crop during the last two seasons by frost and low percentage of sucrose contents, loss of market for molasses and above all, the burden of the excise which even in the case of large producers is being paid out of capital account.

The Director of Agriculture, who has been consulted on the matter, will probably give the comparative value of the Punjab and the United Provinces sugarcanes and their sucrose contents.

I have also received a petition from the Director, Gujranwala Sugar Mills Company, Limited, Rahwali, addressed to Government, similar to the petition of the Bhalwal Sugar Mills Company, Limited, Bhalwal, which I am forwarding herewith in original. The Company request the permanent remission of the excise duty or in the alternative the remission of the duty for at least five years and an interim order for the immediate refund of the excise duty paid during the current year.

It has been generally represented by the sugar manufacturers in the Punjab that it is impossible to carry on the industry with the heavy burden of the excise. I am convinced that in view of the low price of sugar at present prevailing, the inexperience of the people in the industry, poor quality of the cane grown in the Punjab as compared with the United Provinces and Bihar and Orissa and the high price at which gur is imported or cane obtained from distant places and the heavy excise duty to be paid, the sugar factories in this province are placed at a great disadvantage and find it impossible to continue working. The rate of excise is Re. 1-5 per cwt., and taking the average price of sugar at Rs. 8 per maund it amounts to a surcharge of 12½ per cent. which the industry cannot bear to pay. I would accordingly recommend that the Punjab Government be pleased to recommend to the Government of India that the Punjab factories be exempted from the payment of excise for at least two years for the present, at any rate.

Statement showing the names and location of sugar factories in the Punjab, the quantity of sugar produced, the amount of excise paid and their financial position.

Serial No.	Name of sugar factory and location.	Quantity of sugar produced.		Amount of excise duty paid.	Financial position and remarks.
		1933-34.	1934-35.		
1	2	Mds.	Mds.	4	5.
1	The Gujranwala Sugar Mills Company, Limited, Rahwali.	2,870½	20,785	Rs. 11,158-7 paid during the financial year 1934-35; Rs. 705-10 paid in April 1935; a further provision of Rs. 7,621-11 has been made in respect of sugar in stock. Total Rs. 19,485-12.	The factory suffered a loss of Rs. 11,983-7/2 during the period ending 30th April 1934 as per balance sheet enclosed. The balance sheet for the year ending 30th April, 1935, is not yet available but it shows a loss of Rs. 8,470-8-9. In addition, there is a loss of Rs. 32,717-1-3 on account of interest payable for 1934-35 and Rs. 9,000 on account of commission on the sale of sugar during 1934-35. These amounts have not been shown in the balance sheet for 1934-35 as they have not been paid so far.
2	The Bhalwal Sugar Mills Company, Limited, Bhalwal.	3,250	2,712	Rs. 2,637 . . . . .	The factory suffered a loss of Rs. 1,253-5-6 during the period ending 15th June, 1934, as per balance sheet enclosed.  The balance sheet does not include figures of loss on account of interest on capital and wear and tear of machinery amounting to Rs. 18,120 and Rs. 15,000 respectively. The balance sheet for the period ending 15th June, 1934, has not yet been printed. The loss during this period is estimated at Rs. 33,120 by way of interest on capital and wear and tear of machinery and Rs. 5,000 on the working of the factory and business conducted.

3	The Phulerwan Oil and Sugar Mills, Limited, Phulerwan.	13,000 of which 3,000 maunds produced direct from cane and 10,000 maunds from gur.	Factory remained closed.	N/A	The factory has gone into voluntary liquidation. The concern has now been purchased by Rahon Sugar and General Mills, Limited, Phulerwan. The factory is designed to manufacture sugar both from cane direct and from gur. This factory and the factory of the Bhalwal Sugar Mills Company, Limited, Bhalwal, are situated at a distance of 9 nine miles of each other and there is not enough cane in the neighbourhood to feed both factories. On account of the high price of gur it was found unprofitable to work this factory with gur.
4	Military Farm Sugar Factory, Okara, District Montgomery.	733	5,399-5	Rs. 5,082	The factory belongs to the Army Department who refused to give any facts and figures regarding its financial position, excepting the statement that the factory earned a profit of Rs. 2,000 on its working during the 1934-35 season.
5	Lyallpur Sugar Mills, Lyallpur.	60,137-5	24,000	Rs. 7,800 (by 29th June 1935)	The figure of excise duty paid shown in the preceding column represents the payment made on account of the sugar sold. The factory had about 18,000 maunds of sugar in stock on 29th June, 1935. Computing at the rate of Re. 1 per maund, the factory will pay about Rs. 18,000 by way of excise on the stocks in hand when sold. The factory made a profit of Rs. 6,300 in 1933. In 1934, there was a loss of Rs. 822 on the working of the factory. The balance sheet for 1935 is not yet ready but the proprietors anticipate a much greater loss than in the previous year.
6	The Punjab National Sugar Factory, Lyallpur.	Exact figures not available. 6,080 in hand on 1st July, 1934.	14,750	Rs. 17,300-13-9	This factory was established in 1932-33 and made some profit in that year. It worked at a loss during 1933-34 and 1934-35. The figures of loss could not be ascertained as the factory is closed.

Statement showing the names and location of sugar factories in the Punjab, the quantity of sugar produced, the amount of excise paid and their financial position—contd.

Serial No.	Name of sugar factory and location.	Quantity of sugar produced.		Amount of excise duty paid.	Financial position and remarks.																
		1933-34.	1934-35.																		
1	2			4	5																
		Mds.	Mds.																		
7	Surat Sugar Factory, Lyallpur.	427.1	Remained closed.	Nil	This factory closed down in 1934-35.																
8	The Amritsar Sugar Mills Company, Limited, Amritsar.	206,603 (1933)	215,258 (1934).	Rs. 1,68,128-14-3 (from 1st April, 1934, to 31st December, 1934).	<p>Net profit:</p> <table> <tr> <td></td> <td>Rs.</td> <td>A.</td> <td>P.</td> </tr> <tr> <td>1932</td> <td>4,14,976</td> <td>12</td> <td>0</td> </tr> <tr> <td>1933</td> <td>4,07,697</td> <td>1</td> <td>9</td> </tr> <tr> <td>1934</td> <td>3,04,899</td> <td>11</td> <td>8</td> </tr> </table>		Rs.	A.	P.	1932	4,14,976	12	0	1933	4,07,697	1	9	1934	3,04,899	11	8
	Rs.	A.	P.																		
1932	4,14,976	12	0																		
1933	4,07,697	1	9																		
1934	3,04,899	11	8																		
9	The Lakshmi Sugar and Oil Mills, Limited, Amritsar.	59,307 (1st November, 1933, to 31st October, 1934).	3,511 (1st November, 1934, to 30th April, 1935).	Rs. 35,610-11	<p>Net profit:</p> <table> <tr> <td></td> <td>Rs.</td> <td>A.</td> <td>P.</td> </tr> <tr> <td>1932-33</td> <td>50,678</td> <td>4</td> <td>10</td> </tr> <tr> <td>1933-34</td> <td>36,736</td> <td>13</td> <td>4</td> </tr> <tr> <td>1934-34</td> <td>505</td> <td>1</td> <td>1</td> </tr> </table> <p>This factory was closed in 1934-35 on account of the rates of gur being unworkable. Another factor leading to the closure of this factory was the pre-occupation of the managing director in the erection of another sugar factory at Hardoi in the United Provinces.</p> <p>The sugar machinery of this factory has remained idle for many years.</p>		Rs.	A.	P.	1932-33	50,678	4	10	1933-34	36,736	13	4	1934-34	505	1	1
	Rs.	A.	P.																		
1932-33	50,678	4	10																		
1933-34	36,736	13	4																		
1934-34	505	1	1																		
10	The Punjab Sugar Works and Patent Carbonic Acid Gas Company, Limited, Sujjanpur (District Gurdaspur).	..	..	..																	

11	Harkishen Sugar Mills, Amritsar.	Details not available.	Details not available.	Details not available . . .	This factory closed down on account of the death of Rai Sahib Lala Ganesh Das, its proprietor. It is not likely to start work for want of working capital and no lessee appears to be forthcoming. However, this factory, as far as could be ascertained, has never been worked at a loss by its lessees. Statistical data are not available.
12	Sri Guru Arjan Dev Sugar Mills, Butari.	49,660 (May, 1933, to March, 1934).	3,297½ from gur, 362½ from cane.	Rs. 3,413-12-6 . . .	The mill worked its crusher for 5 days only towards the close of March, 1935. The cane was spoilt by frost and pests and therefore the yield was very poor. There was a loss in working on account of poor supply of cane and its bad quality. Statistical data are not available.
13	The Dina Nagar Sugar Mills, Dina Nagar, District Gurdaspur.	..	..	..	The factory is under liquidation and hence no figures are available. This factory could not work for more than 20 days in January, 1935, and had to close down at a loss due to inadequate supply of cane and low percentage of sugar production.
14	Saraswati Sugar Mills, Limited, Abdullapur.	28,337½	58,292½	Rs. 48,502-7 paid; Rs. 11,575 yet to be paid in respect of stocks in hand.	The balance sheet of this factory is issued in combination with another factory in the United Provinces which belongs to the same firm. The manager, however, supplied the following statistical data:— Investment: Rs. 16,38,748-8-9. 1933-34.—Loss on the working of the factory: Rs. 90,987-14. Balance sheet for 1934-35 will be issued in September next. The manager estimated the loss during this year from the books of the factory at Rs. 1,10,000.
15	The Punjab Sugar Corporation, Sonapat.	59,528	26,821	Rs. 21,267-8 . . .	The factory showed a net loss of Rs. 14,611-14-6 during the year ending 30th April, 1933, and Rs. 20,695-3-3 during the year ending 30th April, 1934. The balance sheet for 1934-35 shows a net loss of Rs. 1,63,225.
16	Muslim Sugar Factory, Shahabad Markanda, District Karnal (open-pan factory).	252	252	Rs. 313-12 . . .	The total investment in the factory is stated to be Rs. 17,000. The factory suffered a loss of about Rs. 500 in 1933-34 and about Rs. 2,000 in 1934-35.

43. The price of sugar remained at a high level in the years 1930 to 1932 and since 1933 it has been gradually falling from about Rs. 10-8 to Rs. 12-8 per maund for different qualities at different places to nearly Rs. 7-8 per maund in 1937 (April-May) at all important centres like Lahore, Sialkot, Ludhiana, etc. But for the first two years after the grant of protection to the sugar industry, the consumer has stood to gain by the grant of protection to the industry.

49. The industries dependent on the supply of sugar and sugar products or molasses have benefited from the fall in the price of sugar and the very heavy fall in the prices of molasses. The production of confectionery like lemon drops and the industry of preserved fruits, etc., in which a beginning has been made in this province, have been set up as a result of the fall in the price of sugar. The tobacco curing industry which utilises molasses in sweetening hooka tobacco has gained on account of the cheapening of molasses. The liquor industry has, however, not been affected.

50. *Acreage.*—The statistics of acreage are based on the actual crop inspections (girdawari) by patwaris and are sufficiently reliable.

*Estimate of production.*—The present practice is for Tahsildars to give estimates of outturn in maunds and seers per acre for irrigated and unirrigated areas separately for their tahsils in the final sugarcane forecast on the basis of personal observations, crop cutting experiments and opinions of leading agriculturists. These estimates are sent to Director of Land Records' office through Deputy Commissioners and the total outturn of each district and for the province as a whole is worked out by multiplying the area and the estimated yield per acre. In the Season and Crop Report the yield is expressed in percentages on the average yield per acre after taking into consideration the outturn already reported in the sugarcane forecast. The total outturn is then worked out by the following formula:—

---

Sown area  $\times$  normal yield per acre  $\times$  percentage of yield per acre.

---

100

*Prices.*—The prices are collected by the bazar chaudharies who report them to the Tahsildar. The retail prices of each headquarter of the district and wholesale prices of the 24 important markets of the province are received fortnightly in Director of Land Records' office, and before compilation and publication in the gazette, the figures are carefully checked by that office. Discrepancies and mistakes detected in the course of checking are duly enquired into and corrigenda issued where necessary. Instances of inaccuracies in the published prices have come to notice and proposals are under consideration for improving the existing system of collection by remunerating bazar chaudharies who at present supply the prices free of charge.

The Department of Industries, Punjab, has started the collection of retail prices of commodities entering the family budgets of working classes in the Punjab in connection with the compilation of the working class cost of living index numbers under the auspices of the Board of Economic Enquiry, Punjab, as from the last year. Prices for the various commodities including gur and refined sugar are collected monthly at Lahore, Sialkot, Multan, Ludhiana and Rohtak. Quotations are obtained from prominent dealers at these centres and the data collected is considered to be reliable.

51. *Nil.*

33. Railway freights on the North Western Railway are calculated on the basis of flat rates for trucks. Reductions in freight rates were made in 1935. Maundage freight rates for cane existed prior to 1935-36 season but they proved unworkable for the following reasons:—

- (a) Small railway stations despatching sugarcane were not equipped with weigh bridges and necessitated the haulage of cane trucks to distant stations for assessment of freight on the maundage basis.

- (b) Even where weighing arrangements existed at despatching or receiving stations, the weighments entailed considerable detention of trucks with consequent deterioration of cane. In many cases weighed trucks were re-weighed by the checking authorities which caused further delay in deliveries.
- (c) The recording of weights at stations not equipped with weigh bridges left an elastic discretion with the railway authorities which proved none too happy for the point of view of the consignor.

The present system of flat rates for trucks is accordingly considered suitable and no change therein is advocated or considered desirable.

34. A substantial reduction in railway freight rates for lime stone and manure is desired by the people connected with the sugar industry. Proper care is not bestowed on manuring the cane crop a reduction in railway freights for manures will encourage manuring.

39. No written agreements are entered into by factory owners with cane-growers for the supply of cane. The Saraswati Sugar Mills, Limited, Abdullapur, provides seed and manure to the cultivators but no advances of cash are made, as some unscrupulous cultivators, after taking the advance try to sell their cane to other buyers and it becomes incumbent on the factory owner to take measures to protect his interests. Sri Guru Arjan Dev Sugar Factory at Butari are reported to have made cash advances in certain cases. The Pattoki Sugar Factory made payments against delivery.

40. The Saraswati Sugar Mills, Limited, Abdullapur, pay a commission of 1½ pies per maund to the agents for gate cane and at outstations a commission of 6 pies per maund for supplies up to the end of March and 7½ pies per maund for supplies in the months of April and May. The commission includes handling charges, station expenses, etc., and is payable on weight as recorded by the factory weigh bridges. The Sri Guru Arjan Dev Sugar Factory, Butari, pay a commission of 6 pies per maund of cane.

42. The Saraswati Sugar Mills, Limited, Abdullapur, have 5 weigh bridges for gate-cane which work 24 hours, and a wagon weigh bridge fitted on their railway siding for rail-cane. Payment is made when the receipt is presented to them. The normal interval between the delivery of cane and the demand for payment is two or three days. In certain cases cultivators do not demand payment for as long as two to three weeks and collect as many as 50 receipts before they present them for payment. Sri Guru Arjan Dev Sugar Factory, Butari, make payments on delivery of cane.

43. The prices paid by these factories for cane purchased by them are given below for years for which quotations have been supplied:—

Name of factory.	Years (prices paid per maund).			
	1933-34.	1934-35.	1935-36	1936-37.
Saraswati Sugar Mills, Limited, Abdullapur.	Gate and rail: 0-6-3-8	Gate: 0-6-0-17 rail: 0-6-10-5	Gate: 0-6-1-17 rail: 0-6-11 0-5-0	Gate: 0-4-11-42 rail: 0-5-4-38 0-5-0
Sri Guru Arjan Dev Sugar Factory, Butari.	..	..	..	0-5-0 to 0-3-6
Pattoki Sugar Factory	..	..	..	average price 0-4-8



No satisfactory replies have been received for the latter part of the question.

50. The duration of the crushing season of the Saraswati Sugar Mills, Limited, Abdullapur, during the last four years is shown below:—

1933-34—19th January, 1934, to 26th March, 1934.

1934-35—27th November, 1934, to 12th March, 1935.

1935-36—25th November, 1935, to 23rd March, 1936.

1936-37—27th November, 1936, to 5th May, 1937.

The progressive prolonging of the season is stated to be due to encouraging gate-cane. A crushing season of seven months is considered to be sufficiently long for economic working. The Sri Guru Arjan Dev Sugar Factory at Butari worked for November to March. This period was not considered to be sufficiently long for economic working.

54. The sugar factory of Abdullapur has imported 4 Chinese pan men from Java, a Dutch Chief Chemist and a Scottish Engineer. The other staff is all local. The factory at Butari have not imported any skilled labour from abroad but of the total skilled labour employed 50 per cent. were imported from the United Provinces. Some other factories also imported skilled pan men from the United Provinces.

55. The factory at Abdullapur who employ skilled labour imported from abroad have remarked in reply to this question that there is not much imported labour to replace.

57. No factory is reported to have had a surplus of bagasse. In addition to bagasse fire wood and coal have been used to meet the requirements of fuel. The quantities of firewood and coal used by the Abdullapur Factory in the last 4 years have been as under:—

Year.	Firewood.	Coal.
	(Quantity in Maunds.)	
1933-34 . . . . .	15,610	29,658
1934-35 . . . . .	68,812	33,394
1935-36 . . . . .	90,237	170
1936-37 . . . . .	55,285	868

60. The Abdullapur Factory supply their molasses to the Punjab markets and a good proportion is supplied to the distilleries direct. Supply of tank wagons is reported to be very scarce. Freight charged on the carriage of molasses from Abdullapur to the station of despatch is shown below:—

	Per maund.
	As. p.
To Simla . . . . .	3 10
To Amritsar . . . . .	2 5
To Karnal . . . . .	1 3
To Sarsa . . . . .	3 0
To Rawalpindi . . . . .	4 4

The Butari Factory supply their molasses in the Gurdaspur District. Molasses are transported in drums supplied by the dealers. Railway facilities are considered adequate and special concession rates are allowed. Some qualities have also been supplied to the Amritsar Distillery.

70. The Abdullapur Factory have reported that they have experienced considerable difficulties sometimes in obtaining wagons for the transportation of sugar specially in 1936-37 when on two different occasions, the railway stopped booking of sugar for 15 and 10 days respectively without any previous notice. The Amritsar Sugar Mills Company, Limited, Amritsar, have also reported to have experienced difficulties in obtaining wagons and have stated that supplies by rail are relayed.

83. The marketing centres in which some of the local sugar factories deal are mentioned below against each:—

- (i) *Amritsar Sugar Mills Co., Ltd., Amritsar.*—*Amritsar, Lahore, Gujranwala, Sialkot, Jullundur, Batala, Multan, Peshawar, Kasur, Ferozepur, Lyallpur, Toba Tek Singh, Gojra, Rawalpindi,* of them the italicised are the more important markets.
- (ii) *Sri Guru Arjan Dev Sugar Factory, Butari.*—This factory supplies its sugar to the following markets:—*Jullundur, Lahore, Amritsar, Gujranwala, Batala, Ferozepur, Kasura, Rawalpindi, Sargodha.*
- (iii) *The Saraswati Sugar Mills, Limited, Abdullapur.*—The principal markets supplied by this factory are *Ambala, Simla, Jullundur, Amritsar, Lahore, Rawalpindi, Peshawar.*
- (iv) *The Gujranwala Sugar Mills Company, Limited, Rahwali* deals in *Gujranwala, Rawalpindi, Gojar Khan, Gujrat and Sialkot Markets.*
- (v) *The Bhalwal Sugar Mills Company, Limited, Bhalwal,* has supplied its sugar in *Bhalwal and Sargodha.*

84. The terms of business for the sale of sugar by various sugar factories are given below:—

- (i) *The Amritsar Sugar Mills Company, Limited, Amritsar.*—(a) Sales are transacted through brokers and commission agents. The mill-owners get into direct touch with the dealers through brokers while the commission agents stock sugar against advance of 75 per cent. of the price of sugar and remit the balance after sale.  
(b) The retailer buys from the dealer through broker of dalals. The commission agents charge As. 2-6 per bag of sugar as commission. The brokers also charge the same rate.
- (ii) *Sri Guru Arjan Dev Sugar Factory, Butari.*—Sales are arranged through brokers. A commission of As. 8 per cent. is given on the sale value of sugar.
- (iii) *The Gujranwala Sugar Mills Company, Limited, Rahwali.*—The Company have appointed their sole sale agent who has under him his own sub-selling agents. The sale agent secures orders from dealers along with contract forms signed by the latter. The goods are despatched against demand draft through banks or payment is received in cash. The sole agent gets a commission of As. 12 per cent.
- (iv) *The Saraswati Sugar Mills, Limited, Abdullapur.*—(a) The dealers buy from the Company through the selling agents and pay for the sugar against Railway Receipt.  
(b) The dealer sells it to retailers, not unoften on credit.

88. Suitable godowns for storage of sugar exist in all important sugar markets. The deterioration in storage is reported to be negligible.

90. Java sugar is no longer in general demand. Its consumption is restricted to hotels and restaurants run on European style who will pay up to Rs. 2 per maund higher for Java Sugar. Very limited quantities are used by the medical profession in the preparation of syrups.

92. The stocks are carried by the manufacturers for about a year while the dealers generally carry stocks for about a month or less. The working of the Lahore Sugar Market is explained below:—

During the off-season stocks are jointly carried by the dealers and manu-facturers. As the season closes the dealers are left with certain stocks accumulated during the working of the factories. Meanwhile the factory-owners continue to hold stocks and also to despatch goods against forward

booking. Generally the forwarding bookings end by about the month of August and before the factories resume working again the dealers try to exhaust their stocks. In most cases dealers do not hold large stocks but when they do banks readily advance money against stocks. In case the purchased stocks are left in the custody of the mills, they charge for storage and interest on the amount due to them. Bank play the dual role of advancing against stocks and also of collecting the bills.

93. A marketing survey of the sugar industry is generally considered desirable by the dealers in sugar. It is urged that the survey should be undertaken as early as possible as under the present arrangements the dealers are at the mercy of the mill-owners and lower quality goods than stipulated for are supplied.

94. Different views have been received on this question from the persons interested in the trade. The Saraswati Sugar Mills, Limited, Abdullapur, consider a central All-India selling organization an absolute necessity for the very existence of the industry. The Amritsar Sugar Mills Company, Limited, Amritsar, and the Sri Guru Arjan Dev Sugar Factory at Butari have also expressed themselves in favour of a central selling organisation. The Lahore sugar dealers on the other hand do not favour the idea of the establishment of the central selling organisation on the ground that such an organisation will assume a monopolistic role and will act prejudicially to the interests of the consumers by maintaining the price at a level higher than what is now obtained by the interaction of supply and demand and the dealers would suffer as the distribution will be placed in the hands of a few favoured parties. It is contended that the present competition among dealers tends to keep the price of sugar at a lower level which is to the advantage of the consumers.

95. There exists a general concensus of opinion in favour of the standardisation of Indian sugar in the interests of the dealers. The standards prescribed by the Imperial Institute of Sugar Technology are considered suitable. The dealers at Lahore have suggested standardisation for the following qualities:-

- (1) White crystal sugar—small grain.
- (2) White crystal sugar—large grain.
- (3) Brown crystal sugar.

106. Molasses are sold through brokers to distilleries and tobacco manufacturers. The latter some times buy direct from the factories. Some quantities are also sent to the hill districts like Kangra for direct consumption.

107. There have been no exports of molasses to foreign countries from the Punjab.

108. As a result of the grant of protection to the sugar industry a large number of sugar factories for the production of sugar by open pan system and a good many large scale sugar factories were set up in the Punjab but the imposition of the excise in 1934 dealt a heavy blow to the industry as the infant factories were unable to bear its burden. The further increase in excise in 1937 has made the position still worse. The grant of protection acted as a stimulus for investments in the sugar industry but with the general collapse of the industry after 1934 big losses have been incurred by most of the factory owners as a result of the locking up of their capital in buildings and plants which are now lying idle.

109. There is no difference of opinion in favour of the necessity for the further continuance of protection to the sugar industry. It has generally been stated that any reduction in the measure of protection now enjoyed by the industry will result in positive, disaster as the Java manufacturers with their superior organisation and efficiency will re-capture the Indian markets. Most of the factory owners have urged the grant of a larger measure of protection than at present allowed.

110. Further assistance is desired by sugar manufacturers in the Punjab in the following forms apart from a larger measure of protection:—

- (i) Greater attention should be paid to the cultivation of sugar-cane and improving the quality of cane produced.
- (ii) A part of the excise duty should be utilised for the furtherance of the interests of the industry.
- (iii) Railway freight on the carriage of sugar from the mills to the ports should be reduced to enable Indian sugar to compete with imported sugar.
- (iv) Railway freight on the carriage of cane should be further reduced.

111. There have been no imports of molasses into Indian during the last two years. The stoppage of imports is stated to be due largely to the increase in Indian production rather than the import duty. No industry utilising molasses as a raw material has suffered owing to the stoppage of imports of molasses from foreign countries. The quantities of molasses available have been in excess of demand and molasses have been available at nominal prices.

#### QUESTIONNAIRE FOR SUGAR REFINERIES.

Below are given replies to the Questionnaire for sugar refineries obtained from the Amritsar Sugar Mills Company, Limited, Chhehrta (near Amritsar). The factory is a representative refinery in the Punjab. It was established in March, 1925, but it was closed down in 1937 as a result of the excess sugar excise imposed this year.

1. The Amritsar Sugar Mills Company, Limited, started working in March, 1925. The maximum capacity of the plant is 23 tons of sugar per day. It is a refinery only and does not crush cane.

2. Sugar is refined from jaggery. Two qualities of sugar are produced, viz., "Lion Brand" and "Ganesh Brand".

3. The output of the factory in the years 1930 to 1936 and the causes of variations in production are shown below:—

Year.	Output in maunds and seers. Mds. seers.	Causes of variation in production.
1930 . . .	99,763 16	
1931 . . .	160,791 15	The plant was doubled in June, 1931.
1932 . . .	228,821 15	Worked at full pressure.
1933 . . .	206,603 18	Decrease due to late starting of work and stoppages in the work.
1934 . . .	215,258 10	Worked more regularly than in the previous year.
1935 . . .	209,825 3	Decrease due to fall in the margin of profits on account of imposition of excise duty.
1936 . . .	208,862 38	

The mill experienced no difficulty in obtaining sufficient quantities of jaggery required by it. The average prices at which jaggery was purchased during 1930-1936 are given below:—

Year.	Average price of jaggery per maund of 40 seers. Rs. A. P.	Year.	Average price of jaggery per maund of 40 seers. Rs. A. P.
1930 . . .	4 14 1	1934 . . .	2 14 9
1931 . . .	3 15 3	1935 . . .	3 6 4
1932 . . .	3 13 10	1936 . . .	3 13 7
1933 . . .	4 11 7		

5. Jaggery has been obtained from Bihar and the United Provinces. The important stations of supply were: Yousuffpur, Mairwa, Ghughle, Pachrukhi, Balia, Rasra, Bhatapokhar, Siwan, Siswa Bazar, Chhitauni Ghat, Basti Bazar, Deoria, Hatwa, Sasoram, Gaya, Palmerganj, Bikram, Piru, Bihea, Saidpur, Bihtri, Chilkahar, Roorki, Golagokarnath, Manglaur, Muzaffarnagar. Supplies were obtained on railway transportation.

6. The average recovery of sugar during 1930-1936 was as under:—

Year.	Average recovery per 100 maunds of Jaggery.			Year.	Average recovery per 100 maunds of jaggery.		
	Mds.	Srs.	Chs.		Mds.	Srs.	Chs.
1930	.	.	.	1934	.	.	.
1931	58	39	8	1935	58	37	6
1932	58	14	8	1936	58	7	1
1933	59	36	13				
	57	13	0				

The only possibility of improvement appears to lie in the increased production of better quality canes and the manufacture of gur with slow heat.

7. The average cost of manufacture of one maund of sugar in 1930 was Rs. 2. It fell to Rs. 1-2 in 1931 and to Rs. 1-10 in 1932 to 1936. (The details of cost of manufacture have not been intimated.) The fall in the cost of production was due to the doubling of the plant in June, 1931.

8. The sugar produced was comparatively whiter and contained lesser quantity of molasses as compared with the ordinary Khandsari sugar.

The average prices of the two qualities of sugar produced as realised during the 7 years 1930 to 1936 are shown below:—

Year.	"Lion Brand"		"Ganesh Brand"	
	Price per maund.		Price per maund.	
	Rs.	A. P.	Rs.	A. P.
1930	19	5 0	10	15 0
1931	9	10 2	10	4 2
1932	9	14 8	10	8 8
1933	9	7 9	10	1 9
1934	9	3 0	9	13 0
1935	9	7 2	10	1 2
1936	7	10 6	8	4 6

9. The more important markets besides Amritsar to which sugar produced in the factory was supplied are Lahore, Gujranwala, Sialkot, Jullundur, Batala, Lyallpur, Peshawar, Toba Tek Singh and Gojra. Among the less important markets are Multan, Kasur and Ferozepur, which took smaller quantities. The freight rates to these places from Amritsar are given below.—

Station.	Freight rate per maund.		Station.	Freight rate per maund.	
	As.	P.		As.	P.
Lahore	2	1	Toba Tek Singh	6	7
Gujranwala	3	4	Gojra	6	0
Sialkot	3	7	Multan	9	1
Jullundur	2	8	Kasur	2	11
Batala	1	9	Ferozepur	3	4
Lyallpur	5	0	Amritsar	2	0 per bag.
Peshawar	11	9			

10. The output of molasses and the prices obtained from 1930 to 1936 are shown in the statement below :—

Year.	Output of molasses in		Price per maund Rs. A. P.
	Mds.	Srs.	
1930 . . . . .	61,579	19	3 10 3
1931 . . . . .	101,968	0	2 3 0
1932 . . . . .	134,691	23	0 14 6
1933 . . . . .	137,483	27	0 8 8
1934 . . . . .	135,980	3	0 9 8
1935 . . . . .	119,692	15	0 12 9
1936 . . . . .	123,122	4	0 13 10

11. The sugar excise duty imposed in 1934 swept away the profits of the mill-owners, but the excess imposed in 1937 has resulted in the closing down of the mills.

12. The mill can restart the work only if the duty chargeable for refineries is reduced to the rate charged from Khandsari sugar factories.

A few relevant facts regarding the Phulerwan Sugar and Oil Mills, Limited, Phulerwan, are given below in connection with the Questionnaire for sugar refineries. This factory is fitted up with a second hand plant designed to manufacture sugar both from cane and gur. It was completed in 1933 and worked for only one season, viz., 1933-34 after which it went into voluntary liquidation. It has remained closed since that year. The maximum daily crushing capacity of the plant is 100 tons of cane. The sugar refined from gur was of second quality. Its output in 1933-34 was 13,000 maunds of sugar of which 3,000 maunds was produced from cane direct and 10,000 maunds refined from gur. The factory closed down as sufficient quantities of sugarcane were not available and it did not pay to refine sugar from gur imported from United Provinces owing to its high price. The Punjab gur was not found suitable for refining sugar on account of the low yield of sucrose.

#### QUESTIONNAIRE FOR MANUFACTURERS OF SUGAR BY THE OPEN PAN SYSTEM AND KHANDSARS.

No Khandsar was established in the Punjab. All open pan sugar factories in the Punjab had closed down by 1934, as stated in reply to question No. 42. Replies to the Questionnaire for manufacturers of sugar by the open pan system as obtained from L. Durga Pershad, Proprietor of an open pan sugar factory at Batala, are given below as representing the conditions of work in the open pan sugar factories in the Punjab between the years 1932 and 1934 during which such factories worked in this province.

1. The factory was put up in 1932 and closed down in 1934. Sugar was manufactured directly from cane which was crushed and converted into rab in open pans. The rab was then put into cement tanks and allowed to stay till crystals were formed after which it was transferred to centrifugals for forming out sugar.

2. Cane was obtained from the growers through commission agents who were paid a commission of 1 per cent. on the value of cane purchased through them.

3. A uniform rate of As. 4 per maund (maund: 82-2/7 lbs.) was paid for cane No. 185 during all the three years 1932, 1933 and 1934.

4. The rate for cane did not fluctuate all through these years,

5. (i) The amount of juice extracted from 100 maunds of cane was 75 per cent.

(ii) The amount of rab manufactured from 100 maunds of juice was 20 per cent.

(iii) The amount of sugar extracted from 100 maunds of rab was 25 per cent.

Sugar obtained from 100 maunds of cane =  $3\frac{1}{2}$  maunds.

6. Only one quality of sugar was manufactured during the 3 years that the factory was in operation. The statistics of output were not available.

7. The rough details of the cost of manufacture of sugar are as below:—

	Rs. A.
Cost of 300 maunds of cane at 4 annas per maund	75 0
Commission on the purchase of cane at 1 per cent. on the value of cane . . . . .	0 12
Labour for one day . . . . .	10 0
Cost of Crude oil for engine . . . . .	6 0
Cost of fire-wood required over and above bagasse	15 0
House rent overhead and Miscellaneous Charges	5 0
Total . . . . .	111 12

Sugar obtained from 300 maunds of cane = 11 maunds 10 seers. Cost of one maund of sugar was therefore: Rs. 9-15.

8. The sugar produced was purchased by the local dealers personally from the factory.

9. The prices obtained for the sugar during the three years 1932, 1933 and 1934 were as below:—

1932—Rs. 10 per maund.

1933—The sugar produced was stocked and was not sold.

1934—Rs. 8 per maund.

10. The sugar produced was preferred to gur and Indian factory sugar by the dealers.

11 & 12. The Indian factory sugar completely replaced sugar produced by open pan factories and it was due to the competition of Indian factory sugar that the open pan plants owners had to shut their doors.

13. All open pan factories closed down in 1934 and none resumed operation after the imposition of the excise in 1934 as they could not afford to pay the excise.

14. The chief cause of failure of open pan factories was the low percentage of sugar obtained by them from cane which varied from  $3\frac{1}{2}$  per cent. to  $4\frac{1}{2}$  per cent. as compared with up to 8 per cent. obtained by large sugar factories fitted with modern plants.

#### REPLIES TO SELECTED QUESTIONS FROM THE QUESTIONNAIRE FOR GUR/JAGGERY MERCHANTS AT SELECTED CENTRES.

Information was collected for purposes of the enquiry into the questions contained in the Questionnaire for gur/jaggery merchants at Amritsar and with the eastern markets of Ludhiana, Ambala and Rohtak which deal both in local and imported gur and at Batala which is a market for the collection of gur produced in the Gurdaspur District to show the working of a small local market.

2. In the Amritsar market 6 different varieties of gur are marketed. The cakes are of different shapes, viz., oval round, etc., and weigh from 1 chhitak to 5 seers each as detailed below:—

- (1) 1 chhitak cakes produced in Jullundur District.
- (2) 1 and 1½ seers balls produced in the Gurdaspur and Amritsar Districts.
- (3) "Chakkoo" gur in two to five seers pieces imported from United Provinces.
- (4) *Bhela* or cakes of 5 seers each imported from United Provinces.
- (5) "Shivji" or oval tapered pieces 1' long and about 3 to 7 inches in diameter imported from United Provinces.
- (6) "Ladoo" or small balls imported from United Provinces. In the eastern centres of Ludhiana, Ambala and Rohtak gur is marketed under two main varieties, viz., (i) *Desi* (local) and (ii) *Purbi* imported from United Provinces.

Dealers in Batala collect gur from villages in the Gurdaspur District for distribution and consignment to other markets of the province, which is made up in balls of 1 to 1½ seers.

3. The six varieties of gur marketed at Amritsar are obtained respectively from the undermentioned areas:—

- (1) Phagwara, Phillaur, Banga and Nawanshahr.
- (2) Batala, Gurdaspur and villages in Amritsar District.
- (3) Muzaffarnagar, Samli, Roorkee and Meerut in United Provinces.
- (4) Meerut, Muzaffarnagar, Baraut and Kandla in United Provinces.
- (5) Saharanpur in United Provinces.
- (6) Muzaffarnagar, Meerut and Samli in United Provinces.

In the eastern markets referred to above supplies are obtained from Saharanpur, Muzaffarnagar, Meerut and Bareilly.

Reliable statistics of imports of gur from various centres could not be obtained but the dealers both at Amritsar and the eastern markets allege that the figures of total imports during the last seven years do not exhibit any marked variations and the quantities imported have remained at a stationary level. The arrivals of gur in the Batala market also are reported not to vary from year to year. It is estimated that about 140,000 maunds of gur is brought into this market annually of which about 20,000 maunds goes to Amritsar and the balance is consigned to Lala Musa, Gujrat, Jhelum, Pind Dadan Khan, Lahore, Patti, Tarn Taran and other towns within the province.

4. The quality of gur imported from United Provinces is reported to have improved in recent years due to improved varieties of cane introduced there. The quality of gur brought to the Batala market from different centres has not varied during the last 7 years.

8. Gur remains in good condition for about 9 to 12 months if stored in new bags in rooms with wooden floors. It becomes loose and moist during rainy season and its market price decreases. The keeping-qualities of United Provinces gur are better than that of *desi* (local) gur. It is, however, reported from Sialkot market that gur from *desi* varieties of sugarcanes keeps better than the one produced from imported varieties.

*Lyallpur*.—Retail prices of gur and sugar of different qualities for the recent years are given below:—

Year.	Gur. Seers per rupee.	Year.	Gur. Seers per rupee.
1930	10	1934	7½
1931	12	1935	10½
1932	16	1936	6½
1933	14½		



Year.	Sugar ( <i>desi</i> ). Seers per rupee.	Sugar (Java). Seers per rupee.
1930	...	3½
1931	...	4
1932	...	3½
1933	3½	...
1934	3½	...
1935	4	...
1936	4½	...
1937	5	...

*Ambala*.—The retail price of gur was 9 seers 4 chhatanks per rupee in December, 1935, and 10 seers 6 chhatanks per rupee in December, 1936.

There is only one kind of sugar for which rate is shown in our register. The rates were Rs. 9-8 in December, 1935, and Rs. 8-8 in December, 1936, per maund. It is now between Rs. 7 and Rs. 8 per maund for sugar. It is not possible to give separate figures for imported and Indian-made sugar of this district, but the sugar consumed generally is Indian-made, and it compares favourably well in quality with imported sugar.

*Gurdaspur*.—The imported sugar does not find a place in the markets of this district while the retail prices of gur and Indian made sugar are as follows:—

(1) Gur—	(2) Sugar ( <i>desi</i> )—
1st class Rs. 3 per maund.	1st class Rs. 8 per maund.
2nd class Rs. 2-8 per maund.	2nd class Rs. 7-12 per maund.
3rd class Rs. 2-4 per maund.	Other Rs. 7-6 per maund.

*Jullundur*—

Year.	Retail prices per rupees in seers.	
	Gur.	Sugar,
1930-31	8	5
1931-32	...	...
1932-33	9	5½
1933-34	9½	5
1934-35	9	5
1935-36	8	5
1936-37	9	5

*Rohatak*.—The retail prices of gur/jaggery is Rs. 1-8 and Rs. 1-4 per maund and

Sugar Rs. 8 per maund.

Statement showing the retail prices of gur and Indian-made sugar in Amritsar District.

Name of month.	1932.		1933.		1934.		1935.		1936.		1937.					
	Gur.	Sugar.	Gur.	Sugar.	Gur.	Sugar.	Gur.	Sugar.	Gur.	Sugar.	Gur.	Sugar.				
	Srs.	Ch.	Srs.	Ch.	Srs.	Ch.	Srs.	Ch.	Srs.	Ch.	Srs.	Ch.				
January . . . . .	10	0	11	0	10	0	7	5	9	10	9	8	4	8		
February . . . . .	9	14	11	14	10	0	6	10	10	0	9	8	4	10		
March . . . . .	10	12	12	8	10	0	6	12	10	0	9	8	4	12		
April . . . . .	11	0	11	4	9	0	6	9	10	0	13	0	4	12		
May . . . . .	12	12	10	2	3	0	7	0	6	5	10	0	13	0	4	12
June . . . . .	13	0	10	0	3	0	7	0	6	0	10	0	13	0	..	
July . . . . .	11	0	9	0	..	..	6	8	10	0	..	..	..	..		
August . . . . .	10	8	9	10	..	..	6	15	8	4	..	..	..	..		
September . . . . .	10	12	8	0	..	..	7	0	7	8	..	..	..	..		
October . . . . .	10	0	9	0	6	0	5	8	7	0	..	..	..	..		
November . . . . .	9	0	9	8	6	8	6	9	8	4	..	..	..	..		
December . . . . .	9	12	10	0	6	6	8	12	9	8	..	..	..	..		

Figures not available.

Figures not available.

Figures not available.

Figures not available.

Figures not available.

Statement showing the retail prices of raw sugar (gur) in seers per rupee during the years 1930 to 1936.

Fortnight.	Ambala.	Jullundur.	Amritsar.	Gurdaspur.	Sialkot.	Lyallpur.
	Srs. chs.	Srs. chs.	Srs. chs.	Srs. chs.	Srs. chs.	Srs. chs.
<i>1930.</i>						
15th Jan.	6 2	4 0	5 0	7 8	6 12	6 8
31st Jan.	6 6	4 8	5 8	7 8	7 0	6 8
15th Feb.	6 0	4 8	5 8	6 8	8 8	6 0
28th Feb.	7 0	4 8	5 8	6 8	8 8	6 0
15th Mar.	6 6	4 8	5 8	7 0	8 0	6 9
31st Mar.	5 14	4 8	5 8	7 0	8 0	6 8
15th Apr.	5 14	4 8	6 8	6 8	8 0	6 8
30th Apr.	5 6	4 8	6 4	6 0	8 0	6 0
15th May	5 4	4 4	4 12	6 0	8 0	6 0
31st May	5 4	4 4	4 4	5 0	8 0	6 0
15th June	4 12	4 4	4 4	5 0	7 8	6 0
30th June	4 12	4 4	4 4	5 0	6 8	6 0
15th July	5 7	4 8	4 0	5 0	5 8	6 0
31st July	5 7	4 8	4 12	5 8	5 8	6 0
15th Aug.	5 7	4 8	4 4	5 8	5 12	5 8
31st Aug.	5 7	4 4	4 4	5 0	6 0	5 8
15th Sep.	6 0	4 4	4 4	4 12	6 0	5 8
30th Sep.	6 0	4 4	4 4	5 0	6 0	6 8
15th Oct.	6 10	4 8	5 0	5 12	5 8	6 8
31st Oct.	6 10	4 8	5 8	7 8	6 8	6 0
15th Nov.	5 4	5 0	5 8	7 8	6 4	6 0
30th Nov.	7 0	6 0	9 0	9 0	6 8	10 0
15th Dec.	7 12	6 8	11 0	11 0	10 2	10 0
31st Dec.	9 12	6 8	9 12	9 0	13 0	9 0
<i>1931.</i>						
15th Jan.	7 8	8 0	9 8	9 0	10 4	8 0
31st Jan.	7 8	8 0	8 12	9 0	9 8	9 0
15th Feb.	8 4	8 0	8 12	9 8	11 0	9 0
28th Feb.	8 4	7 0	8 12	10 0	11 8	9 0
15th Mar.	8 4	7 0	8 12	10 0	11 4	10 0
31st Mar.	8 8	7 0	8 12	10 0	11 0	10 0
15th Apr.	8 4	8 0	8 12	10 0	11 4	10 0
30th Apr.	8 4	8 0	9 0	10 0	11 8	11 0
15th May	8 4	8 0	9 0	10 0	11 8	10 0
31st May	8 4	8 0	9 0	10 0	11 12	10 0
15th June	8 4	8 0	8 0	10 0	11 4	10 0
30th June	8 4	8 0	8 0	10 0	11 6	10 0
15th July	8 2	7 0	8 0	10 0	11 12	10 0
31st July	8 2	7 0	8 0	10 0	11 12	10 0
15th Aug.	8 2	7 0	8 0	10 0	11 0	10 0
31st Aug.	8 2	7 0	8 0	10 0	11 4	9 8
15th Sep.	8 2	7 0	8 0	10 0	10 6	9 0
30th Sep.	8 2	7 0	8 0	10 0	10 4	9 0
15th Oct.	7 12	9 0	8 0	11 0	10 12	8 0

Statement showing the retail prices of raw sugar (gur) in saers per rupee during the years 1930 to 1936—contd.

Fortnight.	Ambala.	Jullundur.	Amritsar.	Gurdaspur.	Sialkot.	Lyallpur.
	Srs. chs.	Srs. chs.	Srs. chs.	Srs. chs.	Srs. chs.	Srs. chs.
<i>1931—contd.</i>						
31st Oct.	7 12	9 0	8 0	11 0	11 2	7 8
15th Nov.	7 12	7 0	8 0	11 0	8 8	8 8
30th Nov.	7 12	7 0	8 0	11 0	8 12	11 0
15th Dec.	9 4	9 0	10 0	11 0	11 4	10 0
31st Dec.	9 12	8 0	10 0	9 8	9 12	10 0
<i>1932.</i>						
15th Jan.	9 4	9 0	10 0	10 8	10 12	10 0
31st Jan.	10 0	9 0	10 0	10 8	10 2	10 0
15th Feb.	11 4	9 0	9 12	11 0	11 8	11 0
29th Feb.	11 4	10 0	10 0	11 0	10 14	11 0
15th Mar.	10 8	10 0	11 0	11 8	12 8	13 0
31st Mar.	13 0	10 0	11 0	12 0	13 2	13 0
15th Apr.	13 0	10 0	11 0	12 0	13 0	13 0
30th Apr.	13 0	10 0	11 0	12 0	11 12	13 0
15th May	14 0	10 0	13 0	12 0	12 0	12 8
31st May	16 8	10 0	13 0	14 0	13 4	13 0
15th June	14 4	10 0	13 0	14 0	14 0	14 0
30th June	14 4	10 0	11 0	17 0	14 0	14 0
15th July	14 8	15 0	11 0	15 0	14 0	14 0
31st July	14 0	15 0	11 0	14 0	14 0	14 0
15th Aug.	12 0	13 0	10 8	14 0	14 0	15 0
31st Aug.	12 0	11 0	10 8	13 0	14 8	14 0
15th Sep.	12 4	10 8	11 0	13 0	13 8	15 0
30th Sep.	12 4	10 8	10 0	12 8	13 0	15 0
15th Oct.	13 0	10 0	10 0	12 0	13 0	10 0
31st Oct.	13 0	10 0	10 0	11 8	13 0	10 0
15th Nov.	13 0	10 0	8 12	12 8	13 0	10 0
30th Nov.	13 0	10 0	9 12	12 0	13 0	13 0
15th Dec.	14 4	10 0	9 12	16 0	13 0	13 0
31st Dec.	14 4	10 0	10 0	15 0	12 10	13 0
<i>1933.</i>						
15th Jan.	12 12	9 0	11 0	16 0	12 8	14 0
31st Jan.	15 8	9 0	12 0	16 0	12 12	13 0
15th Feb.	14 0	10 0	11 0	14 8	13 0	13 0
28th Feb.	17 0	10 0	11 0	17 0	13 4	15 0
15th Mar.	17 0	10 0	12 0	17 0	12 8	15 0
31st Mar.	19 0	10 0	13 0	15 8	12 0	16 0
15th Apr.	15 0	11 0	11 4	15 8	12 8	16 0
30th Apr.	14 0	11 0	11 4	11 8	12 8	13 0
15th May	17 8	10 0	10 4	11 8	12 0	13 0
31st May	17 0	8 0	10 0	12 0	12 0	13 0
15th June	15 8	8 0	10 0	12 8	11 0	12 0
30th June	12 0	8 0	10 0	12 0	11 0	12 0

Statement showing the retail prices of raw sugar (gur) in seers per rupee during the years 1930 to 1936—contd.

Fortnight.	Ambala.	Jullundur.	Amritsar.	Gurdaspur.	Sialkot.	Lyallpur.
	Srs. chs.	Srs. chs.	Srs. chs.	Srs. chs.	Srs. chs.	Srs. chs.
1933—contd.						
15th July	13 0	9 0	9 4	12 8	10 0	11 0
31st July	13 0	9 0	8 12	12 0	9 0	12 0
15th Aug.	13 0	8 0	8 12	12 8	9 8	12 0
31st Aug.	13 0	8 0	10 0	13 8	9 8	13 0
15th Sep.	13 0	8 0	8 0	13 0	9 8	13 0
30th Sep.	14 4	8 0	8 0	12 0	9 8	13 0
15th Oct.	14 8	8 0	9 0	12 0	9 8	13 0
31st Oct.	15 8	8 0	9 8	12 0	10 0	13 0
15th Nov.	14 0	8 0	9 8	12 0	7 8	13 0
30th Nov.	14 0	8 0	9 8	10 8	10 0	11 0
15th Dec.	14 0	10 0	9 8	13 0	12 0	12 0
31st Dec.	15 8	10 0	10 0	13 0	13 0	13 0
1934.						
15th Jan.	11 4	10 0	11 0	12 12	16 0	13 0
31st Jan.	9 12	11 0	10 0	12 0	16 0	12 0
15th Feb.	12 12	10 0	10 0	12 8	15 0	12 0
28th Feb.	12 12	11 0	10 0	12 8	15 0	12 0
15th Mar.	12 12	10 0	10 0	12 0	13 0	12 0
31st Mar.	11 0	10 0	10 0	12 0	12 0	11 8
15th Apr.	11 0	10 0	10 0	11 0	13 0	11 0
30th Apr.	10 4	9 0	8 0	8 12	11 0	11 0
15th May	10 4	8 8	7 0	8 12	10 0	9 0
31st May	9 12	8 8	7 0	8 8	9 0	8 0
15th June	9 12	8 0	7 0	9 0	9 0	7 8
30th June	8 0	6 8	7 0	8 8	8 0	7 8
15th July	7 8	6 8	...	9 0	8 0	8 0
31st July	6 8	6 4	...	8 0	7 8	8 0
15th Aug.	7 4	5 8	...	7 8	7 0	7 8
31st Aug.	7 4	5 12	...	7 8	7 0	7 0
15th Sep.	5 4	5 0	...	7 4	7 0	7 0
30th Sep.	5 0	5 12	5 0	7 4	7 0	7 0
15th Oct.	5 0	5 8	5 8	7 0	6 10	8 8
31st Oct.	5 0	5 0	6 0	8 0	7 12	5 12
15th Nov.	5 0	6 0	6 8	6 8	8 0	8 0
30th Nov.	6 4	6 0	6 8	8 4	7 14	7 0
15th Dec.	7 0	9 0	6 0	11 0	8 0	9 0
31st Dec.	9 0	6 0	7 8	11 4	8 8	8 8

Statement showing the retail prices of raw sugar (gur) in seers per rupee during the years 1930 to 1936—contd.

Fortnight.	Ambala.	Jullundur.	Amritsar.	Gurdaspur.	Sialkot.	Lyallpur.
	Srs. chs.	Srs. chs.	Srs. chs.	Srs. chs.	Srs. chs.	Srs. chs.
<b>1935.</b>						
15th Jan.	8 8	6 0	7 0	11 4	9 0	8 8
31st Jan.	7 12	6 4	8 0	7 12	8 0	7 8
15th Feb.	7 12	6 8	6 8	...	8 14	7 8
28th Feb.	7 4	6 0	6 8	7 8	8 12	7 8
15th Mar.	7 10	6 8	6 12	8 0	9 0	8 0
31st Mar.	7 10	6 8	6 12	8 0	7 0	8 0
15th Apr.	7 4	7 0	6 12	7 4	8 0	7 12
30th Apr.	7 4	7 0	6 4	7 4	7 0	7 8
15th May	6 6	7 0	6 4	7 4	7 0	7 8
31st May	7 0	6 0	6 0	7 0	7 0	7 8
15th June	7 4	6 0	6 0	6 12	7 0	7 0
30th June	7 4	6 0	6 0	7 8	7 0	7 8
15th July	7 4	6 0	6 8	7 8	6 0	7 8
31st July	7 4	6 0	6 0	7 8	6 0	7 0
15th Aug.	7 4	6 0	7 0	7 12	6 0	7 0
31st Aug.	8 4	6 0	7 0	8 0	6 0	7 0
15th Sep.	8 4	6 0	7 0	7 0	6 0	7 0
30th Sep.	8 4	7 0	7 0	7 0	6 0	6 8
15th Oct.	7 4	6 0	5 8	7 0	5 0	7 8
31st Oct.	7 4	6 0	5 8	8 0	5 8	6 12
15th Nov.	7 12	5 8	6 0	7 8	6 0	6 8
30th Nov.	7 12	6 0	8 0	7 4	6 8	7 8
15th Dec.	9 0	7 0	8 0	9 8	7 0	9 4
31st Dec.	9 8	7 0	9 8	9 8	9 8	9 8
<b>1936.</b>						
15th Jan.	9 8	8 0	9 4	10 0	8 0	9 8
31st Jan.	9 8	8 0	10 0	9 4	10 0	9 12
15th Feb.	9 8	8 0	10 0	9 4	10 0	10 0
29th Feb.	9 8	7 0	10 0	10 0	10 0	10 0
15th Mar.	10 4	9 0	10 0	10 0	10 0	9 8
31st Mar.	10 4	9 0	10 0	9 8	9 0	9 8
15th Apr.	9 12	7 8	10 0	9 8	8 0	10 0
30th Apr.	9 2	8 0	10 0	9 8	9 0	9 8
15th May	8 8	7 0	10 0	9 8	10 0	10 0
31st May	8 8	8 8	10 0	9 8	10 0	9 0
15th June	...	9 0	10 0	9 8	9 0	9 0

Statement showing the retail prices of raw sugar (gur) in seers per rupee during the years 1930 to 1936—concl'd.

Fortnight.	Ambala.		Jullundur.		Amritsar.		Gurdaspur.		Sialkot.		Lyallpur.	
	Srs.	chs.	Srs.	chs.	Srs.	chs.	Srs.	chs.	Srs.	chs.	Srs.	chs.
1936—cont'd.												
30th June	10	4	9	0	10	0	11	4	9	0	9	0
15th July	10	4	9	0	10	0	11	4	8	0	9	0
31st July	10	4	9	0	10	0	11	12	10	0	10	0
15th Aug.	10	1	8	0	8	8	12	8	9	0	10	0
31st Aug.	10	1	8	0	8	0	11	8	10	0	10	0
15th Sep.	10	0	8	0	8	0	10	8	9	0	10	0
30th Sep.	10	0	8	0	7	0	10	4	8	0	11	0
15th Oct.	9	12	8	0	7	0	9	4	7	0	8	0
31st Oct.	9	12	7	0	7	0	9	12	7	0	8	0
15th Nov.	9	2	7	0	7	0	9	12	6	12	8	8
30th Nov.	8	8	9	0	9	8	10	12	9	0	9	0
15th Dec.	10	4	8	0	9	8	11	0	8	0	9	8
31st Dec.	10	12	8	8	9	8	12	8	8	0	9	8

NOTE BY MR. KAILASH CHANDRA OF ABDULLAHPUR, A CANE-GROWER.

The progress of the Sugar Industry in India has been phenomenal during these few years of protection, so far as its expansion and consequent production goes. Area under sugarcane has also developed largely and this can be safely said that lot of cane has been left standing this season in the fields. But the quality of cane has not been keeping pace with its quantity and the millers are responsible to a great extent for this deficiency. However hard the mill-owners may try to put their house in order, reduce working expenses, employ highly technical men and latest machinery but they cannot stand on their own legs and compete with other countries in open market. If the load of excise and the crutches of protection are removed simultaneously, even then the industry would fall. Their salvation lies in improved cane. This the millers can encourage. At present they pay a flat rate for all their cane and the grower of better cane has no inducement. A premium paid by millers over the current rate for freshness and higher sucrose contents will directly induce the cultivators to meet with the situation. The method of judging the cane is very simple and the ignorant cultivators can also test their own cane. The hand refractometer can be used with advantage and no elaborate tests in the laboratory are necessary.

The relations between the millers and cane-growers should be cordial and all traces of exploitation on either side should be removed so that the parties may have mutual benefit.

**Payments.**—These should be made daily and without causing any inconvenience to the cultivators. All tips to the scale clerks and cashiers must be stopped.

**Weighments.**—The cart weighbridges should be periodically tested and weighed carts should be checked by high Government officials on surprise visits. Enough weighbridges should be provided so that 24 hours requirements are weighed during the day and the cultivators are not required to wait outside in winter whole nights.

**Amenities.**—Drinking water for cattle and men should be provided by the miller and sufficient ground space should be provided, so that free movements are not hampered. Shops for selling ordinary and simple and cheap food for cultivators under the control of the factory doctor. Propagandists of the Agricultural Departments should give lectures to the cultivators assembled there on better methods of farming and manuring.

**Stoppages.**—These for clearing, etc., can be foreseen by the management and timely notice to the cultivators should be given. In case of breakdown, all cane-indenteds carts should be weighed and reports sent with all possible haste in the neighbourhood of the time for which cane will not be required.

**Indents.**—In order to control suppliers indents mentioning date and quantity should be issued to the growers.

**Rate.**—Change of rate should be very well notified before two or three days so that cultivators may have time to think.

---

(2) *Letter, dated the 6th August, 1937, from the Senior Secretary to the Financial Commissioners, Punjab, Lahore.*

In reply to your letter No. 131, dated the 15th May, 1937, to the address of the Secretary to Government, Punjab, Industries Department, I am directed to inform you that the rate of interest at which the cultivators in the Punjab can borrow money, for the purchase of seed, etc., from the various sources open to them is as follows:—

- (1) 4 per cent. per annum on the money borrowed from Government in the form of taccavi loans.
- (2) 7 to 12½ per cent. per annum on the money borrowed from the Co-operative Credit Societies.
- (3) 6 to 12 per cent. per annum on the money borrowed from money-lenders on the security on landed property or ornaments, and 12 to 18 per cent. per annum or even more on money borrowed without such security.

---

(3) *Letter, dated the 23rd August, 1937, from the Marketing Officer, Punjab, Lahore.*

I have the honour to send herewith information supplementary to our oral evidence given in Simla on the 17th instant:—

(1) Area under sugarcane in the Punjab since 1929-30 is given in the attached statement to bring up-to-date the table given on pages 11 and 12 of the Report of the Indian Tariff Board on the Sugar Industry (1931).

Due to fall in the price of gur in 1936-37, decrease in the area under sugarcane was expected. The first forecast of sugarcane crop in the Punjab has just appeared and it shows the total area under sugarcane to be 527,600 acres only. In the important cane growing districts the largest decrease is reported from Lahore being 19.0 per cent. Rohtak shows decrease of 11 per cent., Karnal and Lyallpur of 8 per cent., Jullundur and Sialkot of 5 per cent. while Hoshiarpur shows an increase of 4 per cent.

(2) (a) *Division of the Punjab into various tracts.*—There is some difference of opinion on this point. Mr. Darling for instance includes Jullundur in the Central Punjab, but I would put it in the sub-montaneous tract because larger part of it resembles Hoshiarpur district which is sub-montaneous. Again he puts Multan in the Western Punjab, and I agree



that this is so, but large part of it is irrigated by canal. I would, therefore, put it along with canal colonies. I feel that from sugarcane growing point of view this will be quite suitable division of tracts.

(b) As regards the area in each tract and increases or decreases as compared with the past years there are wide fluctuations from year to year and it will not be advisable to take the figures of any one year for comparison. For instance the area under sugarcane in 1916-17 was only 414,110 acres as against 502,836 acres in 1917-18. Similarly the area under sugarcane in 1928-29 was only 400,904 acres as against 498,624 acres in 1927-28. Again in 1934-35 the sugarcane area was 462,442 acres as against 554,348 acres in 1936-37. I have, therefore, thought it proper to take the average figures for three years of each period, i.e., 1916-17 to 1918-19 when the Indian Sugar Committee wrote its report, 1926-27 to 1928-29 when the Indian Tariff Board submitted its report on the Sugar Industry and 1934-35 to 1936-37 when the present Tariff Board is dealing with this question.

The detailed figures are given in the attached table. Column No. 2 gives the actual area in each district for each period. Column No. 3 gives the percentage distribution of sugarcane area while column No. 4 gives the percentage of area under sugarcane to total area cropped. The last column gives an indication of the intensity of sugarcane crop. It will be observed from this table that the sub-montaneous districts show an increase in the area particularly in the last period. Jullundur and Ambala, the two districts in which sugar factories have been working for the last three years, indicate very large increase in the area. The third column shows that about 38 per cent. of the sugarcane area is located in this tract and the fourth column shows that with the exception of Amritsar and Gujranwala, in the Central Punjab, this tract shows comparatively higher percentage of sugarcane area to the total area cropped. The second tract (i.e., the Central Districts) contributes about 25 per cent. of the total area under sugarcane in the province. There was a decrease in the second period of about 2.5 per cent. but the third period shows an increase of about 21 per cent. Barring Amritsar and Gujranwala, the percentage of area under sugarcane to total cropped area is lower as compared with the sub-montaneous tract. The third tract (South Eastern Districts), shows a considerable decrease in the area under sugarcane since the first period, though there has been a little increase in Karnal and Gurgaon in the third period. It is rather strange to note that Rohtak district where Sonepat Factory was located should show a regular decrease. This anomaly will be explained if figures of individual years are studied. The figures for the last three years given below show a big increase in 1936-37 as compared with the two previous years:—

Year.	Sugarcane area. Acres.
1934-35 . . . . .	31,412
1935-36 . . . . .	29,575
1936-37 . . . . .	38,167

The Canal Colonies area contains about 15 per cent. of the total sugarcane area in the Punjab. Leaving aside Lyallpur, the percentage of sugarcane area to total cropped area, is very low. It will be observed that there is a regular increase in the area under sugarcane but a closer study into the figures of each district reveals that the first two districts, i.e., Lyallpur and Shahpur, show a consistent decrease while the other two districts, i.e., Montgomery and Multan, show a regular increase. As this increase has been greater than the decrease in the first two districts, the figures for the whole group on the whole show an increase.

(3) *Cost of Production of cane.*—The following figures about the cost of cultivation were supplied, previously:—

A.—Table showing cost of cultivation per acre of Co. cane seed crop.

District.	1933-34.	1934-35.	1935-36.
	Rs. a. p.	Rs. a. p.	Rs. a. p.
Jullundur*	225 4 11	234 12 5	236 15 5
Lyallpur	122 1 2	139 12 8	124 7 6
Gurdaspur	101 13 2	156 7 9	126 7 6

\* High costs due to high costs for lifting water. Figures for Lyallpur and Gurdaspur during the year 1933-34 are for all types of cane, i.e., Co. seed crop, Co. Ratoon and *Desi* taken together.

B.—Table showing average yield of gur per acre.

District.	1933-34.	1934-35.	1935-36.
	Mds.	Mds.	Mds.
Jullundur	44.4	39.0	42.7
Lyallpur	25.6	33.1	32.2
Gurdaspur	18.5	19.7	16.3

The figures of cost given in the Table A above include the cost of stripping cane as well as the crushing and making into gur. As the Board was interested in the cost of production of cane only, i.e., before it is crushed and made into gur, the cost of crushing and gur manufacturing and the value of cane tops should be deducted from the above figures. This cost comes to about Re. 1-10-6 per maund of gur. The correct figures for the cost of cultivation of cane per acre would, therefore, be as follows:—

District.	1933-34.	1934-35.	1935-36.
	Rs. a. p.	Rs. a. p.	Rs. a. p.
Jullundur	152 6 11	170 2 11	165 11 11
Lyallpur	79 0 2	85 2 2	71 7 6
Gurdaspur	71 2 11	123 5 9	99 15 6

Assuming that about 10 maunds of cane give one maund of gur, the price per maund of cane works out as below:—

District.	1933-34.	1934-35.	1935-36.
	As. p.	As. p.	As. p.
Jullundur	5 7	7 0*	6 2
Lyallpur	4 10	4 2	3 7
Gurdaspur	6 2	9 10	10 0

\* In the Jullundur District in 1934-35 sugarcane was badly affected by pyrilla and frost. Yield per acre decreased and cost per maund of cane increased.

The figures relating to the cost of cultivation given above, were worked out under the following conditions:—

*Lyallpur District.*—It is all canal irrigated and water charges amount to Rs. 11 per acre.

*Jullundur District.*—It is all well irrigated and the cost of lifting water comes to about Rs. 70 per acre.

*Gurdaspur District*.—In this district about a third of the area where cost of cultivation has been worked out was under well irrigation, one-third under canal irrigation and the remaining one-third was *barani*, i.e., dependant on rains. The cost of cultivation in the *barani* area alone is as follows:—

	1933-34.	1934-35.	1935-36.
	Rs. a. p.	Rs. a. p.	Rs. a. p.
Sugarcane <i>Desi</i> seed crop	103 9 11	115 14 0	118 15 5
Sugarcane Co. seed crop	...	53 15 9	75 8 2

The yields per acre are given below:—

	1933-34.	1934-35.	1935-36.
	Mds. Srs.	Mds. Srs.	Mds. Srs.
Sugarcane <i>Desi</i> seed crop	13 17	14 37	15 16
Sugarcane Co. seed crop	...	14 9	6 10

(4) The detailed cost of sugar manufacture by open pan system and *Khanchis* is given in the attached statements.

(5) Publication No. 33, i.e., "Studies in the Cost of Production of Crops in the Punjab", is enclosed herewith. The average cost of production of sugarcane during the five years, 1927-28 to 1931-32, is shown as Rs. 138-13-11 on page 21 of the publication. This figure, however, does not correspond to the figures already given as the cost of cultivation, because:—

- (1) the figures in the publication relate to a Government Farm where yields are usually higher. The average yield was 50 maunds 10 seers which is about double that of the average for the province;
- (2) cost of crushing and gur manufacture is also included.
- (3) rental value of land and the land revenue paid to the Government are not included in the cost.

Allowing for these differences, i.e., adding rental value and land revenue, the comparable cost of producing cane would be as follows:—

	Rs. a. p.
Cost per acre as given on page 21 . . . . .	138 13 11
<i>Add</i> —	
Rental value . . . . .	29 1 2 ( <i>vide</i> page 6).
Land revenue, etc. . . . .	7 0 9 ( <i>vide</i> page 7).
Total . . . . .	174 15 10
<i>Deduct</i> cost of making 50 maunds of gur at Rs. 1-4 per maund . . . . .	62 8 0
Balance . . . . .	112 7 10

Yield of canes: 500 maunds per acre.

∴ Cost per maund of cane: As. 3-7.

(6) A statement giving prices of gur and sugar in the *Lyallpur* market from January, 1935, to May, 1937, is attached herewith. The sugar quotations are at the mill gate. To these a sum of Rs. 1-6 may be added by way of railway freight and overhead charges, to get corresponding rates at *Lyallpur*. The figures have been represented diagrammatically also in the attached graph. It will be observed that gur prices have followed those of sugar which are on the decline during the period.

(7) A statement and a graph showing the acreage under sugarcane and wholesale harvest prices per maund of gur in the Punjab for the past 20 years are attached herewith. It will be seen that as the area increases, generally the price falls and the next year area goes down and the prices consequently go up.

(8) *Consumption of gur and sugar in the Punjab.*—This is rather a complicated job because for imports and exports purposes Punjab has been lumped into one block along with North-West Frontier Province, Delhi and the Punjab States. It is, therefore, necessary to find out the production of the block as a whole, and add it to the net imports of the block and then divide by the total population. In some States exact figures were not available and estimates had, therefore, to be made. Working on this basis consumption works out as given below:—

	1934-35.	1935-36.
	Mds.	Mds.
Annual <i>per capita</i> consumption of gur	0·32	0·39
Annual <i>per capita</i> consumption of sugar	0·18	0·19
Total	0·50	0·58

It may be noted that these figures include gur and molasses used in distilleries and for making of *hugga* tobacco, and feeding animals.

*Statement showing area under sugarcane in the Punjab since 1929-30.*

Year.	Area in acres.	Year.	Area in acres.
1929-30	306,696	1934-35	462,442
1930-31	425,729	1935-36	474,200
1931-32	474,655	1936-37	554,348
1932-33	558,152	1937-38 (first forecast)	627,600
1933-34	465,991		

Statement showing areas under sugarcane, their percentage distribution and the percentages of sugarcane areas to total areas cropped in the important cane-growing districts of the different tracts of the Punjab.

Districts.  1	Areas under sugarcane. 2			Percentage distribution of sugarcane areas. 3			Percentages of sugarcane areas to total areas cropped. 4			
	1st period. (1916-17 to 1918-19.)	2nd period. (1926-27 to 1928-29.)	3rd period. (1934-35 to 1936-37.)	1st period. (1916-17 to 1918-19.)	2nd period. (1926-27 to 1928-29.)	3rd period. (1934-35 to 1936-37.)	1st period. (1916-17 to 1918-19.)	2nd period. (1926-27 to 1928-29.)	3rd period. (1934-35 to 1936-37.)	
Sub-montaneous Districts.	Gurdaspur . . .	60,990	59,815	57,607	13.2	13.3	11.6	6.5	6.1	5.6
	Sialkot . . .	35,754	38,658	39,004	7.7	8.6	7.8	3.5	4.4	4.1
	Hoshiarpur . . .	28,572	27,950	28,826	6.2	6.2	5.8	3.1	3.0	3.0
	Ambala . . .	21,053	17,607	27,536	4.5	3.9	5.5	2.5	2.0	3.2
	Jullundur . . .	29,741	30,368	36,309	6.4	6.8	7.3	3.8	3.7	4.2
	Total . . .	176,110	174,198	189,282	38.0	38.8	38.0	..	..	..
Central Districts .	Amritsar . . .	34,204	28,518	29,584	7.4	6.3	5.9	3.9	3.0	3.1
	Lahore . . .	16,385	14,824	21,550	3.5	3.3	4.3	1.3	1.2	1.8
	Gujranwala . . .	37,774	24,245	28,319	8.1	5.4	5.7	2.6	2.7	3.0
	Gujrat . . .	11,000	12,045	13,132	2.4	2.7	2.6	1.2	1.2	1.3
	Ludhiana . . .	13,640	13,617	17,704	2.9	3.0	3.6	1.9	1.6	2.1

	Ferozepur . .	4,610	3,952	10,311	1·0	0·9	2·1	0·2	0·2	0·5
	Sheikhupura . .	—*	17,476	18,401	—*	3·9	3·7	—*	1·8	1·9
	Total . .	117,613	114,677	139,001	25·3	25·5	27·9	..	..	..
South Eastern Districts.	Rohtak . .	38,103	36,692	33,051	8·2	8·2	6·7	2·8	2·7	2·5
	Karnal . .	32,934	29,407	31,062	7·1	6·5	6·3	2·8	2·6	2·7
	Gurgaon . .	14,323	7,428	11,815	3·1	1·7	2·4	1·2	0·7	1·0
	Total . .	85,360	73,527	75,928	18·4	16·4	15·4	..	..	..
Canal Colonies . .	Lyalpur . .	48,684	44,560	41,611	10·5	9·9	8·4	3·0	2·4	2·6
	Shahpur . .	9,174	8,066	7,431	2·0	1·8	1·5	0·8	0·6	0·5
	Montgomery . .	6,434	11,474	12,930	1·4	2·6	2·6	0·6	0·8	0·7
	Multan . .	3,494	7,201	12,384	0·7	1·6	2·5	0·3	0·5	0·7
	Total . .	67,786	71,301	74,356	14·6	15·9	15·0	..	..	..
	Total of the important Districts . .	446,869	433,703	478,567	96·3	96·6	96·3	..	..	..
	Total of the Districts of minor importance . .	6,819	15,461	18,430	3·7	3·4	3·7	0·2	0·2	0·2
	GRAND TOTAL . .	463,688	449,164	496,997	100·0	100·0	100·0	..	..	..

\* Sheikhupura District was carved out in 1919-20.

*Statement showing the acreage under sugarcane and harvest prices per maund of gur in the Punjab.*

Year.	Acreage.	Prices.
		Rs. A.
1916-17	414,000	5 0
1917-18	503,000	5 1
1918-19	474,000	7 14
1919-20	482,000	7 9
1920-21	457,000	9 1
1921-22	373,000	9 7
1922-23	497,000	5 12
1923-24	483,000	5 8
1924-25	396,000	6 11
1925-26	390,000	7 2
1926-27	448,000	5 15
1927-28	499,000	5 6
1928-29	401,000	6 5
1929-30	306,000	6 5
1930-31	425,000	4 2
1931-32	474,000	3 13
1932-33	558,000	2 12
1933-34	465,000	3 4
1934-35	462,000	4 9
1935-36	474,000	4 0

*Statement showing sugar and gur prices per maund in the Lyallpur market.*

	Maholi sugar..	Gur.
	Rs. A. P.	Rs. A. P.
1935.		
January	...	4 10 0
February	8 13 6	4 10 6
March	8 15 3	4 8 0
April	9 0 6	4 13 0
May	9 0 9	5 2 0
June	8 15 0	5 2 6
July	8 12 6	5 6 0
August	8 15 0	5 6 0
September	9 7 0	5 13 6
October	9 10 0	5 12 6
November	9 2 6	5 2 0
December	8 10 0	3 14 0
1936.		
January	8 6 6	3 11 6
February	8 3 6	3 9 0
March	8 4 3	3 13 0
April	8 2 9	3 15 0
May	7 14 0	3 11 0

	Maholi sugar.	Gur.
	Rs. A. P.	Rs. A. P.
1936.		
June . . . . .	7 12 0	3 12 0
July . . . . .	7 11 0	3 10 0
August . . . . .	7 10 9	3 10 0
September . . . . .	7 11 9	3 8 0
October . . . . .	7 12 0	3 10 0
November . . . . .	7 2 6	3 13 0
December . . . . .	6 10 6	3 6 6
1937.		
January . . . . .	6 11 0	3 4 0
February . . . . .	6 6 6	3 0 0
March . . . . .	6 9 0	2 14 6
April . . . . .	6 6 6	3 0 0
May . . . . .	...	2 12 6

Sugar quotations are f.o.r. mill. A sum of Rs. 1-6 may be added to these quotations to get corresponding figures at Lyallpur.

*Cost of manufacturing sugar.*

(1) *S. Bachint Singh, village Theri Rasulpur, District Hissar—*

**I. Interest and Depreciation—**

**Depreciation—**

	Rs. A. P.
Building Rs. 2,000 at 2½ per cent. . . . .	50 0 0
Engine Rs. 1,200 at 10 per cent. . . . .	120 0 0
Crusher Rs. 500 (life 8 years) . . . . .	62 8 0
1 Centrifugal Rs. 1,500 at 10 per cent. . . . .	150 0 0
Interest on (Capital) Rs. 5,200 at 6 per cent. . . . .	312 0 0

**II. Human Wages—**

Rab making (Rabias and other labour on rab making) . . . . .	170 10 0
Centrifuging . . . . .	22 8 0
Wages of mistri . . . . .	60 0 0

**III. Running Expenses of Engine (Kerosene oil, Lubrication) . . . . .**

400 0 0

Light, etc. . . . . 40 0 0

**IV. Value of 7,000 maunds canes at As. 4 per maund 1,750 0 0**

**V. Fuel . . . . . 40 0 0**

**VI. Miscellaneous . . . . . 40 0 0**

**Total . . . . . 3,217 10 0**

**Less value of 500 maunds gur at Rs. 1-8 per maund . . . . . 750 0 0**

**Net cost . . . . . 2,467 10 0**

Quantity of sugar made from mollasses: 300 maunds.

∴ Cost per maund of sugar: Rs. 8-3-6.



(2) *S. Harbans Singh, Sikandarpur, District Hissar—*

## I. Interest and Depreciation—

	Rs.	A.	P.
Depreciation—			
Building Rs. 2,000 at 2½ per cent. . . . .	50	0	0
Engine Rs. 1,200 at 10 per cent. one-third share charged to sugar manufacture . . . . .	40	0	0
Crusher Rs. 800 (for 8 years) . . . . .	100	0	0
Centrifugals (two) Rs. 2,400 at 10 per cent. . . . .	240	0	0
Interest on Rs. 5,600 at 6 per cent. . . . .	336	0	0
II. Wages—			
Rabias and other labour on rab making . . . . .	77	0	0
Centrifuging, etc. . . . .	13	8	0
Mistri (wages) . . . . .	30	0	0
III. Running Expenses—			
Kerosene oil . . . . .	150	0	0
Lubrication and light . . . . .	15	0	0
IV. Value of canes 3,500 maunds at As. 4 . . . . .	875	0	0
V. Fuel . . . . .	20	0	0
VI. Miscellaneous . . . . .	10	0	0
Total . . . . .	1,956	8	0
<i>Less value of 250 maunds gur at Rs. 1-8 (from mollasses)</i> . . . . .	375	0	0
Net cost . . . . .	1,581	8	0

Sugar produced: 150 maunds.

∴ Cost per maund of sugar: Rs. 10-8-8.

(3) *Ramrichhpal, village Jakhauli, District Rohtak—*

## I. Interest and Depreciation—

	Rs.	A.	P.
Depreciation—			
Buildings Rs. 1,000 at 2½ per cent. . . . .	25	0	0
Engine Rs. 4,000 (one-fourth share to be charged for cane crushing and grain chakki) . . . . . Rs. 1,000 at 10 per cent. = Rs. 100 out of this for sugarcane . . . . .	60	0	0
Centrifugal Rs. 1,000 at 5 per cent. . . . .	50	0	0
Crusher Rs. 800 at 20 per cent. . . . .	160	0	0
Interest on Capital about Rs. 3,500 at 6 per cent. . . . .	210	0	0
	Rs. A.		
II. Crushing Expenses—			
Wages . . . . .	1	8	
Oil and lubrication . . . . .	5	0	
For 350 maunds cane . . . . .	6	8	
∴ For 12,500 maunds cane . . . . .	232	2	3
III. Rab manufacturing wages—			
Labour and Rabia Rs. 2-8 daily—12 maunds rab. Total 1,500 maunds rab. ∴ Total cost . . . . .	312	8	0

	Rs. A.
IV. Centrifuging—	
6 men at As. 4 . . . . .	1 8
2 men on centrifuging at As. 8 . . . . .	1 0
Lubrication and oil (1/3rd of crushing) . . . . .	1 8
	<u>4 0</u>
28 days required for centrifuging 1,500 maunds rab . . . . .	112 0 0
V. Drying and Dressing of Rab . . . . .	37 8 0
VI. Mistri at Rs. 40 for 2 months. Half chargeable to sugar manufacture . . . . .	40 0 0
VII. Other Expenses—	
Megasse drying—	
3 carts at Re. 1 . . . . .	3 0
6 men daily . . . . .	1 12
	<u>4 12</u>
For about 30 days . . . . .	142 8 0
Cutting of Sarkanda for about 15 days at Re. 1 . . . . .	15 0 0
Light at As. 6 per day for 1 month . . . . .	11 4 0
Repairs and miscellaneous . . . . .	100 0 0
Wages of a clerk debited for 1 month . . . . .	25 0 0
VIII. Value of 12,500 maunds cane at As. 3-6 per maund . . . . .	2,734 6 0
Total . . . . .	<u>4,267 4 3</u>
Less value of molasses 1,000 at As. 4 . . . . .	250 0 0
500 maunds sugar . . . . .	<u>4,017 4 3</u>

∴ Cost per maund: Rs. 8-0-7.

*Items of cost.*

	Rs. A.
(4) <i>Jagan Nath Khushi Ram, Apra—</i>	
Cost of rab: 180 maunds at Rs. 2-4 per maund . . . . .	405 0
Rabia expenses . . . . .	20 0
Suklai . . . . .	3 0
Sarson oil . . . . .	1 8
Cartage of rab and empty mattis (manufactured sugar at the spot) . . . . .	..
Depreciation on mattis 45 at As. 3 dep. rate . . . . .	8 7
Rent of centrifugal machine . . . . .	20 0
Labour on centrifugals . . . . .	11 4
Total . . . . .	<u>11 4</u>
Less value of 120 maunds molasses at As. 8 per maund . . . . .	60 0
Net cost . . . . .	<u>409 3</u>

Sugar produced: 50 maunds.

∴ Cost of sugar per maund: Rs. 8-3.

(5) *Karam Chand, Bilga—*

	Rs. A.
Cost of rab: 160-maunds at Rs. 2-2 per maund .	340 0
Rabia expenses . . . . .	20 0
Suklai . . . . .	1 4
Sarson oil . . . . .	3 12
Cartage of rab and empty mattis: 40 mattis at As. 3 per matti . . . . .	7 8
Depreciation on mattis: 40 mattis at As. 3 per matti . . . . .	7 8
Rent of centrifugal machine . . . . .	50 0
Labour on centrifugals . . . . .	6 12
Total .	<u>436 12</u>
Less 98 maunds molasses at As. 15 per maund .	<u>91 14</u>
Net cost .	<u>344 14</u>

Sugar produced: 49 maunds 24 seers.

∴ Cost of sugar per maund: Rs. 6-15-3.

*Tehsil Samrala, village Pant.*(1) *Ali Mohd., of Pant—*

	Daily expenses. Rs. A.
Cost of crude oil . . . . .	2 0
Petrol . . . . .	0 4
Mobil oil . . . . .	0 2
Greese . . . . .	0 1
Mistri (wages) . . . . .	1 0
Labour . . . . .	0 6
Wear and tear . . . . .	0 4
	<u>4 1</u>

Sugar made per day: 25 maunds.

∴ Expenses per maund: 2 as. 7½ p.

Charges realised from Zamindars for 1½ maunds sugar, i.e., one matti of rab: As. 8.

∴ Charges per maund of sugar: 6 as. 4½ p.

(2) *Munshi Ram of Pant—*

	Rs. A.
Crude oil . . . . .	2 8
Mistri (wages) . . . . .	0 10
Labour . . . . .	0 6
Mobil oil . . . . .	0 10
Wear and tear repair . . . . .	0 4
	<u>4 6</u>

Sugar manufactured per day: 25 maunds.

∴ Cost per maund of sugar: 2 as. 9½ p.

Serial No.	Name of the factory owner.	Quantity of sugar manu- factured.	Quantity of molasses.	Sugar manu- factured from.	Price paid.	Percentage of sugar to cane.	Cost of manu- facture per maund.	Price obtained per maund of sugar.	How molasses dis- posed of and price obtained for molasses, etc.
		Mds.				Per cent.	Rs. a. p.		
1	S. Bachint Singh, village Theri Rasulpur.	300	500 gur from molasses.	Cane .	Grown at own farm.	‡ . .	8 3 6	Not sold yet but lesser by As. 12 to Re. 1 as against factory sugar.	Made into gur which sells at Re. 1-8 per maund.
2	S. Horban Singh, village Sikanderpur.	150	250 gur from (molasses power driven).	" .	Ditto .	‡ . .	10 8 8	Sold at Rs. 7-8 in Amritsar District with favour.	Ditto.
3	Ram rich h p a l Mahajan, village Jakhauji.	500	1,000 .	" .	Owned and also bought at 0-3-6 per maund.	4 . .	8 0 7	Rs. 6-4 to Rs. 7	Molasses are still lying. Its esti- mated price is As. 4 per maund.
4	Jagan Nath Khushi Ram, village Apra.	50	120 mds. Hired hand driven centrifugals.	Rab .	Rs. 2-4 per maund.	27-8 sugar from rab.	8 3 0	Sold retail at about Rs. 8 per maund.	Sold at As. 8 per maund local consumption and itinerant glu- mers for tak- ing to Hoshier- pur and Kangra Hilly tracts.
5	Karam Chand Bilga.	49-24	98 mds. Hired hand driven centrifugals.	" .	Rs. 2-2 .	31 sugar from rab.	6 15 3	Sold retail at rates varying from Rs. 7-8 to Rs. 8.	Sold at As. 15 per maund for local consumption and to iti- nerant buyers.

Serial No.	Name of the factory owner.	Quantity of sugar manufactured.	Quantity of molasses.	Sugar manufactured from	Price paid.	Percentage of sugar to cane.	Cost of manufacture per maund.	Price obtained per maund of sugar.	How molasses disposed of and price obtained for molasses, etc.
			Mds.				Rs. a. p.		
6	Biahen Singh, Jabbowal.	100	200 . .	..	..	..	..	..	..
7	L. Ramjidas of Dhagan.	165	320 . .	Rab .	..	..	8 3 0	..	..
8	Beli Ram Mohanwala.	105	175 . .	" .	..	..	8 3 0	..	..
9	Chanda Singh of Basiala.	28	50 . .	" .	..	..	8 8 0	..	..
10	Inder Singh of Basiala.	8½	17 . .	" .	..	..	8 8 0	..	..
11	Bhagat Singh village Jakhrodi.	250	445 . .		Worked on custom at Rs. 6 as. 4½ p. per maund of sugar manufactured.				
12	Ali Mohammad, village Pant.	300	533 . .		Do.		do.	do.	
13	Munshi Ram, village Pant.	300	533 . .		Do.		do.	do.	
	Total .	2,304							

*Cost of Production by Khanchi in Samrala Tehsu.*

	Rs. A. P.
Cost of 17½ maunds juice for preparing one matti (3½ maunds) of rab . . . . .	8 0 0
Wages of rabia for making 3½ maunds rab . . . . .	0 11 0
Cartage of one matti of rab (3½ maunds), empty- ing charges of one matti, drying and rubbing of 1½ maunds sugar prepared from one matti, cost of sukrai, etc. . . . .	0 15 6
	<hr/>
	9 10 6
Value of 2½ maunds mollasses at As. 7 per maund . . . . .	0 15 9
	<hr/>
Cost of 1½ maunds sugar . . . . .	8 10 9

∴ Cost per maund of sugar: Rs. 6-15.

Sale price per maund: Rs. 7-4.

*Cost of Production in Khanchis.*

Serial No.	Name of manufacturer.	Quantity of rab.	Cost of rab.	Cost of Suklai.	Labour expenses.	Oil.	Miscellaneous.	Cartage.
		Mds.	Rs. A.	Rs. A.	Rs. A.	Rs. A.	Rs. A.	Rs. A.
1	Loohmandas, Bilga . . . . .	240	495 0	3 0	35 10	5 10	..	18 12
2	Moolraj, Apra . . . . .	140	350 0	1 8	30 0	4 0	..	17 8
3	Ram Rattan, Apra . . . . .	80	225 0	2 8	20 0	3 12	..	5 0
4	Mohan Lal, Apra . . . . .	80	225 0	2 8	20 0	3 12	..	5 0
5	Labhuram, Baburam . . . . .	625	1,367 3	7 13	155 10	23 7	12 13	31 4
6	Baburam Ratan Chand, Nurmahal . . . . .	625	1,367 3	7 13	155 10	23 7	12 13	31 4
7	Durgadas Nijjar, Nurmahal . . . . .	500	1,062 8	6 0	100 0	18 0	8 0	25 0
8	Achhramal Charanji Lal, Nurmahal . . . . .	400	850 0	5 0	80 0	15 0	8 0	20 0
9	Pearey Lal, Sarhali . . . . .	300	637 8	3 12	45 0	11 4	4 0	11 4
10	Nathu Ram, s/o Ghanaya Lal, Dosanj Kalan . . . . .	180	416 4	1 8	22 8	5 0	..	1 14
11	Baburam, s/o Maya Mal, Dosanj Kalan . . . . .	72	166 8	1 0	11 4	3 0	..	..

Serial No.	Name of manufacturer.	Depreciation on mattie.	Labour on Khanchis.	Cost of Jala.	Miscellaneous.	Terminal tax.	Total gross cost.	Quantity of molasses obtained.
		Rs. A.	Rs. A.	Rs. A.	Rs. A.	Rs. A.	Rs. A.	Ra.
1	Laohmandas, Bilga . . . . .	9 6	16 8	18 12	2 14	..	605 8	145
2	Moolraj, Apra . . . . .	6 9	2 8*	12 0	3 0	..	427 1	80
3	Ram Rattan, Apra . . . . .	3 12	2 8*	6 8	3 0	..	272 0	50
4	Mohan Lal, Apra . . . . .	3 12	2 8*	6 8	3 0	..	272 0	48
5	Labhuram Baburam . . . . .	23 7	82 8	24 0	8 4	..	1,736 5	384
6	Baburam Ratan Chand, Nurmahal . . . . .	23 7	82 8	24 0	8 4	Octroi 85 15	1,822 4	381
7	Durgadas, Nijjar, Nurmahal . . . . .	18 12	60 0	20 0	7 0	68 12	1,392 0	305
8	Achhramal Charanji Lal, Nurmahal . . . . .	15 0	50 0	16 0	6 0	55 at as. 11 per Matti	1,118 0	244
9	Pearey Lal, Sarhali . . . . .	11 4	30 0	12 0	5 0	..	771 0	180
10	Nathu Ram, s/o Ghanaya Lal, Dosanj Kalan . . . . .	7 8	8 12*	10 0	1 15	..	470 5	120
11	Baburam, s/o Maya Mal, Dosanj Kalan . . . . .	3 6	8 6	3 8	1 0	..	198 0	45

Samrala, village Pant 2,800  
 Sheerpur 3,600  
 Maachhiwara 1,440

\* Employed unpaid labour, i.e., family.



Serial No.	Name of manufacturer.	Rate per maund of molasses.	Total value of molasses.	Net cost of production.	Quantity of sugar produced.				Cost per maund of sugar.
		A. P.	Rs. A.	Rs. A.	1st	2nd	3rd	Total.	Rs. A. P.
1	Lachhmandas, Bilga . . . . .	10 0	90 10	514 14	14	58	..	72	7 2 5
2	Moolraj, Apra . . . . .	1 6	87 8	339 9	3	42	..	45	7 8 9
3	Ram Rattan, Apra . . . . .	15 0	46 14	225 2	16	4	2	22	10 3 9
4	Mohan Lal, Apra . . . . .	15 0	45 0	227 0	20	21	2	24	9 7 4
5	Labhuram, Baburam . . . . .	15 0	360 0	1,376 5	75	87½	15½	178	7 11 10
6	Baburam Ratan Chand, Nurmahal . . . . .	15 0	357 3	1,465 1	75	90	16	181	8 1 6
7	Durgadas Nijjar, Nurmahal . . . . .	15 0	285 15	1,108 1	55	80	10	145	7 10 1
8	Achhramal Charanji Lal, Nurmahal . . . . .	15 0	228 12	889 4	42	68	8	118	7 8 7
9	Pearay Lal, Sarhali . . . . .	15 0	168 12	602 4	..	..	..	88	6 13 6
10	Nathu Ram, s/o Ghanaya Lal, Dosanj Kalan . . . . .	15 0	112 8	357 13	..	..	..	50	7 2 6
11	Baburam, s/o Maya Mal, Dosanj Kalan . . . . .	15 0	42 3	155 13	..	..	..	21	7 6 9

Samrala, village Pant 1,600  
 Sherpur 2,000  
 Machhiwara 800

NOTE.—Nos. 3 and 4 bought rab at Rs. 2-13, whereas others purchased at Rs. 2-2 to Rs. 2-5. These two people fixed the price of rab early in the season when the market rate of gur was rather high.

(4) *Letter dated the 11th September, 1937, from the Marketing Officer, Punjab, Lahore.*

In continuation of this office letter, dated the 23rd August 1937, I have the honour to state that the figures of cost for Barani area given in table on page 9 include also the cost of manufacturing gur.

The comparative cost of producing cane would be as follows:—

	1933-34.	1934-35.	1935-36.
	Rs. A. P.	Rs. A. P.	Rs. A. P.
Sugarcane Desi seed crop . . .	81 4 2	91 0 6	93 4 8
Sugarcane Co. seed crop . . .	...	30 12 9	65 2 7

(5) *Note on Sugarcane Research Scheme in the Punjab, supplied by the Deputy Director of Agriculture, Punjab, Lyallpur.*

*Scheme and its object.*—The Sugarcane Research Scheme in this province was started in the year 1934 for a period of five years and the work is carried on at the two Research Stations, Risalewala and Jullundur. The research work is carried on by the Sugarcane Specialist aided by one field assistant at each place, under the direct supervision and guidance of the Deputy Directors of Agriculture, Lyallpur and Jullundur, at the two stations respectively.

The Punjab grows about 550,000 acres of cane and is second only to United Provinces in India in the matter of cane acreage but the acre-yield here is very low, the average yield being about 30 maunds of gur per acre. In view of the large area under this crop and low yield, need for improvement is imperative. Even a small increase in yield would bring a large income to the cane-growers in aggregate.

*Problems under investigation at Risalewala.*—It is rather impossible to give the mass of recorded data for the different experiments in progress in a short note like this and so only the outlines of different problems are given here:—

- I. Finding out most suitable variety or varieties of cane.
- II. Economic use of water in cane cultivation.
- III. Best methods of cultivation including different spacings, planting of cane in trenches and on flat and ridging afterwards, different seed rates and setts having two and three buds.
- IV. Profitable manures for sugarcane.
- V. Best time for sowing sugarcane.
- VI. Saving cane seed from the effect of frost.
- VII. Botanical studies of different varieties relating to germination, tillering, growth, root system and other morphological studies which help in the selection of varieties most suitable for local conditions.
- VIII. Exploring possibilities of raising seedlings from sugarcane seed from the very beginning under Lyallpur conditions.
- IX. Chemical analysis of:—
  - (a) Cane at different stages of growth under different cultural treatments.
  - (b) Plant analysis from the different manurial treatments to study the Nitrogen nutrition of cane crop.

In selecting or evolving new varieties, efforts are being made to combine heavy yield with good quality of produce and also that they should mature at different times so that both the cultivators and the factory people may be benefited alike. Co. 313 (early variety) and Co. 312 (mid season) which have been selected and given out recently for general cultivation are, on the whole, better than Co. 285, which is the standard cane of the province.

Besides these, Co. 371 (mid season), Co. 385, Co. 392 and Co. 396 (early) and Co. 395, Co. 421 and Co. 432 (late varieties) appear to be promising in

the different classes. These have not been finally given out but have been sent out for trial at the different experimental farms. Co. 396 is a very early cane with moderate tonnage, while Co. 421 is a late cane of very heavy tonnage (Statement No. I).

At present there are over 220 varieties growing at this station.

Experiments regarding economic use of water in cane cultivation and profitable manures for this crop have shown that it is more economical to manure and irrigate cane adequately than to grow it as the cultivators do at present. (Statements No. II & III.) The use of ammonium sulphate or toria cake to supplement about half the dose of Nitrogen (70 lbs. per acre) in farmyard manure has given more economical returns than if the full dose of Nitrogen, *viz.*, 140 lbs. per acre is applied in farmyard manure alone. It will be seen from the results that artificial manures during 1934-35 have not materially increased the yield and this is probably due to the fact that the soil in that block was rich as shown by the yield of control which was 116 maunds of gur per acre against 60.75 maunds and 96.5 maunds recorded during 1935-36 and 1936-37 respectively.

Cane planted in rows 2' apart and ridged afterwards does not lodge so much as the cane sown by the local method. The yields are also in favour of the former method of planting (Statement No. IV). Besides various other advantages, the crop sown 2' apart can be hoed by bullock drawn implements which reduces the cost of hoeing considerably.

In the end it may be said that by combining good varieties with good cultivation, the maximum yield from experimental plots at this station has gone up to 142, 149 and 159 maunds of gur per acre in the past three years (1934-36) respectively. The average yields from about 7 acres under the main experiments were also high, varying from 89.4 to 106.1 maunds of gur per acre. The importance of these yields would be realised when it is noted that the average yield of gur for the province is less than 30 maunds per acre.

STATEMENT No. I.—Cane yields of promising varieties grown in the semi-final trial for the year 1936-37.

Variety.	Area harvested in acres.	Tonnage per acre.	Percentage of gur to cane.	Remarks.
Mds.				
<i>Early maturing varieties.</i>				
Co. 313 (Standard)	1/10	983.6	11.6	
" 385 "	1/10	868.2	11.2	
" 292 "	1/10	1047.5	10.4	Cane lodged rather badly.
" 396 "	1/10	792.1	10.7	
<i>Mid season varieties.</i>				
Co. 285 (Standard)	1/10	1172.5	10.2	
" 312 "	1/10	1387.4	9.3	Lodged badly.
" 371 "	1/10	1138.2	9.8	
<i>Late varieties.</i>				
Co. 285 (Standard)	1/10	1215.4	10.3	
" 395 "	1/10	1115.0	10.9	
" 421 "	1/10	1397.0	10.7	

STATEMENT No. II.—Yields in maunds of different varieties (recommended to the cultivators) under different irrigations.

Year.	Co. 285.		Percentage increase in favour of L. W. over R. W.	Co. 312.		Percentage increase in favour of L. W. over R. W.	Co. 313.		Percentage increase in favour of L. W. over R. W.
	L. W.	R. W.		L. W.	R. W.		L. W.	R. W.	
<b>A. Cane yields per acre in Mds.</b>									
1934-35 . . . . .	910.4	787.0	15.7	..	..	..	832.8	705.2	18.0
1935-36 . . . . .	733.6	620.0	18.3	719.2	649.2	10.7	574.0	497.6	15.3
1936-37 . . . . .	1138.9	910.0	25.2	1395.4	1110.6	25.6	1095.2	755.2	45.0
Average of the three years	927.6	772.3	20.1	1057.3	879.9	20.1	834.0	652.6	27.8
<b>B. Average percentage of sucrose on cane.</b>									
1934-35 . . . . .	8.86	8.91	..	..	..	..	10.26	10.16	..
1935-36 . . . . .	9.40	8.60	..	10.40	9.90	..	10.50	10.70	..
1936-37 . . . . .	9.45	8.15	..	9.25	9.10	..	10.60	10.15	..
<b>C. Calculated total production of sugar per acre in Mds.</b>									
1934-35 . . . . .	80.66	70.12	..	..	..	..	85.45	71.65	..
1935-36 . . . . .	68.96	53.30	..	74.80	64.27	..	60.27	53.24	..
1936-37 . . . . .	107.63	74.16	..	129.07	101.06	..	116.09	76.65	..

L. W. Liberal irrigation — water is applied after every 10—12 days. Total No. of irrigation applied is 19.

R. W. Restricted irrigation — water is applied after every 15—18 days. Total No. of irrigations applied is 13.

STATEMENT No. III.—*Economics of different manures with Co. 235.*

Treatments.	Year.	Average Yield of gur per acre.	Value of gur.	Increase in value of gur over control.	Cost of Manure.	Profit + Loss—over control.	Average for the three years 1934-35 to 1936-37.	
							Gur yield per acre.	Profit over control.
		Mds.	Rs. A.	Rs. A.	Rs. A.	Rs. A.	Mds.	Rs. A.
140 lbs. Nitrogen per acre in F. Y. M. (Control).	1934-35	116.0	526 13	..	28 5	..	91.06	..
	1935-36	60.75	246 13	..	31 8	..		
	1936-37	96.5	313 10	..	30 10	..		
70 lbs. Nitrogen per acre in F. Y. M. + 35 lbs. " " in Ammonium sulphate.	1934-35	110.8	503 4	-23 9	22 10	-17 14	93.47	+12 13
	1935-36	66.38	269 11	+22 14	25 6	+29 0		
	1936-37	103.3	335 9	+21 15	25 3	+27 6		
70 lbs. Nitrogen per acre in F. Y. M. + 70 lbs. " " in Ammonium sulphate.	1934-35	119.6	543 3	+16 6	31 1	+13 10	103.8	+44 6
	1935-36	79.06	32 3	+74 6	34 14	+71 0		
	1936-37	112.8	366 10	+53 0	35 2	+48 8		
70 lbs. Nitrogen per acre in F. Y. M. + 105 lbs. " " in Ammonium sulphate.	1934-35	120.4	546 13	+20 0	42 5	+6 0	108.8	+53 3
	1935-36	88.38	359 1	+112 4	44 8	+99 4		
	1936-37	117.7	382 4	+68 10	45 0	+54 4		

70 lbs. Nitrogen per acre in F. Y. M. + 35 lbs. " " " in Toria Cake.	1934-35	112.8	512 5	-14 8	23 4	-9 7	97.75	+28 1
	1935-36	80.0	325 0	+78 3	28 11	+81 0		
	1936-37	100.5	326 10	+13 0	31 0	+12 10		
70 lbs. Nitrogen per acre in F. Y. M. + 70 lbs. " " " in Toria Cake.	1934-35	114.0	517 12	-9 1	32 6	-13 2	108.43	+55 6
	1935-36	97.0	394 1	+147 4	41 9	+137 3		
	1936-37	114.3	371 11	+58 1	46 10	+42 1		
70 lbs. Nitrogen per acre in F. Y. M. + 105 lbs. " " " in Toria Cake	1934-35	122.4	555 14	+29 1	43 1	+14 5	112.8	+61 2
	1935-36	100.81	409 9	+162 12	54 8	+139 12		
	1936-37	115.3	374 9	+60 15	62 5	+ 29 4		

379

Manures.	Percentage of Nitrogen in different Manures.			Rate per maund.		
	1934-35.	1935-36.	1936-37.	1934-35.	1935-36.	1936-37.
				Rs. A. P.	Rs. A. P.	Rs. A. P.
Farm Yard Manure . . . . .	0.44	0.406	0.29	0 1 0	0 1 1	0 1 1
Toria Cake . . . . .	5.25	4.76	5.11	1 5 0	1 7 0	1 14 0
Ammonium Sulphate . . . . .	20.50	20.26	20.72	4 11 0	4 9 0	4 11 0

STATEMENT No. IV.—*Cultural Experiment.*

Treatments.	Average yield per acre in maunds.						Average for the three years 1934-37.	
	1934-35.		1935-36.		1936-37.			
	Cane.	Gur.	Cane.	Gur.	Cane.	Gur.	Cane.	Gur.
1. Ordinary sowing, on flat 1' apart	958.0	104.7	1,009.8	111.2	984.8	108.0	983.5	107.96
2. Sowing on flat 2' apart and ridging.	905.6	100.56	1,036.4	117.2	1,086.4	121.6	1,009.5	113.12
3. Sowing in Trenches 2' apart and ridging.	948.6	105.48	1,035.2	113.4	1,132.8	127.2	1,038.86	115.36

(6) *Letter dated the 5th October, 1937, from the Junior Secretary to the Financial Commissioners, Punjab, Lahore.*

*Subject:—NAMES OF DISTILLERIES IN THE PUNJAB.*

With reference to your letter No. 303, dated the 18th June, 1937, I am directed to inform you that there are in the Punjab four licensed distilleries situated at Rawalpindi, Amritsar, Sujanpur (District Gurdaspur) and Karnal. They are owned by the following firms:—

(a) *Rawalpindi Distillery.*—The Murre Brewery Company, Rawalpindi.

(b) *Amritsar Distillery.*—The Amritsar Distillery Company.

(c) *Sujanpur Distillery.*—The Punjab Sugar Works and Patent Carbonic Acid Gas Company, Limited, Sujanpur (Punjab).

(d) *Karnal Distillery.*—Messrs. Kishori Lal & Sons.

There is also a distillery situated at Solon in the Bhagat State territory which is owned by Messrs. Dyer Meakin & Company.

2. I am to forward a statement showing the quantity of molasses consumed, sources of supply and the price paid during the years 1934, 1935 and 1936.

3. I am to add that in the Punjab there are no concerns manufacturing rectified or denatured spirit other than the distilleries mentioned above.



Statement showing the quantity of molasses consumed, sources of supply and the price paid during the years 1934, 1935 and 1936.

Distillery.	Total quantity of molasses consumed.			Sources of supply.	Price paid for molasses.		
	1934.	1935.	1936.		1934.	1935.	1936.
	Mds.	Mds.	Mds.		Rs. A. P.	Rs. A. P.	Rs. A. P.
Karnal . . .	Not available.	Not available.	25,161	Molasses imported from various Sugar factories at Daurala, Sonapat, Begamabad, Rohanakalan, Jagadhri and other places.	0 10 0 to	0 12 0	per maund.
Simla . . .	1,189.75	1,832.0	3,598.5	1. Modi Mills, Meerut . . . . . 2. Bhagwan Das, Solon . . . . .	0 11 0 to	0 15 0	..
Amritsar . . .	87,171.6	83,871.0	96,938.4	Amritsar Sugar Mills Company, Ltd., and from various agents of the Amritsar Distillery Company, Ltd., Amritsar.	0 11 0	0 10 9	0 11 2
Gurdaspur . . .	12,335	16,361	18,220	1934—Dev Raj of Dina Nagar . . . . . 1935—Maalwa Mal Bansil Lal of Pathankot. 1936—Hans Raj Walati Ram of Jullundur.	9,707 9 3	16,736 5 9	15,904 1 0
Rawalpindi . . .	64,239	64,173	58,173	1934—Amritsar, Phularwan and Lyallpur . . . . . 1935—Amritsar and Lyallpur . . . . . 1936—Amritsar . . . . .	0 2 6 to 0 11 9	0 3 9 to 0 4 6	0 6 6

(7) Letter dated the 23rd October, 1937, from the Director of Land Records,  
Punjab, Lahore.

I have the honour to forward herewith statements showing fortnightly wholesale and retail prices of sugar raw (gur) and wholesale prices of sugar refined at important markets of the Punjab from 15th January to 15th October, 1937.

## Statement showing wholesale prices of raw sugar (gur) during the year 1937.

Fortnight.	Ambala.		Jullundur.		Amritsar.		Gurdaspur.		Sialkot.		Lyallpur.				
	Rs.	A. P.	Rs.	A. P.	Rs.	A. P.	Rs.	A. P.	Rs.	A. P.	Rs.	A. P.			
15th January	3	4	5	0	0	4	0	3	7	9	4	11	3	2	14
31st January	3	8	5	0	0	4	0	3	5	0	4	14	9	3	0
15th February	3	8	4	7	0	4	0	3	5	3	4	11	3	3	4
28th February	3	6	4	3	6	4	0	3	4	0	4	7	0	2	12
15th March	3	6	4	0	0	4	0	2	13	6	4	0	0	2	8
31st March	3	6	3	10	3	4	0	2	13	0	4	0	0	2	12
15th April	3	8	3	8	0	3	0	2	13	0	4	0	0	2	12
30th April	3	8	3	6	6	3	0	2	13	0	3	14	6	2	8
15th May	3	8	4	0	0	3	4	2	13	0	3	11	6	2	12
31st May	3	0	4	0	0	3	0	2	13	9	3	14	6	2	12
15th June	2	14	3	14	0	3	0	2	14	6	4	0	0	2	8
30th June	3	8	3	11	0	3	0	2	14	6	4	0	0	2	8
15th July	2	8	3	5	6	3	8	2	8	0	3	10	3	2	12
31st July	2	12	3	5	3	3	4	2	5	6	4	0	0	2	10
15th August	2	12	3	10	3	3	4	2	8	0	4	0	0	2	10
31st August	3	0	3	10	3	3	12	2	13	0	4	0	0	2	10
15th September	3	0	3	10	3	3	12	2	10	6	4	0	0	2	8
30th September	3	0	4	0	0	4	0	2	13	9	4	0	0	2	12
15th October	2	14	4	0	0	3	12	3	5	3	4	0	0	2	3

## Statement showing retail prices of raw sugar (gur) in seers per rupee during the year 1937.

Fortnight.	Ambala.		Jullundur.		Amritsar.		Gurdaspur.		Sialkot.		Lyallpur.	
	Srs.	ch.	Srs.	ch.	Srs.	ch.	Srs.	ch.	Srs.	ch.	Srs.	ch.
15th January	12	0	7	0	9	8	11	8	8	8	11	
31st January	11	4	8	0	9	8	11	8	8	2	11	
15th February	11	4	8	0	9	8	11	8	8	8	11	
28th February	11	6	9	0	9	8	11	12	9	0	11	
15th March	11	8	9	0	9	8	13	12	10	0	11	
31st March	11	8	10	0	9	8	14	0	10	0	11	
15th April	11	4	10	0	13	0	13	12	10	0	12	
30th April	11	4	10	8	13	0	13	12	10	0	13	
15th May	11	4	9	8	12	0	13	12	10	0	13	
31st May	13	4	9	8	13	0	13	12	10	0	13	
15th June	13	8	10	0	13	0	13	8	10	0	13	
30th June	11	0	10	0	13	0	13	8	10	0	13	
15th July	14	0	10	0	11	0	16	0	10	0	13	
31st July	13	0	10	0	12	0	17	0	10	0	13	
15th August	13	0	10	0	12	0	16	0	10	0	13	
31st August	13	0	10	0	11	0	14	0	10	0	13	
15th September	13	0	10	0	11	0	14	8	10	0	13	
30th September	13	0	10	0	10	0	13	8	10	0	13	
15th October	13	8	10	0	10	0	11	0	10	0	15	

Statement showing the wholesale prices of refined sugar during the year 1937.

Fortnight.	Ambala, Jullundur.		Amritsar.	Gurdaspur.		Sialkot.		Lyallpur.
	Rs. A.	Rs. A.	Rs. A.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A.	
15th January	8 12	8 0	8 8	8 2 0	10 0 0	8 1		
31st January	8 8	8 2	8 8	8 4 0	10 0 0	8 2		
15th February	7 0	8 10	8 8	8 6 0	8 11 3	...		
28th February	8 0	8 8	7 14	8 0 0	8 14 3	...		
15th March	7 8	9 0	7 14	8 0 0	8 8 9	...		
31st March	8 0	8 12	7 14	8 0 0	8 6 9	...		
15th April	7 0	8 4	7 14	8 0 0	8 6 9	...		
30th April	7 0	8 2	7 14	8 0 0	8 6 9	...		
15th May	9 0	7 8	7 14	7 12 0	8 6 9	...		
31st May	...	7 4	7 14	7 12 0	8 6 9	...		
15th June	7 8	7 8	7 14	7 10 3	8 14 3	...		
30th June	7 8	7 8	7 14	7 10 3	8 14 3	...		
15th July	7 0	7 8	7 12	7 1 6	8 14 3	...		
31st July	7 8	7 12	8 0	8 0 0	8 14 3	7 10		
15th August	7 8	7 12	8 0	8 4 0	8 14 3	7 12		
31st August	7 0	7 12	8 8	8 4 0	8 14 3	7 14		
15th September	7 8	7 12	8 0	8 4 0	8 14 3	8 0		
30th September	7 8	7 12	9 0	8 6 0	8 14 3	...		
15th October	7 8	7 12	8 0	8 6 0	8 14 3	8 1		

(B) Statement showing the estimated output of Open pan concerns and Khandsaries working in the Punjab during the year 1936-37, supplied by the Director of Agriculture, Punjab.

Serial No.	Name of Tehsil.	Name of village	Name of Manufacturer.	Sugar Manufactured from	Quantity manufactured.		REMARKS.
					Sugar.	Molasses.	
					Mds Srs.	Mds.	
	<b>BY CENTRALFUGING.</b>						
	<i>Hissar District.</i>						
1	Sirsa . . . .	Therl Rasulpur . . . .	S. Bachint Singh . . . .	Cane . . . .	300 0	500	
2	Do. . . . .	Sikandarpur . . . .	S. Herbans Singh . . . .	Do. . . . .	150 0	250	
	<i>Rohtak District.</i>						
3	Sanapat . . . .	Jakhauli . . . .	Ramrichpal Mahajan . . . .	Cane . . . .	500 0	1000	
	<i>Jullundur District.</i>						
4	Phillaur . . . .	Apra . . . . .	Jagan Nath Kushi Ram.	Rab . . . .	50 0	120	
5	Do. . . . .	Bilge . . . . .	Karam Chand . . . .	Do. . . . .	50 24	98	
6	Nawanshehr . . . .	Jabbowal . . . .	Bishan Singh . . . .	Do. . . . .	100 0	200	

(8) Statement showing the estimated output of Open pan concerns and Khandsaries working in the Punjab during the year 1936-37, supplied by the Director of Agriculture, Punjab—contd.

Serial No.	Name of Tehsil.	Name of village.	Name of manufacturer.	Sugar manufactured from	Quantity manufactured.		REMARKS.
					Sugar.	Molasses.	
					Mds. Srs.	Mds.	
	<i>BY CENTRIFUGING—contd.</i>						
	<i>Hoshiarpur District.</i>						
7	Garh Shanker . . .	Dhagan . . . . .	Ramji Das . . . . .	Rab	165 0	220	
8	Do. . . . .	Mahanwala . . . . .	Beli Ram . . . . .	Do..	105 0	175	
9	Do. . . . .	Basials . . . . .	Chanda Singh . . . . .	Do. . . . .	26 0	50	
10	Do. . . . .	Do. . . . .	Inder Singh . . . . .	Do. . . . .	8 20	17	
	<i>Ludhiana District.</i>						
11	Samrala . . . . .	Jhakrodi . . . . .	Bhagat Singh . . . . .	—	250 0	445	
12	Do. . . . .	Paut . . . . .	Ata Mohammed . . . . .	—	300 0	533	
13	Do. . . . .	Do. . . . .	Munshi Ram . . . . .	—	300 0	533	
	<i>Ambala District.</i>						
14	Ropar . . . . .	Jagatpura . . . . .	Guru Nanak Factory . . . . .	—	700 0	1200	

BY KHANCHI.						
<i>Jullundur District.</i>				Rab Maunds.		
1	Phillaur . . .	Bilga . . . . .	Lachhman Dass . . .	240	72 0	145
2	Do. . . . .	Apra . . . . .	Mul Raj . . . . .	140	45 0	80
3	Do. . . . .	Do. . . . .	Ram Rattan . . . . .	80	22 0	50
4	Do. . . . .	Do. . . . .	Mohan Lal . . . . .	80	24 0	48
5	Do. . . . .	Nur Mahal . . . . .	Labhu Ram Babu Ram	625	178 0	384
6	Do. . . . .	Do. . . . .	Babu Ram Rattan Chand	625	181 0	381
7	Do. . . . .	Do. . . . .	Durga Das . . . . .	500	145 0	305
8	Do. . . . .	Do. . . . .	Achhru Mal Charanjilal .	400	118 0	244
9	Do. . . . .	Sarhali . . . . .	Pearelal . . . . .	300	88 0	180
10	Do. . . . .	Dosanjh Kalan . . . . .	Nathoo Ram . . . . .	180	50 0	120
11	Do. . . . .	Do. . . . .	Babu Ram . . . . .	72	21 0	45
<i>Ludhiana District.</i>						
12	Samrala . . . . .	Pant . . . . .	—	—	1,600 0	2,800
13	Do. . . . .	Sherpur . . . . .	—	—	2,000 0	3,800
14	Do. . . . .	Machiwara . . . . .	—	—	800 0	1,440
28						

- (9) *Letter dated the 19th August, 1937, from the Director of Industries, Punjab, Lahore.*

With reference to the enquiries made by the Tariff Board this morning I have the honour to give below the figures of production of sugar during 1936-37 season in the Pattoki Sugar Factory, Pattoki, and the Bhalwal Sugar Mills Company, Limited, Bhalwal. Similar information regarding the Sonepat Sugar Factory, Sonepat and the Punjab National Sugar Factory, Lyallpur, is being obtained and will be submitted as soon as received by me.

The Pattoki Sugar Factory, Pattoki—473 maunds.

The Bhalwal Sugar Mills Company, Limited, Bhalwal—6,727 maunds.

- (10) *Letter dated the 21st September, 1937, from the Director of Industries, Punjab, Lahore.*

**PROTECTION REQUIRED BY THE INDIAN SUGAR INDUSTRY.**

In continuation of my letter dated the 19th August, 1937, on the subject noted above, I have the honour to state that the total production of sugar of the Sonepat Sugar Factory, Sonepat, during the season 1936-37 amounted to 71,186 maunds. The Punjab National Sugar Factory, Lyallpur, is now reported to have produced no sugar during the last season, for it worked just for trial for 15 days.

**Replies from the Govt. of Bombay.**

- (1) *Letter dated the 10th June, 1937, from the Superintending Engineer, Deccan Irrigation Circle, to the Secretary to the Government of Bombay, General Department, Bombay.*

With reference to Government endorsement (G. D.) No. 8230-D., dated the 24th May, 1937, I have the honour to forward herewith replies to such of the questions contained in the questionnaire as concern the Local Government for favour of further disposal.

2. Three copies of the replies are sent direct to the Secretary, Tariff Board. One copy is also sent to the Director of Industries, Bombay Presidency, as requested by him.

3. With regard to paragraph 2 of the Tariff Board's letter No. 147, dated the 30th April, 1937, I have the honour to state that retail prices of gur and sugar are not readily available and hence cannot be supplied. These may probably be available with Revenue or Agricultural Authorities.

4. *Paragraph 3 of the Board's letter.*—Sugar Companies mostly grow the cane required by them. There are no cases of underpayment or any other irregularities seen or brought to notice so far. Irrigators who supplied cane to companies were generally literate persons.

5. The rate of interest on cultivators' borrowings varies between Rs. 9 and 13 per cent. per annum according to circumstances. Rs. 12 is most usual.

**Accompaniments.—**

Replies.

Statement showing sugarcane areas.

Statement showing cost of cane cultivation.

2 Statements showing gur rates.

**REPLIES TO THE TARIFF BOARD QUESTIONNAIRE.**

1. A statement showing the total area under sugarcane in respect of Irrigation Works in the Deccan Irrigation Circle is attached hereto.

The following varieties of cane are generally grown on canals in this Circle:—

- (1) P.O.J. 2878 and 2883.
- (2) E.K. 28 (largely taken for gul).
- (3) Co. 290.
- (4) H.M. 89.
- (5) Red Mauritius.

The first three of these are most common. It is not possible to give the acreage under each variety—but Pundya is 70 per cent. of the total area roughly.

2. Under Deccan Canals almost the whole area is under canal irrigation. As rainfall is restricted to 4 or 5 months of the year, sugarcane cannot be produced without irrigation. There is practically no difference as regards climatic conditions and methods of cultivation vary but little.

3. The irrigation rate for sugarcane is Rs. 45 per acre per year and consists of Rs. 21 for hot weather, 15 for Rabi and Rs. 9 for monsoon season. It has continued without any change during the last seven years. For periods in excess of 12 months proportionate rates based on seasonal rates are charged.

Water rates are based on the quantity of water generally required by each type of crop—light, medium and heavy—and the relative value of storage water in the three irrigation seasons, viz., Hot weather, Monsoon and Rabi. Charges for cans if levied on the principle of the value of water supplied will be Rs. 66 per acre per year but due to trade depression, especially of the gul market, the sugarcane rate is fixed at Rs. 45 only.

4. The cost of cultivation and marketing the produce per acre under cane is roughly Rs. 400 to 450. Details are given in the accompanying statement. This cost has gone down by about Rs. 100 per acre due to fall in the rates of labour and also due to more economic methods of cultivation, etc. The average yield is 30 to 35 tons per acre for Pundya and 40 to 60 for the new varieties if the crop is carefully grown and under normal weather.

Sucrose content 11.5 to 12.

5. Fair price of sugarcane to the growers is—

Pundya—Rs. 13 to Rs. 14 per ton.

Other varieties—Rs. 11 to Rs. 12 per ton.

6. Sugarcane cultivation has increased in nearly all areas in last three years due to five factories being started.

7. There was no overproduction of sugarcane in 1936-37. The Deccan Canals depend on sugarcane alone for the major part of their revenue. With restrictions on production of sugarcane, the canals will have to be run at a tremendous loss as there are no alternative paying crops which can replace cane. In fact, canals are designed with a certain proportion of cane to be annually irrigated.

8. The other crops are cotton and groundnut. Cotton and groundnut are seasonal crops and cannot form alternative crops to sugarcane which requires water throughout the year. The estimated return per acre is Rs. 50 per acre in the case of cotton and Rs. 45 per acre in case of groundnut.

9. Information not available. The Agricultural Department may be referred to in this connection.

10. Not known to this office.

11. The Agricultural Department deal with this.

12. Sets of 16 varieties of sugarcane were received for trial from the Coimbatore Sugarcane Research Station. Sugar Companies deal directly with the Imperial Institute of Sugar Technology for any advice they require.

13. Not known to this office.

14. (a) & (b) About 25 per cent. is turned into sugar.



(c) 75 per cent. into gur.

(d) 8 per cent. of the whole area of cane is kept for seed.

15. Distance from factories, want of transport facilities.

Factories grow their own cane in the Deccan because of the uncertainty of quality to be bought from local men. This point was particularly stressed by the Kamat Committee who recommended the introduction of Sugar Factories in the Deccan.

16. Information not available in this office. Individual cultivators grow cane on their own account. They generally borrow money from local sowkars or from local co-operative societies as may suit them. In the majority of cases, the cane-growers are indebted to sowkars or societies.

17-19. No minimum prices are fixed for sugarcane under the Sugarcane Act XV of 1934 in the Bombay Presidency. All sugar factories plant their own cane and purchase only a very small quantity from outside cane-growers.

20-21. Cane is not transported generally to long distances. It is crushed by individual cultivators on their own farm or at a nearby crusher or on the farm of a neighbour. The cost of transport per maund per mile would come to about 2 to 5 pies.

22. The Sugar Factories have their own tram lines. As local cultivators crush their cane in their own fields, no special facilities are necessary for transport of cane.

*Feeder Roads.*—Ordinary cart tracks exist in each sub-valley in the canal tract and extension of feeder roads is under consideration of Government and may be carried out from petrol tax.

23. Not known to this office.

24. The pioneer factory, *i.e.*, the Belapur Company were given financial assistance some time ago but need no assistance now. All companies are allowed special facilities for planting cane in concentrated areas.

25. No.

26. Yes.

27-28. Information not available in this office.

29. The consumption of sugar in the Province is about 37,000 tons. The consumption of sugar can be increased by encouraging sweetmeat manufacture. The increase is, however, dependent upon the improvement in the purchasing power of the masses.

30. Not known to this office.

31. (i) Zone system can be said to have already been introduced—that is certain distributaries of canals have been allotted to the sugar factories for their cane cultivation.

(ii) Not required.

(iii) Not necessary.

32. Not known but these are very desirable.

33. Approximately 12 per cent. of the cane tonnage.

34. None so far as is known.

35. A statement showing the prices of gul prepared from sugarcane for the last seven years at various important stations in the Deccan Irrigation Circle is enclosed. The variation in prices is due to the general trade depression.

36. Not known.

37. Gul is not imported to any appreciable extent into the Deccan which produces the best gul.

38. Not known.

39. No.

40-49. Not known.

50. The information is given from the data available in this office and is fairly accurate.

51. None.

*Estimate of the cost of production per acre for sugarcane.*

(NOTE.—This is framed on the bases that every unit is hired or is paid for. Actually home labour or materials are used which reduce cash expenditure.)

Item No.	Operations.	Cost. Rs.
1.	2 Ploughings and ridgings . . . . .	25
2.	Bunding, repairing ridges and planting . . . . .	17
3.	Cost of setts 8,000 at Rs. 3 per 1,000 . . . . .	24
4.	Top dressing . . . . .	75
5.	Weeding . . . . .	20
6.	Watering (labour only) . . . . .	25
7.	Partial earthing and earthing up . . . . .	15
		201
8.	Interest on Rs. 200 at 12 per cent. for 9 months . . . . .	18
9.	Irrigation rate for 13½ months . . . . .	52
10.	Carriage for 35 tons within limit of 3 miles, i.e., to crushing station . . . . .	17
11.	Lease charge . . . . .	30
12.	Supervision at 10 per cent. . . . .	32
13.	Crushing cane, preparing gul and marketing 35 tons at Rs. 2-8 per ton . . . . .	87-5
		437-5

*Statement showing market rate of gul (average) during the years 1934-37 at different market centres on the Nira Right Bank Canal.*

Year.	Average gul rate. Rs. A.	Remarks.
1934 . . . . .	5 11	The gul rates for the years 1929 to 1933 are not available.
1935 . . . . .	5 15	
1936 . . . . .	3 11	
1937 . . . . .	3 6	

*Statement giving the average rate of gul per maund each year worked out from the sales at Co-operative shops at the places mentioned (12 months' average).*

Year.	Poona.	Baramati.	Kopergaon.
1929-30 . . . . .	9-45	8-84	9-88
1930-31 . . . . .	7-04	6-52	7-3
1931-32 . . . . .	5-18	4-5	5-07
1932-33 . . . . .	4-8	4-22	4-8
1933-34 . . . . .	4-04	3-45	4-01
1934-35 . . . . .	6-07	5-5	5-9
1935-36 . . . . .	5-3	4-9	5-9
1936-37 . . . . .	3-84	3-04	3-69

average of  
9 months.

Statement showing the total area under sugarcane on Irrigation Works in the Deccan Irrigation Circle.

Year.	Acres (including overlap).	Year.	Acres (including overlap).
1929-30	28,703	1933-34	33,663
1930-31	27,931	1934-35	33,620
1931-32	27,670	1935-36	42,471
1932-33	31,128		

(2) Memorandum dated the 17th June, 1937, supplied by the Deputy Secretary to the Government of Bombay, Public Works Department, Bombay.

Subject:—SUGAR INDUSTRY ENQUIRY: QUESTIONNAIRE OF THE TARIFF BOARD IN CONNECTION WITH THE—

The undersigned presents compliments to the Secretary to the Government of Bombay, General Department, and with reference to Government Memorandum, General Department, No. 8230-D., dated the 24th May, 1937, is directed to state that there is nothing to add to the replies to the Questionnaire for Local Governments, already given by the Superintending Engineer, Deccan Irrigation Circle, in his letter No. 2894, dated the 10th June, 1937, addressed to him in respect of the following:—

(i) Reply to question No. 6.—During the last three years six new factories have come into existence in the Deccan.

(ii) Reply to question No. 24.—The special facilities provided for in the agreements with the Sugar Companies are as under:—

- (1) Where the whole irrigation of a distributory or outlet is in the Company's lands the control of the internal distribution of water only on such distributory or outlet, as the case may be, shall be left to the Company.
- (2) Not more than one-third of the total area of the Company's lands and not more than one-half of the area in any drainage catchment shall be under cane cultivation at one time (excluding overlap).
- (3) The Company shall be allowed any system of bunds and irrigation units as may be convenient to the Company so as to suit the configuration of the Company's lands provided that—
  - (a) each irrigation unit shall not exceed two acres in area;
  - (b) the outermost bund round any plot of land under sugarcane cultivation shall be of the dimensions given in the Bombay Canal Rules for the time being in force;
  - (c) the Company shall agree to pay the cost of re-demarcation of their leased lands on the expiry of the lease thereof, so as to accord with the revenue records.
- (4) the supply of water for cane crops shall be guaranteed for a period of 30 years from the date of the execution of the agreement and the Company shall not be required to take water according to the block system for crops other than cane.
- (5) (a) The methods which will be followed as regards crop measurement and assessment shall be the same as in the case of the local irrigators; but with a view to simplifying the procedure regarding applications for water the Company will be allowed to submit consolidated applications for the supply of water for the said lands in the requisite form prescribed by the Bombay Canal Rules, 1934, or such other form as Government may,

from time to time prescribe specifying therein the survey numbers or the Company plot numbers, in which, and the dates from which, water for irrigation will be required and subject to the condition that the applications for any survey number or plot shall be submitted at least one month prior to the date on which it is to be irrigated.

(b) To allow of equitable distribution of water in accordance with the general requirements the Company shall, not later than the tenth of each calendar month, report for each outlet the area of the standing cane and the cane to be planted and removed during each irrigation month (i.e., from the fifteenth of one calendar month to the fourteenth of the next following calendar month).

(c) The Company shall be exempt from providing sureties as required by the Bombay Canal Rules for the time being in force.

(iii) *Reply to question No. 31.*—Jaggery is produced from cocoanut palm toddy in the coastal districts of this Presidency.

D. A.—Nil.

Copy together with two spare copies forwarded, with compliments, to the Secretary, Tariff Board, Ootacamund, for information.

Copy forwarded to the Superintending Engineer, Deccan Irrigation Circle, with reference to his memorandum dated the 10th June, 1937, for information.

(3) *Letter dated the 21st June, 1937, from the Director of Agriculture, Bombay Presidency, to the Secretary to the Government of Bombay, General Department.*

*Subject:—TARIFF BOARD.*

I have the honour to refer to your endorsement, No. 8230/D, dated the 24th May, 1937, below letters from the Secretary, Tariff Board, No. 147, dated the 30th April, 1937, and No. 172, dated the 11th May, 1937, with copies of enclosures and letter No. 181, dated the 15th May, 1937, and to submit herewith my replies to the Questionnaire for Local Governments for the consideration of Government.

Six copies of the replies are being forwarded direct to the Secretary, Tariff Board. With regard to the points discussed in paragraphs 2 and 3 of the Board's letter No. 147, dated the 30th April, 1937, the available information is contained in my replies to questions 27 and 35 and 5, 15 and 17 respectively of the Questionnaire sent herewith.

**REPLIES OF THE DIRECTOR OF AGRICULTURE, BOMBAY PRESIDENCY, TO THE QUESTIONNAIRE FOR LOCAL GOVERNMENTS.**

1. Statement A below shows the total area under sugarcane in each district of the Bombay Presidency during the last seven years, i.e., 1930-31 to 1936-37. Figures regarding the approximate acreage under improved varieties in each district of the Presidency are being collected and will be submitted later.

## STATEMENT A.

No.	District.	Acreage under Sugarcane.						
		1930-31.	1931-32.	1932-33.	1933-34.	1934-35.	1935-36.	1936-37.
1	2	3	4	5	6	7	8	9
		Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
	<b>Bombay Presidency.</b>							
	<i>Gujarat.</i>							
1	Ahmedabad .	248	461	514	332	310	483	} 3,000
2	Kaira . .	64	141	169	115	278	822	
3	Punch Mahals	89	147	338	560	} 1,812	} 3,044	
3A	Broach . .	8	12	12	10			
4	Surat . .	1,933	2,126	2,278	2,173	1,963	2,191	2,470
	<b>Total Gujarat</b>	<b>2,342</b>	<b>2,887</b>	<b>3,311</b>	<b>3,190</b>	<b>4,363</b>	<b>6,540</b>	<b>5,470</b>
	<i>Deccan.</i>							
5	West Khan- desh.	1,008	1,420	1,667	1,517	1,241	1,062	} 2,000
6	East Khan- desh.	691	1,010	1,465	1,272	866	767	
7	Nasik . .	3,900	4,697	6,285	6,538	7,283	7,413	7,240
8	Ahmednagar .	13,102	13,880	13,675	11,005	14,657	16,283	17,178
9	Poona . .	11,670	9,894	9,970	10,036	9,561	13,170	11,698
10	Sholapur . .	1,114	1,573	2,044	2,337	3,498	3,485	3,400
11	Satara . .	8,753	9,915	10,486	10,713	10,726	12,580	11,507
	<b>Total Deccan</b>	<b>40,238</b>	<b>42,389</b>	<b>45,592</b>	<b>43,418</b>	<b>47,832</b>	<b>54,760</b>	<b>53,023</b>

\* Final forecast figures.

## STATEMENT A—contd.

No.	District.	Acreage under Sugarcane.						
		1930-31.	1931-32.	1932-33.	1933-34.	1934-35.	1935-36.	1936-37. *
1	2	3	4	5	6	7	8	9
		Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
	<i>Karnatak.</i>							
12	Belgaum .	12,674	13,297	13,425	14,708	14,569	14,304	13,280
13	Bijapur .	691	807	690	658	598	743	651
14	Dharwar .	1,624	1,646	3,779	4,063	3,801	2,947	2,386
	Total Karnatak.	14,989	15,750	17,894	19,429	18,968	17,994	16,317
	<i>Konkan.</i>							
15	Thana .	253	252	263	262	248	183	} 1,000
16	Bombay Subarban.	..	..	..	..	..	..	
17	Kolaba .	36	29	32	37	38	52	
18	Ratnagiri .	1,044	952	856	751	789	777	
19	Kanara .	2,675	2,937	2,926	2,784	2,778	3,095	3,181
	Total Konkan	4,008	4,170	4,077	3,834	3,853	4,107	4,181
	TOTAL BOMBAY PRESIDENCY.	61,577	65,196	70,874	69,871	75,016	83,401	78,991

\* Final forecast figures.

2. (a) *Deccan*.—There is no material difference in the areas under sugarcane in the Deccan which can be ascribed to differences in climatic conditions or methods of cultivation. Practically all the crop is grown on canal irrigation.

(b) *Karnatak*.—There are two important cane growing tracts in the Southern Division of the Presidency—Chikodi under well irrigation and Malnad under tank irrigation. The Chikodi tract has a dry climate with a rainfall of about 26 to 32" whereas Malnad is a wet tract with a rainfall of 40 to 120". Cane in Malnad is only watered twice or thrice during the season while in the Chikodi tract, watering is done once a week.

(c) *Gujerat*.—The different tracts are North and South Gujerat. Generally setts are planted but in Surat district (South Gujerat) planting of whole canes by plough is sometimes practised. There is no canal irrigation; all cane is grown on well irrigation only. There is practically no unirrigated cane in the Bombay Presidency. During the past seven years, the average area under unirrigated cane was only slightly over 1,000 acres.

3. (a) *Deccan*.—The irrigation charges for sugarcane crop in the Bombay Presidency, vary from Rs. 28 to 45 for 12 months, but a cultivator is required to pay proportionate additional charges for the crop that remains unharvested after 12 months. Generally speaking, a cane grower pays 14 months' water charges for his plant cane and 18 to 18 months' charges for Adealí cane. The water charges are generally determined on the guaranteed supply of water, *e.g.*, the charges of Rs. 45 are fixed on all the major canals, where the supply of water is guaranteed in normal years. On the Krishna canal, the water supply is limited, hence the irrigation charges have been fixed at Rs. 32. On the minor canals, where the supply is insufficient and also the turns of watering are longer, the irrigation charges have been fixed at Rs. 28 per acre. During the past seven years, however, there is much variation in the irrigation charges for the sugarcane crop. Details of such variations are obtainable from the Irrigation Department.

(b) *Karnatak*.—The Gerak Canal supplies water for only eight months of the year and cane is cultivated by digging wells in the irrigated area. The cane area is only 350 acres. Water rates for eight months to cane crop is Rs. 20 per acre. No variation in past seven years.

(c) *Gujerat*.—No water charge, as all cane is well irrigated.

4. (a) *Deccan*.—Estimates of cost of cultivation of cane per acre on the four major canal systems in the Deccan area of the Bombay Presidency are given below (Statements B (a-d)). During the past seven years, the cultivators' cost of cultivation appears to have decreased with reduction in labour charges. The Deputy Director of Agriculture, South Central Division estimates that the average yield of the crop for which the cost of cultivation is given in Statement C would be about 45 tons of cane or 135-140 maunds (Bengal) per acre. The average sucrose content of gul is from 75 to 85 per cent. according to variety.

(b) *Karnatak*.—The cost of cultivation of sugarcane is estimated to be about Rs. 350 per acre in the Chikodi tract and Rs. 150 per acre in the Malnad tract. No variations in cost have occurred in the past seven years. The average yield per acre in the Chikodi tract is 7,000 lbs. gul and 4,500 lbs. gul in the Malnad tract.

(c) *Gujerat*.—Approximate cost of cultivation is Rs. 250-300 per acre. The yield of cane is 30 tons per acre in South Gujerat and 20-25 tons in North Gujerat. The average sucrose content of cane is 15 to 16 per cent.

Statement C below gives the average yield per acre in lbs. of gul in each district of the Bombay Presidency as given in the "Quinquennial Report of the average yield per acre of Principal Crops in India for period ending 1931-32".

**STATEMENT B (a).—Cost of cultivation of sugarcane on the Matha canal during the year 1936-37.**

S. No.	Items.	Rs. A.
1.	Preparatory tillage . . . . .	20 0
2.	Ridging and planting . . . . .	22 0
3.	Cost of sets . . . . .	25 0
4.	After-care, including earthing up . . . . .	20 0
5.	Bulky manure . . . . .	40 0
6.	Top-dressing (sulphate of ammonia Rs. 12 and oil-cake Rs. 90) . . . . .	102 0
7.	Irrigation charges . . . . .	53 0
8.	Local cess . . . . .	3 5
9.	Labour for watering . . . . .	6 4
10.	Harvesting and gernal charges . . . . .	50 0
11.	Rent of the land . . . . .	20 0
12.	Miscellaneous labour charges . . . . .	5 0
13.	Supervision charges . . . . .	10 0
14.	Interest . . . . .	15 0
15.	Marketing charges . . . . .	16 0
	Total . . . . .	407 9

**STATEMENT B (b).—Cost of cultivation of sugarcane on Nira Left Bank Canal during the year 1936-37.**

S. No.	Items.	Rs. A.
1.	3 poughings and ridging, etc. . . . .	18 0
2.	30 cart-loads of farm-yard manure at Rs. 1-8 per cart-load . . . . .	45 0
3.	Putting bands, spreading farm-yard manure, making beds, cutting sets, planting, etc. . . . .	15 0
4.	Cost of 10,000 sets at Rs. 4 per 1,000 sets . . . . .	40 0
5.	5 to 6 weedings . . . . .	10 0
6.	One bag of sulphate of ammonia . . . . .	12 0
7.	Tagarni . . . . .	2 0
8.	3 khandies sufflower cake at Rs. 15 per khandy . . . . .	45 0
9.	5 khandies castor cake at Rs. 12 per khandy . . . . .	60 0
10.	Application of oil-cakes . . . . .	4 0
11.	Earthing up . . . . .	10 0
12.	Irrigation labour charges . . . . .	15 0
13.	Irrigation dues . . . . .	53 2
14.	Rent of land . . . . .	20 0
15.	Supervision . . . . .	20 0
16.	Harvesting and gul making . . . . .	80 0
17.	Marketing charges . . . . .	24 0
18.	Interest . . . . .	25 0
	Total . . . . .	498 2



STATEMENT B (c).—Cost of cultivation of sugarcane on the Pravara Canals during the year 1936-37.

S. No.	Items.	Rs. A.
1.	3 ploughings at Rs. 6, 5 and 5 . . . . .	16 0
2.	Loading and harrowing . . . . .	1 0
3.	Opening farrows . . . . .	2 0
4.	Putting bunds and channels, spreading manure and planting . . . . .	16 0
5.	Farm-yard manure 20 carts at Rs. 2 per cart . . . . .	40 0
6.	Sets 10,000 at Rs. 4 per 1,000 sets . . . . .	40 0
7.	4 weedings . . . . .	6 0
8.	Sulphate of ammonia 224 lbs. . . . .	11 6
9.	Groundnut cake 8 pallas at Rs. 6 per palla . . . . .	48 0
10.	Castor cake for earthing up 11 pallas at Rs. 5-8 per palla . . . . .	60 8
11.	Application of above fertilisers, powdering, etc. . . . .	3 0
12.	Tagarni . . . . .	2 4
13.	Earthing up . . . . .	11 0
14.	Harvesting of cane, Ravi rate Rs. 21 . . . . .	70 0
15.	Land rent . . . . .	30 0
16.	Irrigation charges including local cess and overlap . . . . .	53 2
17.	Irrigation charges . . . . .	15 0
18.	Supervision . . . . .	20 0
19.	Carting of gul . . . . .	6 4
20.	Hamali for unloading and weighing of gul, etc., at anna 1 per palla . . . . .	3 2
21.	Adat on 50 pallas at As. 4 per palla . . . . .	12 8
22.	Interest at Rs. 12 per cent. per year on half the sum up to harvesting . . . . .	15 6
	Total . . . . .	<u>482 8</u>

STATEMENT B (d).—Cost of cultivation of sugarcane on the Godavari Canals during the year 1936-37.

S. No.	Items.	Rs. A.
1.	3 ploughings . . . . .	18 0
2.	Clod crushing and harrowing . . . . .	1 8
3.	Opening farrows . . . . .	2 0
4.	Putting bunds and channels, planting, etc. . . . .	13 0
5.	Seed sets 10,000 . . . . .	45 0
6.	Manures—	
	Farm-yard manure 20 carts at Rs. 1-8 each . . . . .	30 0
	Sulphate of ammonia one bag . . . . .	11 6
	Groundnut-cake 5 pallas at Rs. 7 each . . . . .	35 0
	Castor-cake 10 pallas at Rs. 5-12 each . . . . .	57 8
	Powdering cake and application of top-dressings . . . . .	4 0
7.	Weedings five times . . . . .	6 8
8.	Earthing up . . . . .	11 0
9.	Irrigation charges including overlapping and local cess . . . . .	53 2
10.	Irrigation charges . . . . .	15 0
11.	Rent of land . . . . .	24 0
12.	Supervision . . . . .	20 0
13.	Cane cutting, crushing and gul making . . . . .	80 0
14.	Carting charges of gul . . . . .	7 8
15.	Adat . . . . .	12 8
16.	Unloading charges, etc. . . . .	3 2
17.	Interest . . . . .	14 0
	Total . . . . .	<u>464 2</u>

STATEMENT C.—Statement showing average yield per acre in lbs. of gul in each district of the Bombay Presidency for the period ending 1931-32.

No. District.	Average yield per acre in lbs. of gul (for the period ending 1931-32) irrigated crop.
<b>BOMBAY PRESIDENCY.</b>	
<i>Gujarat.</i>	
1. Ahmedabad . . . . .	6,000
2. Kaira . . . . .	6,000
3. Panch Mahals . . . . .	5,000
4. Broach . . . . .	7,000
5. Surat . . . . .	7,000
<i>Deccan.</i>	
6. West Khandesh . . . . .	7,000
7. East Khandesh . . . . .	7,000
8. Nasik . . . . .	7,000
9. Ahmednagar . . . . .	7,000
10. Poona . . . . .	8,000
11. Sholapur . . . . .	7,000
12. Satara . . . . .	7,000
<i>Karnatak.</i>	
13. Belgaum . . . . .	7,000
14. Bijapur . . . . .	7,000
15. Dharwar . . . . .	7,000
<i>Konkan.</i>	
16. Thana . . . . .	7,000
17. Kolaba . . . . .	4,000
18. Ratnagiri . . . . .	4,000
19. Kanara . . . . .	6,000
Average for the Bombay Presidency . . . . .	6,950

5. In the Deccan tract, the average cost of growing cane works out at about Rs. 10 per ton and cultivators should get a price of Rs. 11 to Rs. 12 per ton of cane, delivered at the sugar factory. In this connection, it should be mentioned that almost all the sugar factories, in the Deccan, grow their cane on their own lands, taken on long lease and they are only inclined to purchase outside cane when the prices of gul are very low and when they expect to consume their own cane within the crushing period. During the year 1935-36, the prices of gul went high, consequently very little quantity of cane was purchased by the sugar factories; but during the current year, when the prices of gul came down as low as Rs. 2-8 to Rs. 3 per maund, a fairly large quantity of cane was purchased by the factories, at the rate of Rs. 9 to Rs. 11 per ton of cane. Out of the eight factories in the Deccan, the Kolhapur Sugar Factory is always dependent on the supply of cane from cultivators as they have only got a very small area under their own cane. The Phaltan Sugar Factory is also dependent on outside cane as their cane area is small when the capacity of their mill is taken into consideration. Other sugar factories decide the question of purchasing outside cane or not on the ruling prices of gul. In the Deccan,

the Bombay Government have not fixed any minimum price for the purchase of cane from cultivators nor is the price based on the ruling price of sugar or on any formula as laid down in the United Provinces and Bihar. The price for one ton of cane purchased by factories from cultivators, is generally based on one palla, i.e., 3 Bengal maunds of gul. It is also known that some factories make a contract with private cultivators to supply cane at a fixed rate which generally varies from Rs. 11 to Rs. 12-8 per ton delivered at the factory.

The Deputy Director of Agriculture, Southern Division, estimates a fair price of cane to the cultivator at Rs. 14 per ton in the Chikodi tract and Rs. 12 per ton in the Malnad tract. As, however, there are no factories in either the Karnatak or Gujerat tracts, cane sales in bulk are non-existent.

6. The information called for is given below. In general there have been no *marked* variations in the sugarcane cultivation in any specific area in the Bombay Presidency during the past seven years, except in Gujerat Division where cane cultivation has more than doubled owing to fall in prices of other cash crops; e.g., tobacco; cotton; groundnuts, etc., and to the introduction of hardy and improved cane varieties suited to this tract. Increase in area under cane often takes place to a minor degree if improvement in prices of gur, etc., occur in the previous season. Alternatively cane areas tend to decline with low gul prices.

1930-31 and 1931-32.—During these years the area under sugarcane in the Presidency remained generally stationary.

1932-33.—This year the area under sugarcane in the Presidency somewhat advanced although there was a slight decline in the acreage in the Konkan as compared with the preceding year. The increase was due, in large measure, to the prospects of increased sugar production in India under the system of protection extended to sugar industry.

1933-34.—Excepting Karnatak where the sugarcane area rose slightly there was a decline in the acreage of the crop in the Presidency during this year. The extent of variations, however, being very small needs no remarks.

1934-35.—During this year, the area under sugarcane increased in the Deccan due to extended cultivation of sugarcane on the Deccan Canals by Sugar Factories, but decreased in the Karnatak on account of inadequate water supply from the irrigation sources. The small area in Gujerat showed a little extension; while in the Konkan it remained almost stationary.

1935-36.—The area under sugarcane during this year showed an appreciable extension in the Presidency except in the Karnatak where it somewhat decreased owing to shortage of water supply in the irrigation sources. The increase in the acreage was chiefly due to the extended cultivation of the crop owing to favourable prices of gul in the preceding year.

1936-37.—This year the area under sugarcane decreased in Gujerat on account of low rates of gul in the preceding season. In the Deccan also the area somewhat receded partly due to the above reason and partly to the deficiency of water supply. In the Karnatak the water supply in wells went down during the hot weather and the water supply in tanks was also limited. This resulted in some reduction in area. In the Konkan the area remained almost the same as last year. It may be stated here that the final area figures for 1936-37 are not yet to hand and the above remarks are based on the information received for the forecast reports on the crop.

7. I do not consider that there is any overproduction of cane in the Bombay Presidency and, accordingly, no necessity is felt for a restriction of the cane area. In this connection, see replies to questions 37 and 38 regarding import and export of gul in the Bombay Presidency during the past seven years.

8. Under conditions of sugarcane cultivation in the Bombay Presidency, it cannot be said that there are any other cash crops which compete with sugarcane or which form an alternative cash crop to the cultivator in the

cane-growing tracts. The only exception might be fruit (citrus) plantations in the Deccan Canal-areas which have been extending in recent years. Cash crops grown in the neighbourhood of cane areas are cotton, groundnut and turmeric which give a net return of Rs. 10-25, Rs. 35 and Rs. 25 per acre respectively to the average cultivator.

9. The direct expenditure on the extension and improvement of sugarcane cultivation during the past seven years is estimated in Statement D given below. Under this statement are included (a) expenditure on sugarcane farms and (b) expenditure on the district propaganda staff engaged in popularising and extending improved types of cane, better methods of cane cultivation, etc. There is also additional indirect expenditure which could properly be debited against sugarcane improvement, e.g., portion of expenditure on Deputy Director of Agriculture, South Central Division, and his staff who largely deal with the improvement of cane cultivation in the Deccan Canal areas. In the Karnatak and Gujerat Divisions, also, the departmental district staff do a considerable amount of similar work among the cane-growers of these tracts. The statement does not include the expenditure on the Padegaon Research Station, Nira.

STATEMENT D.

Years.	Names of the Farms.						Divisional Superintendent of Agriculture Deccan Canals.
	Manjri.	Bara-mati.	Analsad.	Kopargaon.	Gokak.	Kampta.	
	1	2	3	4	5	6	7
1930-31	16,346	5,161	1,845	7,981	12,855	7,092	21,283
1931-32	17,936	441	closed	6,852	12,882	11,296	21,056
1932-33	closed	closed	closed	6,684	11,000	6,922	21,028
1933-34	..	..	..	6,075	10,986	6,455	20,689
1934-35	..	..	..	7,175	10,887	6,753	18,657
1935-36	..	..	..	10,148	14,622	10,943	21,459
1936-37	..	..	..	15,226	19,348	11,569	25,236
Total	34,282	5,602	1,845	60,141	*92,580	†61,032	149,348

\*  $\frac{1}{3}$  = Rs. 61,720.

†  $\frac{1}{3}$  = Rs. 20,344.

NOTES.—I. Farms numbered 1 to 4 were mainly sugarcane farms and the entire cost on these was therefore the advancement of that crop. In the case of numbers 5 and 6, the expenditure  $\frac{1}{3}$ rd for No. 5 and  $\frac{1}{3}$ rd for No. 6 is charged for sugarcane on the basis of the area under sugarcane cultivation.

II. Besides the above Rs. 1,000 approximately were spent per year for distribution of improved varieties of cane and therefore Rs. 7,000 may be taken for seven years or to be safe Rs. 5,000.

III. The expenditure on the Deccan canals is also added.

IV. The total expenditure on the advancement of sugarcane according to the above during the last 7 years was Rs. 3,38,282.

10. The reply to this question will be made by the Registrar, Co-operative Societies, as he is in charge of the scheme for subsidising Co-operative sugarcane growers societies for crop improvement and for the supply of cane to factories. The amount of sugar excise fund allotted to the Presidency is roughly 30,000 and I consider that a portion of this fund should definitely be placed at the disposal of the Agricultural Department annually for district propaganda work in the direction of the introduction and extension of better methods of cane cultivation, improved varieties and for general research on sugarcane cultivation, and gum manufacture problems.

11. The account required is being prepared and will be submitted later.

12. (a) *Assistance from the Imperial Council of Agricultural Research—Sugarcane Research Scheme, Bombay Deccan, Padegaon.*—I attach herewith Statements E & F giving (a) information regarding the grants sanctioned by the Imperial Council of Agricultural Research and the contributions made by the Government of Bombay for a period of 8 years, i.e., 5 years original scheme period and 3 years extension, amounting in all to:—

	Rs.
Imperial Council of Agricultural Research's grant . . . . .	5,10,579
Bombay Government contribution . . . . .	2,53,461
	<hr/>
	7,64,040

and (b) information regarding expenditure under the scheme from 1932 to 1936-37.

(b) The Agricultural Department, Bombay Presidency, receives new varieties of cane for trial from the Sugarcane Research Station, Coimbatore, and training is given at that Station to selected persons from the Presidency. The new improved Coimbatore cane varieties, viz., Co 290 and Co 419 are now very popular in the Deccan.

(c) Applications for training in sugar technology are sent from applicants in the Bombay Presidency to the Sugar Technologist, Cawnpore and advice on technical matters connected with sugar manufacture is obtained from him.

STATEMENT E.—Statement giving information regarding the schemes financed wholly or partly by the Imperial Council of Agricultural Research in the Bombay Presidency.

III-A

Name of Scheme.	Name of the Officer in charge.	Situation.	Period in years.	Date of commencement.	Total sanctioned grant of the Scheme.						GRAND TOTAL.
					Research Council's share.		Bombay Agricultural Department's share.		Total.		
					Non-recurring.	Recurring.	Non-recurring.	Recurring.	Non-recurring.	Recurring.	
1	2	3	4	5	6	7	8	9	10	11	12
					Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
1. Sugarcane Research Scheme for Bombay, Deccan.	Rao Saheb B. P. Vagholkar Principal Agricultural Officer, S. R. S., Padegaon.	Padegaon	5	6th June 1932.	77,020	3,09,382	*7,960	1,21,324	84,980	4,30,706	5,15,686
			Extension 3	6th June 1937.	..	1,24,177	..	1,24,177	..	2,48,354	2,48,354

2 D

\* Vide Page 404.

STATEMENT E.—Statement giving information regarding the schemes financed wholly or partly by the Imperial Council of Agricultural Research in the Bombay Presidency—contd.

Name of Scheme.	Name of the Officer in charge.	Situation.	Period in years.	Date of commencement.	Total actual expenditure up to 31st March 1936.										Remarks.
					Research Council's share.		Bombay Agricultural Department's share.		Total.		GRAND TOTAL.	Receipts.			
					Non-recurring.	Recurring.	Non-recurring.	Recurring.	Non-recurring.	Recurring.		Estimated.	Actuals up to 31st March 1936.		
1	2	3	4	5	13	14	15	16	17	18	19	20	21	22	
					Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.		
1. Sugar-cane Research Scheme for Bombay, Deccan.	Rao Saheb B. P. Vagholkar, Principal Agricultural Officer, S. R. S., Padegaon.	Padegaon.	5	6th June 1932.	65,450	2,29,597	*7,960	87,899	73,410	3,17,496	3,90,906	35,635	29,162	*Cost of the materials of the Manjri Farm transferred to Padegaon.	
			Extension 3	6th June 1937.	..	..	..	..	..	..	..	..	..		

STATEMENT F.—Statement showing expenditure on Sugarcane Research Scheme financed partly by the Imperial Council of Agricultural Research and partly by the Government of Bombay from 1932-33 to 1936-37.

Year.	Expenditure.		
	Imperial Council of Agricultural Research.	Bombay Government.	Total.
	Rs.	Rs.	Rs.
1932-33 . . . . .	1,11,132	29,462	1,40,594
1933-34 . . . . .	61,680	21,500	83,180
1934-35 . . . . .	63,533	22,652	86,185
1935-36 . . . . .	58,502	22,245	80,747
1936-37 . . . . .	62,446	22,934	85,350
Total . . . . .	3,57,293	1,18,793	4,76,056

13. Practically all the sugar-factories in the Deccan are co-operating fully with the Agricultural Department in the introduction of new and improved cane varieties and in testing such varieties, under departmental guidance, on their own lands and in supplying mill tests of improved canes. Most of the factories are now growing such improved cane varieties as P.O.J. 2878, EK. 25, Co. 390 and Co. 419, etc., very extensively. The old Pundia variety is practically given up entirely except to a very small extent, on cultivators' fields. There are no factories in the Karnatak or Gujerat Divisions.

14. Although the total area in the Bombay Presidency including Indian States, is nearly 125,000 acres of sugarcane, the actual area of only 79,000 acres under sugarcane crop in the British districts are considered in this connection. Out of the 79,000 acres, more than 53,000 acres are situated in the Deccan districts, and out of this area, the area under the Deccan canals is roughly 30,000 acres. As most of the sugar factories, except the Kolhapur Factory, are situated on the Deccan canals, it will be appropriate to give the estimates of different figures of cane crushed in the factories, utilised by the open pan factories, utilised for gul and also for chewing and seed purpose in this area in the first place.

(a) The area under sugar factories maintained by factories themselves is approximately 13,000 acres (out of which nearly 1,000 acres of cane is utilised for seed purposes and the remaining 12,000 acres are crushed for sugar-making). In addition, all these factories purchase cultivators' sugarcane from an area of nearly 1,500 acres. Thus the sugarcane of about 45 per cent. of the area under the Deccan canals can be taken as crushed in the sugar factories.

(b) During the year 1935-36, the price of gul and sugar was high when compared to the present slump in the price of these commodities. Consequently about 12 open pan factories were working in the Deccan canals area and the total area of sugarcane utilized by them might be about 350 acres. The Khandsari process (Bel process) of manufacturing sugar, which is so very common in the United Provinces and Bihar has not been introduced here, but the rab is generally prepared on the Poona single, double or triple furnace and stored for crystalization and afterwards passed through the centrifugals. The Open Pan factories in the Deccan do not manufacture second sugar but the first molasses are converted into molasses in gul, which is readily sold in the market. In the current year, however, the price of sugar and gul, has gone down abnormally low (Rs. 3 per maund of gul and Rs. 7



per maund of sugar, including the sugar excise duty). Consequently only two Open Pan factories are working in this season and they may have utilized only about 100 acres of cane.

(c) The area of cane converted into gul may be roughly taken at 13,500-15,000 acres.

(d) The area of cane used for chewing might be about 1,000 acres and the area used for seed purposes must be another 1,000 acres, excluding the area utilized by the factories for seed purposes.

The above statements give a rough estimate of the disposal of the cane area (30,000) acres in the Deccan Canal area as under:—

	Acres.
Crushed in factories . . . . .	12,000-13,000
Utilized by open pan factories and Khandsaris . . . . .	450-500
Turned into gur . . . . .	13,500-15,000
Used for chewing and seed purposes . . . . .	2,000-2,500

In the Gujerat area, cane from 75 per cent. of the total area under cane is turned into gur and the remaining 25 per cent. used for chewing and seed purposes. Corresponding figures for the Karnatak tract are 90 per cent. and 10 per cent.

A very rough estimate for the disposal of the cane area of the whole Presidency would be—

	Per cent.
Factories . . . . .	17
Gul . . . . .	65
Open pan, etc. . . . .	1
Chewing and seed . . . . .	17

15. There are no factories except in the Deccan Canal tract. There is no regular system of supply of cane by cultivators to factories but most factories are prepared to weigh and purchase cultivators' cane at the nearest trolley line to the factory concerned. No difficulties are known to be experienced by cultivators in delivery of their cane to the factories when sales are made.

17. No minimum price for sugarcane has been fixed in this Presidency and the basis of fixing the prices of cane is the current prices of gul, prevailing in the market. The factories are prepared to offer a price for one ton of cane delivered at the factory, according to the prevailing prices of one palla of gul equal to three maunds, e.g., the present price of gul varies from Rs. 9 to Rs. 10 per palla, hence the price paid by the factories for one ton of cane also varies from Rs. 9 to Rs. 10. All these prices are fixed by the Managers of the factories in consultation with local cultivators. As the cultivators are not in a position to get more income by manufacturing gul, they are required to accept these prices even at a loss. The cultivators save some amount, required for the crushing and manufacturing of gul; but they are required to undergo the extra expenditure of carting cane from their fields to the factories.

18. In the Bombay Presidency, the purchase of cane from cane-growers by factories is very limited and there is no competition between factories for such business.

19. As the quantity of cane purchased by factories from cane-growers is very small and as there are no minimum rates, no question of bonus payments requires consideration in the Bombay Presidency.

20 & 21. The average cost of transport of cane by bullock carts per mile varies from 2-4 pies per maund in the Deccan areas according to length of the load. In the Presidency, cultivators almost invariably use their own carts for transport of their cane to the factory if sale is made to the factory manager.

22. In the Bombay Deccan, all the factories have got tramways throughout their estates and the systems seem to be quite adequate for the purpose of transport of cane from their own fields to the factory. In some cases, factories have constructed approach and feeder roads to their estates and, by agreement with the railway companies, have obtained sidings to the factory. The area under cane in the Deccan is already well served by the Dhond-Manmad Railway (G. I. P.) and there is no need of the assistance of Government in the development of feeder roads or tramway systems.

24. Except in the case of the Belapur Sugar Company, Belapur, I am not aware of any direct assistance being made to a factory in the Bombay Deccan by means of a loan from Government. Most of the factories have been started on share capital and debentures and independent of Government financial assistance. Similarly no concessions in respect of land or water charges have been given to factories except to the same Company for which Government have acquired 7,500 acres of land and rented the same to the Company on easy terms. Other factories have got an indirect benefit by Government declaring certain areas reserved for factories—on which individual cultivators are not allowed to grow cane—and by the granting of land in such areas on long lease to the factories.

25. There are no Co-operative sugar factories in the Bombay Presidency.

27. Statement G below gives the monthly average *retail* prices of sugar in the important markets of the Bombay Presidency during the past seven years, *i.e.*, 1930-1937. Wholesale prices are not available in this office but Statement H below gives the *wholesale* prices of Indian sugar during the years 1933 to 1937 and those of Java sugar during the period 1931 to 1937 (May) ruling in the Bombay market. These statistics are supplied by the Sugar Merchants' Association, Bombay, at my request.

STATEMENT G.—Monthly Average Retail Prices of Sugar (Compiled from Monthly Returns of Average Retail Prices-current).  
(Per Indian Maund of 80 lbs.)

Station . . . . .	Bombay.	Ahmedabad.	Poona.	Ahmednagar.	Satara.	Ratnagiri.	Kolhapur.
	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.
<i>1930.</i>							
January . . . . .	10 14 2	10 0 0	10 8 5	12 4 11	13 8 0	10 6 3	13 5 4
February . . . . .	10 14 2	9 8 10	9 7 11	12 4 11	13 3 7	10 6 3	13 5 4
March . . . . .	10 14 2	9 12 1	10 5 8	12 4 11	12 4 2	10 6 3	13 5 4
April . . . . .	10 14 2	10 0 0	10 8 5	12 4 11	11 12 11	10 6 3	13 5 4
May . . . . .	10 14 2	10 0 0	10 8 5	12 4 11	12 0 6	10 6 3	13 5 4
June . . . . .	10 14 2	10 0 0	10 8 5	12 4 11	13 2 8	10 6 3	13 5 4
July . . . . .	10 14 2	10 0 0	11 0 7	12 4 11	12 15 3	10 6 3	13 5 4
August . . . . .	10 14 2	10 0 0	10 8 5	12 4 11	12 0 9	10 14 2	13 5 4
September . . . . .	10 14 2	10 0 0	18 8 5	12 4 11	11 3 8	11 6 10	13 5 4
October . . . . .	10 14 2	10 0 0	9 14 6	12 4 11	10 11 3	9 15 0	13 5 4
November . . . . .	9 15 0	9 11 2	9 5 8	12 4 11	10 8 5	9 8 5	13 5 4
December . . . . .	9 8 5	9 4 5	9 5 8	12 1 2	11 3 8	6 8 6	13 5 4
<i>1931.</i>							
January . . . . .	9 8 5	9 6 7	9 14 6	11 6 10	11 10 2	9 8 5	13 5 4
February . . . . .	9 8 5	9 6 7	10 2 1	11 6 10	11 10 2	9 8 5	10 0 0

March	10 6 3	9 11 2	10 8 5	11 6 10	10 8 5	10 6 3	10 0 0
April	10 6 3	9 11 2	10 8 5	11 13 8	10 13 7	10 6 3	11 6 10
May	10 6 3	9 11 2	8 11 11	11 13 8	12 0 6	10 6 3	11 6 10
June	10 6 3	9 11 2	10 8 5	11 13 8	12 0 6	11 6 10	11 6 10
July	10 6 3	9 13 6	10 8 5	11 10 2	12 0 6	11 6 10	11 6 10
August	10 6 3	9 13 6	10 8 5	12 4 11	12 0 6	11 6 10	13 5 4
September	10 6 3	9 13 6	10 8 5	11 6 10	12 0 6	11 6 10	11 6 10
October	10 14 2	11 2 5	11 9 6	12 4 11	12 0 6	11 6 10	13 5 4
November	11 6 10	11 3 8	12 0 6	12 4 11	12 0 6	11 6 10	13 5 4
December	11 6 10	11 13 8	12 0 6	12 4 11	12 0 6	11 6 10	13 5 4
<i>1932.</i>							
January	11 6 10	11 13 8	12 0 6	12 1 2	12 0 6	11 6 10	13 5 4
February	11 6 10	11 13 8	12 0 6	12 4 11	12 0 6	11 6 10	13 5 4
March	11 6 10	11 13 8	12 0 6	12 4 11	12 0 6	11 6 10	16 0 0
April	11 6 10	11 13 8	12 0 6	12 4 11	12 0 6	11 6 10	13 5 4
May	11 6 10	11 6 10	12 0 6	12 4 11	12 0 6	11 6 10	13 5 4
June	11 6 10	11 6 10	12 0 0	12 4 11	12 0 6	11 6 10	13 5 4
July	11 6 10	11 6 10	12 0 0	12 4 11	12 0 6	11 6 10	13 5 4
August	11 6 10	11 6 10	12 0 6	12 4 11	12 0 6	11 6 10	13 5 1

STATEMENT G.—Monthly Average Retail Prices of Sugar (Compiled from Monthly Returns of Average Retail Prices-current)  
—contd.

(Per Indian Maund of 80 lbs.)

Station . . . . .	Bombay.	Ahmedabad.	Poona.	Ahmednagar.	Satara.	Ratnagiri.	Kolhapur.
	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.
<i>1932.</i>							
September . . . . .	11 6 10	11 6 10	12 0 6	12 4 11	13 11 9	12 0 6	13 5 4
October . . . . .	11 6 10	11 6 10	12 0 6	12 4 11	13 11 9	12 0 6	13 5 4
November . . . . .	11 6 10	11 6 10	12 4 2	12 4 11	13 11 9	12 0 6	13 5 4
December . . . . .	11 6 10	11 6 10	12 0 6	12 4 11	13 11 9	12 0 6	13 5 4
<i>1933.</i>							
January . . . . .	11 6 10	11 6 10	11 6 10	12 1 2	13 11 9	11 6 10	13 5 4
February ] . . . . .	11 6 10	11 6 10	11 9 6	11 13 8	13 11 2	11 6 10	13 5 4
March . . . . .	10 6 3	11 6 10	11 9 6	11 6 10	13 11 9	11 6 10	13 5 4
April . . . . .	10 6 3	11 6 10	11 12 11	11 6 10	13 11 9	11 6 10	13 5 4
May . . . . .	10 6 3	11 6 10	11 9 6	11 6 10	13 11 9	11 6 10	13 5 4
June . . . . .	10 6 3	11 6 10	12 0 6	11 6 10	13 11 9	11 6 10	13 5 4
July . . . . .	11 6 3	11 6 10	12 0 6	11 6 10	13 11 9	11 6 10	13 5 4
August . . . . .	10 6 3	11 6 10	12 0 6	11 6 10	12 15 3	11 6 10	13 5 4
September . . . . .	10 6 3	11 6 10	11 9 6	11 6 10	12 15 3	11 6 10	13 5 4
October . . . . .	10 6 3	11 6 10	11 3 8	11 6 10	12 15 3	11 6 10	13 5 4

November	10 6 3	11 6 10	11 3 8	11 6 10	12 15 3	11 6 10	13 5 4
December	10 6 3	11 6 10	11 3 8	11 6 10	12 15 3	11 6 10	13 5 4
<i>1934.</i>							
January	10 6 3	11 6 10	10 11 3	11 8 8	12 15 3	11 6 10	13 5 4
February	10 6 3	11 6 10	11 0 7	10 10 8	12 15 3	11 6 10	13 5 4
March	11 6 10	11 13 8	10 8 5	10 10 8	12 15 3	11 6 10	13 5 4
April	11 6 10	12 4 11	10 8 5	10 10 8	12 15 3	11 6 10	13 5 4
May	11 3 8	12 4 11	10 8 5	12 4 11	12 15 3	11 6 10	13 5 4
June	11 3 8	12 4 11	10 8 5	12 4 11	12 15 3	11 6 10	13 5 4
July	10 14 2	12 4 11	10 8 5	12 4 11	12 15 3	11 6 10	13 5 4
August	10 14 2	11 6 10	10 8 5	12 4 11	12 15 3	11 6 10	13 5 4
September	10 14 2	11 0 7	10 8 5	11 3 8	12 15 3	11 6 10	13 5 4
October	10 14 2	11 0 7	10 8 5	10 10 8	12 15 3	10 14 2	13 5 4
November	10 14 2	11 0 7	10 8 5	10 10 8	12 15 3	10 6 3	13 5 4
December	10 14 2	10 10 8	10 8 5	10 7 10	12 15 3	10 6 3	13 5 4
<i>1935.</i>							
January	10 14 2	10 10 8	10 8 5	10 0 0	12 15 3	10 6 3	13 5 4
February	10 14 2	10 10 8	10 8 5	10 7 10	12 15 3	11 6 10	13 5 4

STATEMENT G.—Monthly Average Retail Prices of Sugar. (Compiled from Monthly Returns of Average Retail Prices-current)  
—concl.

(Per Indian Maund of 80 lbs.)

Station . . . . .	Bombay.	Ahmedabad.	Poona.	Ahmednagar.	Satara.	Ratnagari.	Kolhapur.
	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.
<i>1935.</i>							
March . . . . .	10 14 2	10 10 8	10 8 5	10 0 0	12 15 3	10 6 3	13 5 4
April . . . . .	10 14 2	10 10 8	10 8 5	10 0 0	12 15 3	10 6 3	12 4 11
May . . . . .	10 14 2	10 10 8	10 8 5	10 7 10	11 3 8	10 6 3	10 0 0
June . . . . .	10 14 2	10 10 8	10 8 5	10 7 10	11 3 8	10 6 3	11 6 10
July . . . . .	10 14 2	10 10 8	10 8 5	10 10 8	11 3 8	11 6 10	11 6 10
August . . . . .	10 14 2	10 10 8	10 8 5	10 10 8	11 3 8	11 6 7	10 13 9
September . . . . .	10 14 2	10 9 0	10 8 5	10 10 8	11 3 8	11 6 7	10 0 0
October . . . . .	10 14 2	10 10 8	10 8 5	11 0 7	11 3 8	11 6 7	11 6 10
November . . . . .	10 14 2	10 10 8	10 8 5	10 13 7	11 3 8	11 6 7	11 6 10
December . . . . .	10 14 2	10 10 8	10 8 5	10 10 8	11 3 8	11 6 7	11 6 3
<i>1936.</i>							
January . . . . .	11 2 5	10 10 8	10 0 0	10 10 8	11 3 8	11 6 10	11 6 10
February . . . . .	11 6 10	10 7 10	10 10 8	10 10 8	11 3 8	11 6 10	11 6 10

March . . . . .	11 6 10	10 2 6	10 10 8	10 0 0	11 6 10	10 0 0	11 6 10
April . . . . .	11 3 8	10 4 1	10 10 8	10 0 0	11 6 10	10 0 0	11 6 10
May . . . . .	11 6 10	9 13 6	10 10 8	10 0 0	11 6 10	10 10 8	10 10 8
June . . . . .	11 6 10	9 8 10	10 0 0	10 0 0	10 10 8	10 10 8	10 10 8
July . . . . .	11 6 10	9 6 7	10 0 0	10 0 0	10 10 8	10 10 8	10 10 8
August . . . . .	11 6 10	9 6 7	10 0 0	10 0 0	10 10 8	10 10 8	10 10 8
September . . . . .	10 10 8	9 6 7	10 0 0	10 0 0	10 10 8	10 10 8	10 10 8
October . . . . .	10 10 8	9 6 7	10 0 0	10 0 0	10 10 8	10 10 8	10 0 0
November . . . . .	10 10 8	9 6 7	10 0 0	10 0 0	10 0 0	10 10 8	10 10 0
December . . . . .	10 10 8	9 6 7	10 0 0	10 0 0	10 0 0	10 10 8	10 0 0
1937.							
January . . . . .	10 10 8	9 6 7	10 0 0	10 0 0	10 0 0	10 10 8	10 0 0
February . . . . .	10 10 8	8 6 9	8 10 5	10 0 0	9 6 7	10 10 8	10 0 0
March . . . . .	10 10 8	8 0 0	8 6 9	8 14 3	9 6 7	10 10 8	10 0 0
April . . . . .	18 10 8	8 0 0	8 6 9	8 14 3	9 6 7	10 10 8	8 14 3
May . . . . .	10 10 8	8 0 0	8 6 9	8 14 3	9 6 7	..	8 14 3



STATEMENT H.—Wholesale Prices. Indian Sugar Prices Quality No. 1 F.O.R. Bombay (Per Bengal Maund).

Month.	Quality No. 1.	1933.			1934.			1935.			1936.			1937.		
		Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.
January	Good	11	5	0	9	12	0	9	12	0	9	9	3	7	12	0
	Ordinary	11	4	0	9	10	0	9	4	0	9	0	0	7	6	0
February	Good	11	5	0	9	15	0	9	12	9	9	6	3	7	9	0
	Ordinary	11	4	6	9	10	0	9	7	0	8	15	3	6	15	6
March	Good	11	4	0	10	1	3	9	5	6	9	5	6	7	9	0
	Ordinary	11	0	6	9	15	6	9	4	0	8	14	6	7	0	0
April	Good	11	4	0	10	0	9	9	15	0	9	4	6	7	11	0
	Ordinary	10	12	0	9	14	0	9	6	3	8	13	0	6	15	6
May	Good	10	13	0	10	0	0	9	14	3	9	3	3	7	2	0
	Ordinary	10	11	0	9	12	6	9	12	3	8	10	0	6	12	0
June	Good	10	15	0	9	14	6	9	13	6	9	1	9	..	..	..
	Ordinary	10	10	0	9	14	6	9	11	6	8	8	6	..	..	..
July	Good	10	13	0	9	15	0	9	15	0	9	0	6	..	..	..
	Ordinary	10	12	0	9	14	6	9	8	3	8	3	0	..	..	..
August	Good	10	13	0	9	15	0	9	10	0	9	1	3	..	..	..
	Ordinary	10	12	0	9	14	0	9	7	6	8	2	3	..	..	..
September	Good	11	6	0	9	15	0	9	13	0	8	14	6	..	..	..
	Ordinary	10	8	0	9	14	0	9	10	0	8	8	6	..	..	..
October	Good	11	13	3	9	15	0	10	5	9	8	14	6	..	..	..
	Ordinary	10	8	0	9	14	0	9	15	6	7	15	9	..	..	..
November	Good	11	10	0	9	14	0	10	0	6	8	9	0	..	..	..
	Ordinary	9	4	0	9	7	0	9	13	0	7	13	0	..	..	..
December	Good	11	4	0	9	7	0	9	13	0	7	13	0	..	..	..
	Ordinary	9	0	0	9	1	3	9	10	9	7	9	9	..	..	..

*Prices for Indian Ready Suggr Ruling in Bombay Market Quality No. 1 (Per Cwt.).*

Month.	Quality No. 1.	1933.	1934.	1935.	1936.	1937.
		Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.
January	Good . . . . .	16 1 0	13 14 0	13 14 0	13 11 0	11 3 0
	Ordinary . . . . .	16 0 0	13 12 0	13 4 0	12 14 0	10 11 0
February	Good . . . . .	16 1 0	14 3 0	13 15 0	13 7 0	10 15 0
	Ordinary . . . . .	16 0 0	13 12 0	13 8 0	12 13 0	10 2 0
March	Good . . . . .	16 1 0	14 6 0	13 6 0	13 6 0	10 15 0
	Ordinary . . . . .	15 12 0	14 4 0	13 4 0	12 12 0	10 2 0
April	Good . . . . .	16 0 0	14 5 0	14 3 0	13 5 0	11 2 0
	Ordinary . . . . .	15 5 0	14 2 0	13 7 0	12 10 0	10 2 0
May	Good . . . . .	15 6 0	14 4 0	14 2 0	13 3 0	10 5 0
	Ordinary . . . . .	15 3 0	14 0 0	13 15 0	12 6 0	9 13 0
June	Good . . . . .	16 8 0	14 2 6	14 1 0	13 1 0	..
	Ordinary . . . . .	15 2 0	14 0 0	13 14 0	12 4 0	..
July	Good . . . . .	15 6 0	14 3 0	13 14 0	13 0 0	..
	Ordinary . . . . .	15 5 0	14 2 6	13 10 0	11 13 0	..
August	Good . . . . .	15 6 0	14 3 0	13 12 0	13 1 0	..
	Ordinary . . . . .	15 5 0	14 2 0	13 9 0	11 12 0	..
September	Good . . . . .	16 2 0	14 3 0	14 0 0	12 15 0	..
	Ordinary . . . . .	15 0 0	14 2 0	13 12 0	12 4 0	..
October	Good . . . . .	16 12 0	14 3 0	14 12 0	12 5 0	..
	Ordinary . . . . .	15 0 0	14 2 0	14 2 0	11 8 0	..
November	Good . . . . .	16 8 0	14 2 0	14 4 0	12 5 0	..
	Ordinary . . . . .	13 0 0	13 8 0	14 0 0	11 5 0	..
December	Good . . . . .	16 0 0	13 8 0	14 0 0	11 5 0	..
	Ordinary . . . . .	12 14 0	13 0 0	13 13 3	11 0 0	..

Java Sugar Prices F.O.B. Java Port (Per Bengal Maund).

Month.		1931.			1932.			1933.			1934.			1935.			1936.			1937.		
		Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.	s.	A.	P.
January	Highest	3	8	6	3	13	6	3	3	0	2	9	3	2	5	6	2	11	9	2	12	9
	Lowest	3	5	6	3	12	9	3	2	3	2	6	3	2	2	6	2	7	3	2	7	9
February	Highest	3	12	9	3	13	9	3	2	8	2	14	3	2	5	6	2	9	9	2	12	0
	Lowest	3	6	3	3	12	6	3	0	9	2	9	3	2	3	6	2	7	6	2	11	3
March	Highest	3	5	6	3	12	0	3	3	9	2	12	9	2	3	3	2	11	3	2	13	6
	Lowest	3	3	0	3	5	6	3	2	3	2	11	0	2	0	3	2	9	0	2	11	9
April	Highest	3	5	6	3	4	9	3	2	6	2	11	9	2	7	0	2	10	0	3	3	3
	Lowest	3	3	6	3	1	9	3	0	3	2	10	0	2	4	0	2	9	0	3	0	0
May	Highest	3	5	0	3	5	3	3	3	0	2	11	9	2	13	6	2	9	0	3	4	9
	Lowest	3	4	3	3	1	9	3	0	3	2	8	0	2	7	0	2	7	6	3	1	6
June	Highest	3	7	0	3	8	6	3	6	9	2	10	0	2	9	6	2	6	9			
	Lowest	3	6	3	3	3	2	3	3	8	2	7	6	2	8	0	2	5	3			
July	Highest	3	7	3	3	5	6	3	4	9	2	9	3	2	8	6	2	6	0			
	Lowest	3	6	9	3	4	9	3	2	6	2	7	6	2	6	3	2	4	3			
August	Highest	3	6	9	3	7	6	3	2	3	2	8	3	2	7	9	2	4	6			
	Lowest	3	5	0	3	4	9	3	1	0	2	7	3	2	6	3	2	3	9			
September	Highest	3	8	6	3	10	0	3	2	0	2	7	3	2	10	0	2	3	9			
	Lowest	3	5	0	3	6	3	3	0	9	2	4	9	2	7	6	2	2	6			
October	Highest	3	13	0	3	8	6	3	1	9	2	6	9	3	4	6	2	3	3			
	Lowest	3	10	0	3	6	0	3	1	0	2	4	9	2	8	6	2	1	9			
November	Highest	3	14	9	3	5	6	3	1	9	2	6	0	2	10	0	2	4	3			
	Lowest	3	11	0	3	4	9	2	14	0	2	1	9	2	7	0	1	15	6			
December	Highest	3	13	6	3	4	9	2	12	9	2	3	3	2	7	9	2	8	0			
	Lowest	3	12	6	3	1	9	2	8	6	2	1	0	2	6	3	2	4	3			

C.I.F. Bombay Prices for Java Sugar (Per Cwt.).

Month.		1931.	1932.	1933.	1934.	1935.	1936.	1937.
		Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.
January	Highest	5 7 0	5 14 0	5 0 6	4 2 0	3 13 6	4 5 6	4 7 0
	Lowest	5 3 0	5 12 9	4 14 6	3 14 0	3 9 0	3 15 9	4 0 6
February	Highest	5 12 9	5 14 3	4 14 6	4 9 0	3 13 6	4 3 0	4 6 0
	Lowest	5 4 0	5 12 6	4 12 6	4 2 0	3 10 6	4 0 0	4 5 0
March	Highest	5 3 0	5 12 0	5 0 6	4 7 0	3 10 0	4 6 0	4 8 0
	Lowest	4 15 6	5 3 0	4 14 6	4 4 6	3 6 0	4 2 6	4 5 0
April	Highest	5 3 0	5 2 0	4 15 0	4 5 0	3 15 0	4 4 0	5 0 0
	Lowest	5 0 0	4 14 0	4 12 0	4 4 0	3 11 0	4 2 6	4 12 0
May	Highest	5 2 6	5 2 6	4 15 9	4 5 6	4 8 0	4 2 6	5 2 0
	Lowest	5 1 0	4 14 0	4 12 3	4 0 6	3 15 0	4 0 0	4 13 6
June	Highest	5 5 3	5 7 0	5 4 6	4 4 0	4 2 6	3 15 0	...
	Lowest	5 4 0	5 0 0	5 0 3	4 0 0	4 0 6	3 13 0	...
July	Highest	5 5 6	5 3 0	5 2 0	4 2 0	4 1 0	3 14 0	...
	Lowest	5 4 6	5 2 0	4 15 0	4 0 0	3 14 0	3 11 6	...
August	Highest	5 4 6	5 6 0	4 14 9	4 1 0	4 0 0	3 13 6	...
	Lowest	5 2 6	5 2 0	4 13 0	3 15 9	3 14 0	3 11 6	...
September	Highest	5 7 0	5 9 0	4 14 6	3 15 9	4 4 0	3 11 6	...
	Lowest	5 2 6	5 4 0	4 12 6	3 12 0	4 0 0	3 9 0	...
October	Highest	5 13 0	5 7 0	4 14 0	3 15 0	5 2 0	3 11 0	...
	Lowest	5 9 0	5 3 0	4 13 0	3 12 0	4 1 6	3 8 0	...
November	Highest	5 15 6	5 3 0	4 14 0	8 14 0	4 4 0	3 12 0	...
	Lowest	5 10 6	5 2 0	4 8 6	3 8 0	3 15 6	3 5 0	...
December	Highest	5 13 6	5 2 0	4 7 0	3 10 0	4 0 6	4 0 6	...
	Lowest	5 12 6	4 14 0	4 1 0	3 7 0	3 14 0	3 12 0	...

29 & 36. No data regarding the *normal* consumption of sugar and the annual consumption of gur/jaggery in the Bombay Presidency are available with me. The Professor of Agricultural Economics, Agricultural College, Poona, who was addressed in this matter reports that he has no consumption estimates but gives the undernoted extract from the Tariff Board's Report in 1931 which may assist the Board in arriving at a reliable estimate:—

“Interesting information was received also from the Bombay Government, Figures collected from nine villages in the Poona district varying in distance from 9 to 35 miles from Poona show that the amount of gur and sugar consumed stood in the proportion of 1:1.14. The proportion of consumption of sugar to gur was found to be much higher in the case of the richer classes and much lower in the case of the poorer villagers; middle class villagers consumed about equal proportions of each. As regards the towns, the consumption of sugar is reported to exceed by far that of gur. The effect of tea drinking habit on the consumption of sugar is reflected by figures obtained from hostels attached to educational institutions in Poona where accounts are maintained of goods purchased and used. The figures are given below:—

	Gur per head per year.	Sugar per head per year.	Remarks.
Boys' boarding house . . .	20.5	41	} Tea consumed.
Girls' boarding house . . .	11.8	21.1	
Boys' boarding house . . .	24.0	8	} No tea con- summed.”
Girls' boarding house . . .	14.7	3	

The Deputy Director of Agriculture, South Central Division (Deccan's), estimate of consumption of sugar per head is 6 lbs. per annum but he adds that on account of the increase in tea-drinking, this figure may increase by 2-3 lbs. per head in the near future. He gives the figures of 63,000 tons sugar and 250,000 tons gur as the total annual consumption in the Bombay Presidency.

30. There are a few small manufacturers of sweets, etc., in the vicinity of Bombay and large towns in the Presidency. Most of them, if not all, use Indian factory sugar.

31. The development of the sugar industry has not reached such a state in the Bombay Presidency as to necessitate the introduction of zones for the supply of cane to different factories or for fixation of a quota for sugar manufacture by factories. The cultivation of sugarcane in the Bombay Presidency is more costly than compared with any other province and, before any new factory is established, this fact is always taken into consideration. At the same time, it may also be mentioned that there are certain advantages to sugar factories of the Deccan which are summarized below:—

- (i) They can increase the working period to nearly 210 days in the year without any loss in recovery.
- (ii) The canes are richer in sucrose and the percentage recovery of sugar is one of the highest in India.
- (iii) By suitable arrangement of planting cane, factories can get the richest cane of the required type throughout the whole working period and thereby the highest degree of recovery is maintained. They can also get fresh supplies of cane every day for crushing and not the stale cane, imported from long distances as is the case in the United Provinces and Bihar.
- (iv) While competing with the sugar prices of the United Provinces they have a small margin of annas 14 per maund in the form of railway freight from Cawnpore to Bombay.

- (v) When the working period is extended and the output is increased, the overhead charges are distributed on the larger output and thereby the incidence of actual costs is somewhat decreased.

It is, therefore, not necessary to license factories in this Presidency. With regard to the starting of new factories, it may be stated that unless a factory has got a large capacity, it will not be possible for the factory to reduce manufacturing charges. It is, therefore, advisable that instead of encouraging new factories, extended scope should be given to existing ones to increase their output by giving them adjoining areas of sugarcane cultivation, if necessary, by declaring those areas as factory areas.

32. There are possibilities in the Bombay Presidency of starting subsidiary industries such as manufacturing of syrups, fruit preserves and canning, but so far such subsidiary industries have not made any substantial progress, largely for want of the technical knowledge required for canning and fruit preserving among the public. This matter is now receiving close attention by the Bombay Department of Agriculture. But the quantity of sugar required for such industries will not materially increase sugar consumption.

33. Statement I below gives the figures of production of gur from sugarcane in each district of the Bombay Presidency for the last seven years. It should be noted, however, that these figures of gur production have been prepared on the assumption that the *whole* of the cane planted during the year has been converted into gur and for no other purpose, e.g., manufacture of sugar, chewing or supply of setts for planting. Possibly 65 per cent. of the total figure given would represent a much closer estimate.

STATEMENT I.

No.	District.	Outturn in tons of Gul.						
		1930-31.	1931-32.	1932-33.	1933-34.	1934-35.	1935-36.	1936-37.
1	2	3	4	5	6	7	8	9
		Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
	BOMBAY PRESIDENCY.							
	Gujarat.							
1	Ahmedabad .	543	1,069	1,167	1,081	1,054	1,075	} 6,696*
2	Kaira . .	237	326	394	223	621	1,527	
3	Panch Mahals	249	273	629	1,323	} 4,575	} 5,164	
4	Broach . .	36	31	28	21			
5	Surat . . .	4,725	5,202	5,695	6,338	5,112	6,277	
	Total Gujarat.	5,790	6,901	7,913	8,986	11,362	14,043	13,579

\* Details not yet available.

## STATEMENT I—contd.

No.	District.	Outturn in tons of Gul.						
		1930-31.	1931-32.	1932-33.	1933-34.	1934-35.	1935-36.	1936-37.
1	2	3	4	5	6	7	8	9
	<i>Deccan.</i>	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
6	West Khan- desh . . .	2,616	3,984	4,109	4,041	3,003	3,042	} 5,208
7	East Khan- desh . . .	1,808	2,393	4,047	3,222	2,434	1,721	
8	Nasik . . .	10,869	13,092	16,366	16,686	14,409	19,304	18,854
9	Ahmednagar . . .	37,532	37,228	36,322	32,096	39,698	42,404	43,616
10	Poona . . .	37,858	32,098	31,157	31,067	27,031	39,196	27,852
11	Sholapur . . .	2,812	4,016	5,270	6,147	9,291	9,983	9,740
12	Satara . . .	27,790	28,917	30,858	27,896	25,697	32,753	29,966
	Total Decan . . .	121,285	121,728	128,129	121,155	121,563	148,403	135,236
	<i>Karnatak.</i>							
13	Belgaum . . .	34,326	33,587	35,312	44,433	36,799	33,525	32,854
14	Bijapur . . .	1,454	1,954	1,707	1,542	1,214	1,741	1,187
15	Dharwar . . .	2,961	3,521	10,136	10,157	7,425	5,373	4,971
	Total Karnatak . . .	38,741	39,062	47,155	56,132	45,438	40,639	39,012
	<i>Konkan.</i>							
16	Thana . . .	606	742	767	714	635	472	} 1,674*
17	Bombay Sub- urban . . .	..	..	..	..	..	..	
18	Kolaba . . .	64	52	57	61	68	85	
19	Ratnagiri . . .	2,553	1,958	1,574	1,569	1,097	1,307	
20	Kanara . . .	6,788	7,213	6,857	5,469	5,519	6,217	6,390
	Total Konkan . . .	9,311	9,965	9,255	7,813	7,319	8,081	8,064
	Total Bombay Presidency . . .	175,127	177,656	192,452	194,086	185,682	211,166	195,891

(Compiled from the Sugarcane Forecast Reports.)

\* Details not yet available.

34. Gur/jaggery is not produced from any other material than cane in the Bombay Presidency.

35. Statements J & K below give the monthly average *retail* prices and the fortnightly *wholesale* prices respectively of gur/jaggery at representative centres in the Bombay Presidency during the last seven years, i.e., 1930-1937. Variations in the price of gur are mostly due to fluctuations in the sugarcane acreage, not only in the Bombay Presidency but also in other sugar-growing Provinces and Indian States which supply gur to markets in the Presidency. Other reasons for variation are (a) climatic, e.g., duration of cold weather, etc., in abnormal years, (b) competition with Indian factory sugar production.

STATEMENT J.—Monthly Average Retail Prices of Gur/Jaggery (compiled from Taluka Form No. XVIII).

(Per Indian Maund of 80 lbs.)

Station	Ahmedabad.	Bāramati.	Kārad.	Kōpergson.	Poonā.	Hubli.	Kolhapur.*
	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.
1930.							
January	10 0 0	10 7 10	9 4 5	5 3 11	9 6 7	..	8 0 9
February	10 0 0	10 7 10	9 4 5	5 3 11	7 9 11	..	5 11 5
March	10 0 0	10 7 10	9 4 5	5 3 11	9 6 7	..	5 11 5
April	10 0 0	10 7 10	10 10 8	5 3 11	9 6 7	..	5 11 5
May	10 0 0	10 7 10	10 16 8	5 3 8	8 6 9	..	5 11 5
June	10 0 0	10 7 10	10 13 7	5 3 8	8 14 3	..	5 11 5
July	10 0 0	8 6 9	8 8 6	5 10 7	9 6 7	..	5 11 5
August	10 0 0	8 6 9	8 8 6	5 10 7	9 6 7	..	5 11 5
September	10 0 0	8 6 9	6 15 4	5 10 7	8 12 3	..	5 11 5
October	10 0 0	8 6 9	6 15 4	4 0 10	7 9 11	..	5 11 5
November	10 0 0	8 6 9	6 15 4	3 3 7	7 9 11	..	5 11 5
December	10 0 0	8 6 9	6 14 1	4 11 4	7 5 8	..	5 0 9
1931							
January	6 10 8	8 6 9	4 10 2	6 2 6	6 11 9	..	5 0 9
February	4 7 1	8 6 9	4 10 2	6 2 6	7 0 6	..	5 11 5
March	4 7 1	7 0 6	4 10 2	5 11 5	6 7 5	..	5 11 5
April	10 0 0	6 0 7	4 10 2	5 11 5	6 0 7	..	5 11 5
May	4 7 1	4 10 9	4 10 2	5 11 5	5 3 11	..	5 11 5
June	..	4 10 9	4 10 2	5 11 5	5 3 11	..	5 5 4
July	4 7 1	4 10 9	4 10 2	5 0 0	5 3 11	..	5 0 9
August	4 7 1	4 10 9	4 10 2	5 0 0	6 0 7	..	4 13 7
September	4 7 1	4 10 9	4 10 2	5 0 0	6 3 5	..	5 0 9
October	4 7 1	5 3 11	5 6 1	6 2 6	6 3 5	..	5 0 9
November	4 7 1	6 0 7	6 2 6	6 2 6	6 7 5	..	5 0 9
December	4 7 1	5 3 11	6 2 6	6 2 6	7 0 6	..	5 0 9

\* In the case of Kolhapur prices have been taken from the Monthly Average Retail Price-current Returns.



## STATEMENT J.—Monthly Average Retail Prices of Gur/Jaggery (compiled from Tabuka Form No. XVIII)—contd.

(Per Indian Maund of 80 lbs.)

Station .	Ahmeda- bad.	Baramati.	Karad.	Kopergaon.	Poona.	Hubli.	Kolha- pur.*
	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.
1932.							
January .	6 10 8	5 3 11	6 2 6	6 2 6	6 11 9	..	5 0 0
February .	8 0 0	5 3 11	6 2 6	5 11 5	5 6 9	..	5 0 0
March .	4 7 1	5 3 11	6 2 6	5 0 0	6 0 7	..	5 0 0
April .	4 3 8	5 3 11	6 2 6	5 0 0	5 9 10	..	5 0 0
May .	4 7 1	5 3 11	6 2 6	4 6 2	5 9 10	..	5 0 0
June .	..	5 3 11	6 2 6	4 7 1	5 6 9	..	5 0 0
July .	..	5 3 11	6 2 6	4 7 1	5 12 3	..	5 0 0
August .	..	5 3 11	6 2 6	5 0 0	6 0 7	..	5 0 0
September .	..	5 3 11	6 2 6	5 5 4	6 7 5	..	5 0 0
October .	..	5 3 11	6 2 6	5 0 0	6 7 5	..	5 0 0
November .	..	5 3 11	6 2 6	5 0 0	6 3 5	..	5 0 0
December .	..	6 2 6	6 2 6	5 0 0	6 0 7	..	5 0 0
1933.							
January .	..	5 3 11	6 2 6	5 0 0	5 13 1	..	5 0 0
February .	8 0 0	4 10 9	6 2 6	5 0 0	5 1 11	..	5 0 0
March .	8 0 0	4 3 4	6 2 6	4 7 1	4 5 2	..	4 7 1
April .	7 4 4	3 8 3	4 0 0	3 5 4	3 11 11	..	4 7 1
May .	7 4 4	3 13 4	4 0 0	4 0 0	4 7 1	..	4 0 0
June .	7 4 4	3 13 4	4 0 0	4 0 0	5 3 11	..	4 0 0
July .	7 4 4	3 13 4	4 0 0	5 0 0	5 3 11	..	4 0 0
August .	7 4 4	4 3 4	4 0 0	5 0 0	5 6 9	..	4 0 0
September .	7 4 4	4 3 4	4 0 0	4 7 1	5 9 10	..	4 0 0
October .	8 0 0	4 10 9	4 0 0	4 7 1	5 3 11	..	4 0 0
November .	8 0 0	5 3 11	4 3 4	4 7 1	5 3 11	..	4 0 0
December .	7 4 4	4 10 9	4 1 8	4 7 1	5 6 9	..	4 0 0

\* In the case of Kolhapur prices have been taken from the Monthly Average Retail Price-current Returns.

STATEMENT J.—Monthly Average Retail Prices of Gur/Jaggery (compiled from Taluka Form No. XVIII)—contd.

(Per Indian Maund of 80 lbs.)

Station	Ahmedabad.	Baramati.	Karad.	Kopergaon.	Poona.	Hubli.	Kolhapur.*
	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.
1934.							
January	7 4 4	4 10 9	5 0 0	4 7 1	4 10 9	..	4 0 0
February	7 4 4	3 8 3	6 10 8	4 7 1	4 15 5	..	4 0 0
March	7 4 4	3 8 3	6 10 8	4 3 4	4 7 1	..	4 0 0
April	7 4 4	4 3 4	5 0 0	4 7 1	5 3 11	..	4 0 0
May	..	6 0 7	4 0 0	5 5 4	6 0 7	..	4 0 0
June	..	6 0 7	4 5 2	5 11 5	7 0 6	..	4 0 0
July	..	6 0 7	6 6 5	5 11 5	6 7 5	..	4 0 0
August	..	8 6 9	6 10 8	7 4 4	7 9 11	..	4 7 1
September	..	8 6 9	6 10 8	8 0 0	9 6 7	..	4 7 1
October	..	8 6 9	6 10 8	8 0 0	9 6 7	..	5 0 0
November	..	7 0 6	6 10 8	8 0 0	8 6 9	..	5 0 0
December	..	6 0 7	6 10 8	6 6 5	6 7 5	..	5 0 0
1935.							
January	..	7 0 6	6 15 4	6 6 5	6 7 5	..	5 0 0
February	8 0 0	7 0 6	6 15 4	5 5 4	6 7 5	..	5 0 0
March	8 0 0	6 0 7	6 15 4	5 11 5	6 7 5	..	5 0 0
April	8 14 3	6 0 7	6 15 4	6 10 8	7 0 6	..	6 10 8
May	8 14 3	6 0 7	6 2 6	6 10 8	7 9 11	..	6 10 8
June	8 14 3	6 0 7	7 4 4	6 10 8	7 9 11	..	6 10 8
July	8 14 3	6 0 7	7 4 4	6 2 6	7 0 6	..	6 10 8
August	8 14 3	6 0 7	7 4 4	6 2 6	6 7 5	..	6 10 8
September	8 14 3	6 0 7	6 2 6	6 2 6	6 11 9	..	6 10 8
October	8 14 3	6 0 7	6 2 6	5 11 5	6 11 9	..	6 10 8
November	8 14 3	6 0 7	5 11 5	5 11 5	6 7 5	..	6 10 8
December	8 14 3	6 0 7	5 0 0	5 2 7	6 3 5	..	5 11 5

\* In the case of Kolhapur prices have been taken from the Monthly Average Retail Price-current Returns.

## STATEMENT J.—Monthly Average Retail Prices of Gur/Jaggery (compiled from Taluka Form No. XVIII)—concl'd.

(Per Indian Maund of 80 lbs.)

Station	Ahmedabad.	Baramati.	Karad.	Kopergaon.	Poona.	Hubli.	Kolhapur.*
	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.
1936.							
January	8 14 3	6 0 7	5 0 0	4 11 4	5 0 0	..	6 2 6
February	8 0 0	6 0 7	4 7 1	3 14 5	4 7 1	..	5 11 5
March	8 14 3	6 0 7	4 0 0	3 14 5	4 0 0	..	6 10 8
April	8 6 9	6 0 7	3 10 2	3 12 11	4 7 1	..	5 0 0
May	8 6 9	6 0 7	4 7 1	3 7 8	4 0 0	..	5 0 0
June	8 0 0	3 12 11	4 7 1	3 7 8	4 3 4	..	5 0 0
July	8 0 0	4 3 4	4 0 0	3 7 8	4 7 1	..	5 0 0
August	8 0 0	3 5 4	4 0 0	3 10 2	5 0 0	..	5 0 0
September	8 0 0	3 10 2	4 0 0	3 10 2	5 0 0	5 0 0	5 0 0
October	8 0 0	3 10 2	4 0 0	3 10 2	5 0 0	5 0 0	4 0 0
November	8 0 0	3 10 2	4 0 0	3 10 2	4 11 4	5 0 0	4 0 0
December	8 0 0	3 10 2	4 0 0	3 10 2	4 7 1	4 13 7	4 0 0
1937.							
January	8 0 0	3 10 2	4 0 0	3 10 2	4 7 1	4 13 7	3 10 2
February	8 0 0	3 10 2	4 0 0	3 5 4	4 1 8	4 13 7	3 10 2
March	8 0 0	3 10 2	3 5 4	3 5 4	4 0 0	4 9 2	3 10 2
April	8 0 0	3 10 2	4 0 0	3 5 4	4 0 0	4 7 1	3 11 2
May	8 0 0	3 7 8	3 5 4	3 1 1	3 12 11	4 9 2	3 11 2

\* In the case of Kolhapur prices have been taken from the Monthly Average Retail Price-current Returns.

STATEMENT K.—Fortnightly wholesale prices of Gur/Jaggery (compiled from the Fortnightly Return of Wholesale prices-current).

(Per Indian Maund of 80 lbs.)

	Bombay.	Ahmedabad.	Ahmednagar.	Poona.	Sholapur.	Dharwar.
	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.
<i>1930.</i>						
<i>January</i>						
(A)	10 3 3	..	9 2 8	8 5 4	9 3 1	7 11 2
(B)	8 13 6	..	8 5 4	7 6 7	9 9 11	7 12 10
<i>February.</i>						
(A)	8 2 7	..	7 10 8	7 2 5	7 10 1	7 6 5
(B)	8 4 9	..	7 13 4	8 6 9	8 12 5	7 6 5
<i>March.</i>						
(A)	8 7 0	..	8 0 0	8 1 10	8 12 5	8 6 5
(B)	8 9 2	..	8 5 4	8 9 7	8 2 5	8 3 2
<i>April.</i>						
(A)	8 9 2	..	8 4 0	8 9 7	8 4 11	7 9 7
(B)	8 15 8	..	..	8 6 9	..	8 0 0
<i>May.</i>						
(A)	8 15 8	..	8 5 4	8 1 1	..	8 0 0
(B)	9 1 10	..	8 2 4	8 9 7	..	8 0 0
<i>June.</i>						
(A)	9 8 5	..	8 2 4	8 6 9	8 15 9	8 0 0
(B)	10 3 3	..	..	8 5 4	8 15 9	8 0 0
<i>July.</i>						
(A)	10 3 3	..	8 0 0	8 1 1	8 15 9	8 0 0
(B)	10 3 3	..	8 0 0	8 3 11	8 6 9	8 3 3
<i>August.</i>						
(A)	10 3 3	..	7 12 0	7 11 6	7 11 4	8 3 3
(B)	10 3 3	..	7 12 0	7 11 6	7 8 6	8 0 0
<i>September.</i>						
(A)	10 3 3	..	7 9 4	7 11 6	7 12 7	7 10 0
(B)	9 4 0	..	7 8 0	7 0 3	7 11 9	8 12 10
<i>October.</i>						
(A)	9 4 0	..	7 2 8	6 5 1	7 8 5	6 9 7
(B)	9 4 0	..	7 0 0	6 10 8	7 1 9	7 0 0
<i>November.</i>						
(A)	9 4 0	..	6 13 4	6 10 8	6 1 1	7 3 7
(B)	8 2 7	..	6 14 8	8 0 5	7 5 1	7 3 2
<i>December.</i>						
(A)	8 2 7	..	6 1 4	6 2 11	6 4 5	7 3 2
(B)	7 14 3	..	5 1 4	5 13 4	5 11 3	5 9 7

(A)=1st Fortnight.  
(B)=2nd Fortnight.

STATEMENT K.—Fortnightly wholesale prices of Gur/Jaggery (compiled from the Fortnightly Return of Wholesale prices-current)—contd.

(Per Indian Maund of 80 lbs.)

	Bombay.	Ahmeda- bad.	Ahmed- nagar.	Poona.	Sholapur.	Dharwar.
	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.
<b>1931.</b>						
<b>January.</b>						
(A)	6 12 10	..	5 8 0	5 14 0	5 7 1	5 9 7
(B)	7 7 9	..	5 9 4	6 9 3	7 5 1	5 9 7
<b>February.</b>						
(A)	7 7 9	..	6 0 0	6 13 6	6 11 1	5 9 7
(B)	6 12 10	..	6 2 8	6 0 2	6 7 9	5 9 7
<b>March.</b>						
(A)	7 1 2	..	5 5 4	5 13 4	6 2 9	5 9 7
(B)	7 7 9	..	..	5 5 7	6 1 1	5 9 7
<b>April.</b>						
(A)	6 12 10	..	5 5 4	5 4 3	5 13 9	4 12 10
(B)	6 8 6	..	5 0 0	4 11 9	5 7 1	4 13 0
<b>May.</b>						
(A)	6 12 10	..	4 14 8	5 1 5	5 3 9	..
(B)	6 12 10	..	4 14 8	4 6 2	5 2 1	4 12 10
<b>June.</b>						
(A)	6 12 10	..	5 0 0	4 12 10	5 3 9	4 13 0
(B)	6 8 6	..	5 8 0	4 9 0	5 7 1	4 12 10
<b>July.</b>						
(A)	6 4 2	..	5 7 4	5 0 0	5 7 1	4 12 10
(B)	6 8 6	..	5 6 8	5 1 5	5 7 1	5 3 2
<b>August.</b>						
(A)	7 1 2	..	6 0 0	5 9 10	5 13 9	5 3 2
(B)	7 7 9	..	5 14 8	5 15 5	6 1 1	5 3 2
<b>September.</b>						
(A)	7 7 9	..	5 13 4	5 12 8	5 15 5	5 9 7
(B)	7 7 9	..	5 9 4	5 9 10	5 13 9	5 9 7
<b>October.</b>						
(A)	7 7 9	..	5 8 0	5 6 4	5 12 1	5 9 7
(B)	7 14 3	..	5 14 8	5 5 7	5 12 1	5 9 7
<b>November.</b>						
(A)	7 14 3	..	6 2 8	6 13 6	6 1 1	5 9 7
(B)	7 7 9	..	6 2 8	5 9 10	6 1 1	6 0 0
<b>December.</b>						
(A)	7 7 9	..	6 5 4	6 7 10	5 13 9	5 6 5
(B)	7 7 9	..	5 13 4	6 7 10	6 4 5	5 6 5

(A)=1st Fortnight.

(B)=2nd Fortnight.

## STATEMENT K.—Fortnightly wholesale prices of Gur/Jaggery (compiled from the Fortnightly Return of Wholesale prices-current)—contd.

(Per Indian Maund of 80 lbs.)

—	Bombay.	Akmeda- bad.	Ahmed- nagar.	Poona.	Sholapur.	Dharwar.
	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.
<b>1932.</b>						
<i>January.</i>						
(A)	7 7 9	7 4 0	6 0 0	5 9 1	6 4 5	5 6 5
(B)	7 7 9	7 4 0	5 13 4	5 6 4	5 15 5	5 6 5
<i>February.</i>						
(A)	6 12 10	7 4 0	5 6 8	4 14 7	5 13 9	4 3 0
(B)	6 12 10	7 8 0	5 5 4	5 6 8	6 4 5	4 3 0
<i>March.</i>						
(A)	6 12 10	7 8 0	5 8 0	5 8 9	5 13 9	5 3 2
(B)	6 12 10	7 8 0	5 1 4	5 4 3	5 10 5	5 3 2
<i>April.</i>						
(A)	6 12 10	8 0 0	5 0 0	4 13 2	5 7 1	5 3 2
(B)	6 12 10	8 0 0	4 14 8	5 5 7	5 2 1	5 3 2
<i>May.</i>						
(A)	..	8 0 0	5 1 4	5 4 3	5 7 1	..
(B)	6 12 10	7 8 0	5 5 4	5 0 0	5 0 5	5 3 2
<i>June.</i>						
(A)	6 12 10	7 8 0	5 0 8	5 14 7	5 3 9	5 3 2
(B)	6 12 10	7 8 0	5 5 4	5 1 5	5 3 2	5 9 7
<i>July.</i>						
(A)	6 12 10	7 8 0	5 8 0	5 5 7	5 10 5	6-0 0
(B)	6 12 10	8 0 0	5 8 0	5 5 7	5 13 9	6 0 0
<i>August.</i>						
(A)	6 12 10	8 0 0	5 14 8	5 12 8	5 13 9	6 0 0
(B)	6 12 10	8 0 0	5 12 0	5 14 0	5 10 5	6 0 0
<i>September.</i>						
(A)	6 12 10	8 0 0	5 13 4	5 12 8	5 10 5	6 0 0
(B)	6 8 6	8 0 0	5 4 8	5 12 8	5 3 9	6 0 0
<i>October.</i>						
(A)	6 6 4	8 0 0	5 5 4	5 9 10	5 5 5	6 0 0
(B)	6 4 2	8 0 0	5 5 4	5 12 8	5 10 5	6 0 0
<i>November.</i>						
(A)	6 8 6	8 0 0	5 8 0	5 4 3	..	6 0 0
(B)	6 10 8	8 0 0	5 0 0	4 14 7	5 7 1	6 0 0
<i>December.</i>						
(A)	6 8 6	8 0 0	5 8 0	5 1 9	5 3 9	6 0 0
(B)	6 8 6	7 8 0	5 5 4	5 5 7	5 3 9	6 0 0

(A)=1st Fortnight.  
(B)=2nd Fortnight.

STATEMENT K.—Fortnightly wholesale prices of Gur/Jaggery (compiled from the Fortnightly Return of Wholesale prices-current)—contd.

(Per Indian Maund of 80 lbs.)

	Bombay.	Ahmeda- bad.	Ahmed- nagar.	Poona.	Sholapur.	Dharwar.
	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.
<b>1933.</b>						
<b>January.</b>						
(A)	6 8 6	7 8 0	5 2 8	4 14 4	5 3 9	6 0 0
(B)	6 8 6	7 8 0	4 10 8	5 9 0	5 2 1	4 12 9
<b>February.</b>						
(A)	6 4 2	7 8 0	4 10 8	4 3 4	4 13 1	4 12 9
(B)	5 15 9	7 8 0	4 1 4	4 2 0	4 9 9	4 12 9
<b>March.</b>						
(A)	5 11 5	7 8 0	4 1 4	4 3 4	4 9 9	4 6 5
(B)	5 11 5	7 8 0	3 10 8	3 10 11	3 14 1	4 6 5
<b>April.</b>						
(A)	5 11 5	7 0 0	3 8 0	3 13 9	3 10 9	4 0 0
(B)	5 11 5	7 0 0	3 12 0	4 3 4	3 12 5	4 0 0
<b>May.</b>						
(A)	5 7 1	7 0 0	4 1 4	4 4 1	4 3 1	4 0 0
(B)	5 7 1	7 0 0	4 8 0	4 5 6	4 4 9	4 0 0
<b>June.</b>						
(A)	5 7 1	7 0 0	4 9 4	4 13 2	4 9 9	5 9 7
(B)	5 7 1	7 0 0	4 8 0	4 11 9	4 8 1	5 9 7
<b>July.</b>						
(A)	5 11 5	7 0 0	4 6 8	5 1 5	4 9 9	5 9 7
(B)	5 11 5	7 0 0	4 8 8	5 4 3	4 9 9	5 9 7
<b>August.</b>						
(A)	5 11 5	7 0 0	4 8 0	5 1 5	4 9 9	5 9 7
(B)	5 11 5	7 0 0	4 8 0	5 4 3	4 13 1	5 9 7
<b>September.</b>						
(A)	5 7 1	7 0 0	4 5 4	5 4 3	4 4 4	5 9 7
(B)	5 7 1	7 0 0	4 6 8	5 1 5	4 9 9	5 9 7
<b>October.</b>						
(A)	5 11 5	7 0 0	..	4 14 7	4 6 5	5 9 7
(B)	5 11 5	7 0 0	4 2 8	4 15 4	4 6 5	5 9 7
<b>November.</b>						
(A)	5 7 1	7 0 0	3 10 8	5 2 1	4 9 4	5 9 7
(B)	5 7 1	7 8 0	4 2 8	5 5 3	5 0 5	5 9 7
<b>December.</b>						
(A)	5 7 1	7 8 0	4 5 4	5 2 1	4 10 2	5 9 7
(B)	5 7 1	7 8 0	4 12 0	5 1 5	5 0 5	4 12 9

(A)=1st Fortnight.  
(B)=2nd Fortnight.

## STATEMENT K.—Fortnightly wholesale prices of Gur/Jaggery (compiled from the Fortnightly Return of Wholesale prices-current)—contd.

(Per Indian Maund of 80 lbs.)

	Bombay.	Ahmedabad.	Ahmednagar.	Poona.	Sholapur.	Dharwar.
	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.
<b>1934.</b>						
<b>January.</b>						
(A)	5 7 1	7 8 0	4 10 0	4 6 2	4 6 0	4 12 9
(B)	5 7 1	7 4 0	4 6 4	4 6 2	4 6 5	4 6 5
<b>February.</b>						
(A)	5 2 9	7 4 0	..	4 11 9	4 6 5	4 0 0
(B)	4 14 4	7 4 0	4 6 8	4 7 7	3 12 0	4 0 0
<b>March.</b>						
(A)	4 12 2	7 4 0	4 2 8	4 6 2	4 3 1	4 0 0
(B)	4 12 2	7 4 0	4 2 8	3 15 10	4 4 9	4 0 0
<b>April.</b>						
(A)	4 12 2	7 4 0	4 4 0	4 11 1	4 6 5	4 0 0
(B)	5 2 9	7 4 0	5 0 0	5 0 0	5 0 5	4 12 10
<b>May.</b>						
(A)	5 2 9	7 4 0	6 12 0	6 2 3	6 14 5	5 9 7
(B)	5 2 9	7 8 0	6 4 0	6 0 10	6 7 9	6 0 0
<b>June.</b>						
(A)	5 2 9	7 8 0	6 4 0	5 15 5	6 7 9	6 0 0
(B)	5 2 9	7 8 0	6 3 4	5 14 0	6 7 9	6 0 0
<b>July.</b>						
(A)	4 14 4	8 0 0	5 14 8	5 11 3	6 11 1	6 0 0
(B)	5 2 9	8 8 0	5 2 8	6 4 4	6 14 5	6 0 0
<b>August.</b>						
(A)	5 7 1	8 8 0	7 4 0	7 4 6	7 6 0	6 0 0
(B)	5 7 1	9 0 0	7 14 8	9 2 0	8 5 4	..
<b>September.</b>						
(A)	5 11 5	9 0 0	7 12 0	8 6 9	8 2 0	8 0 0
(B)	5 11 5	9 0 0	7 12 0	7 15 9	7 9 3	8 0 0
<b>October.</b>						
(A)	5 15 9	9 0 0	7 9 4	7 12 11	7 9 8	8 0 0
(B)	5 15 9	9 0 0	7 5 4	7 5 11	7 8 5	8 0 0
<b>November.</b>						
(A)	6 4 2	9 8 0	6 12 0	7 14 4	7 4 3	8 0 0
(B)	6 4 2	9 8 0	6 1 4	6 6 5	6 11 1	6 0 0
<b>December.</b>						
(A)	6 8 6	9 0 0	5 6 8	5 11 11	6 4 5	4 12 9
(B)	6 8 6	8 0 0	5 6 8	5 11 3	5 14 7	6 0 0

(A)=1st Fortnight.

(B)=2nd Fortnight.



STATEMENT K.—Fortnightly wholesale prices of Gur/Jaggery (compiled from the Fortnightly Return of Wholesale prices-current)—contd.

(Per Indian Maund of 80 lbs.)

	Bombay.	Ahmeda- bad.	Ahmed- nagar.	Poona.	Sholapur.	Dharwar.
	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.
<b>1935.</b>						
<b>January.</b>						
(A)	6 8 6	8 0 0	6 0 0	5 14 9	6 4 5	6 0 0
(B)	6 8 6	9 8 0	7 10 8	6 5 9	6 1 1	7 3 2
<b>February.</b>						
(A)	6 8 6	9 0 0	5 13 4	6 7 2	6 3 7	6 6 5
(B)	6 8 6	9 0 0	5 12 0	6 4 4	6 0 8	6 6 5
<b>March.</b>						
(A)	6 4 2	8 12 0	5 12 0	6 5 1	6 4 0	6 0 0
(B)	6 2 0	8 12 0	5 9 8	6 5 1	6 4 0	6 0 0
<b>April.</b>						
(A)	5 11 5	8 8 0	5 14 8	6 6 5	6 2 4	6 0 0
(B)	5 7 1	8 12 0	6 10 8	6 14 2	6 14 5	6 12 9
<b>May.</b>						
(A)	5 7 1	9 0 0	6 6 0	7 1 8	7 0 1	6 12 9
(B)	5 7 1	9 0 0	6 6 0	6 14 2	6 11 1	6 12 9
<b>June</b>						
(A)	5 11 5	9 0 0	6 6 0	6 13 6	6 10 8	6 12 9
(B)	5 15 9	9 0 0	..	6 14 11	6 9 0	6 12 9
<b>July.</b>						
(A)	6 2 0	9 0 0	..	6 10 8	6 11 1	6 12 9
(B)	6 2 0	9 0 0	6 6 8	6 2 3	6 14 0	6 12 9
<b>August.</b>						
(A)	6 2 0	8 12 0	6 6 8	5 15 5	6 11 1	6 12 9
(B)	6 4 2	8 8 0	..	6 6 5	6 12 9	6 12 9
<b>September.</b>						
(A)	6 4 2	8 12 0	..	6 2 11	6 1 1	6 12 9
(B)	6 4 2	8 10 0	5 6 8	6 0 2	6 1 1	..
<b>October.</b>						
(A)	6 8 6	8 8 0	5 12 0	5 15 5	5 10 5	6 12 9
(B)	6 8 6	8 4 0	5 12 0	6 2 3	5 13 9	6 6 5
<b>November.</b>						
(A)	6 8 6	8 4 0	5 12 0	5 7 0	6 4 5	6 6 5
(B)	6 8 6	8 8 0	5 13 4	4 14 7	5 0 5	6 6 5
<b>December.</b>						
(A)	7 7 9	8 8 0	5 2 0	4 12 0	5 13 9	5 9 8
(B)	7 1 2	8 12 0	5 2 0	4 8 0	5 7 1	5 9 8

(A)=1st Fortnight.  
(B)=2nd Fortnight.

STATEMENT K.—Fortnightly wholesale prices of Gur/Jaggery (compiled from the Fortnightly Return of Wholesale prices-current)—contd.

(Per Indian Maund of 80 lbs.)

—	Bombay.	Ahmeda- bad.	Ahmed- nagar.	Poona.	Sholapur.	Dharwar.
	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.
<i>1936.</i>						
<i>January.</i>						
(A)	6 12 10	9 0 0	4 9 4	4 2 0	4 13 1	5 9 8
(B)	6 12 10	8 8 0	4 2 8	4 0 0	5 0 5	5 6 4
<i>February.</i>						
(A)	7 1 2	8 4 0	4 0 0	3 12 0	4 9 9	5 0 0
(B)	6 12 10	8 4 0	3 14 8	4 2 0	4 4 9	4 9 7
<i>March.</i>						
(A)	6 12 10	8 4 0	3 15 4	3 15 3	3 14 1	4 12 10
(B)	6 12 10	8 4 0	3 14 8	3 11 4	4 4 9	4 12 10
<i>April.</i>						
(A)	6 8 6	8 0 0	3 13 3	4 0 0	4 3 1	4 12 10
(B)	6 4 2	8 0 0	3 8 0	4 0 0	4 3 1	4 6 5
<i>May.</i>						
(A)	6 4 2	7 8 0	3 8 0	3 12 8	3 13 3	4 0 0
(B)	5 7 1	7 8 0	3 8 0	3 13 4	4 5 1	4 0 0
<i>June.</i>						
(A)	5 15 9	7 8 0	3 5 4	4 2 0	4 4 0	4 6 5
(B)	5 15 9	7 8 0	3 10 8	3 14 8	4 0 0	4 6 5
<i>July.</i>						
(A)	5 15 9	7 4 0	3 9 4	4 4 0	4 2 0	4 6 5
(B)	6 4 2	7 4 0	3 14 0	4 5 4	4 2 0	4 6 5
<i>August.</i>						
(A)	5 7 1	7 4 0	3 13 4	4 6 8	4 4 0	4 6 5
(B)	5 7 1	7 4 0	3 12 0	4 5 4	4 2 0	4 6 5
<i>September.</i>						
(A)	5 15 9	7 2 0	3 8 0	4 2 8	3 14 0	4 6 5
(B)	5 11 5	7 0 0	3 10 8	4 1 4	4 4 0	4 6 5
<i>October.</i>						
(A)	5 11 5	7 0 0	3 8 8	3 14 8	4 4 0	4 6 5
(B)	5 7 1	7 2 0	3 8 0	3 10 8	4 14 0	4 6 5
<i>November.</i>						
(A)	5 7 1	7 2 0	3 7 4	3 10 0	4 8 9	4 6 5
(B)	5 7 1	7 4 0	3 7 4	3 5 4	4 2 6	4 0 0
<i>December.</i>						
(A)	5 7 1	7 0 0	3 6 8	3 12 0	4 0 6	4 0 0
(B)	5 7 1	7 0 0	3 6 8	4 0 0	4 0 6	4 0 0

(A)=1st Fortnight.  
(B)=2nd Fortnight.

STATEMENT K.—Fortnightly wholesale prices of Gur/Jaggery (compiled from the Fortnightly Return of Wholesale prices-current)—concl'd.

(Per Indian Maund of 80 lbs.)

	Bombay.	Ahmed- bad.	Ahmed- nagar.	Poons.	Sholapur.	Dharwar.
	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.
<b>1937.</b>						
<b>January.</b>						
(A)	5 7 1	7 0 0	3 6 8	4 1 4	4 1 6	4 0 0
(B)	5 2 9	7 0 0	3 6 8	3 12 0	3 12 6	4 0 0
<b>February.</b>						
(A)	5 2 9	7 0 0	3 0 0	3 8 8	3 4 0	4 0 0
(B)	4 14 4	6 12 0	3 1 4	3 5 4	3 10 6	4 0 0
<b>March.</b>						
(A)	5 2 9	6 12 0	3 6 0	3 6 8	3 13 0	4 0 0
(B)	5 2 9	6 8 0	3 5 0	3 4 0	3 6 6	4 0 0
<b>April.</b>						
(A)	5 2 9	6 6 0	3 1 4	3 4 0	3 10 6	4 0 0
(B)	5 2 9	6 6 0	3 2 0	3 2 8	3 8 0	4 0 0
<b>May.</b>						
(A)	5 2 9	6 8 0	2 12 8	3 5 4	3 8 0	4 0 0

(A)=1st Fortnight.

(B)=2nd Fortnight.

37. Statement L below gives figures of imports of gur/jaggery, rab, molasses, etc., into the Bombay Presidency during the past seven years, as far as such statistics are available. It also shows the areas from which such imports were made.

STATEMENT L.

\* Imports of Gur, Rab, Molasses, Jaggery, etc., into Bombay Presidency (excluding Bombay Port) by Rail and River.

Whence imported.	1930-31 to 1932-33.	1933-34.	1934-35.	1935-36.	1936-37.†	Remarks.	
	(Standard Maunds of 82½lbs.)						
Bengal . . . . .		..	..	..	2		
Bihar and Orissa . . . . .		40,364	78,488	47,697	23,427		
United Provinces of Agra and Oudh. . . . .		903,458	942,201	1,046,197	633,642		
Punjab . . . . .		3,516	360	56,094	304		
Sind and British Baluchistan . . . . .		45	..	..	..		
Central Provinces and Berar . . . . .	Information for these years is not available as the registration of these Statistics commenced from April 1933.	5,102	2,204	406	2,057		
Madras . . . . .		166,252	226,832	124,236	70,680		
Rajputana . . . . .		259	8,194	402	159		
Central India . . . . .		608	2,746	17,983	12,011		
Nizam's Territory . . . . .		1,434	9,520	3,639	19,484		
Mysore . . . . .		31,164	80,637	119,069	69,265		
Bombay Port . . . . .		1,399	3,409	3,516	1,171		
Madras Ports . . . . .			..	1	2,927	1	
Total . . . . .			1,153,590	1,354,642	1,422,165	832,203	

\* Compiled from the Monthly issue of the Accounts relating to the Inland (Rail and River-borne) Trade of India.

† For ten months only.

STATEMENT L—contd.

\* Imports of Gur, Rab, Molasses, Jaggery, etc., into Bombay Port by Rail and River.

Whence imported.	1930-31 to 1932-33.	1933-34.	1934-35.	1935-36.	1936-37.†	Remarks.
	(Standard Maunds of 82½ lbs.)					
Bengal . . . . .		1	..	..	..	
Bihar and Orissa . . . . .		518	146	21	..	
United Provinces of Agra and Oudh. . . . .		11,590	29,997	24,127	4,475	
Punjab . . . . .	Information for these years is not available as the registration of these Statistics commenced from April 1933.	382	176	4	2	
Central Provinces and Berar . . . . .		1,246	55	187	318	
Bombay . . . . .		162,816	130,116	142,600	108,223	
Madras . . . . .		10	..	6	15	
Rajputana . . . . .		78	38	2	1	
Central India . . . . .		1	1	1	1	
Nizam's Territory . . . . .		60	429	2,013	1,597	
Mysore . . . . .		..	..	1	1	
Calcutta . . . . .		..	3	2	..	
Total . . . . .			176,702	160,961	168,964	114,633

\* Compiled from the Monthly issue of the Accounts relating to the Inland (Rail and River-Borne) Trade of India.

† For ten months only.

‡ Imports of Molasses into Bombay Presidency by Sea.

Countries of consignment.	1930-31.	1931-32.	1932-33.	1933-34.	1934-35.	1935-36.	1936-37.	Remarks.
	(Standard Maunds of 82½ lbs.)							
British Empire and Foreign Countries.	31,932	7,813	..	..	..	..	..	Not yet available.

Compiled from the Annual Statement of the Sea-Borne Trade of British India with the British Empire and Foreign Countries for the year ending 31st March 1936, Volume I.

38. Statement M below gives figures of exports of gur/jaggery, rab, molasses, etc., from the Bombay Presidency during the past seven years, as far as such statistics are available. It also shows the areas to which such exports were made.

STATEMENT M.

\* Exports of Gur, Rab, Molasses, Jaggery, etc., from Bombay Presidency (excluding Bombay Port) by Rail and River.

Whither exported.	1930-31 to 1932-33.	1933-34.	1934-35.	1935-36.	1936-37.†	Remarks.
	(Standard Maunds of 82½ lbs.)					
Bengal . . . . .		7	1	1	..	
Bihar and Orissa . . . . .						
United Provinces of Agra and Oudh. . . . .		2	2	1	..	
Punjab . . . . .		168	7	33	37	
Sind and British Baluchistan . . . . .	Information for these years is not available as the registration of these statistics commenced from April 1933.	1,375	32	2	4	
Central Provinces and Berar . . . . .		31	4	15	2,172	
Madras . . . . .		333,619	177,814	244,458	278,241	
Rajputana . . . . .		1,146	271	1,024	176	
Central India . . . . .		29,445	16,218	18,138	8,046	
Nizam's Territory . . . . .		28,123	10,752	12,669	23,445	
Mysore . . . . .		126,098	61,990	61,980	25,467	
Calcutta . . . . .		12,808	6,040	1,806	3,730	
Bombay Port . . . . .		88	325	379	139	
Karachi . . . . .		162,816	130,116	142,600	108,223	
Madras Port . . . . .	4	3	2	4		
		49	472	12	95	
Total . . . . .		695,779	404,047	483,120	449,779	

\* Compiled from the Monthly issue of the Accounts relating to the Inland (Rail and River-borne) Trade of India.

† For ten months only.

V-111

23

435

## STATEMENT M—contd.

\* Exports of Gur, Rab, Molasses, Jaggery, etc., from Bombay Port by Rail and River.

Whither exported.	1930-31 to 1932-33.	1933-34.	1934-35.	1935-36.	1936-37.†	Remarks.
	(Standard Maunds of 82½ lbs.)					
Bengal		27	552	303	32	
United Provinces of Agra and Oudh.		115	1			
Punjab		18	12	11	23	
Sind and British Baluchistan	Information for these years is not available as the registration of these statistics commenced from April 1933.	1,389	3,409	3,516	1,171	
Central Provinces and Berar		9	13	1		
Bombay		63	161	184	48	
Madras		25	11	136	4	
Rajputana		138	17	3	1	
Central India		83	15	28		
Nizam's Territory				13		
Calcutta						
Madras Ports						
Total		1,867	4,191	4,196	1,280	

\* Compiled from the Monthly issue of the Accounts relating to the Inland (Rail and River-borne) Trade of India.

† For ten months only.

Exports of Molasses (including Palmyra and Cane Jaggery) from Bombay Presidency by Sea.

Countries of final destination.	1930-31.	1931-32.	1932-33.	1933-34.	1934-35.	1935-36.	1936-37.	Remarks.
	(Standard Maunds of 82½ lbs.)							
British Empire and Foreign Countries.	1,878	1,851	2,014	2,423	2,123	2,287		Not yet available.

† Compiled from the Annual Statement of the Sea-borne Trade of British India with the British Empire and Foreign Countries for the year ending 31st March 1936, Volume I.

39. The Deputy Directors of Agriculture, South Central Division (Deccan), and Gujerat report that there is a correlation between the price of gur/jaggery and Indian factory sugar in these tracts. The Deputy Director of Agriculture, Gujerat, further adds that the price of gur in his Division depends on the price of imported gur which, in turn, is related to the price of Indian factory sugar.

The Deputy Director of Agriculture, Southern Division (Karnatak), states that there appears to be little, if any, relation between the price of gur in his Division and the price of Indian factory sugar.

40. It cannot be said that Indian factory sugar is replacing gur to any appreciable extent in the Bombay Presidency but, owing to changes in the habits of the rural population, e.g., increase in tea drinking, more sugar is being consumed. In Gujerat, the Deputy Director of Agriculture reports a tendency in the districts to utilize sugar in place of gur. In other Divisions, the increase of sugar consumption appears to be in addition to normal gur consumption.

41. During the last seven years, the Department of Agriculture, Bombay, has done considerable direct and indirect research in the improvement of gul by introducing and extending the following improvements in methods of cana cultivation, furnaces for juice boiling, etc., and in the introduction of improved cane varieties. These are given as under:—

- (i) Sann green manuring.
- (ii) Deep tillage.
- (iii) Early planting.
- (iv) Opening wide ridges and using 10,000 sets per acre for planting.
- (v) Application of top-dressing manures in the form of sulphate of ammonia and oil cakes in three doses at three weeks, six weeks and at the time of earthing up, supplying in all 150 to 200 lbs. of nitrogen per acre.
- (vi) Interculturing with bullock implements.
- (vii) Crushing of cane on power crushers, for better extraction of juice.
- (viii) Improved furnaces of the Poona single, double and multiple types.
- (ix) Using certain clarifying agents such as washing soda, bhendi muscilage, sajjikhar, etc., for preparing better quality of gul.
- (x) Introduction and extension of the improved sugarcane varieties such as E.K. 28, P.O.J. 2878, Co. 419 and Co. 290.

In the Karnatak, research work has been carried out with the object of determining the causes of the poor-keeping qualities of gur from the Malnad tract and further work in this connection is in progress.

42. In the Bombay Deccan the maximum number of open pan factories at work at any time is twelve. There are no khandsaras at work in the Presidency. The cutturn was from 600-700 tons of sugar and about 900 to 1,000 tons of molasses in gul. During the past year, i.e., 1936-1937, only two open pan factories were at work and their cutturn was about 100 tons of sugar and about 150 tons of molasses in gul. The reduction in numbers is due to the low rates for sugar and gul.

The Deputy Director of Agriculture, Southern Division, (Karnatak), reports that open pan sugar manufacturing factory with three centrifugals worked at Bedkihal up to 1934-35 and was reported to turn out 20,000 maunds (28 lbs.) of sugar per annum. It has now been closed down.

43. The cost of manufacturing sugar by the open pan process is Rs. 5-12 per maund, including excise duty and this sugar, prior to 1st March, 1937, was sold at Rs. 6-4 per maund. (Vide Bulletin No. 175 of Department of Agriculture, Bombay Presidency, copy attached.)



44. The Deputy Director of Agriculture, South Central Division (Deccan), states as under:—

“There is no comparison between the factory sugar and the open pan sugar, but cultivators always compare the value of produce by the manufacture of gul per acre and the manufacture of sugar and molassein gul per acre. If the price of sugar and molassein gul be higher than the manufacture of gul alone, they prefer to manufacture sugar and molassein gul. If the price of gul be higher, viz., Rs. 6 and above per maund, they will not undertake the manufacture of sugar and molassein gul, but if the price of sugar is higher and the price of gul is lower, they would certainly prefer to manufacture sugar and molassein gul. In the past season the prices of both sugar and gul have gone abnormally low, the cane growers prefer to sell their cane to the sugar factories, instead of manufacturing sugar and molassein gul.”

The Deputy Director of Agriculture, Southern Division (Karnatak), reports that the closing down of the open pan factory at Bedkihal (reference reply to question No. 42) was directly due to competition with sugar produced at the Kolhapur Factory.

45 & 46. “The introduction of the open pan process of manufacturing sugar and molassein gul was made in this Presidency from the year 1933. It was easy for well-to-do cultivators, who had power crushers, to take advantage of this open pan process by attaching a few centrifugals to their factories and this system of manufacturing sugar and molassein gul is certainly advantageous when the prices of sugarcane high and the prices of gul low. The future of the industry will depend on the fluctuations of prices of both these commodities, but it may be stated that special research in improving the quality of sugar and molassein gul, especially by the use of clarifying agents and filtration, is necessary. Last year, an experiment to utilize active carbon for filtering the juice was made at Borgaon and it proved successful both in improving the quality of sugar and in increasing the percentage of recovery. But this is a laborious process and people will not be prepared to undertake this method especially when the prices of sugar and gul are very low. But, if a central factory for manufacturing sugar from rab be organized and if the surrounding cultivators are advised to prepare their rab on their own furnaces with the help of active carbon, under the instructions of officers of the Agricultural Department, this system will surely bring more money to the cultivators. More research on the work of utilising clarifying agents is necessary”.

(Extract from report by the Deputy Director of Agriculture, South Central Division, Deccan.)

47. The Excise Duty imposed in 1934, and the additional duty imposed in 1937, has, in my opinion, not affected the cane grower to any appreciable extent except in so far as he may have dealings in selling cane to the factories. The manufacturers of sugar complain bitterly against the additional duty imposed in 1937. As a result of the duty imposed in 1934, their profits were reduced by approximately Rs. 1-5 per cwt. and it is represented that the additional import causes a further reduction of As. 11 and tells heavily especially in the case of new factories. Sugar is now being sold at Rs. 9-12 to 10 per cwt. ex-factory from which an excise duty of Rs. 2 per cwt. has to be deducted, leaving a net realisation of Rs. 7-12 to Rs. 8 per cwt. to the manufacturer. This is stated to approximate very closely to the actual manufacturing cost in new factories, leaving practically no margin of profit. I have no remarks to offer on the effect on the dealer and consumer.

The Deputy Director of Agriculture, Southern Division (Karnatak), is of the opinion that the excise duty imposed in 1934, and increased in 1937, has checked the establishment of open pan factories by big cane growers and middlemen who would have undertaken such projects especially when

the price of gul is more than 16 lbs. per rupee. \* Indirectly the consumer is affected as he could have got sugar cheaper if prepared locally from the open pan method than factory sugar.

48. See reply to Question 47 above. I am of the opinion that the reduction of price in sugar in recent years Rs. 11 to Rs. 7-8 per maund retail price in the Bombay Presidency due to cut-throat competition among Indian sugar-factories as a result of the import duty on sugar entering India, has enabled the consumer to get his sugar cheaper.

49. In this connection, I can only draw attention to the exceedingly low price now obtained by factories for molasses, about 2-3 annas per maund, when despatched to the Government Central Distillery, Nasik, for manufacture into country liquor. This low rate is attributed to the great increase in the supply of molasses owing to the establishment of numerous new factories as a result of the protective duties.

50. A brief note on the preparation of sugarcane statistics in the Bombay Presidency is given below:—

There are three factors necessary for framing an estimate of the outturn of a crop, viz.:—

- (1) Area under the crop,
- (2) Anna-valuation (or the condition figure) of the crop,
- (3) Standard yield per acre of a normal, i.e., 12-anna crop.

(1) As regards area, the procedure in the Bombay Presidency is that the acreage under different crops is ascertained, in the first instance, by the Village Officers (called Patels) of the Revenue Department, and recorded in the village returns. These returns are subsequently checked by the Circle Inspectors and other Revenue Officers and compiled for the taluka. The taluka figures are then reported by the Mamlatdars (Taluka Revenue Officers) to the Collectors (District Revenue Officers) by whom they are scrutinised and consolidated into District Returns and forwarded to the Director of Agriculture. The information collected is for the surveyed villages only, i.e., for which regular statistics are available. In the case of unsurveyed villages, rough estimates are framed by the Revenue Officers, as far as possible, although such area is but a fraction (only about 6 per cent.) of the total area.

(2) The second factor, viz., the anna valuation or the condition figure of the crop. In the Bombay Presidency twelve annas are adopted to represent a *normal* crop. It is necessary to define here what the term "normal" means. Various definitions have been put forward at different times for the term "normal" crop, but the most generally accepted definition is "that crop which past experience has shown to be the most generally recurring crop in a series of years; the typical crop of the local area; the crop which the cultivator has a right (as it were) to expect and with which he is (or should be) content, while if he gets more he has reason to rejoice and if less he has ground to complain". Briefly, it is stated to be the average yield on average soil in a year of average character. This normal yield will not necessarily correspond with the average of a series of years' figures, which is indeed an arithmetical abstraction and may possibly never occur.

As in the case of area, the anna valuation of the crop is also made, in the first place, by the Village Officers of the Revenue Department and after being checked and worked out for the taluka, it is reported by the Mamlatdar to the Collector by whom the average anna valuation for the district is reported to the Director of Agriculture along with the acreage under the crop. The Land Revenue Department thus plays a considerable part in collecting, consolidating and furnishing data to the Department of Agriculture.

(3) As regards the remaining factor, viz., the standard yield per acre of the normal crop, the Agricultural Department maintains a statement showing

figures of average yields in lbs. per acre of a 12-anna crop on a soil of 12 anna classification and during a normal season. These figures are for the principal crops in each district of the Bombay Presidency and are based on a series of carefully planned crop cutting experiments in the representative tracts. They are generally revised every five years.

After the data regarding (a) area and (b) anna valuation of a crop are received from the Revenue Department, the Agricultural Department translates these in a quantitative estimate of the crops in tons, cwts., bales, etc., with the help of the standard yield figures for the crop. The formulæ of converting the area, anna valuation and the standard yield into outturn is as follows:—

$$\text{Acreage} \times \frac{\text{Anna valuation}}{12} \times \frac{\text{Standard yield (in lbs. per acre)}}{2240} = \text{Outturn}$$

(in tons).

(As 12 annas represent a normal crop and 2,240 lbs. make one ton the significance of these two figures in the above formulæ will be readily understood.)

To take a concrete example, if from a district, say Poona District, the area under the sugarcane crop is reported as 10,000 acres and the anna valuation as 8 annas, then with the aid of the standard normal value which is 8,000 lbs. of gur per acre of irrigated crop in the Poona district, the outturn of sugarcane in terms of gur for the district works out 23,810 tons as shown below:—

$$10,000 \times \frac{8}{12} \times \frac{8000}{2240} = 23,810 \text{ tons of gur.}$$

With regard to the degree of accuracy of these statistics, it may be stated that the area figures may be regarded to be fairly accurate as they are reported after actual inspection of the crop by the Revenue Officers. The anna valuation figures are in most cases mere "eye estimates" or "personal guesses" and as such highly unscientific. Then again, there is considerable difference in the conception of a "normal" crop by the officer and by the cultivator. As regards the standard yield figures, the Bombay Agricultural Department has not been able to conduct sufficiently numerous and representative crop cutting tests to justify alterations with the result that these figures have become ante-dated and unreliable in many cases. To remedy this unsatisfactory state of affairs the Department did submit to the Government of Bombay two schemes for conducting crop cutting experiments on a systematic basis—one in 1924 and another in 1927—but neither of these was sanctioned on account of financial stringency with the result that in 1929 the Agricultural Department decided with the approval of Government to discontinue the work of crop tests altogether rather than doing it in a haphazard way.

**Price Statistics.**—It may be stated that prices published by the Director of Agriculture are, in the first place, collected by the Revenue Department, and, are for articles of fair average quality. The prices in respect of (1) sugar and (2) gul of fair average quality, available, are as under:—

1. SUGAR: (a) Wholesale.—In the 30 articles prescribed in the fortnightly return of wholesale prices—a return introduced at the instance of the Government of India—this article, viz., sugar, does not stand included; hence the wholesale prices of this article are not collected and published.
- (b) Retail.—This being an article prescribed in the monthly return of average retail prices, the retail prices (per Indian maund) of this article are given in the monthly return of average retail prices. The prices quoted in this return are the averages of the retail prices (quantity in seers and chhataks per rupee) collected four times during a month, viz., 23rd last day of the month, 7th and 15th (and subsequently worked into price per maund);

and, are those at which the individuals purchase this article in the bazaar from the retail dealers for domestic use.

2. **GUL/JACGERY:** (a) *Wholesale.*—This being an article prescribed in the fortnightly return of wholesale prices, the wholesale prices of this article, viz., gul are published in this return, for every fortnight, for only nine stations, viz., (1) Bombay, (2) Ahmedabad, (3) Surat, (4) Dhulia, (5) Ahmednagar, (6) Poona, (7) Sholapur, (8) Bijapur and (9) Dharwar (Hubli). The prices quoted in this return are those ruling on 15th and the last day of the month, in the case of which transactions have actually taken place.

(b) *Retail.*—Same remarks as are given against 1. (b) *Sugar-retail*, above.

Besides the above, averages of retail prices per rupee, of gul only, of fair average quality, collected on the 1st and 15th day of each month for Taluka and Peta headquarter stations (where this article is prescribed) are recorded in Taluka Form No. XVIII received in the office of the Director of Agriculture from the Mamlatdars and Mahalkaries. These retail prices (in standard seers and chhataks, per rupee) are recorded in the permanent register maintained in the Director of Agriculture's office.

With regard to the degree of accuracy in the above prices, it may be stated that both the prices, viz., (a) wholesale and (b) retail are accurate; but the wholesale prices are more accurate, the same having been taken from the actual records of the merchants.

51. I have no comments to offer in this written reply to the Questionnaire for Local Governments.

(4) *Letter dated the 3rd July, 1937, from the Director of Industries, Bombay.*

I have the honour to refer to your letters Nos. 147 and 172, dated the 30th April and 11th May, 1937, respectively, addressed to the Secretary to the Government of Bombay, General Department, and to forward herewith 7 sets of answers to those questions in the Questionnaire for Local Government which come within the purview of the Department of Industries, Bombay.

#### ANSWERS GIVEN BY THE DIRECTOR OF INDUSTRIES, BOMBAY.

23. This Department has not rendered any special assistance to the sugar factories. Problems relating to Sugar Industry are generally dealt with in this Presidency by the Department of Agriculture. The Government of India have appointed technical experts for the Sugar Industry to help the establishment of the industry in this country, and so, all technical enquiries pertaining to Sugar Industry that come to this Department are forwarded to the Sugar Technologist at Cawnpore for disposal.

24. For the Belapur Sugar Factory Government of Bombay in 1920 acquired the necessary land for growing sugarcane. In the year 1926 Government granted a loan of Rs. 6 lakhs to the same company. This loan was repaid in due time.

27. Enclosure A shows the monthly averages of wholesale prices of sugar imported into Bombay during 1930 to 1936. Enclosure B shows the wholesale prices of Indian ready sugar called quality No. 1 for the years 1933 to June, 1937. The retail prices of sugar in the important markets of this Presidency is generally 2 to 3 annas per maund higher than the wholesale price.

28. There has not been any considerable variation between the wholesale and retail prices. As mentioned in the answer to question No. 27,

the difference in wholesale and retail prices amounts to about 2 to 3 annas per maund.

29. Enclosure C shows the figures of sugar production in the Bombay Presidency and imports and re-exports from Bombay. The normal consumption of sugar of the Presidency, therefore, can be put down at say about 142,000 tons per year.

30. Enclosure D gives a list of confectionery factories in this Presidency. All the factories use sugar and glucose as the main raw materials. Only one factory uses gur to some extent.

31. The general practice in the Bombay Presidency is for the various sugar factories to have their own estates in which they grow their own cane. In view of this the proposals in sub-questions (i) and (ii) above are not of much importance to this Presidency. As regards sub-question (iii), under question No. 29, I have given figures of total production of sugar in the Presidency and total consumption of sugar. It will be noted that there is big disparity between these two. Very good type of cane is grown in the Presidency and other factors are favourable for the starting of sugar factories. Consequently, there does not seem any reason why there should be put any artificial restriction in the matter of establishment of new factories or extensions of existing factories if the interests of this Presidency are to be taken into account.

32. Subsidiary industries depending upon sugar as a raw material exist in the Presidency, but most of the factories in question are more or less struggling for existence. As long as these factories are not put on sound footing there does not seem to be much likelihood of new factories being started for the manufacture of sweets, syrups, fruit preservation and canning, etc.

37. Bombay imports gur/jaggery chiefly from the United Provinces, Bihar, Madras and Mysore. The figure of imports of this material in the year 1934-35 was 1,354,642 maunds and in 1935-36 was 1,422,165 maunds.

38. Bombay exports gur/jaggery chiefly to Central Provinces, Rajputana, Central India, Nizam's territory and Bombay port.

1934-35—404,047 maunds. 1935-36—483,120 maunds.

39. The price of gur is more or less dependant upon the price of sugar imported or otherwise. The Department of Industries is not in touch with gur makers. The Department chiefly concerned is that of Agriculture.

40. This Department is not in a position to supply any information in this connection.

41. This Department has not done any research work in this direction. The Department of Agriculture is concerned in this matter.

42. Enclosure E gives a list showing the names of khandsari factories in this Presidency. This Department has no information with regard to other parts of this question.

46. The Department of Agriculture is concerned in this matter.

47. Almost all the cane crushed in this Presidency in the various sugar factories is grown on the estates owned by the factories. Hence, sub-question (a) does not arise so far as this province is concerned. It would appear that the Excise duty has had to be borne by the sugar manufacturers themselves and not passed on to the dealers and consumers. Actually the prices of Indian sugar have been continuously declining.

48. From 1931 to 1935 the consumer had to pay more for his sugar than he used to pay before the protective duties were imposed. Since 1935-36 the consumer is paying less for his sugar than he did when there were no protective duties. This is due to the internal competition among the sugar manufacturers in this country.

49. No.

Enclosure A.

*C.i.f. Bombay prices for Java sugar.*

Landing, clearing and duty should be added.

(Per cwt.)

Month.	H.=Highest.			L.=Lowest.				
	1931.	1932.	1933.	1934.	1935.	1936.	1937.	
	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	
January	H.	5 7 0	5 14 0	5 0 6	4 2 0	3 13 6	4 5 6	4 7 0
	L.	5 3 0	5 12 9	4 14 6	3 14 0	3 9 0	3 15 9	4 0 6
February	H.	5 12 9	5 14 3	4 14 6	4 9 0	3 13 6	4 3 0	4 6 0
	L.	5 4 0	5 12 6	4 12 6	4 2 0	3 10 6	4 0 0	4 5 0
March	H.	5 3 0	5 12 0	5 0 6	4 7 0	3 10 0	4 6 0	4 8 0
	L.	4 15 6	5 3 0	4 14 6	4 4 6	3 6 0	4 2 6	4 5 0
April	H.	5 3 0	5 2 0	4 15 0	4 5 6	3 15 0	4 4 0	5 0 0
	L.	5 0 0	4 14 0	4 12 0	4 4 0	3 11 0	4 2 6	4 12 0
May	H.	5 2 6	5 2 6	4 15 9	4 5 6	4 8 0	4 2 6	5 2 0
	L.	5 1 0	4 14 0	4 12 3	4 0 6	3 15 0	4 0 0	4 13 6
June	H.	5 5 3	5 7 0	5 4 6	4 4 0	4 2 6	3 15 0	6 0 0
	L.	5 4 0	5 0 0	5 0 3	4 0 0	4 0 6	3 13 0	..

Enclosure A—contd.

Month.		H. = Highest.			L. = Lowest.			
		1931.	1932.	1933.	1934.	1935.	1936.	1937.
		Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.
July	H.	5 5 6	5 3 0	5 2 0	4 2 0	4 1 0	3 14 0	..
	L.	5 4 6	5 2 0	4 15 0	4 0 0	3 14 0	3 11 6	..
August	H.	5 4 6	5 6 0	4 14 9	4 1 0	4 0 0	3 13 6	..
	L.	5 2 6	5 2 0	4 13 0	3 15 9	3 14 0	3 11 6	..
September	H.	5 7 0	5 9 0	4 14 6	3 15 9	4 4 0	3 11 6	..
	L.	5 2 6	5 4 0	4 12 6	3 12 0	4 0 0	3 9 0	..
October	H.	5 13 0	5 7 0	4 14 0	3 15 0	5 2 0	3 11 0	..
	L.	5 9 0	5 3 0	4 13 0	3 12 0	4 1 6	3 8 0	..
November	H.	5 15 6	5 3 0	4 14 0	3 14 0	4 4 0	3 12 0	..
	L.	5 10 6	5 2 0	4 8 6	3 8 0	3 15 6	3 5 0	..
December	H.	5 13 6	5 2 0	4 7 0	3 10 0	4 0 0	4 0 6	..
	L.	5 12 6	4 14 0	4 1 0	3 7 0	3 14 0	3 12 0	..

Yearly average wholesale price ruling in Bombay for Java white sugar.

Year.	Rs. A. P.	Year.	Rs. A. P.	Year.	Rs. A. P.
1930	12 8 6	1933	14 12 3	1935	13 11 6
1931	13 9 9	1934	13 4 3	1936	13 7 9
1932	15 3 6				

Enclosure B.

Prices for Indian ready sugar ruling in Bombay market (Quality No. 1).

(Per cwt.)

Month.	Quality No. 1.	1933.	1934.	1935.	1936.	1937.
		Rs. A.	Rs. A. P.	Rs. A. P.	Rs. A.	Rs. A.
January . . . . .	Good . . . . .	16 1	13 14 0	13 14 0	13 11	11 3
	Ordinary . . . . .	16 0	13 12 0	13 4 0	12 14	10 11
February . . . . .	Good. . . . .	16 1	14 3 0	13 15 0	13 7	10 15
	Ordinary . . . . .	16 0	13 12 0	13 8 0	12 13	10 2
March . . . . .	Good . . . . .	16 1	14 6 0	13 6 0	13 6	10 15
	Ordinary . . . . .	15 12	14 4 0	13 4 0	12 12	10 2
April . . . . .	Good . . . . .	16 0	14 5 0	14 3 0	13 5	11 2
	Ordinary . . . . .	15 5	14 2 0	13 7 0	12 10	10 2
May . . . . .	Good . . . . .	15 8	14 4 0	14 2 0	13 3	10 5
	Ordinary . . . . .	15 3	14 0 0	13 15 0	12 6	9 13
June . . . . .	Good . . . . .	15 8	14 2 6	14 1 0	13 1	10 5
	Ordinary . . . . .	15 2	14 0 0	13 13 0	12 2	9 13

445



Enclosure B—contd.

Month.	Quality No. 1.	1933.	1934.	1935.	1936.	1937.
		Rs. A.	Rs. A. P.	Rs. A. P.	Rs. A.	Rs. A.
July . . . . .	Good . . . . .	15 6	14 3 0	13 14 0	13 0	..
	Ordinary . . . . .	15 5	14 2 6	13 10 0	11 13	..
August . . . . .	Good . . . . .	15 6	14 3 0	13 12 0	13 1	..
	Ordinary . . . . .	15 5	14 2 0	13 9 0	11 12	..
September . . . . .	Good . . . . .	16 2	14 3 0	14 0 0	12 15	..
	Ordinary . . . . .	15 0	14 2 0	13 12 0	12 4	..
October . . . . .	Good . . . . .	16 12	14 3 0	14 12 0	12 5	..
	Ordinary . . . . .	15 0	14 2 0	14 2 0	11 8	..
November . . . . .	Good . . . . .	16 8	14 2 0	14 4 0	12 5	..
	Ordinary . . . . .	13 0	13 8 0	14 0 0	11 5	..
December . . . . .	Good . . . . .	16 0	13 8 0	14 0 0	11 5	..
	Ordinary . . . . .	12 14	13 0 0	13 13 0	11 0	..

## Enclosure C.

	1934-35. Tons.	1935-36 Tons.	1936-37 Tons.
Sugar production . . .	19,169	24,746	34,149
	...	90	184
Imports by Sea . . .	80,897	82,615	5,312
Imports by Rail from other provinces . . .	52,701	57,718	Not available.
Re-exports . . .	824	1,877	Do.
Export in Coasting Trade (Foreign) . . .	7,625	6,322	Do.
Exports by Rail to other Provinces . . .	6,879	8,779	Do.
Production and Imports . .	152,767	165,169	...
Less Exports . . .	15,327	16,978	...
Probable Consumption . .	137,440	148,191	...

## Enclosure D.

*List of Confectionery Factories.*

- (1) Messrs. Mongini, Limited, Churchgate Street, Bombay.
- (2) Dr. D. Writer & Co., Arab Lane, Grant Road, Bombay.
- (3) Renown Biscuit Company, Connought Road, Byculla, Bombay.
- (4) Britania Biscuit Manufacturing Company, Limited, Kasara Pier Road, Bombay.
- (5) British Confectionery Company, Corner of Grant Road, Bombay.
- (6) Great Indian Confectionery Company, Love Lane, near Hathi Bag, Mazagaon, Bombay.
- (7) Messrs. Parle Products Company, Vile Parle, Bombay, Baroda and Central India Railway.
- (8) Messrs. Sathe Brothers, Biscuit Factory, Bhavani Peth, Poona.
- (9) Messrs. A. A. Kalawadwalla and Company, 123, Upper Duncan Road, Bombay.

## Enclosure E.

*Khandsari factories in the Bombay Presidency.*

	Production. 1936-37.	
	Cwts.	Lbs.
1. Brihan Maharashtra Sugar Syndicate, Borgaon, District Sholapur, Near Aklunj . . . . .	35	80
2. Shirasgaon Sugar Factory, Near Belapur, District Ahmednagar . . . . .	759	49
3. Ainatpur Khandsari Sugar Factory, No. 1, Near Belapur, District Ahmed- nagar . . . . .	964	50
4. Ainatpur Khandsari Sugar Factory, No. 2, Near Belapur, District Ahmed- nagar . . . . .	267	94

Enclosure E—contd.

	Production. 1936-37.	
	Cwts.	Lbs.
5. The Deccan Sugar Factory, Narsary, District Ahmednagar	...	...
6. Kesapur Sugar Factory, Taluka Rahuri, District Ahmednagar	171	24
7. Satral Sugar Factory, Taluka Rahuri, District Ahmednagar	433	61
8. Umbergaon Sugar Factory, District Ahmednagar, Umbergaon	1,015	53
9. Bhokar Sugar Factory, District Ahmed- nagar	45	103

(5) Letter, dated the 16th July, 1937, from the Registrar, Co-operative Societies, Poona.

I have the honour to send herewith a copy of my No. AGC/274, dated the 14th June, 1937, containing my answers to the questionnaire accompanying your No. 172, dated the 11th May, 1937, together with six spare copies. It is regretted that, through inadvertence, copies of the answers were not sent to you.

*Letter No. AGC/274 of 1937, dated Poona, the 14th June, 1937, from the Registrar, Co-operative Societies, Poona, to the Government of Bombay, General Department, Bombay.*

I have the honour to request a reference to Government Memorandum, No. 8230-D, dated the 31st May, 1937, General Department, forwarding copies of letters from the Secretary, Tariff Board, No. 147, dated the 30th April, 1937, and No. 172, dated the 11th May, 1937, together with their enclosures.

2. My reply is restricted to the following questions, and I have not the information nor any useful remarks to offer on the other questions:—

*Question 10.*—A total contribution of Rs. 33,700 has been received during the last two years out of the Sugar Excise Fund. Rs. 10,407 were utilised for the maintenance of a special staff for organisation of cane-growers and a further amount of Rs. 5,700 for giving subsidies to sale societies towards cost of seed. The contribution placed at my disposal was not adequate. The rate of scale of the subsidy to the seed-growers of the improved variety was originally fixed at Rs. 25 per acre. It had, however, to be restricted to Rs. 15 per acre, subject to a maximum of 15 acres to an individual in a single year to meet the increased demand.

*Question 16.*—Four Agricultural Organisers have been appointed to look after the co-operative societies formed for the benefit of the cane-growers. The duties of these officers are to organise the cane-growers into sale societies with a view to enable them to market their sugarcane to the best advantage, to supervise generally the working of these societies and to propagate the improved variety of seed. There are at present 19 sale societies which cater to the needs of the cane-growers.

*Question 25.*—There are no co-operative sugar factories in this Presidency. As regards paragraph 3 of letter No. 147, dated the 30th April, 1937, from the Secretary of the Tariff Board, it may be stated that there have been complaints from the agriculturists who supplied sugarcane to the Phaltan and Maharashtra Factories. These complaints mainly refer to short weights, lopping off pieces of cane at both ends and payment of prices lower than those fixed.

(6) Letter dated the 6th August, 1937, from the Government of Bombay,  
Public Works Department, Bombay.

Subject:--NOTE ON THE IMPORTANCE OF THE ESTABLISHMENT OF SUGAR  
FACTORIES IN THE DECCAN CANALS AREA.

I am directed by the Governor of Bombay to forward herewith a "Note on the importance of the establishment of sugar factories in the Deccan Canals area" in connection with the article under the heading "Deccan as sugar producing area has normally no future" which appeared in the issue of the *Times of India*, dated the 18th June, 1937, for the information of the Tariff Board.

D. A.—

- (1) Note referred to.
- (2) Statement showing the details of the sugar factories in operation in the Deccan Canals area.
- (3) Statement showing the costs of the major canals in the Deccan.
- (4) Statement showing imports of jaggree into the Bombay Presidency *via* the Great Indian Peninsula Railway.
- (5) Statement showing imports of gur, rab, molasses, jaggree, etc., into the Bombay Presidency *via* the Madras and Southern Mahratta Railway.

NOTE ON THE IMPORTANCE OF THE ESTABLISHMENT OF SUGAR FACTORIES IN THE  
DECCAN CANALS AREA.

The Deccan Canals derive their supplies from storage\* works constructed at enormous expense in the upper valleys of the Western ghats. The canals\* themselves also involve very costly construction on account of the numerous cross drainage works specially designed to pass sudden high floods and the frequent cuttings and long lengths of high banks which the undulating nature of the country necessitates and without which the canals would be extremely tortuous and of very much greater length.

These conditions are in marked contrast to those obtaining in most of the provinces of Upper India in which the source of supply is generally a perennial river and the canals traverse flat and featureless country.

It will be evident that if the costly canal systems of the Deccan are to operate on anything approaching an economic basis there must be, as far as possible, a relatively constant demand for the water not only from year to year but *throughout the year* and the crops grown must be able to stand a relatively high incidence of assessment. Though, therefore, the Deccan canals were designed primarily to protect famine tracts from recurring distress, *perennial crops* occupied, from the first, an important place in the irrigation programme.

Were the canals to be designed entirely for seasonal cultivation they would have to be twice their size and four times their length in order to utilise the whole of the available storage. This in view of the constructional difficulties explained above and the enormous transit losses would clearly be prohibitive. But quite apart from considerations of expense the fact is that the rainfall though precarious is not altogether negligible and except in years of actual famine most of the storage, as experience has proved even under existing conditions would have remained unutilised.

\* Statement of costs attached.

It must not, however, be supposed that perennial irrigation was an innovation to which the rays were first introduced on the major Deccan canals. It has been practised for generations on bandharas and minor tanks throughout the Presidency either independently or more often in conjunction with seasonal irrigation according to pre-arranged rotational systems, one of the most perfect of such systems being the phad system of Nasik and Khandesh. The major canals merely attempted to reproduce similar conditions on a large scale and in fact the Block System of Irrigation invented in 1903 by Sir M. Visveswaraya (then Mr. Visveswaraya) to secure the proper correlation between perennial and seasonal cultivation is based on the phad system.

Far and away the most important perennial crop of the Deccan is Sugarcane. It is a hardy crop, that is to say it is not very sensitive either to over-waterings or to delayed waterings, needs a large and constant supply of water throughout the year and possesses considerable flexibility as regards date of plantation. It is also a comparatively valuable crop and pays a high water rate.

Furthermore it has been noticed that the cultivation of cane has helped, in a marked degree, the general development of the canals; so much so that cane may be regarded as the main stay of the Deccan canals and an index of their financial condition.

The following table gives the provisions made for the various classes of crops on the major canals:—

	Opened in.	Perennial.	8 months.	Rabi.	Kharif.	Hot-weather.
Krishna . . . . .	1875			Not known		
Mutho . . . . .	1880	7,600	..	1,600	20,000	700
Nira Left Bank . . . . .	1885	12,500	18,750	18,750	18,750	..
Godavari . . . . .	1911-12	6,400	16,640	28,800	7,600	2,560
Pravara . . . . .	1923	12,360	12,360	12,360	12,360	..
Nira Right Bank . . . . .	1929	20,000	30,000	73,500	25,000	..
Girna . . . . .	1909-10	3,967 (oane)	..	3,967	3,967	..
Girna Extension . . . . .	1920-21	3,400 (Additional Distribution not given.)	..	..	..	..

The cane areas, actually irrigated, were as follows:—

Krishna—Cane limited by water available, a maximum of 2,151 acres in 1917-18—

1932-33 . . . . .	1,917 acres.
1933-34 . . . . .	1,748 ..
1934-35 . . . . .	1,320 ..

<b>Mutha—a maximum of 5,696 acres in 1911-12—</b>	
1932-33 . . . . .	4,372 acres.
1933-34 . . . . .	3,901 „
1934-35 . . . . .	3,551 „
<b>Nira Left Bank—a maximum of 13,855 in 1927-28—</b>	
1932-33 . . . . .	10,132 acres.
1933-34 . . . . .	10,982 „
1934-35 . . . . .	10,445 „
<b>Godavari—a maximum of 9,726 in 1923-24—since then falling almost without break—</b>	
1932-33 . . . . .	3,933 acres.
1933-34 . . . . .	3,118 „
1934-35 . . . . .	3,455 „
<b>Pravara—a maximum in 1927-28 of 13,952 fall up to 1931-32 when area 6,040—since then—</b>	
1932-33 . . . . .	7,038 acres.
1933-34 . . . . .	10,071 „
1934-35 . . . . .	8,330 „
<b>Nira Right Bank—</b>	
1932-33 . . . . .	3,361 acres.
1933-34 . . . . .	5,824 „
1934-35 . . . . .	2,961 „
<b>Girna—a maximum of 1,494 in 1934-35—</b>	
1932-33 . . . . .	894 acres.
1933-34 . . . . .	1,004 „
1934-35 . . . . .	1,494 „

The position over the whole of the Deccan may very roughly be summarised as follows:—

The area of cane irrigated on the larger Deccan canals increased from about 3,200 acres in 1883 to 20,750 in 1919 and 29,500 in 1927. During that period the rise was more or less continuous except for a slight set back between 1919 to 1922. Up to 1922 the cane area grown was limited by the storage available. After that the supply was in excess of the demand and the cane area depended almost entirely on the gul rate. In 1919 the gul rate rose to Rs. 35 per palla and to Rs. 60 per palla in 1920 due to the world markets for sugar being restricted and the rate did not fall permanently below Rs. 30 per palla till 1926. Throughout the boom period the area of cane steadily increased up to 1927. Soon afterwards owing partly to overproduction and partly to the flooding of the market with cheap sugar the gul rates slumped to low levels and have remained there ever since.

More recently a third factor has operated in depressing the gul rates still further and that is the production of gul in United Provinces, the Nizam's State and Mysore and increased production in Kolhapur.

Statements giving imports of Jagree into Bombay Presidency *via* the Great Indian Peninsula Railway and the Madras and Southern Mahratta Railway are attached. The present rate is Rs. 10-10-10 per palla.

The steady decline of cane cultivation since 1927 has received the most anxious consideration of Government. In 1927 Mr. C. H. Bristow, I.C.S., was appointed on special duty to enquire into the matter. His main recommendations were that the establishment of sugar factories should be encouraged and an irrigation cess levied to tap the "unearned increment" accruing to landholders in the canal tracts owing to the irrigation facilities made available by the construction of the canals. Again in 1931, as a result of a resolution moved by a non-official member of the Legislative Council, Government appointed a Committee consisting of official and non-official members presided over by Mr. B. S. Kamat to consider and report as to how the financial aspect of irrigation works in the Deccan could be improved. The principal recommendation of this Committee was also the establishment of sugar factories in the Deccan specially on the Nira Right Bank canal. Government accepted the recommendation and as a result of the orders issued in Government Resolution No. 6054/27, dated the 5th September, 1932, as modified by Government Resolution No. 6054/27, dated the 7th June, 1933, seven sugar factories are at present in operation and one more is in the process of being established.

The accompanying statement gives details of the factories. It will be seen from column 5 of the statement that the statement made by Mr. Mulji in regard to the Visapur tank is incorrect. Only three-fourths of the available storage have been reserved for the Company's sugarcane cultivation, nor is a special reduced rate being charged for the water.

It is undoubtedly true that the Deccan produces the finest jaggery in the country but under present conditions it is hopeless to expect any substantially recovery in gul prices though everything is being done to encourage the ordinary irrigator who grows cane for making gul. It is, therefore, only in the continuance and the consolidation of the Deccan Sugar Industry that the future of the canals lies.

It only remains to add that though Sugar Companies are afforded certain facilities on the Deccan canals it is not at the expense of the ordinary irrigator and that despite the guarantees made to the Companies in regard to supply ample provision exists for seasonal cultivation on each canal, a provision in fact which greatly exceeds the normal demand.

*Statement showing the costs of the major canals in the Deccan.*

Name of canal system.	Cost of Head Works.	Cost of canals, branches and distributaries.	Total cost (Cols. 2 and 3).	Storage capacity of Head Works in Million cubic feet.
1	2	3	4	5
	Rs. in lakhs.	Rs. in lakhs.	Rs. in lakhs.	
Pravara . . . . .	84	66	150	10,086
Godavari . . . . .	34	71	105	7,763
Mutha . . . . .	39	30	69	5,703
Nira—				
Lloyd Dam . . . . .	172	391	586	24,198
Old Bhatgar Dam . . . . .	23			
Girna . . . . .	13	7	20	1,464
Krishna . . . . .	...	9	9	...

Statement showing Imports of jagree into Bombay Presidency via Great Indian Peninsula Railway.

Month.	Total Imports.				Imports from United Provinces.			
	1933-34.	1934-35.	1935-36.	1936-37.	1933-34.	1934-35.	1935-36.	1936-37.
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
April . . . . .	92	10	789	591	39	9	723	586
May . . . . .	34	350	478	85	Nil	153	432	75
June . . . . .	8	6	333	63	Nil	Nil	319	53
July . . . . .	42	55	135	18	30	Nil	88	18
August . . . . .	24	321	115	18	19	121	100	18
September . . . . .	4	132	75	Nil	4	42	42	Nil
October . . . . .	11	167	99	120	Nil	27	9	25
November . . . . .	253	712	372	103	Nil	12	32	14
December . . . . .	1,036	1,175	927	268	533	520	393	51
January . . . . .	1,259	2,032	858	1,175	1,221	1,693	801	847
February . . . . .	537	544	819	847	510	476	796	607
March . . . . .	38	777	1,035	601	37	718	1,031	481
Total	3,338	6,281	8,035	8,889	2,393	3,771	4,766	2,775

252

458



*Statement showing imports of Gur, Rab, Molasses, Jaggery, etc., into the Bombay Presidency via the Madras and Southern Mahratta Railway.*

From	1933-34.	1934-35.	1935-36.	1936-37.
	Maunds.	Maunds.	Maunds.	Maunds.
Assam . . . . .	...	...	...	...
Bengal (excluding Calcutta)	...	...	...	...
Calcutta . . . . .	...	...	...	...
Bihar and Orissa . . . . .	...	...	...	...
United Provinces . . . . .	...	1,939	96	...
Punjab . . . . .	...	...	...	...
Sind and British Baluchistan (excluding Karachi) . . . . .	...	...	...	...
Karachi . . . . .	...	...	...	...
Central Provinces and Berar . . . . .	...	...	...	...
Madras (excluding Madras ports) . . . . .	163,578	209,750	119,497	107,640
Madras ports . . . . .	...	...	2,927	4
Rajputana . . . . .	...	...	...	...
Central India . . . . .	...	...	...	...
Nizam's territory . . . . .	9	1,230	40	1,372
Mysore . . . . .	31,162	80,659	119,055	82,622
Kashmir . . . . .	...	...	...	...
<b>Total</b> . . . . .	<b>194,749</b>	<b>293,578</b>	<b>241,615</b>	<b>191,638</b>
<b>Total in tons (one ton=28 maunds)</b> . . . . .	<b>6,955</b>	<b>10,485</b>	<b>8,629</b>	<b>6,848</b>

Statement showing the details of the Sugar Factories in operation in the Deccan Canals area.

Name of the Company.	Name of the canal.	Date of the Company's first application for the supply of water.	Guarantee for the supply of water for cane asked for.	Area of cane for which the supply of water has been guaranteed.	Capacity of the Company's plant in tons per day.
1. The Belapur Company, Ld.	Pravara Left Bank Canal.	The Company's old estate is governed by the lease, dated 8th June, 1920. For the 'First or 1935 Extension Scheme' the first application was dated 2nd June, 1932.	Old estate: ½rd of the area declared by the Collector of Ahmednagar as suitable for cane cultivation. First or 1935 Extension Scheme—750 acres.	Old Estate—2,000 acres at present. First or 1935—Extension Scheme—750 acres.	600 tons.
2. The Maharashtra Sugar Mills, Ltd.	Do. . .	2nd September, 1933	750 acres in the initial stage and 1,250 acres at the maximum development. The Company now requests for guarantee for 2,000 acres now and 3,000 acres ultimately.	1,250 acres . . .	600 tons.
3. The Saswad Mali Sugar Factory, Limited.	Nira Right Bank Canal.	17th October, 1932	700 acres in the initial stage and 1,200 acres at the maximum development.	1,200 acres . . .	300 tons.
4. The Phaltan Sugar Works, Ltd.	Nira Right Bank Canal.	19th January 1933	Guarantee for an area of cane for a factory of daily 400 tons to be eventually increased to 550 tons.	2,500 acres . . .	500 tons.

Statement showing the details of the Sugar Factories in operation in the Deccan Canals area—contd.

Name of the Company.	Name of the canal.	Date of the Company's first application for the supply of water.	Guarantee for the supply of water for cane asked for.	Area of cane for which the supply of water has been guaranteed.	Capacity of the Company's plant in tons per day.
5. Messrs. Marsland Price & Co., Limited.	Nira Left Bank Canal.	30th May, 1933	400 acres in the initial stage and 1,400 acres at the maximum development.	1,400 acres	300 tons.
6. The Ravalgaon Sugar Farm, Ltd.	Girna Canal.	21st June, 1933	1,000 acres in the initial stage and 1,400 acres at the maximum development.	1,400 acres	300 tons.
7. The Belvandi Sugar Farm Limited.	Visapur Canal.	20th July, 1932.	500 acres in the initial stage and 1,000 acres at the maximum development.	The guarantee is that a supply not exceeding three-fourths of the quantity of water available in storage in the Visapur tank will be reserved every year, for sugar cane cultivation.	200 tons.
8. The Brihan Maharashtra Sugar Syndicate, Limited.	Nira Right Bank Canal.	20th June, 1934	1,250 acres	It is proposed to guarantee a supply of water for 1,250 acres.	The Company has not started its factory yet. The proposed capacity is 250 tons to be raised to 600 tons.

NOTE.—In no case an assurance has been given that Government will increase the guaranteed sugar cane area. Government may consider each such case on its merits but are not committed in any way to grant the increase in the guaranteed area.

(7) Letter dated the 28th October, 1937, from the Government, of Bombay, General Department, Bombay.

Subject:—PROTECTION—SUGAR INDUSTRIES, BOMBAY PRESIDENCY.

I am to refer you to Mr. Sorley's letter No. 8230-D., dated the 17th July, 1937, in reply to your enquiry whether the Local Government intends to supplement with an expression of their views the replies sent by the Director of Agriculture, the Director of Industries, and the Superintending Engineer, Deccan Irrigation Circle, to the questionnaire issued by the Tariff Board.

The Government of Bombay have now considered the matter officially and I am directed to state that their views are as follows.

2. Government are in general agreement with the replies given by their officers mentioned above to the Tariff Board's questionnaire, subject to the following remarks:—

(a) *Question 2* which calls for information regarding the particular assistance rendered by Government to individual sugar factories in this province has been briefly answered by the Superintending Engineer, Deccan Irrigation Circle, the Director of Agriculture, and the Director of Industries. Government would like to supplement the replies given by these officers by pointing out that the following special facilities are also provided for by the Bombay Irrigation Department in the agreements with the Sugar Companies:—

- (1) Where the whole irrigation of a distributary or outlet is in the Company's lands the control of the internal distribution of water on such distributary or outlet, as the case may be, is left to the Company.
- (2) One-third of the total area of the Company's lands and one-half of the area in any drainage catchment can be under cane cultivation at one time (excluding overlap).
- (3) The Company is allowed any system of bunds and irrigation units as may be convenient to it so as to suit the configuration of the Company's lands provided that—
  - (a) each irrigation unit shall not exceed two acres in area;
  - (b) the outermost bund round any plot of land under sugarcane cultivation shall be of the dimensions given in the Bombay Canal Rules for the time being in force;
  - (c) the Company shall agree to pay the cost of re-demarcation of their leased lands on the expiry of the lease thereof, so as to accord with the revenue records.
- (4) The supply of water for cane crops is guaranteed for a period of 30 years from the date of the execution of the agreement and the Company is not required to take water according to the block system for crops other than cane.
- (5) (a) The methods followed as regards crop measurement and assessment are the same as in the case of the local irrigators; but with a view to simplifying the procedure regarding applications for water the Company is allowed to submit *consolidated applications* for the supply of water in the requisite form prescribed by the Bombay Canal Rules, 1934, or such other form as Government may, from time to time, prescribe specifying therein the survey numbers or the Company plot numbers, in which, and the dates from which, water for irrigation will be required and subject to the condition that the applications for any survey number or plot is submitted at least one month prior to the date on which it is to be irrigated.
- (b) To allow of equitable distribution of water in accordance with the general requirements the Company has to report not later than

the tenth of each calendar month, for each outlet the area of the standing cane and the cane to be planted and removed during each irrigation month (i.e., from the fifteenth of one calendar month to the fourteenth of the next following calendar month).

(6) The Company is *exempt* from providing sureties as required by the Bombay Canal Rules for the time being in force.

(b) *Question 29* asks, *inter alia*, for an estimate of the normal consumption of sugar in the province. As the estimates given by the Superintending Engineer, Deccan Irrigation Circle, and the Director of Industries, respectively, in their replies to this question differ considerably, Government had to decide which estimate should be considered more reliable. On inquiry they find that the estimate of Rs. 142,000 tons per annum given by the Director of Industries is nearer the mark than the estimate of 37,000 tons given by the Superintending Engineer. The Director of Agriculture has since reported that according to the information at his disposal, the total annual consumption of sugar in the whole of the Bombay Presidency (including the Indian States within its geographical boundaries) is about 100,000 tons and Government think that this may safely be taken to represent the potential demand for the province which would have to be met by the local sugar industry if conditions were fully favourable.

(c) *Question 34* which asks if there is any material *other than cane* from which gur/jaggery is produced in this province has been answered in the negative by the Superintending Engineer, Deccan Irrigation Circle, and the Director of Agriculture. This is substantially correct. The production of gur from toddy is restricted to a few coastal villages of Kanara District and is insignificant in quantity. It is not an economic product and is used purely for domestic consumption. In view of its prohibition policy, Government are interested in developing this use of toddy.

(d) *Question 42* asks for the number of (i) open-pan factories and (ii) "khandsaris" in the province. The Director of Agriculture has stated in his reply that there are no "khandsaris" at work in this Presidency at present; whereas the Director of Industries has furnished a list of nine "khandsari" factories. Government have since ascertained that the nine factories referred to by the Director of Industries are not actually "khandsaris" of the type recognised in the United Provinces but only small "open-pan" factories as distinguished from "vacuum-pan" factories.

3. Coming to the main question referred to the Tariff Board for inquiry, *viz.*, whether the protection to be given to the Sugar Industry during the period 31st March, 1938, to 31st March, 1946, should be the same as at present or should be greater or smaller, I am to say that the Government of Bombay hold the view that the economic interests of this Presidency demand that the protection for sugar during the period in question should, under no circumstances, be less than Rs. 7-4 per cwt. *plus* an equivalent of the sugar excise duty which may be levied from time to time.

The chief reasons which have led the Local Government to reach this conclusion are as follows:—

(1) The conditions in the Bombay Deccan—particularly in the irrigation zone—are still very favourable to the cultivation of sugarcane as an ideal crop round which to build up a sound system of agricultural development. The combination of favourable climate, good water supply, and suitable soil still enables the Deccan, in spite of competition from other provinces like the United Provinces and Bihar, to grow the finest crops of high class sugarcane in India. For instance, the average outturn of cane (P.O.J. 2878, E.K. 28, Co. 290, 419, etc.) of the Belapur Company or Maharashtra Sugar Mills is about 45 tons per acre and the average percentage of sugar recovery is 11.5 for the whole of the season. The average outturn and

recovery are based on the sugarcane crop of over 3,000 and 2,000 acres and this kind of tonnage or sugar recovery is, as far as Government are aware, not seen in any other part of India. Government understand that the sugar recovery percentage of Upper India has been recently increased up to 9.5 but as almost all the cane is purchased from the cultivators, the accuracy of cane weight cannot be guaranteed. In the Bombay Deccan, however, most of the cane is grown by the sugar factories and hence both the weight of sugarcane and percentage of recovery are recorded very accurately. This high standard of the sugarcane crop in the Deccan can be maintained only as long as the existing rate of protective tariff prevents the dumping of high class Java sugar on the Bombay market. Though the high grade sugar produced by the Deccan factories can successfully compete in the Bombay market with the products of the United Provinces and Bihar factories, it cannot survive competition from the same grade of Java sugar.

- (2) The probable average consumption of sugar in this Presidency (including the Indian States within its geographical boundaries) is at least 100,000 tons per annum while the total quantity of sugar produced by all the factories operating in the province during 1936-37 amounted at the most to about 50,000 tons only. The province's demand is thus at least twice the existing supply and there is consequently ample scope for a steady expansion of the Industry without any immediate danger of over-production as in other provinces. So far as water facilities, and an intensive cultivation of high class varieties of sugarcane at moderate cost are necessary for a profitable extension of the operations of sugar factories in this Presidency, the Irrigation and Agricultural Departments of the Bombay Government are ready to help. The Director of Agriculture reports that there is much land at present not cultivated by cane which research work at the Sugar Cane Research Station, Padegaon, has shown to be quite suitable for cane cultivation under improved methods of manuring, irrigation, etc. Similarly, if the new Khadakwasla Dam project of the Bombay Irrigation Department goes through in the near future, sugar production in this province is likely to increase by about 20,000 tons per annum. But no such help from the Agricultural and Irrigation Departments is likely to be of much avail if a lowering of the protective tariff at this stage of the Industry deprives the sugar manufacturers of a reasonable margin of profit on account of the dumping of Java sugar on the Bombay market.
- (3) It is often argued that the continued levy of a high protective duty on the import of an article of daily use like sugar is unfair to the consumer. It is true that when protection was first given to the industry in 1931 the consumer did have to pay for his sugar a higher price than before protection. At present however, owing to internal competition, he is paying actually less for Indian sugar than he had to pay for Java sugar in 1930 (i.e., before the protective duty was levied). The index figures of retail prices of refined sugar in Bombay during the year 1930 and the first six months of 1937 show that whereas the average retail price of *imported* sugar during 1930 was Rs. 10-11-5 per Indian maund, the retail price of *Indian* sugar during the months of April, May and June, 1937, was Rs. 9-13-3 per maund. Government do not, however, wish to argue from this fact alone that the consumer has not suffered at all on account of protection. Even if it were proved that

the interests of the average consumer of sugar are adversely affected by the protective tariff, the question is whether these interests should be allowed to override the interests of the indigenous sugar industry.

The development of sugar factories on the right lines means employment for a large number of agricultural labourers on fairly good wages, and an improvement in the standard of life in the rural area in which the factory is situated. The closing down or even a curtailment of the activities of such factories is, therefore, bound to result in unemployment and a general impoverishment of the surrounding villages. The Director of Agriculture estimates that the existing eight sugar factories in this province which cultivate cane on about 15,000 acres employ at present about 5,000 men and 3,500 women on the cultivation side and about 4,000 men on the factory side. These numbers would be doubled if the whole requirements of the province in respect of sugar were to be supplied from its own area.

Another very important factor to be considered in this Presidency is that the Bombay Government have incurred capital expenditure amounting to something over nine crores of rupees on the construction of a network of perennial irrigation canals in the Deccan and the best way in which this enormous capital outlay can be employed with a lighter burden on the general tax-payer is by the consolidation of the sugar industry on the Deccan canals. Any lowering in the existing demand for canal water on account of the closing down or curtailment of the activities of one or other of the sugar factories operating in this area would mean a recurring loss to the provincial tax-payer.

It is clear from this that, so far as this province is concerned, whenever the interests of the consumer of sugar are in conflict with the general economic advantage of the rural population as a whole, they should, at any rate for the present, and until the stabilisation of the indigenous sugar industry is assured by protection or otherwise, be subordinated to the interests of the indigenous sugar industry which occupies an important place in the rural economy.

- (4) The Government of Bombay are satisfied that a continuance of protection for the sugar industry to the same extent as at present will not have the effect of killing any other equally important rural industry in the Presidency. The only industry which may be considered in this connection is the manufacture of gur on a commercial scale. So far as the gur-producing areas of the Karnatak and Gujarat are concerned, they cater chiefly for the local demand and an increased production of sugar by the factories in the Deccan Canal area is not likely to affect them seriously. The position of the gur industry in the Deccan also is not likely to be adversely affected by the increased production of manufactured sugar, because the purposes for which gur is ordinarily used by the villagers cannot generally be served by sugar, either of inferior or superior quality, nor is change of taste in this matter likely to be important in the near future, even assuming that increased production of sugar brings the price nearer to the price of gur. It follows from this that any reduction in the output of sugar in this Presidency is not likely to improve the prospects of the gur industry and there is therefore no case for a lowering of the protective tariff on sugar with a view to giving an impetus to the gur industry of the Deccan which is not in need of such artificial help.

The Government of Bombay consider that in the circumstances stated above there is a very strong case, so far as this province is concerned, for continuing protection to sugar at the existing rate for the whole of the remaining period of eight years commencing 31st March, 1938.

4. It has come to the notice of Government that there was recently some ill-conceived criticism about the possibilities of 'sugar' manufacture in the Deccan by the President of the All-India Sugar Merchants' Conference and that this criticism was effectively met by Professor V. G. Kale, Working President of the Mahratta Chamber of Commerce and Industries, Poona. Though this criticism has no direct bearing on the question of protection for the Indian Sugar Industry, the Government of Bombay would like to emphasise its view that this province must be allowed to develop its sugar and gur manufactures in its own way, according to its special circumstances, and that steps to *centralise* sugar manufacture in any one part of India will not meet with its acceptance.

(8) Letter dated the 17th July, 1937, from the Director of Agriculture, Bombay.

At my meeting with the Tariff Board on the 15th instant, I was asked to supply certain information regarding the average rainfall in the main sugarcane growing tracts of the Bombay Presidency. I enclosed herewith, in triplicate, a statement giving the desired data. I also enclose five statements regarding the cost of cultivation of sugarcane as it would be for a grower who grew cane to supply to the factories, i.e., all items regarding manufacture of gul, etc., are omitted. These five statements are:—

- (a) Cost of cultivation of sugarcane in the year 1930.
- (b) Cost of cultivation of sugarcane on the Godavari canals, 1936-37.
- (c) Cost of cultivation of sugarcane on the Pravara canals, 1936-37.
- (d) Cost of cultivation of sugarcane on the Nira Left Bank canals, 1936-37.
- (e) Cost of cultivation of sugarcane on the Mutha canals, 1936-37.

I trust that this information is what is desired by the Board.

With regard to the information supplied by me subsequent to the forwarding of my written evidence, I might mention that the approximate acreage under improved and *deshi* varieties of sugarcane in each district of the Bombay Presidency, during the last seven years, was sent to you under my endorsement No. 140-B., dated the 28th June, 1937, and in reply to question No. 11 of the questionnaire for Local Governments. I forwarded copy of the last Annual Report of the Padegaon Sugarcane Research Station and a statement giving reference to sugarcane work done by the Department in the Annual Reports of the Department from 1929 to 1935 with my letter No. 140-B., dated the 9th July, 1937. At our meeting the other day you stated that these had not been received by you. Would you please let me know if they have come to hand now as, if not, I am prepared to send copies.

*Average rainfall of different tracts.*

	Inches.	
(1) Gujarat—		
1. Surat . . . . .	40.97	This is the only tract where sugarcane is grown on a large scale.
2. Ahmedabad . . . . .	28.83	
3. Kaira . . . . .	32.85	
4. Broach . . . . .	30.69	
5. Godhra . . . . .	38.78	
6. Thana . . . . .	97.50	



*Average rainfall of different tracts—contd.*

	Inches.	
(2) Deccan—		
1. West Khandesh . . . . .	22.54	
2. East Khandesh . . . . .	29.06	
3. Nasik . . . . .	29.98	} These are the only tracts where sugarcane is grown on a large scale.
4. Ahmednagar . . . . .	22.33	
5. Poona . . . . .	27.11	
6. Sholapur . . . . .	28.45	
7. Satara . . . . .	39.75	
(3) Karnatak—		
1. Belgaum . . . . .	50.13	} These are the tracts of sugarcane.
2. Dharwar . . . . .	32.88	
3. Bijapur . . . . .	20.96	
4. Kolaba . . . . .	85.29	
5. Ratnagiri . . . . .	100.00	
6. Kanara . . . . .	126.12	

*Cost of cultivation of sugarcane in the year 1930.*

	Rs. A.
1. Preparatory tillage . . . . .	40 0
2. Bunding, making channels, etc. . . . .	12 8
3. Cost of sets . . . . .	60 0
4. Cutting, supplying, arranging and planting sets . . . . .	11 0
5. Weeding . . . . .	20 0
6. Earthing up . . . . .	14 0
7. Bulky manure . . . . .	60 0
8. Top-dressing manures (Sulphate of Ammonia Rs. 18 and Oil-cake Rs. 175) . . . . .	193 0
9. Application of manures . . . . .	4 0
10. Water rates . . . . .	50 0
11. Labour of irrigation . . . . .	20 0
12. Cutting of cane . . . . .	20 0
13. Interest . . . . .	20 0
14. Supervision . . . . .	20 0
15. Rent of the land . . . . .	30 0
Total . . . . .	574 8

*Cost of cultivation of sugarcane on the Godavari canals during the year 1936-37.*

Serial No.	Items.	Rs. A.
1.	Ploughing	18 0
2.	Clod crushing and Harrowing	1 8
3.	Opening furrows	2 0
4.	Putting Bunds and Channels, planting, etc.	13 0
5.	Seed sets 10,000	45 0
6.	Manures—	
	Farmyard manure 20 carts at Rs. 1-8	30 0
	Sulphate of Ammonia one bag	11 6
	Groundnut-cake 5 pallas at Rs. 7	35 0
	Castor-cake 10 pallas at Rs. 5-12	57 8
	Powdering cake and application of top-dressings	4 0
7.	Weedings 5 times	6 8
8.	Earthing up	11 0
9.	Irrigation charges including overlapping and local cess	53 2
10.	Irrigating charges	15 0
11.	Rent of land	24 0
12.	Supervision	20 0
13.	Cutting of cane	20 0
14.	Interest	14 0
	<b>Total</b>	<b>381 0</b>

*Cost of cultivation of sugarcane on the Pravara canals during the year 1936-37.*

Serial No.	Items.	Rs. A.
1.	Ploughings 3 at 6, 5 and 5	16 0
2.	Loading and harrowing	1 0
3.	Opening furrows	2 0
4.	Putting bunds and channels, spreading manure and planting	16 0
5.	Farmyard manure 20 carts at Rs. 2 per cart	40 0
6.	Sets 10,000 at Rs. 4 per 1,000 sets	40 0
7.	Weedings 4	6 0
8.	Sulphate of Ammonia 224 lbs.	11 6
9.	Groundnut-cake 8 pallas at Rs. 6 per palla	48 0
10.	Castor-cake for earthing up 11 pallas at Rs. 5-8 per palla	60 8
11.	Application of above fertilisers, powdering, etc.	3 0
12.	Tagarni	2 4
13.	Earthing up	11 0
14.	Cutting of cane	20 0
15.	Land rent	30 0
16.	Irrigation charges including local cess and overlap	53 2
17.	Irrigating charges	15 0
18.	Supervision	20 0
19.	Interest at 12 per cent. per year on half the sum up to harvesting	15 6
	<b>Total</b>	<b>410 10</b>

*Cost of cultivation of sugarcane on Nira Left Bank canal during the year 1936-37.*

Serial No.	Items.	Rs. A.
1.	3 Ploughings and ridging, etc.	18 0
2.	30 carts of farmyard manure at Rs. 1-8 per cart	45 0
3.	Putting bunds, spreading farmyard manure, making beds, cutting sets and planting, etc.	15 0
4.	Cost of 10,000 sets at Rs. 4 per 1,000 sets	40 0
5.	5 to 6 weedings	10 0
6.	One bag of Sulphate of Ammonia	12 0
7.	Tagarni	2 0
8.	3 Khandis safflower-cake at Rs. 15 per khandi	45 0
9.	5 Khandis castor-cake at Rs. 12 per khandi	60 0
10.	Application of oil-cakes	4 0
11.	Earthing up	10 0
12.	Irrigation labour charges	15 0
13.	Irrigation dues	53 2
14.	Rent of land	20 0
15.	Supervision	20 0
16.	Cutting of cane	20 0
17.	Interest	25 0
Total		414 2

*Cost of cultivation of sugarcane on the Mutha canals during the year 1936-37.*

Serial No.	Items.	Rs. A.
1.	Preparatory tillage	20 0
2.	Ridging and planting	22 0
3.	Cost of sets	25 0
4.	After care, including earthing up	20 0
5.	Bulky manure	40 0
6.	Top-dressing (Sulphate of Ammonia Rs. 12 and oil-cake Rs. 90)	102 0
7.	Irrigation charges	53 0
8.	Local cess	3 5
9.	Labour for watering	6 4
10.	Cutting of cane	18 0
11.	Rent of the land	20 0
12.	Miscellaneous labour charges	5 0
13.	Supervision charges	10 0
14.	Interest	15 0
Total		359 9

(9) *Letter dated the 24th July, 1937, from the Commissioner of Excise, Bombay.*

**CONSUMPTION OF MOLASSES IN THE BOMBAY PRESIDENCY.**

With reference to your letter No. 303, dated the 18th June, 1937, addressed to the Government of Bombay in the General Department on the subject noted above, I have the honour to state that in this Presidency there is only one Distillery where molasses are used in the manufacture of country, rectified and denatured spirits. A statement showing the total quantity of molasses consumed at this Distillery for the last three years and the price paid for it is enclosed.

2. There are no other concerns in this Presidency, manufacturing rectified and denatured spirit.

Statement showing the quantity of liquid molasses consumed at the Distilleries in the Bombay Presidency during each of the last three financial years 1934-35 to 1936-37.

No. of Distilleries.	Sources of supply.	1934-35.			1935-36.			1936-37.			Remarks.
		Quantity of molasses consumed.		Price paid for molasses consumed.	Quantity of molasses consumed.		Price paid for molasses consumed.	Quantity of molasses consumed.		Price paid for molasses consumed.	
		Mds.	Srs.	Rs. A. P.	Mds.	Srs.	Rs. A. P.	Mds.	Srs.	Rs. A. P.	
1 (Government Central Distillery, Nasik Road.)	The Belapur Co., Ltd., Harigaon, Ahmednagar District.	86,309	32	50,870 10 5	87,399	15	47,592 12 0	91,027	31	52,859 6 2	
	The Maharashtra Sugar Mills, Ltd., Belapur Road, Ahmednagar District.	5,366	38	3,548 14 10	8,847	9	5,050 13 1	46,924	2	22,525 0 1	
	The Belwandi Sugar Farm, Belwandi, Ahmednagar District.	..	..	..	..	..	..	13,312	15	7,927 1 10	
	Total	91,676	30	54,419 9 3	96,246	24	52,643 9 1	151,264	8	83,311 8 1	

### Replies from the Government of Madras.

(1) *Letter dated the 3rd June, 1937, from the Government of Madras Development Department, Madras.*

#### SUGAR TARIFF BOARD ENQUIRY.

With reference to paragraph 2 of your letter No. 147, dated the 30th April, 1937, on the above subject, I am to enclose two statements showing the retail prices of jaggery and sugar from the 15th September, 1932, up-to-date supplied by the Triplicane Urban Co-operative Society Stores and also two other statements showing the prices of sugar and jaggery from 1933 extracted from the daily price list of Messrs. Parry & Co., Ltd. The Director of Industries has also figures of retail prices of sugar and jaggery from the 24th January, 1912, to the 29th December, 1929, in the case of jaggery and from the 24th January, 1912, to the 3rd September, 1926, in the case of sugar. He is endeavouring to obtain figures from 1926 and 1929 to 1932. In case he succeeds another set of statements will be forwarded showing alteration in prices from 1912 to 1937 inclusive.

2. With reference to paragraph 3 of your letter, I am to say that the Government of Madras had had no complaints that the canegrowers were being imposed upon by factory owners by under-weighment or in any other manner suggested in your letter. But in reply to a reference recently made on the subject, they have received reports from some of the subordinate officers to the effect that there have been malpractices of the kind here and there but that it is impossible to obtain confirmation. The Madras Government presume that the Tariff Board is not anxious to be placed in possession of such unconfirmed statements the truth of which no one has investigated or can vouch for.

#### *Statement showing the price per viss of sugar.*

(Prices have been collected from the Triplicane Urban Co-operative Society.)

*N.B.*—The dates noted against the prices are those on which the prices have altered.

Date of alteration.	Price.	Date of alteration.	Price.
	As. P.		As. P.
<i>1932.</i>		<i>1933—contd.</i>	
15th September . . .	7 0	30th March . . .	6 8
27th October . . .	7 3	5th April . . .	6 6
10th November . . .	7 0	18th May . . .	6 6
1st December . . .	7 3	4th June . . .	6 9
15th December . . .	7 6	5th June . . .	7 0
22nd December . . .	8 0	22nd June . . .	6 9
<i>1933.</i>		29th June . . .	6 8
4th January . . .	7 9	6th October . . .	6 9
12th January . . .	7 3	16th October . . .	6 10
21st January . . .	7 0	19th October . . .	7 0
1st February . . .	6 9	26th October . . .	6 10
9th February . . .	6 6	1st November . . .	6 9
23rd February . . .	6 8	16th November . . .	6 8
23rd March . . .	6 6	23rd November . . .	6 6
III-4			2 H

## Statement showing the price per viss of sugar—contd.

Date of alteration.	Price.	Date of alteration.	Price.
	As. P.		As. P.
<i>1934.</i>		<i>1935—contd.</i>	
1st March . . . . .	6 4	14th November . . . . .	6 3
2nd March . . . . .	6 6	5th December . . . . .	6 3
27th March . . . . .	6 3	12th December . . . . .	6 0
23rd April . . . . .	6 4	<i>1936.</i>	
21st June . . . . .	6 3	5th March . . . . .	5 10
27th July . . . . .	6 4	19th April . . . . .	6 0
20th September . . . . .	6 6	4th June . . . . .	5 10
18th October . . . . .	6 3	18th June . . . . .	5 9
29th November . . . . .	6 4	11th July . . . . .	5 10
13th December . . . . .	6 3	20th August . . . . .	5 9
<i>1935.</i>		27th August . . . . .	5 6
7th January . . . . .	6 0	22nd October . . . . .	5 4
31st January . . . . .	6 3	29th October . . . . .	5 6
7th March . . . . .	6 0	<i>1937.</i>	
11th April . . . . .	5 11	21st January . . . . .	5 4
18th April . . . . .	6 0	28th January . . . . .	5 3
30th May . . . . .	6 2	15th February . . . . .	5 0
20th June . . . . .	6 3	22nd February . . . . .	4 10
5th October . . . . .	6 6	4th March . . . . .	5 3
7th October . . . . .	7 0	11th March . . . . .	5 0
31st October . . . . .	6 9	15th March . . . . .	4 9
7th November . . . . .	6 6	25th April . . . . .	5 0
		6th May . . . . .	4 9

## Statement showing the price per viss of jaggery.

Prices have been collected from the Triplicane Urban Co-operative Society.

N.B.—The dates noted against the prices are those on which the prices have altered.

Date of alteration.	Price.	Date of alteration.	Price.
	As. P.		As. P.
<i>1932.</i>		<i>1934.</i>	
15th September . . . . .	4 3	24th January . . . . .	3 3
5th October . . . . .	4 0	1st March . . . . .	3 0
<i>1933.</i>		22nd March . . . . .	2 9
21st January . . . . .	3 6	19th April . . . . .	3 0
16th March . . . . .	3 3	17th May . . . . .	2 9
23rd March . . . . .	3 0	24th May . . . . .	3 0
30th March . . . . .	2 9	5th June . . . . .	3 3
13th April . . . . .	2 6	28th June . . . . .	3 6
16th April . . . . .	2 9	5th July . . . . .	3 9
22nd June . . . . .	3 0	23rd July . . . . .	4 0
29th June . . . . .	3 3	23rd August . . . . .	4 3
5th July . . . . .	3 0	27th August . . . . .	4 6
27th July . . . . .	3 3	31st August . . . . .	5 3
28th December . . . . .	3 6		

Statement showing the price per viss of jaggery—contd.

Date of alteration.	Price.	Date of alteration.	Price.
	As. P.		As. P.
<i>1934—contd.</i>		<i>1936.</i>	
3rd September . . . . .	5 6	30th January . . . . .	4 3
6th September . . . . .	5 9	13th February . . . . .	4 0
13th September . . . . .	6 0	20th February . . . . .	3 9
20th September . . . . .	5 9	25th February . . . . .	3 6
24th September . . . . .	5 6	5th March . . . . .	3 3
27th September . . . . .	5 3	16th April . . . . .	3 0
11th October . . . . .	5 6	26th April . . . . .	3 3
25th October . . . . .	5 3	28th May . . . . .	3 0
1st November . . . . .	5 0	30th July . . . . .	3 3
6th December . . . . .	4 6	6th August . . . . .	3 4
13th December . . . . .	4 3	13th August . . . . .	3 3
27th December . . . . .	4 0	24th September . . . . .	3 6
<i>1935.</i>		8th October . . . . .	3 3
24th January . . . . .	3 9	3rd December . . . . .	3 6
11th February . . . . .	4 0	5th December . . . . .	3 3
16th May . . . . .	4 3	<i>1937.</i>	
23rd May . . . . .	4 6	1st January . . . . .	3 0
23rd August . . . . .	4 3	15th January . . . . .	3 3
3rd October . . . . .	4 0	28th January . . . . .	3 0
24th October . . . . .	4 3	4th March . . . . .	2 9
7th November . . . . .	4 0		

Prices of Sugar (Per Cwt.) extracted from the Daily Statement of Messrs. Parry & Co., Ltd.

Date.	Java.	Nellikuppam.	Northern India (Factory's name given).
	Rs. A. P.	Rs. A. P.	Rs. A. P.
<i>1933.</i>			
25th February . . . . .	14 5 0	14 1 4	...
1st March . . . . .	14 7 0	14 4 0	...
6th March . . . . .	14 6 0	14 4 0	...
13th March . . . . .	14 7 0	14 5 4	...
20th March . . . . .	14 7 0	14 2 8	...
28th March . . . . .	14 5 0	14 2 8	...
3rd April . . . . .	14 5 0	14 2 8	...
10th April . . . . .	14 4 0	14 2 8	...
18th April . . . . .	14 3 0	14 2 0	...
24th April . . . . .	14 4 0	14 2 0	...
1st May . . . . .	14 3 6	14 2 0	...
8th May . . . . .	14 4 0	14 3 4	...
15th May . . . . .	14 6 0	14 8 0	...
22nd May . . . . .	14 6 0	14 6 8	...



Prices of Sugar (Per Cwt.) extracted from the Daily Statement of  
Messrs. Parry & Co., Ltd.—contd.

Date.	Java.	Nellikuppam.	Northern India (Factory's name given).
	Rs. A. P.	Rs. A. P.	Rs. A. P.
<i>1933—contd.</i>			
29th May . . .	14 8 0	14 9 4	...
5th June . . .	14 15 6	15 5 4	...
12th June . . .	14 9 0	15 5 4	...
19th June . . .	14 7 0	14 8 0	...
26th June . . .	14 7 0	14 5 4	...
3rd July . . .	14 6 6	14 5 4	...
10th July . . .	14 6 6	14 5 4	...
17th July . . .	14 6 6	14 5 6	...
24th July . . .	14 6 0	14 5 4	...
31st July . . .	14 6 0	14 5 4	...
7th August . . .	14 6 0	14 5 4	...
14th August . . .	14 6 6	14 6 8	...
22nd August . . .	14 4 6	14 4 0	...
28th August . . .	14 4 0	14 4 0	...
4th September . . .	14 3 6	14 4 0	...
11th September . . .	14 2 6	14 4 0	...
18th September . . .	14 4 0	14 5 4	...
25th September . . .	14 4 0	14 5 4	...
2nd October . . .	14 8 0	14 9 4	...
9th October . . .	14 9 0	14 10 8	...
16th October . . .	14 12 0	14 14 8	...
23rd October . . .	14 7 0	14 6 8	...
30th October . . .	14 7 0	14 8 0	...
6th November . . .	14 5 0	14 6 8	...
13th November . . .	14 1 0	14 5 4	...
20th November . . .	13 15 0	14 1 4	...
27th November . . .	13 15 0	14 1 4	...
4th December . . .	13 14 0	14 1 4	...
11th December . . .	13 14 0	14 1 4	...
18th December . . .	13 13 0	13 14 8	...
28th December . . .	13 12 0	13 12 8	...
<i>1934.</i>			
2nd January . . .	13 12 6	13 12 8	...
8th January . . .	13 12 0	13 12 8	...
15th January . . .	13 9 0	13 8 0	...
22nd January . . .	13 10 0	13 6 8	...
29th January . . .	13 10 0	13 6 8	...
5th February . . .	13 10 6	13 6 8	13 9 0 Motipur.
13th February . . .	13 12 0	13 8 0	13 7 0 "
19th February . . .	13 10 6	13 6 8	13 6 0 "
26th February . . .	13 11 0	13 6 8	13 8 0 "
5th March . . .	13 10 0	13 8 0	13 8 0 "
12th March . . .	13 10 0	13 8 0	13 8 0 "

Prices of Sugar (Per Cwt.) extracted from the Daily Statement of  
Messrs. Parry & Co., Ltd.—contd.

Date.	Java.	Nellikuppam.	Northern India (Factory's name given).	
	Rs. A. P.	Rs. A. P.	Rs. A. P.	
1934—contd.				
19th March	13 11 0	13 8 0	13 8 0	Motipur.
27th March	13 13 0	13 6 8	13 10 0	"
3rd April	13 12 0	13 6 8	13 8 0	"
9th April	13 12 0	13 9 4	13 8 0	"
16th April	13 13 0	13 9 4	13 8 0	"
23rd April	14 0 0	13 9 4	13 10 0	"
30th April	14 0 0	13 9 4	13 10 0	"
7th May	Not quoted	13 10 0	13 9 0	"
14th May	13 9 0	13 5 4	13 7 0	"
21st May	13 10 0	13 5 4	13 6 0	"
28th May	13 7 6	13 5 4	13 5 0	"
5th June	13 5 6	13 5 4	13 5 0	"
11th June	13 6 0	13 4 8	13 5 0	"
18th June	13 6 0	13 4 8	13 4 0	"
		to		
		13 5 4		
26th June	13 6 0	13 4 8	13 4 0	"
		to		
		13 5 4		
3rd July	13 5 0	...	13 3 6	Sardarnagar.
9th July	13 5 6	13 6 0	13 3 6	"
16th July	13 12 0	13 9 4	13 7 0	"
23rd July	13 12 0	13 9 4	13 7 0	"
30th July	13 11 0	13 8 8	13 6 0	"
6th August	13 10 0	...	13 5 0	"
13th August	13 7 0	...	13 4 0	"
20th August	13 6 6	...	13 4 0	Champatia.
27th August	13 6 0	...	13 4 0	"
3rd September	13 8 0	...	13 5 0	"
10th September	13 10 0	...	13 7 0	Champatia.
17th September	13 11 0	...	13 8 0	"
24th September	13 8 0	...	13 6 0	"
1st October	13 8 0	...	...	"
9th October	13 7 0	...	...	"
15th October	13 5 6	...	...	"
22nd October	13 4 0	...	...	"
29th October	13 3 0	...	...	"
5th November	13 3 0	...	...	"
12th November	13 1 6	...	...	"
19th November	13 0 6	...	...	"
26th November	13 4 0	...	...	"
3rd December	13 7 0	...	...	"
10th December	13 7 0	...	...	"
17th December	13 3 0	...	12 12 0	"
24th December	13 5 0	...	12 10 0	"

Prices of Sugar (Per Cwt.) extracted from the Daily Statement of  
Messrs. Parry & Co., Ltd.—contd.

Date.	Java.	Nellikuppam.	Northern India (Factory's name given).
	Rs. A. P.	Rs. A. P.	Rs. A. P.
<i>1935.</i>			
2nd January	13 6 0	...	12 10 0
8th January	13 8 0	...	12 10 0
15th January	13 8 0	12 10 8	12 10 0
21st January	13 12 0	12 10 8	12 10 0
28th January	14 0 0	13 8 0	13 4 0
4th February	13 10 0	13 2 8	13 0 0
11th February	13 10 0	13 1 4	12 13 0
18th February	13 10 0	13 1 4	12 12 0
25th February	13 10 0	13 1 4	12 10 0
4th March	13 10 0	13 0 0	12 10 0
11th March	...	12 13 4	12 10 0
18th March	...	12 12 8	12 9 0
25th March	...	12 12 8	12 10 0
9th April	...	12 14 0	12 11 0
15th April	...	12 15 4	12 14 0
23rd April	...	12 15 4	12 14 0
29th April	...	12 15 4	12 14 0
8th May	...	12 14 8	12 13 0
20th May	...	12 14 8	12 13 0
27th May	...	13 1 4	13 0 0
4th June	...	13 4 0	13 2 0
10th June	...	13 4 0	13 2 0
17th June	...	13 4 0	13 2 0
24th June	...	13 5 4	13 3 0
2nd July	...	13 4 8	13 1 0
8th July	...	13 3 4	13 1 0
15th July	...	13 2 8	13 1 0
22nd July	...	13 2 0	13 1 0
29th July	...	13 0 8	13 0 0
5th August	...	13 0 8	13 0 0
12th August	...	13 0 8	13 0 0
19th August	...	13 0 8	13 0 0
26th August	...	13 1 4	13 0 0
3rd September	...	13 2 8	13 1 0
9th September	...	13 2 8	13 1 0
16th September	...	13 3 4	13 3 0
23rd September	...	13 4 8	13 5 0
30th September	...	13 10 8	13 9 0
7th October	14 14 0	14 10 8	14 10 0
14th October	14 14 0	14 8 0	14 10 0
21st October	14 10 0	14 8 0	14 8 0
28th October	14 2 0	14 3 4	14 0 0
4th November	13 11 0	...	13 10 0

Champatia

Prices of Sugar (Per Cwt.) extracted from the Daily Statement of  
Messrs. Parry & Co., Ltd.—contd.

Date.	Java.	Nellikuppam	Northern India (Factory's name given).
	Rs. A. P.	Rs. A. P.	Rs. A. P.
<i>1935—contd.</i>			
11th November	13 8 0	13 5 4	13 4 0
18th November	13 7 0	13 4 0	13 4 0
25th November	13 5 6	13 2 0	13 2 0
2nd December	13 5 0	13 0 8	13 0 0
9th December	13 4 0	13 0 8	12 15 0
16th December	13 4 0	...	12 14 0
23rd December	13 4 0	...	12 14 0
<i>1936.</i>			
2nd January	13 4 0	...	12 14 0
6th January	13 5 0	...	12 14 0
15th January	13 6 0	...	13 0 0
20th January	13 6 0	...	13 0 0
27th January	13 5 0	...	13 1 0
10th February	13 4 0	12 14 8	13 0 0
17th February	13 4 0	12 13 4	12 9 0
24th February	13 3 0	12 10 8	12 6 0
2nd March	13 3 0	12 10 8	12 4 0
9th March	13 3 0	...	12 4 0
16th March	13 4 0	12 12 0	12 9 0
23rd March	13 4 0	12 12 0	12 8 0
30th March	13 4 0	12 12 0	12 6 0
6th April	13 4 0	12 12 0	12 5 0
14th April	13 4 0	12 12 0	12 5 0
20th April	13 4 0	12 12 0	12 5 0
27th April	13 4 0	...	12 5 0
4th May	13 4 0	...	12 4 0
11th May	13 4 0	...	12 4 0
18th May	13 4 0	...	12 3 0
25th May	13 4 0	...	12 3 0
1st June	13 4 0	...	12 3 0
8th June	13 4 0	...	12 1 0
15th June	13 4 0	...	12 1 0
22nd June	13 4 0	...	12 1 0
29th June	13 4 0	...	12 2 0
6th July	13 4 0	...	12 2 0
13th July	13 4 0	...	12 0 0
20th July	13 4 0	...	12 0 0
27th July	13 4 0	...	12 0 0
3rd August	13 4 0	...	11 14 0
10th August	13 4 0	...	11 10 0
17th August	13 4 0	11 8 0	11 10 0

Motipur.

Champatia.

Champatia.

*Prices of Sugar (Per Cwt.) extracted from the Daily Statement of Messrs. Parry & Co., Ltd.—concl'd.*

Date.	Java.	Nellikuppam.	Northern India (Factory's name given).	
	Rs. A. P.	Rs. A. P.	Rs. A. P.	
1936—cont'd.				
24th August . . .	13 4 0	11 10 0	11 12 0	
31st August . . .	13 4 0	11 10 0	11 12 0	
7th September . .	13 4 0	11 10 0	11 12 0	
14th September . .	13 4 0	11 9 0	11 10 0	
		(normal).		
21st September . .	13 4 0	11 9 0	11 10 0	
28th September . .	13 4 0	11 9 0	11 9 0	
5th October . . .	13 2 0	11 7 0	11 8 0	Champatia.
12th October . . .	13 2 0	...	11 8 0	
19th October . . .	13 2 0	...	11 8 0	
27th October . . .	13 2 0	...	11 8 0	
2nd November . . .	13 2 0	11 10 0	11 6 0	
9th November . . .	13 2 0	11 10 0	11 6 0	
16th November . . .	13 2 0	11 10 0	11 6 0	
23rd November . . .	13 2 0	...	11 4 0	
30th November . . .	13 2 0	...	11 4 0	
7th December . . .	13 0 0	...	11 4 0	
14th December . . .	13 0 0	...	11 4 0	
21st December . . .	13 0 0	...	11 2 0	
29th December . . .	13 0 0	...	11 1 0	
1937.				
11th January . . .	13 0 0	11 1 0	11 6 0	Champaran.
19th January . . .	...	10 14 0	11 4 0	
26th January . . .	13 0 0	10 14 0	11 4 0	
2nd February . . .	13 0 0	10 13 0	10 14 0	
9th February . . .	12 14 0	10 13 0	10 12 0	
16th February . . .	12 14 0	10 1 0	10 8 0	
24th February . . .	12 14 0	10 1 0	10 8 0	
2nd March . . . . .	13 0 0	10 13 0	10 14 0	
9th March . . . . .	13 0 0	10 8 0	10 4 0	
16th March . . . . .	13 0 0	10 8 0	10 5 0	
23rd March . . . . .	13 0 0	10 8 0	10 8 0	
31st March . . . . .	13 0 0	10 8 0	10 8 0	
6th April . . . . .	13 0 0	10 6 0	10 8 0	
15th April . . . . .	13 0 0	10 6 0	10 8 0	
22nd April . . . . .	12 14 0	10 6 0	10 8 0	
29th April . . . . .	12 14 0	10 6 0	10 8 0	
1st May . . . . .	12 14 0	10 0 0	10 6 0	

Prices of Jaggery extracted from the Daily Statement of Messrs.  
Parry & Co., Ltd.

Date.	Good-eating cane jaggery <i>ex-go-</i> down Madras, per candy.		Palm jaggery for refining f.o.r. Nelli- kuppam, per candy.		Palm jaggery (Madras) <i>ex-godown</i> Madras, per candy (500 lb.).		
	Rs. A.	Rs. A.	R. A.	Rs. A.	Rs. A.	Rs. A.	
1933.							
6th March	. 32 0	to 35 0	23 0			...	
13th March	. 32 0	„ 35 0	22 0			...	
20th March	. 32 0	„ 35 0	22 0			...	
28th March	. 32 0	„ 35 0	22 0			...	
3rd April	. 32 0	„ 35 0	22 0			...	
10th April	. 32 0	„ 35 0	22 0			...	
18th April	. 32 0	„ 35 0	22 0			...	
24th April	. 32 0	„ 35 0	22 0			...	
1st May	. 30 0	„ 32 0	22 0			...	
8th May	. 25 0	„ 28 0	22 0			...	
15th May	. 25 0	„ 28 0	22 0			...	
22nd May	. 25 0	„ 28 0	22 0			...	
29th May	. 25 0	„ 28 0	22 0			...	
5th June	. 25 0	„ 28 0	19 0			...	
12th June	. 25 0	„ 28 0	19 0			...	
19th June	. 25 0	„ 28 0	19 0			...	
26th June	. 25 0	„ 28 0	19 0			...	
3rd July	. 25 0	„ 28 0	19 0			...	
10th July	. 25 0	„ 28 0	19 0			...	
17th July	. 25 0	„ 28 0	19 0			...	
24th July	. 25 0	„ 28 0	19 0			...	
31st July	. 25 0	„ 28 0	19 0			...	
7th August	. 25 0	„ 28 0	19 0			...	
14th August	. 25 0	„ 28 0	19 0			...	
22nd August	. 25 0	„ 28 0	19 0			...	
28th August	. 25 0	„ 28 0	19 0			...	
4th September	. 20 0	„ 28 0	19 0			...	
11th September	. 20 0	„ 28 0	19 0			...	
18th September	. 20 0	„ 28 0	19 0			...	
25th September	. 20 0	„ 28 0	19 0			...	
2nd October	. 20 0	„ 28 0	19 0			...	
9th October	. 20 0	„ 28 0	19 0			...	
16th October	. 20 0	„ 28 0	19 0			...	
23rd October	. 20 0	„ 28 0	19 0			...	
30th October	. 20 0	„ 28 0	19 0			...	
6th November	. 20 0	„ 28 0	19 0			...	
13th November	. 20 0	„ 28 0	19 0			...	
20th November	. 20 0	„ 28 0	19 0			...	
27th November	. 20 0	„ 28 0	19 0			...	

*Prices of Jaggery extracted from the Daily Statement of Messrs.  
Parry & Co., Ltd.—contd.*

Date.	Good-eating cane jaggery ex-go- down Madras, per candy.		Palm jaggery for refining f.o.r. Nelli- kuppam, per candy.		Palm jaggery (Madras) ex-godown Madras, per candy (500 lb.).	
	Rs. A.	Rs. A.	Rs. A.	Rs. A.	Rs. A.	Rs. A.
<i>1933—contd.</i>						
4th December	20 0	to 28 0	19 0		...	
18th December	20 0	„ 28 0	19 0		19 0	to 27 0
28th December	20 0	„ 28 0	19 0		18 0	„ 27 0
<i>1934.</i>						
2nd January	20 0	to 28 0	19 0		18 0	to 27 0
8th January	20 0	„ 28 0	19 0		18 0	„ 27 0
15th January	20 0	„ 28 0	19 0		19 0	„ 27 0
22nd January	20 0	„ 28 0	19 0		19 0	„ 27 0
29th January	22 0	„ 28 0	22 12		36 0	
5th February	22 0	„ 28 0	22 12		36 0	
13th February	22 0	„ 28 0	22 12		36 0	
19th February	22 0	„ 28 0	22 12		36 0	
26th February	22 0	„ 28 0	22 12		36 0	
5th March	22 0	„ 28 0	22 12		36 0	
12th March	22 0	„ 28 0	22 12		36 0	
19th March	22 0	„ 28 0	22 12		36 0	
27th March	22 0	„ 28 0	22 12		36 0	
3rd April	22 0	„ 28 0	22 12		36 0	
9th April	22 0	„ 28 0	22 12		36 0	
16th April	22 0	„ 28 0	22 12		36 0	
23rd April	22 0	„ 28 0	22 12		36 0	
30th April	22 0	„ 28 0	22 12		36 0	
7th May	22 0	„ 28 0	22 12		36 0	
14th May	22 0	„ 28 0	22 12		36 0	
21st May	22 0	„ 28 0	22 12		36 0	
28th May	22 0	„ 28 0	22 12		36 0	
5th June	22 0	„ 28 0	22 12		36 0	
11th June	22 0	„ 28 0	22 12		36 0	
18th June	22 0	„ 28 0	22 12		36 0	
26th June	24 0	„ 28 0	22 0		30 0	
3rd July	24 0	„ 28 0	22 0		30 0	
9th July	24 0	„ 28 0	22 0		30 0	
16th July	30 0	„ 35 0	22 0		35 0	to 45 0
23rd July	30 0	„ 35 0	22 0		35 0	„ 45 0
30th July	30 0	„ 35 0	22 0		35 0	„ 45 0
6th August	30 0	„ 35 0	22 0		35 0	„ 45 0
13th August	30 0	„ 35 0	22 0		35 0	„ 45 0
20th August	30 0	„ 35 0	22 0		35 0	„ 45 0
27th August	40 0	„ 50 0	22 0		36 0	„ 46 0

Prices of Jaggery extracted from the Daily Statement of Messrs.  
Parry & Co., Ltd.—contd.

Date.	Good-eating cane jaggery ex-go- down Madras, per candy.		Palm jaggery for refining f.o.r. Nelli- kuppam, per candy.		Palm jaggery (Madras) (ex-godown Madras, per candy (500 lb.).	
	Rs. A.	Rs. A.	Rs. A.	Rs. A.	Rs. A.	Rs. A.
1934—contd.						
10th September	40 0	to 50 0	22 0		36 0	to 46 0
17th September	40 0	„ 50 0	22 0		36 0	„ 46 0
24th September	40 0	„ 50 0	22 0		36 0	„ 46 0
1st October	40 0	„ 50 0	22 0		36 0	„ 46 0
9th October	40 0	„ 50 0	22 0		36 0	„ 46 0
15th October	40 0	„ 50 0	22 0		36 0	„ 46 0
22nd October	40 0	„ 50 0	22 0		36 0	„ 46 0
29th October	40 0	„ 50 0	22 0		36 0	„ 46 0
5th November	40 0	„ 50 0	22 0		36 0	„ 46 0
12th November	40 0	„ 50 0	22 0		36 0	„ 46 0
19th November	40 0	„ 50 0	22 0		36 0	„ 46 0
26th November	40 0	„ 50 0	22 0		36 0	„ 46 0
3rd December	40 0	„ 50 0	22 0		36 0	„ 46 0
10th December	40 0	„ 50 0	22 0		36 0	„ 46 0
17th December	40 0	„ 50 0	22 0		36 0	„ 46 0
24th December	40 0	„ 50 0	22 0		36 0	„ 46 0
1935.						
2nd January	40 0	to 50 0	22 0		36 0	to 46 0
8th January	40 0	„ 50 0	22 0		36 0	„ 46 0
15th January	40 0	„ 50 0	22 0		36 0	„ 46 0
21st January	40 0	„ 50 0	22 0		36 0	„ 46 0
28th January	40 0	„ 50 0	22 0		36 0	„ 46 0
4th February	35 0	„ 38 0	21 0		45 0	
11th February	35 0	„ 38 0	21 0		45 0	
18th February	35 0	„ 38 0	21 0		45 0	
25th February	35 0	„ 38 0	21 0		45 0	
4th March	35 0	„ 38 0	21 0		45 0	
11th March	35 0	„ 38 0	21 0		45 0	
18th March	35 0	„ 38 0	24 0	to 30 0	41 0	to 43 0
25th March	35 0	„ 38 0	24 0	„ 30 0	41 0	„ 43 0
9th April	30 0	„ 32 0	25 0	„ 28 0	35 0	„ 38 0
15th April	30 0	„ 32 0	25 0	„ 28 0	35 0	„ 38 0
23rd April	32 0	„ 34 0	25 0	„ 28 0	38 0	„ 40 0
29th April	32 0	„ 34 0	25 0	„ 28 0	39 0	„ 40 0
8th May	32 0	„ 34 0	25 0	„ 28 0	38 0	„ 40 0
20th May	32 0	„ 34 0	25 0	„ 28 0	38 0	„ 40 0
27th May	32 0	„ 34 0	25 0	„ 28 0	38 0	„ 40 0
4th June	32 0	„ 34 0	25 0	„ 28 0	38 0	„ 40 0
10th June	32 0	„ 34 0	23 0	„ 26 0	35 0	„ 40 0
17th June	32 0	„ 34 0	23 0	„ 26 0	35 0	„ 40 0



Prices of Jaggery extracted from the Daily Statement of Messrs.  
Parry & Co., Ltd.—contd.

Date.	Good-eating cane jaggery ex-go- down Madras, per candy.		Palm jaggery for refining f.o.r. Nelli- kuppam, per candy.		Palm jaggery (Madras) ex-godown Madras, per candy (500 lb.).	
	Rs. A.	Rs. A.	Rs. A.	Rs. A.	Rs. A.	Rs. A.
1935—contd.						
24th June	32 0	to 34 0	23 0	to 26 0	35 0	to 40 0
2nd July	32 0	„ 34 0	23 0	„ 26 0	35 0	„ 40 0
8th July	30 0	„ 35 0	23 0	„ 26 0	35 0	„ 40 0
15th July	30 0	„ 35 0	23 0	„ 26 0	35 0	„ 40 0
22nd July	28 0	„ 36 0	26 0		36 0	„ 40 0
29th July	30 0	„ 38 0	26 0		38 0	
5th August	31 8	„ 35 8	...		40 0	
12th August	31 8	„ 35 8	...		40 0	
19th August	31 8	„ 35 8	...		40 0	
26th August	31 8	„ 35 8	...		40 0	
3rd September	30 0	„ 37 0	...		38 0	
9th September	30 0	„ 37 0	...		38 0	
16th September	30 0	„ 37 0	...		38 0	
23rd September	30 0	„ 37 0	...		38 0	
	(nominal).				(nominal).	
30th September	35 0	„ 40 0	...		42 0	
7th October	35 0	„ 40 0	...		42 0	
14th October	35 0	„ 38 0	...		40 0	
21st October	35 0	„ 38 0	...		40 0	
28th October	30 0	„ 37 0	...		38 0	
4th November	30 0	„ 37 0	...		38 0	
11th November	25 0	„ 32 0	...		32 0	
18th November	25 0	„ 32 0	...		32 0	
26th November	25 0	„ 32 0	...		32 0	
2nd December	25 0	„ 32 0	...		32 0	
9th December	25 0	„ 32 0	...		32 0	
16th December	25 0	„ 32 0	...		32 0	
23rd December	25 0	„ 32 0	...		32 0	
1936.						
2nd January	25 0	„ 32 0	...		32 0	
6th January	25 0	„ 32 0	...		32 0	
15th January	25 0	„ 32 0	...		32 0	
20th January	25 0	„ 38 0	...		32 0	
27th January	25 0	„ 38 0	...		32 0	
10th February	25 0	„ 38 0	...		32 0	
17th February	22 12	„ 28 0	...		31 4	
24th February	22 12	„ 28 0	...		31 4	
2nd March	22 12	„ 28 0	...		31 4	
9th March	22 12	„ 28 0	...		31 4	
16th March	22 12	„ 28 0	...		31 4	
23rd March	22 12	„ 28 0	...		31 4	

Prices of Jaggery extracted from the Daily Statement of Messrs.  
Parry & Co., Ltd.—contd.

Date.	Good-eating cane jaggery ex-go- down Madras, per candy.		Palm jaggery for refining f.o.r. Nelli- kuppam, per candy.		Palm jaggery (Madras) ex-godown Madras, per candy (500 lb.).	
	Rs. A.	Rs. A.	Rs. A.	Rs. A.	Rs. A.	Rs. A.
1936—contd.						
30th March	20 0	to 26 0	...		31 4	
6th April	20 0	„ 26 0	...		31 4	
14th April	20 0	„ 26 0	...		31 4	
20th April	20 0	„ 26 0	...		31 4	
27th April	20 0	„ 26 0	...		31 4	
4th May	20 0	„ 26 0	...		31 4	
11th May	20 0	„ 26 0	...		31 4	
18th May	20 0	„ 23 0	...		30 0	
25th May	21 0	„ 24 8	...		30 0	
1st June	21 0	„ 24 8	...		30 0	
8th June	21 0	„ 24 8	...		30 0	
15th June	21 0	„ 26 4	...		32 0	
22nd June	21 0	„ 26 4	...		32 0	
29th June	21 0	„ 26 4	...		32 0	
6th July	21 0	„ 26 4	...		32 0	
15th July	21 0	„ 26 4	...		32 0	
20th July	20 0	„ 25 0	...		30 0	
27th July	20 0	„ 25 0	...		30 0	
3rd August	21 0	„ 26 4	...		31 4	
10th August	21 0	„ 26 4	...		31 4	
17th August	21 0	„ 26 4	...		31 4	
24th August	21 0	„ 26 4	...		31 4	
31st August	21 0	„ 26 4	...		31 4	
7th September	21 0	„ 26 4	...		31 4	
14th September	21 0	„ 26 4	...		31 4	
21st September	21 0	„ 26 4	...		31 4	
28th September	17 8	„ 26 4	...		28 0	
5th October	17 8	„ 26 4	...		28 0	
12th October	17 8	„ 26 4	...		28 0	
19th October	17 8	„ 26 4	...		28 0	
27th October	17 8	„ 26 4	...		28 0	
2nd November	17 8	„ 26 4	...		28 0	
9th November	17 8	„ 26 4	...		28 0	
16th November	17 8	„ 26 4	...		28 0	

Prices of Jaggery extracted from the Daily Statement of Messrs.  
Parry & Co., Ltd.—concl'd.

Date:	Good-eating cane jaggery ex-go- down Madras, per candy.		Palm jaggery for refining f.o.r. Nelli- kuppam, per candy.		Palm jaggery (Madras) ex.godown Madras, per candy (500 lb.).	
	Rs. A.	Rs. A.	Rs. A.	Rs. A.	Rs. A.	Rs. A.
1936—concl'd.						
23rd November	17 8	to 26 4	...	...	28 0	...
30th November	17 8	„ 26 4	...	...	28 0	...
7th December	17 8	„ 26 4	...	...	28 0	...
14th December	15 0	„ 25 0	22 0	to 26 0	25 0	...
21st December	15 0	„ 25 0	22 0	„ 26 0	25 0	...
29th December	15 0	„ 25 0	22 0	„ 26 0	25 0	...
1937.						
11th January	15 0	„ 25 0	22 0	...	25 0	...
9th February	15 0	„ 25 0	22 0	...	25 0	...
16th February	15 0	„ 25 0	22 0	...	25 0	...

(2) Letter dated the 25th June 1937, from the Government of Madras,  
Development Department, Madras.

I am directed to enclose a note prepared by the Director of Industries, Madras, on the present position of the Palmyra Sugar Industry in the Madras Presidency. The Director reports that the Ar. Rm. N. Lakshmi Sugar Mills, Alwartirunagari, and the Al. Vr. St. Sugar Mills, Tachanallur, in Tinnevely District did not respond to his request for information in regard to the production, etc., of their factories during the 1936 season.

NOTE ON THE PALMYRA SUGAR INDUSTRY OF THE MADRAS PRESIDENCY.

The chief centres of the palmyra jaggery industry in the Madras Presidency are Tinnevely, Coimbatore, Malabar and West Godavari Districts. The industry of preparing jaggery is carried on by the Madras in Tinnevely, by Sanars in Coimbatore, by Thiyyas in Malabar and Kalais in West Godavari Districts. It is estimated that the annual production of palmyra jaggery in Tinnevely, Coimbatore and Malabar is normally about 20,000 tons and in the West Godavari area about 10,500 tons. The manufacture of palmyra jaggery may be termed a cottage industry in these areas as the industry is carried on by families of tappers scattered over large areas where the palmyra tree grows. These people live in the neighbourhood of the trees they have to tap and the entire family is interested in the production of jaggery which is sold to dealers, or direct to the sugar manufacturers. It has been estimated that some 250,000 tappers and their dependents are engaged in the industry, and if 25 per cent. is deducted from this total to provide for that proportion of the production which goes into direct consumption, it may be taken that some 187,500 persons in this Presidency depend on the manufacture of sugar from palmyra for their subsistence. Apart from the tappers and their families, there are a number of other people who are engaged in connected occupations, e.g., the shell burners who supply the lime for juice pots, the pan makers who supply the pans for collecting the juice and the potters who supply the pots to be attached to the trees for juice collection. In addition to these, there are the factory hands and their

dependents so that the number of people supported directly or indirectly by the manufacture of sugar from palmyra jaggery cannot be far short of 200,000 and it may well be more. The tapping of the palmyra tree, collection of juice and conversion into jaggery by people living among the topes necessitating transport to the factories over long distances, renders the jaggery produced comparatively expensive, so that by the time it reaches the sugar factory, goes through a three months drainage period and is ultimately melted, the cost is definitely greater per unit of sucrose than cane grown within a short distance of a factory and converted into sugar without any intermediate jaggery process. Sugar from palmyra cannot therefore be produced at a price comparable with canesugar.

2. The position of the palmyra sugar industry in relation to the excise duty has formed the subject of several representations by the Madras Government to the Government of India during the last three years. In March, 1934, the local Government forwarded to the Government of India a representation in regard to the position of the palmyra sugar industry and stated that it was working to a very narrow margin and that the imposition of the proposed excise would convert this margin into a loss. It was explained that three factors in the main accounted for this. The price of the raw material is greater than that of cane, the cost of extracting sugar from it is greater and little or no income is now derived from the sale of molasses which had practically cease to command any value at all. The Madras Government pointed out that unless sugar manufactured from palmyra was excluded from the proposed excise, the industry would be seriously affected, if indeed it managed to survive at all, and that if it was entirely suspended some 200,000 people would be deprived of their means of subsistence. In a further communication addressed to the Government of India in September of the same year, the Madras Government forwarded copies of letters which had been addressed to them by Messrs. Parry & Co., Ltd., and the Tachanallur Sugar Factory in the Tinnevely District, and pointed out, *inter alia*, that it was apparent from the details given in these letters that during the two years 1932 and 1933, Messrs. Parry & Co., Ltd., would have found it profitable to refine palmyra jaggery at Samalkot after paying excise duty had it been in force then, but that in 1931 and 1934 they would have carried on manufacture at a loss. In the case of their Nellikuppam factory which has to depend for its supplies of jaggery on distant areas, it had not been a paying proposition to refine jaggery except in 1933, whilst, if an excise duty had been levied that year, the factory would have worked at a loss. In fact the palmyra jaggery refinery section of the Nellikuppam factory is now regarded as useful merely for the purpose of keeping together labour and staff, and in retaining their sugar markets during the off cane season. The Tachanallur factory worked at a profit in 1931-32 and in 1933-34, but in view of the subsequent fall in sugar prices, its prospects were not regarded hopefully. The Madras Government pointed out that it was unlikely that any of the factories would be in a position to pay excise duty, at any rate, at the rate prescribed, and at the same time to earn a profit after meeting all charges, and that the imposition of an excise duty, on sugar manufactured from palmyra jaggery would, in all probability, result in the extinction of an industry on which many thousands of people are dependent. This view was reiterated in a further letter which the local Government addressed to the Government of India in January 1935 in which it was pointed out that there was no tendency for palmyra sugar to displace cane-sugar and that it is not possible to increase the production of palmyra sugar to any great extent since it is difficult to increase the number of tappers as tapping is not considered a respectable occupation even by the members of the tapping communities. In another communication addressed to the Government of India on the subject in August 1936, the Madras Government supplied further information in regard to the position of the palmyra sugar manufacturing industry in the Madras Presidency, and concluded, that in the interests of the palmyra tapping industry, the exemption from excise duty of palmyra sugar should be continued.

3. The total production of palmyra sugar during the last four years is given below :—

Name of factory.	1933-34.	1934-35.	1935-36.	1936-37.
	Tons.	Tons.	Tons.	Tons.
(i) Coimbatore Lakshmi Sugar Mills, Ltd., Podanur	...	220	524	571
(ii) Al. Vr. Sugar Mills and Distillery, Tachanallur	1,162	1,127	1,062	Not available.
(iii) Lakshmi Sugar Mills, Alwartirunagari	452	502	423	Not available.
(iv) Messrs. Parry & Co., Ltd.—				
Nellikuppam factory	4,260	1,986	2,012	2,819
Samalkot factory	6,245	6,526	6,313	5,983
<b>Total</b>	<b>12,119</b>	<b>10,361</b>	<b>10,334</b>	<b>...</b>

It will be seen that the total production progressively decreased from 1933-34 to 1935-36 in spite of the exemption from excise duty during the two latter years. As information is not yet available in respect of the Tachanallur and Alwartirunagari factories, it is not possible to institute a direct comparison between the production in the years 1935-36 and 1936-37, but production in the latter year is not likely to have increased by more than 500 tons as compared with the previous years, and there is no doubt that it will be substantially less than in the year 1933-34.

4. Messrs. Parry & Co., Ltd., state that palmyra and cane-sugars of equal grain and colour would normally realise the same price in the same market, but that palmyra sugar is seldom up to the standard, either in grain or in colour, of first grade cane-sugars. In the case of their Nellikuppam factory, they say that they do not sell palmyra sugar during the cane season and usually dispose of all their stocks during September to December, when Indian cane-sugar is not usually available in South India. The palmyra sugar produced by their Samalkot factory is sold throughout the year and their experience is that they obtain approximately the same rate for their palmyra sugar as for the average quality of cane-sugar imported from North India. In the Madura market, the price of palmyra sugar is usually below that of Indian cane-sugar and has always been below the selling price of Java sugar. The Coimbatore Lakshmi Sugar Mills Limited, Podanur, state that there is practically no difference in price between cane and palmyra sugar in the retail market, but that the wholesale merchants endeavour to obtain annas eight more for cane-sugar. The Lakshmi Sugar Mills, Alwartirunagari, state that palmyra sugar commands a price of from four to six annas less per bag of one and a half cwts. than cane-sugar.

5. The Government of India were informed in August last year that the margin of profit in the years 1934 and 1935 in the Samalkot factory of Messrs. Parry and Company, Limited, without allowing for income-tax and supertax, was Rs. 4-9-10 and Rs. 5-3-3 per candy, and that if the factory had been called upon to pay excise duty at Rs. 5-13-9 per candy of 500 lb., it would have incurred a loss on working in both those years. The same conclusion also applies to the Nellikuppam factory of Messrs. Parry & Co., Ltd. This year Messrs. Parry & Co., Ltd., fixed the price of palmyra jaggery at Rs. 17-8 per candy of 500 lb., delivered at godown Nidadavole,

and this is actually the lowest price they have ever paid. There was, this year, a strike of tappers with the result that purchases for the Samalkot factory have been negligible. The strike commenced owing to causes beyond the control of Messrs. Parry & Co., Ltd., but the reduction in the price they paid for jaggery as a result of the disastrous fall in sugar prices was probably a contributing factor in the continuance of the strike. They state that so far as they can see, the rate mentioned is the maximum price they are likely to be able to pay for jaggery in competition with cane. After making due allowance for transit, wastage and cost of transport to Samalkot, Rs. 17-8 per candy is equal to Rs. 87-7 per ton delivered in godown Samalkot. The jaggery is then stored until the "runnings" have been drained and the loss of weight in the shape of "runnings" is calculated at 18 per cent. After crediting the value at the rate of Rs. 44 per ton of runnings so collected, the cost of drained jaggery at Samalkot works out to Rs. 98-35 per ton. With good drained jaggery, the manufacturers expect an outturn of 65 per cent, white sugar and the cost of the raw material is therefore about Rs. 151 per ton of sugar produced. Their average manufacturing costs of sugar produced from jaggery is put at Rs. 46 per ton. On the basis of these figures it is possible to institute a comparison of the cost of manufacturing sugar from palmyra and from cane.

	Rs.
Palmyra sugar (material) . . . . .	151
Manufacturing cost . . . . .	46
	<hr/>
Per ton ex-factory . . . . .	197
	<hr/>

North Indian sugar is now quoted at about Rs. 6 per maund ex-factory, i.e., Rs. 187 to Rs. 194 per ton at Samalkot after having paid excise Rs. 6 per maund ex-factory comes to Rs. 163 per ton or Rs. 123 per ton without excise at Rs. 40. As North Indian Sugar Mills are selling at these rates, costs must approximate to these figures. The difference in cost of production between palmyra and cane-sugar, ignoring excise, is therefore Rs. 197—123 or Rs. 74 per ton. The excise on cane reduced this difference by Rs. 40 per ton leaving Rs. 34 per ton in favour of sugar from cane. Cane costs are no doubt very low at present, but even allowing for this and taking a cost in North India of Rs. 140 a ton, i.e., Rs. 180 a ton with excise, it seems evident that the palmyra industry would be extinguished if an excise duty was imposed on sugar manufactured from palmyra. The costs of palmyra sugar quoted in this paragraph do not allow for silent period changes, selling expenses, charges such as income-tax, etc.

6. It will be evident from the foregoing that the palmyra sugar industry cannot bear the burden of an excise duty. In fact, the indications are, that owing to the marked fall in the price realised for sugar, the position of the palmyra sugar industry, even if no excise duty is applied, will become precarious; for, as already mentioned, it does not see possible to provide for a corresponding decrease in the cost per unit of the raw material since the manufacturing costs of at least the larger factories appear to have been reduced to a minimum whilst the prices paid to tappers cannot be further reduced. Working costs for a palmyra refinery are higher than in a modern cane factory as in a refinery the scale of production is smaller and clarification is more difficult. There has certainly been no tendency for palmyra sugar to displace cane-sugar, and there cannot be any such tendency in view of the higher cost of production of the former.

7. It will be seen from the answer of the Director of Industries to question No. 29 of the questionnaire for Local Governments, that the total estimated production of the cane and palmyra factories in the Presidency for the year 1936-37 season was only about one-third of the estimated consumption. The fact that the production of the palmyra jaggery refining

industry has not increased in spite of the exemption from excise duty shown clearly that the cane sugar interests are not placed at a disadvantage by such exemption. Nor have there been any protests from the cane sugar interests. The only effect of imposing an excise duty on the struggling palmyra sugar industry would be to handicap it to such an extent as to imperil its very existence. The revenue which would be derived from the palmyra sugar industry by the imposition of an excise duty at the enhanced rate would, on the basis of last year's production of about 10,768 tons, amount to about Rs. 4.3 lakhs; but it must be recognised that once an excise duty was imposed, the production would inevitably decline to a very marked extent.

6. The preparation of palmyra jaggery for refining is, as already stated, essentially a cottage industry affording a means of subsistence, directly or indirectly, to some 200,000 people, the great majority of whom could not in all probability obtain other employment. In the interests of the rural employment which the palmyra tapping industry provides it is in the highest degree necessary that the palmyra sugar industry should continue to be exempted from excise duty if widespread distress amongst the tapper communities is to be avoided, especially in view of the marked fall in sugar prices which in itself is rendering increasingly difficult the position of this struggling industry.

(3) Letter dated the 30th June, 1937, from the Secretary, Development Department, Madras.

With reference to your letter No. 172, dated the 11th May, 1937, on the above subject, I am directed to forward six copies of the replies to the questionnaire for Local Governments (*vide* Enclosure No. I). The Madras Government have generally no comments to offer on the other questionnaires referred to in paragraph 2 of your letter, except in respect of certain questions raised in the General Questionnaire. Their comments on these excepted questions are furnished herewith (*vide* Enclosure No. II).

Enclosure No. I.

1. (a) The area under sugarcane in the Presidency during the last 7 years has been as follows:—

Year.	Acres.	Year.	Acres.
1930-31 . . .	114,877	1934-35 . . .	125,310
1931-32 . . .	116,105	1935-36 . . .	123,361
1932-33 . . .	120,921	1936-37 . . .	121,530*
1933-34 . . .	121,650		

(b) The following improved varieties have been grown in different parts of the Presidency:—

B. 208, 247 B, Purple Mauritius, Red Mauritius, Striped Mauritius, P. O. J. 2878, Fiji B, Co. 213, 218, 281, 313, 243, 419, 290, 413, 421.

(c) The approximate area under each variety is not available, but the total area under all improved varieties for the last 3 years was as below:—

Year.	Acres.	Year.	Acres.
1934-35 . . .	40,262	1936-37 . . .	42,650
1935-36 . . .	39,597		

\* (Latest final forecast issued by the Director of Industries on 29th January, 1937.)

2. A broad classification might be made as follows:—

- (1) *The Northern Circars*—a coastal tract receiving the benefit of rain from the south-west and north-east monsoons. It is fairly well supplied with major and minor irrigation works and with wells. The climate is humid and therefore well suited for sugarcane cultivation.
- (2) *The southern districts*, receiving most of their rainfall from the north-east monsoon. In this area, sugarcane cultivation is mainly dependent not on large irrigation works but on tanks and wells. Irrigation in these parts is more costly than in the Northern Circars. Except along the coast, the yield generally is lower than in the Northern Circars.
- (3) *The Ceded districts and Chittoor*—a comparatively high plateau country with a dry climate and light rainfall. The irregularity in the distribution of rainfall tends to shorten the effective growing period. Tanks, spring channels and canals supply water for irrigation, canals playing the most important part. The soil is sedentary generally. It is not enriched by silt. Intensive cultivation impoverishes it and reduces its cropping power. Low yield is due to frequent failures of rain, the short effective growing period, the poverty of the soil, the low standard of manuring and to a small extent poor cultivation especially in the matter of drainage.
- (4) *The West Coast*.—This tract receives abundant rainfall and the soil being laterite is capable of being very well drained. The cultivation of sugarcane is confined practically to South Kanara District. It is also cultivated to the extent of availability of water, in areas adjoining the rivers and islands in the rivers; a small area is cultivated in well-drained terraced lands. The crop is irrigated from December to May.

Sugarcane is irrigated throughout the Presidency.

3. (1) In this province lands are generally classed as wet and dry. In classifying the lands as wet, the irrigation facilities are taken into account and the wet assessment includes the charge for water. Wet lands are classed as single crop or as double crop. Lands registered as double crop wet need not pay anything more than the double crop assessment. Lands classed as single crop wet are liable to pay an extra charge if sugarcane is raised. The extra charge is generally half the single crop assessment. The rates for single crop assessment vary with reference to the classification of the soil and of the irrigation source with the result that there are numerous rates. The minimum and the maximum rates of single crop wet assessment are given in Statement A. One and a half times the single crop rates represent the charge for sugarcane.

For the irrigation of sugarcane with Cauvery water on ryotwari single crop wet lands in Trichinopoly and Tanjore Districts, the rate is the single crop wet rate in the locality plus Rs. 7-8 per acre. This rate was in force in *fasi* 1344. From *fasi* 1345 the rate is single crop wet assessment plus Rs. 5 or half the wet assessment whichever is higher.

(2) When sugarcane is raised on dry lands the irrigation rate is Rs. 4-8 or Rs. 6 per acre according as the irrigation source is placed in class II or class I except where special rates have been fixed. The special rates in force are mentioned in Statement B.

Where the rates have varied in the last seven years the rates in force prior to the charge are also indicated in the two statements.

(3) Sugarcane is treated as a *dufasal* or a garden crop (*i.e.*, a crop standing on ground for the time of two ordinary wet crops and requiring water during that period, *i.e.*, for more than six months). The rate for two wet crops is generally one and a half times the rate for a single wet crop, on single crop wet lands or on dry lands. The same rate is charged for sugarcane.



## STATEMENT A.

District.	Tract.	Single wet rate per acre ranging		Remarks.
		From	To	
1	2	3	4	5
		Rs. A.	Rs. A.	
1. Ganjam . . .	Ganjam . . .	1 4	6 8	
2. Vizagapatam . . .	Vizagapatam . . .	2 0	9 8	
3. Godavari . . .	Godavari Delta . . .	2 8	12 0	Till 1930.
		3 0	14 4	From 1931.
	Godavari Upland . . .	1 10	12 0	Till 1930.
4. Kistna . . .		1 15	13 8	From 1931.
	Kistna Delta . . .	2 8	10 0	Till 1930.
		3 0	11 14	From 1931.
5. Guntur . . .	Kistna Upland . . .	3 0	7 8	Till 1930.
		3 0	7 7	From 1931.
	Guntur Delta . . .	2 0	12 8	
6. Nellore . . .	Guntur Upland . . .	2 0	9 6	
	Vinukonda . . .	2 0	8 0	
	Ongole . . .	2 0	8 14	
	Nellore . . .	2 0	8 14	
7. Kurnool . . .	Kurnool . . .	2 0	10 0	
8. Bellary . . .	Bellary . . .	1 2	13 0	
9. Anantapur . . .	Black soil taluks . . .	1 2	10 2	
	Red soil taluks . . .	1 2	10 2	
	Kadiri . . .	2 0	9 0	
10. Cuddapah . . .	Except Rayachoti . . .	2 0	10 0	
	Rayachoti . . .	2 0	9 0	
11. Chingleput . . .	Chingleput . . .	1 8	10 0	
12. Chittoor . . .	Chittoor and Chandragiri . . .	2 8	10 0	
	Palmaner . . .	2 6	8 6	
	Madanapalle and Vyalpad . . .	2 0	9 0	
13. N. Arcot . . .	Except Tirupattur and . . .			
	Tiruvannamalai . . .	2 8	10 0	
	Tirupattur . . .	1 6	10 12	
	Tiruvannamalai . . .	3 0	10 11	
14. S. Arcot . . .	Coleroon . . .	3 14	11 11	
	Non-Coleroon . . .	3 0	10 11	
15. Salem . . .	Northern Taluks . . .	1 6	10 12	
	Southern Taluks . . .	1 6	11 12	Till 1933.
		1 9	13 15	From 1934.
16. Coimbatore . . .	Kollimalai Hill Vges. . .	1 0	3 6	
	Coimbatore . . .	2 14	13 12	
17. Trichinopoly . . .	Kadarambam . . .	1 0	9 12	
	Nirarambam . . .	3 8	14 4	
	Karur . . .	2 14	13 12	
	Musiri . . .	1 6	11 12	Till 1934.
		1 9	10 11	From 1935.
	Kochmalai Hill Vge. . .	1 0	3 6	

## STATEMENT A—contd.

District,	Tract.	Single wet rate per [acre ranging		Remarks.
		From	To	
1	2	3	4	5
		Rs. A.	Rs. A.	
18. Tanjore . . .	Tanjore Delta . . .	3 8	16 10	
	Tanjore Non-Delta . . .	1 12	8 4	
19. Madura . . .	Except Kodaikanal . . .	2 6	11 14	
	Kodaikanal . . .	2 0	5 8	
20. Ramnad . . .	Ramnad . . .	2 4	15 0	
21. Tinnevely . . .	Except Anjengo and Tangasseri . . .	2 4	15 0	
	Anjengo and Tangasseri . . .	0 2	8 5	Till 1934.
		0 14	9 14	From 1935.
22. Malabar . . .	Old holdings . . .	0 12	6 0	Till 1930.
		0 14	7 2	From 1931.
	New holdings . . .	1 4	10 0	Till 1930.
		1 8	11 14	From 1931.
	Cochin—			
	Old holdings . . .	0 2	5 0	Till 1933.
		0 14	5 15	From 1934.
	New holdings . . .	1 4	8 5	Till 1933.
		1 8	9 14	From 1934.
23. S. Kanara . . .	South Kanara . . .	0 12	7 0	Till 1933.
		0 14	7 14	From 1934.

NOTE.— $1\frac{1}{2}$  times the rates given above represent the charge for irrigating sugarcane.

STATEMENT B.

District.	Source.	Ryotwari.	Zamindary and whole Inam villages.	REMARKS.
1	2	3	4	5
Ganjam . . .	Rushikulya system and other tracts . . . . .	$1\frac{1}{2}$ (W—D) + $\frac{1}{2}$ D	Rs. 6-0-0	W= Rs. 1-4-0 to 6-8-0 D= As. 0-4-0 to Rs. 2-13-0
	Dhimiri Nalo Bandho and Chenchara Ghat* . . . .	Rs. 6-12-0	Rs. 6-12-0	*Transferred to Orissa from 1st April 1936.
Vizagapatam . . .	Nagavalli river system . . . .	$1\frac{1}{2}$ (W—D) + $\frac{1}{2}$ D.	Rs. 6-0-0	W= Rs. 2-0 to 2-8-0 D= As. 0-7 to Rs. 3-9-0
	Bajji distributary (inam wet under T. Patapuram Agraharem) . . . . .	..	Rs. 3-6-0	From 1933—New work.
E. Godavari . . .				
W. Godavari . . .	Delta tracts † (a) . . . . .	Rs. -7-8-0 to 9-6-0	Rs. 10-0-0 to 12-8-0	† Rate also for Government uplands dry.
Kistna				
Guntur				
E. Godavari . . .				
W. Godavari . . .	Uplands (a) . . . . .	Rs. 4-8-0 to 7-8-0‡	Rs. 4-8-0 to 7-8-0	From 1932.
Kistna				
E. Godavari . . .	Polavaram Island project . . .	Rs. 15-12-0	Rs. 15-12-0	

Kistna . . . . .	Divi pumping system (a) . . . . .	Rs. 9-0-0	Rs. 12-0-0	Rs. 9-6-0 to 12-8-0 from f. 1346, From 1932.
	Muniyeru (a) . . . . .	Rs. 9-6-0	Rs. 9-6-0	
W. Godavari . . . . .	Yenamadurru drain . . . . .	Rs. 6-0-0 to 7-8-0	Rs. 6-0-0 to 7-8-0 †	† From 1934-35 Delta rates from 1932 (applied before.)
	Kollair and Uppeteru (a) . . . . .	Rs. 6-0-0	Rs. 6-0-0	
Guntur . . . . .	Bhavanasi project . . . . .	Rs. 14-1-0	Rs. 14-1-0	
Nellore . . . . .	Mopad Reservoir . . . . .	Rs. 11-12-0	Rs. 11-12-0	
	Vavveru channel . . . . .	Rs. 9-6-0	9-6-0	From 1934—New work.
	Chinna and podda cheruvus, Chamadala Village . . . . .	Rs. 14-1-0	14-1-0	W=Rs. 2-0-0 to 8-14-0
	Other sources . . . . .	1½ (W-D)+¼ D.	6-0-0	D=As. 0-4 to Rs. 4-8-0
Kurnool . . . . .	Siddhapuram project . . . . .	Rs. 14-1-0	14-1-0	
	Venkatapuram project . . . . .	Rs. 6-4-0	6-4-0	
Kurnool and Cuddapah . . . . .	Kurnool-Cuddapah Canal . . . . .	1½ (W-D)+¼ D.	6-0-0	W=Rs. 2-0-0 to 10-0-0 D=As. 0-4-0 to Rs. 4-0-0
Kurnool . . . . .	Other sources . . . . .	Do.	6-0-0	New work completion not reported.
	Thippayapalem project . . . . .	Rs. 18-0-0	..	

(a) From 1932. Differential water rate system was in force before this year, the charge being 1½ (W-D)+¼ D. Re 1 were W=vide Statement (A) and D=

Godavari Delta . . . . .	As. 4 to Rs. 7-0-0
Upland . . . . .	As. 5 to Rs. 5-8-0
Kistna Delta . . . . .	As. 4 to Rs. 5-0-0
Upland . . . . .	As. 5 to Rs. 3-12-0
Guntur Delta . . . . .	As. 4 to Rs. 6-0-0
Upland . . . . .	As. 5 to Rs. 5-10-0

## STATEMENT B—contd.

District.	Source.	Ryotwari.	Zamindary and whole inam villages.	REMARKS.
1	2	3	4	5
Cuddapah . . .	Aswarthar ayanikunta . . .	Rs. 9-6-0	Rs. 9-6-0	New work completion not reported.
	Nagavaram tank . . .	Rs. 10-0-0	Rs. 10-0-0	
	Peddasettipalli spring channel ..	Rs. 6-14-0	Rs. 6-14-0	New work completion with reported.
Cuddapah . . .	Other sources except Cheped channel . . .	$1\frac{1}{2}$ (W-D) + $\frac{1}{2}$ D.	Rs. 6-0-0	W = Rs. 2-0-0 to 10-0-0
	Chepad channel . . .	Do.	Rs. 8-0-0	D = As. 4-0 to Rs. 4-0-0
Bellary . . .	Basavannah channel . . .	Rs. 4-8-0 to 6-0-0 Rs. 15-0-0*	Rs. 4-8-0 to 6-0-0 Rs. 5-0-0 (Inam wet lands)	Till 1936. *From 1936 for new irrigation.
Anantapur . . .	Kadiri taluk . . .	$1\frac{1}{2}$ (W-D) + $\frac{1}{2}$ D.	Rs. 6-0-0	W = Rs. 2-0-0 to 9-0-0 D = As. 4-0 to Rs. 2-0-0
Chingleput . . .	..	Do.	Rs. 6-0-0	W = Rs. 1-8-0 to 10-0-0 D = As. 4-0 to Rs. 3-6-0
South Arcot . . .	Toludur project . . .	Rs. 9-6-0	Rs. 9-6-0	
Tanjore . . .	G. A. C. and Vadavar extension canal . . .	$\frac{1}{2}$ Rs. 21-0-0 to 22-8-0	$\frac{1}{2}$ Rs. 17-8-0 to 21-0-0	From 1933-34—New work.
	Old delta irrigated by Cauvery .	Rs. 4-8-0 to 6-0-0 Rs. 7-8-0 to 7-0-0	Rs. 4-8-0 to 6-0-0 Rs. 5-13-4 to 7-8-0	Till 1934-35. From 1935-36. In 1934-35 the rates were Rs. 16—17 $\frac{1}{2}$ and Rs. 15—17 $\frac{1}{2}$ .
	Other sources . . .	Rs. 4-8-0 to 6-0-0	Rs. 4-8-0 to 6-0-0	

Trichinopoly	Karur taluk	$1\frac{1}{2}$ (W-D) + $\frac{1}{2}$ D.	Rs. 6-0-0	W=Rs. 2-14-0 to 13-12-0 D=As. 4 to Rs. 2-4-0 In 1934-35. From 1935-36.
	Cauvery	Rs. 16-0-0 to 17-8-0 Rs. 7-8-0 to 9-0-0	Rs. 15-0-0 to 17-8-0 Rs. 5-13-4 to 7-8-0	
	Sriramesamudram	Rs. 4-8-0 to 6-0-0 Rs. 21-0-0 to 22-8-0 As. 7 to Rs. 7-8-0	Rs. 15-0-0 to 22-8-0 Rs. 5-13-0 to 7-8-0	Till 1934-35. In 1934-35. From 1935-36.
	South Bank canal and Kattalai High level channel (new work).	As. 5 to Rs. 7-8-0	Rs. 5-0-0 to 7-8-0	From 1935-36.
	Musiri (3 tanks)	Rs. 9-8-0	Rs. 9-8-0	From the date of completion of works.
Madura	Perigar	Rs. 8-0-0	Rs. 8-0-0	
	Cumbum Valley	Rs. 16-0-0	Rs. 7-0-0 (prop. wet lands).	W=Rs. 2-0-0 to 9-0-0
Chittur	Madanapalle and Vayepad	$1\frac{1}{2}$ (W-D) + $\frac{1}{2}$ D.	Rs. 16-0-0 Rs. 6-0-0	D=As. 4-0 to Rs. 2-0-0
Salem	..	Rs. 4-8-0 to 6-0-0 Rs. 15-0-0 to 17-8-0 Rs. 7-8-0	Rs. 15-8-0 to 17-8-0 Rs. 5-13-4 to 7-8-0	Till 1934-35. In 1934-35. From 1935-36.
	Other than Cauvery	Rs. 4-8-0 to 6-0-0	Rs. 4-8-0 to 6-0-0	
Goimbatore	...	$1\frac{1}{2}$ (W-D) + $\frac{1}{2}$ D.	Rs. 6-0-0	W=Rs. 2-14-0 to 13-12-0 D=As. 4-0 to Rs. 2-4-0
Kurnool	Criminal settlement under the Siddihapuram project	Rs. 1-8-0	..	1928-29.
		Rs. 3-0-0	..	1929-30.
		Rs. 6-0-0	..	1930-31.
		Rs. 7-2-0	..	From 1931-32 till 1937-38.

NOTE.—Under the Godavari and Kistna deltas the rate of water cess for a single wet crop was reduced from Rs. 6-4-0 to Rs. 5-12-0 for fasli 1346. The same reduced rate was applied to Polavarm Island Project. The rate for sugarcane would have been one and a half times the reduced rate.

Under the Polavarm Island project, concessional rate of Rs. 7-8-0 per acre was in force in faslis 1344 and 1345. The rates for sugarcane in those faslis would have been one and a half times Rs. 7-8-0 per acre.

4. (a) A statement is appended. It shows the estimated cost of cultivation of cane to the cultivator in different districts of the Madras Presidency. All are irrigated.

*Estimate of the cost of cultivation of sugarcane to the cultivator in the different District of the Madras Presidency.*

NOTE.—All Irrigated.

District.	Locality.	TOTAL COST OF CULTIVATION.									
		Prepara- tory cultivation.	Manures and Manuring.	Seeds and Sowing.	After cul- tivation.	Irrigation.	Harvest- ing, Market- ing, etc.	Amount of rent (or lease amount).	Land Revenue and other cesses.	Total cost of cultiva- tion.	
		1	2	3	4	5	6	7	8	9	10
		Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.
East Godavari .	Peddapur . . .	11 0 8	4 5 4	29 5 4	139 10 8	10 0 0	94 5 4	{ 40 0 0 19 9 8	{ 19 10 0	388 15 0	
	Veeravaram . . .	12 0 0	28 5 4	25 0 0	32 0 0	10 0 0	51 0 0	{ 40 0 0 11 14 4	{ 11 14 0	210 3 8	
West Godavari..	Panja Vemavaram (Bhimavaram Taluk)	11 5 6	48 0 0	12 1 4	125 0 0	4 0 0	145 15 2	{ 68 5 4 20 10 8	{ 20 11 0	435 6 0	
Vizagapatam .	Kota Uratla . . .	30 11 4	52 9 6	33 10 0	90 10 8	27 3 0	139 0 10	40 0 0	3 0 0	415 13 4	
Do. . .	Kossapeta . . .	13 5 4	21 5 4	24 0 0	30 5 4	10 10 8	36 10 8	35 0 0	12 0 0	177 5 4	
Guntur . . .	Bapatla and Tenali Taluk . . .	15 0 0	70 0 9	68 0 0	90 0 0	25 0 0	140 0 0	90 0 0	0 0 0	426 0 0	
Kistna . . .	Gudivada and Ganna- varam Taluk . . .	10 0 0	20 0 0	20 0 0	7 0 0	5 0 0	55 0 0	60 0 0	0 0 0	134 0 0	
Cuddapah. . .	Chennur, Cuddapah Taluk . . .	19 2 0	26 1 5	22 4 0	25 5 0	28 8 2	125 4 0	75 0 0	16 9 0	338 1 7	
Kurnool . . .	Kalva, Kurnool Taluk Cumbum, Cumbum Taluk . . .	9 0 0	75 0 0	34 0 0	15 0 0	5 0 0	100 0 0	100 0 0	15 0 0	353 0 0	
Bellary . . .	Hospet, Hospet Taluk.	12 0 0	68 4 0	34 8 0	14 10 0	5 0 0	85 0 0	40 0 0	16 0 0	275 6 0	
		26 0 0	62 0 0	37 0 0	29 0 0	22 0 0	89 0 0	85 0 0	22 8 0	372 8 0	

Anantapur	Kampli	20 0 0	55 0 0	34 8 0	27 8 0	16 0 0	92 0 0	115 0 0	22 8 0	382 8 0
	Hindupur, Hindupur Taluk	11 4 0	32 2 0	79 8 0	14 8 0	89 0 0	71 0 0	45 0 0	18 0 0	359 6 0
	Mohamadabad, Kadiri Taluk	12 8 0	27 8 0	32 0 0	10 0 0	75 0 0	22 8 0	110 0 0	8 0 0	287 8 0
South Arcot	..	14 0 0	98 0 0	36 8 0	17 0 0	15 0 0	55 0 0	82 8 0	8 0 0	326 0 0
Chingleput	..	8 2 0	13 14 4	14 3 4	8 13 4	21 0 0	52 5 4	46 5 4	8 0 0	172 12 4
	..	20 0 0	53 0 0	33 0 0	19 0 0	37 8 0	28 8 0	50 0 0	9 0 0	250 0 0
North Arcot	..	15 6 0	30 12 6	13 14 0	8 2 0	56 0 0	{ 29 11 0 } { 54 12 0 }	50 0 0	8 8 0	267 1 6
Chittoor	..	18 2 0	26 14 0	21 6 0	56 0 0	62 8 0	{ 31 4 0 } { 57 2 0 }	82 8 0	7 0 0	362 12 0
Trichinopoly	Lalgudi Taluk	16 0 0	41 8 0	20 4 0	12 6 0	12 0 0	150 0 0	0 0 0	15 15 0	268 1 0
	Trichinopoly Taluk	12 0 0	25 0 0	20 8 0	10 8 0	14 0 0	85 0 0	0 0 0	12 12 0	179 12 0
Madura	Periyar Area	9 6 0	34 0 0	36 14 0	8 8 0	18 0 0	100 0 0	0 0 0	14 8 0	221 4 0
	Non-Periyar Area	12 7 0	24 5 0	31 4 0	15 0 0	75 0 0	100 0 0	0 0 0	5 0 0	263 0 0
Ramnad	..	10 8 0	24 0 0	22 4 0	4 0 0	60 0 0	131 4 0	0 0 0	8 0 0	260 0 0
South Kanara	Mangalore	15 0 0	54 0 0	36 0 0	10 0 0	30 0 0	100 0 0	50 0 0	0 0 0	295 0 0
	Udipi	17 0 0	70 0 0	42 0 0	10 0 0	40 0 0	120 0 0	45 0 0	0 0 0	344 0 0
	Coondapur	15 0 0	30 0 0	35 0 0	10 0 0	25 0 0	100 0 0	40 0 0	0 0 0	255 0 0
Coimbatore	Coimbatore Taluk	17 2 11	24 2 10	36 7 6	16 1 6	96 6 1	59 12 11	53 1 7	2 0 0	305 3 4
	Udumalpet Taluk	12 14 8	52 8 0	33 0 0	9 2 8	45 0 0	105 0 0	75 0 0	6 0 0	338 9 4
Salem	Wet land	24 0 0	60 0 0	55 0 0	5 0 0	10 0 0	100 0 0	100 0 0	150 0 0	369 0 0
	Garden land	22 0 0	0 0 0	20 0 0	8 0 0	65 0 0	47 0 0	60 0 0	7 8 0	230 0 0



(b) No much variation in the cost of cultivation during the last 7 years except in the case of manuring and irrigation. The tendency has been to reduce the manure bill. Irrigation charges are high in seasons of draught.

The use of Coimbatore canes has tended to reduce the cost of cultivation and yields being higher the cost of production is cheaper.

(c) The average yield of cane per acre as estimated by the Director of Agriculture is as given below:—

	In tons.	In mds. 82 2/7 lb.
Vizagapatam . . . . .	30 & 20	816 & 544
East Godavari . . . . .	43 & 23	1,171 & 762
West Godavari . . . . .	39	1,062
Kistna . . . . .	20	544
Guntur . . . . .	35	953
Cuddapah . . . . .	30	816
Kurnool . . . . .	24 & 23	653 & 762
Bellary . . . . .	20 to 25	544 to 681
South Arcot—		
Fiji B . . . . .	25	681
Co. and other varieties . . . . .	30 to 35	816 to 953
North Arcot . . . . .	23 & 23	625 & 762
Chittoor . . . . .	28	762
Trichinopoly and Tanjore . . . . .	25 to 30 &	681 to 816
Madura and Ramnad . . . . .	12 to 15	327 to 408
South Kanara . . . . .	25 to 30	681 to 816
Coimbatore . . . . .	25 to 30	681 to 816
Salem . . . . .	30 & 15	816 & 408

Sucrose content of different varieties of cane varies from tract to tract and according to soil variations and treatment. Sucrose content of some of the important varieties as furnished by the Director of Agriculture is given below:—

Variety.	Anakapalli.	Palur.	Central farm. Coimbatore	Samalkota.
Co. 213 . . . . .	9.62 to 12.83	15.37	16.05	16.73
Co. 243 . . . . .	12.48 to 15.31	14.96	...	17.75
Co. 281 . . . . .	13.91 to 14.45	18.04	...	19.61
Co. 290 . . . . .	...	16.15	15.97	17.32
Co. 313 . . . . .	12.17 to 15.11	...	...	18.08
Co. 356 . . . . .	12.00 to 13.39	...	...	17.32
Co. 407 . . . . .	12.46 to 15.78	19.13	...	...
Co. 413 . . . . .	...	...	16.57	...
Co. 412 . . . . .	13.32 to 15.19	...	...	18.02
Co. 366 . . . . .	16.12	...	...	...
Co. 368 . . . . .	11.60	...	...	...
Co. 361 . . . . .	...	17.52	...	18.77
Co. 373 . . . . .	14.00 to 15.09	...	...	...
Co. 365 . . . . .	...	17.93	...	20.28
Co. 349 . . . . .	15.61 to 16.06	...	...	...

Variety.	Anakapalli.	Palur.	Central farm. Coimbatore.	Samalkota.
Co. 402	...	12-90	14-99	16-02
Co. 411	13-76 to 14-63	...	...	...
Co. 400	...	16-07	...	17-74
Co. 414	14-37	...	...	...
Co. 401	...	18-96	...	20-32
Co. 419	11-17 to 13-20	16-92	17-41	...
Co. 403	...	18-15	...	16-04
Co. 421	13-70 to 17-98	18-54	...	...
Co. 404	...	13-26	...	...
Co. 508	17-41 to 18-52	...	...	...
Co. 417	...	...	14-81	...
247 B	11-88 to 13-24	14-91 to 16-37	15-58	18-11
Fiji B	...	17-02 to 20-01	...	20-28
P. O. J. 2878	14-27 to 16-72	18-89	17-87	20-28
P. O. J. 2714	...	19-43	...	...
M. 55	...	17-55	...	...

5. The price of sugarcane for growers varies according to localities depending on the cost of cultivation, distance from the factories, facilities of communication, and varieties which again differ in yield and sucrose content. No attempt has been made to determine finally what could be considered a fair price for sugarcane in the different districts of the Presidency and there has been no demand for it either.

6. (i) There has been no very marked variation in any particular area. Climatic conditions have an effect on the increase or decrease in area as is evident from the slight fluctuations in area recorded in answer to question No. 1. In districts where rainfall has been poor, it has had the effect of reducing the area.

(ii) & (iii) Price of sugar has had no influence on the variations in the area, though often the price of jaggery has on the succeeding crop of sugarcane.

(iv) Cambodia cotton especially in the Coimbatore District which stands on the field for a shorter time and consumes less water and gives very fair profits competes with sugarcane in some important areas. On the other hand, the low prices obtained by paddy which is the chief alternative crop to cane have helped to increase the area under cane. Again certain varieties like Co. 213 which need much less irrigation and which can withstand drought in summer have been responsible for increasing the area in places where such varieties have been cultivated. In one year in a certain district in the hope that a large factory was being erected, a large area was put under cane; owing to the delay in its erection, no cane was purchased. This had the effect of reducing the area, during the next year.

7. There has been no over-production of sugarcane in the Presidency in 1936-37. It does not follow that all that was produced was converted into sugar. By far the larger portion was utilised for the manufacture of gur as the following statement for 1935-36 will show:—

	Tons.
Estimated quantity of cane produced . . . . .	3,789,600
Estimated quantity used for chewing and seed . . . . .	611,611
Quantity of cane crushed in sugar factories . . . . .	191,380
Quantity of cane turned into gur . . . . .	2,986,609

The production of cane sugar in 1936-37 is estimated at about 22,500 tons as against an estimated consumption of approximately 90,000 tons and if new factories are to come into existence, or the capacity of the existing factories increased, it will be necessary to extend the area under sugarcane.

8. The other cash crops vary according to districts as shown below:—

(1) *Vizagapatam and Godavari Gingelly, groundnut, tobacco, chilly and plantains.*—Only plantain alternates with cane, and gives better return than cane. Though it is popular in some areas it cannot effectively replace cane because of the difficulty of keeping the fruit for more than a few days. In 1936-37 it is estimated that while cane hardly paid itself plantain brought in a net return of Rs. 100 per acre. The average net return from the other cash crops in the Vizagapatam District are:—

	Per acre.
	Rs.
Gingelly . . . . .	10—15
Tobacco . . . . .	50—100
Chillies . . . . .	25—50
Plantain . . . . .	100—200

(2) *Guntur, Kiswa and Nellore-Turmeric (wet lands), cotton, tobacco, chilly, groundnut (dry lands).*—Turmeric in wet lands alternates with cane. The average net return per acre from these crops are:—

	Rs.
Turmeric . . . . .	100
Cotton . . . . .	40
Tobacco . . . . .	40
Groundnut . . . . .	40
Chilly . . . . .	40

(3) *Bellary, Cuddapah and Kurnool.*—No cash crops alternate with cane.

(4) *Central Districts.*—The average net return per acre from other cash crop is as follows:—

	Rs.
Groundnut . . . . .	70—100
Cambodia cotton . . . . .	100
Betel vine . . . . .	200
Chilly . . . . .	150
Tobacco . . . . .	120
Plantain . . . . .	100

Of these, groundnut and cambodia alternate with and bring a similar profit as cane. Though betel-vine and plantain are as profitable as, if not more than cane, the area under them is small.

(5) *Trichinopoly and Tanjore.*—The crops which alternate with cane are:—

	Profit per acre.
	Rs.
Plantain . . . . .	120
Turmeric . . . . .	130

(6) *Madura, Ramnad and Tinnevely*—

	Rs.
Cambodia cotton . . . . .	50
Groundnut . . . . .	40
Chilly . . . . .	10
Tobacco . . . . .	70

No. cash crops alternate with cane.

(7) *West Coast*.—Chilly ordinarily alternates with cane bringing a return of Rs. 100 per acre.

(8) *Coimbatore*.—Cambodia alternates with cane. The gross income per acre is about Rs. 100. As elsewhere betel-vine and plantains are alternative crops but their scope is limited.

**NOTE**.—The returns quoted above are only approximate and no attempt has been made to check the accuracy of these figures as they relate to ryots' conditions and vary widely according to local practices.

9. No separate accounts are maintained for extension and improvement of sugarcane cultivation in the Province. Improvement work is done first on the Agricultural Research Stations and whatever is found profitable on them is later transferred to "trial plots" in districts. The most successful or suitable items are demonstrated to ryots in demonstration plots.

The four research stations where sugarcane occupies an important place are Anakapalli, Samalkot, Palur and Guidyatham. Even here it is not possible to get accurate figures as items under cost of cultivation of various crops are grouped together.

10. The Government of India have so far allotted Rs. 89,000 but the allotment has not been utilised yet. The scheme put up for the purpose did not meet with their approval. A revised scheme is under the consideration of the Local Government. The contribution is not adequate, seeing the magnitude of the work the Local Government have in view.

11. (i) Research work on sugarcane is being carried on at the several agricultural stations and may be broadly divided into:—

(a) *Varietal trials*.—The canes are obtained from the Imperial Cane Breeding Station, Coimbatore, and are first laid out in plots and grown for some years and only promising varieties are selected on their yield, sucrose content and percentage of recovery of jaggery.

(b) *Manurial trials*.—These include experiments on their effect on yield, and juice; use of molasses; the effect of different doses of manure on different varieties, and on different spacings; time of application of manures; different doses of nitrogenous manures to arrive at the optimum dose required for particular varieties.

(c) *Cultural trials*.—These include experiments such as ratooning, optimum seed rate per acre, time of planting, trench planting *versus* bed, and spacing trials.

(d) *Rotational trials* to decide which is the most suitable from the point of yield and profits.

(e) *Irrigation trials* which include restricted manure and irrigation as opposed to normal applications of manure and irrigation; varieties under swamp conditions.

(f) *Trials to study the possibility of raising cane* in (1) dry lands under rainfed conditions by planting in April, June and October, (2) wet land under rainfed conditions by planting in June.

(g) Study of deterioration of cane, study of colour and consistency of jaggery prepared from different varieties.

(h) Chemical trials which include variation in chemical composition in (1) the crop after 9th month and onwards till harvest, (2) arrowed and unarrowed, and (3) wrapped and unwrapped canes.

(i) Insect pests and diseases—

(i) Investigations in red rot, mosaic and smut diseases.

(ii) Investigations on moth borers, their different species, distribution, seasonal occurrence, nature and extent of damage, natural enemies and control measures. Mealy bugs—life-history studies—natural enemies.

(ii) As already stated under (i) research work is carried on the Agricultural Stations, and the most promising of these whether in varieties, manures or cultural practices, etc., are put in "trial plots" in different centres of a district for at least 3 years, and those that suit the local conditions best are put under demonstration plots in ryots' own lands. This gives an opportunity for the ryots to judge for themselves what suits their conditions when attempts are made by each demonstrator to do propaganda work and to supply the demands of the ryots. Such demonstrations also include suitable ploughs and intercultivating implements. Such propaganda and demonstration are being carried on in all sugarcane growing areas and also in places where sugarcane is likely to do well, e.g., Cauvery-Mettur Project area.

12. (i) The Imperial Council of Agricultural Research has granted a lump sum of Rs. 1½ lakhs to meet the entire expenditure of the research work on the Agricultural Research Station, Gudiyattam (Rs. 1,19,300), and a part of expenditure on research at Agricultural Research Station, Anakapalli (Rs. 30,800). The scheme was started at Anakapalli in 1933, and in Gudiyattam in 1935 and is intended to last for 5 years in the first instance.

(ii) Practically all the varieties under trial owe their origin to the Imperial Cane Breeding Station.

(iii) Some technical advice to Anakapalli.

A lot more could be done if more funds were forthcoming.

13. Those connected with the factory at Nellikuppam have constantly visited the Palur farm for help in regard to suitable varieties; other factories started recently have tried and multiplied improved varieties with the assistance of Agricultural Demonstrators.

Improved methods of planting and intercultivation are also practised by them. The Vuyyur factory has recently taken one of our experienced officers in sugarcane cultivation as their technical adviser.

14. The following are the estimates for 1935-36 in tons:—

- (a) 191,380.
- (b) Negligible.
- (c) 2,986,609.
- (d) 611,611.

Total . 3,789,600.

15. Some of the difficulties of cane-growers in the cultivation of cane and its delivery to factory are the following:—

- (a) Uncertain seasons.
- (b) Want of transport facilities; often canes have to be carried in head loads over long distances across fields; want of good feeder roads. Lack of sufficient number of carts for transport as at Hospet.
- (c) Financial difficulties—want of initial capital; sufficient advances for preliminary cultivation and purchase of manures, etc.
- (d) Irrigation difficulties, i.e., water is not available at the time of planting or immediately after for the young crop as in the Kistna. Inadequate water supply in tanks.

There ought to be a better organisation between cane-growers and factory-owners regarding the varieties of canes to be planted, time of planting and harvest and delivery to the factory. The factories in their turn should be able to use up all cane when it is in the best condition for manufacturing sugar. There seems to be a feeling among some ryots that assurances given by factories to purchase cane are not always fulfilled.

16. The Co-operative Department is giving all possible assistance to cane-growers to form themselves into co-operative societies. The main objects of these societies are:—

- (1) to advance loans to members for cultivation of sugarcane,
- (2) to purchase seed, manure and implements for sale or distribution to members,
- (3) to disseminate among the members a knowledge of the latest improvements in sugarcane,
- (4) to find a sale for the sugarcane, and
- (5) to take up such work as may be conducive to the achievements of appreciable results in the yield of sugarcane.

All the cane-growers have not joined co-operative societies; only a few organized themselves into co-operative societies, as may be seen from the following statement:—

Name of Society.	No. of cane growers in the area of operations of the Society.	Of the No. in Co. 2, No. who have joined the Society.
Mailpatti . . . . .	697	130
Hospet . . . . .	1,500	525
Vuyyur . . . . .	125	96
Gudivada . . . . .	87	47
Bobbili . . . . .	2,000 to 3,000	749
Kirlampudi . . . . .	620	49
Tiruvarur Cane-growers . . . . .	70	9
Coimbatore . . . . .	correct information not available.	75
Uppur . . . . .	500	38
Bhadragiri . . . . .	50	11

Of the remaining three societies, the society at Lakshminarasupettah is not doing any work, while those at Nellikuppam and Shiyali have not yet started work.

The societies encourage the members to grow good varieties of cane and find a sale for them. There are 13 cane-growers' societies working at present in the following places:—

1. Lakshminarasupettah (Vizagapatam District).
2. Bobbili (Vizagapatam District).
3. Kirlampudi (East Godavary District).
4. Vuyyur (Kistna District).
5. Gudivada (Kistna District).
6. Hospet (Bellary District).
7. Mailpatti (North Arcot).
8. Coimbatore (Coimbatore District).
9. Nellikuppam (South Arcot District).
10. Tiruvarur (Tanjore District).
11. Shiyali (Tanjore District).
12. Uppur (South Kanara District).
13. Bhadragiri (South Kanara District).

Of the above, Nellikuppam and Shiyali Societies have not yet started work. The societies at Lakshminarasupettah, Tiruvarur and Shiyali are situated

in non-factory areas. The two societies in the Kistna District do not undertake to supply cane to the factory, because the growers have undertaken to supply direct to the Vuyyur Co-operative Industrial and Credit Society. The following societies supplied cane to the neighbouring factories:—

<i>Society.</i>	<i>Quantity of cane supplied.</i>
Mailpatti . . .	3,600 tons during 1936-37 valued at Rs. 34,300.
Hospét . . .	6,410 tons during 1936-37 valued at Rs. 69,889.

The Mailpatty Sugarcane Growers' Co-operative Union is in direct touch with cane-growers and renders assistance by way of checking the weightment of canes at the factory and eliminating middlemen. The societies are all in their infancy and it will take sometime before they establish themselves.

17. Minimum prices for cane were proposed to be fixed on the basis of cost of cultivation, varieties and yield allowing a fair margin of profit to the cultivator. Criticisms and suggestions were invited on the proposed prices which were considered by Government and after discussions with growers and factory owners at three Conferences, Government came to the conclusion that it was not possible to come to a common agreement on a workable formula based on the cost of cultivation as it varies widely from one place to another and also with different varieties. It was also pointed out that conditions in this Presidency and in North India are so dissimilar that the necessity for fixing any minimum price had not yet arrived and therefore the matter might be left as it was till it was clearly demonstrated that the intervention of Government was called for. At the instance of the Government of India, the question was again examined in 1936. It was found that the price realised by the grower was higher than the price arrived at according to the ratio suggested by the Indian Sugar Committee or by the Sugar Technologist. There were also no great complaints from the factory owner or from the grower that he was unfairly treated under the present conditions and it was considered that the fixation of minimum price as suggested by the Government of India would not result in enhancing the present return to the grower. On the other hand the prices fixed as minimum would tend to operate as maximum and complaints were likely to arise that sugarcane growers were being exploited by factory owners. The Local Government, therefore, again decided that there was no immediate need for fixing minimum prices in this Presidency.

18. There are only a few factories in the Presidency and they are so scattered at present that the question of competition has not yet arisen and therefore each factory can afford to fix its own price. But as price for cane is influenced by that of sugar and jaggery, high price say in jaggery puts up the price of cane which may work out to be beyond the means of the factory. On the other hand, competition of sugar from North India in the local market has a tendency to reduce the price of cane.

19. One of the main needs of the sugar industry to-day is the introduction of types of cane that will mature at various periods of the crushing season in order to avoid the present uneconomic crushing of immature cane by many of the factories. The introduction of early and late ripening varieties will be of great assistance to the industry in extending the crushing season and also in enabling a better recovery of sugar on cane to be obtained at the beginning and end of the season, thus assisting materially to reduce the cost of production of sugar. At present many of the factories commence the season with the crushing of immature canes and finish the season by crushing over-ripe ones, with the result that at the beginning and at the end of the season, the recovery of sugar is too low to permit of profitable working. The question of whether it would be feasible to introduce a system of bonus payments over and above the minimum rate for superior early and late varieties of cane is, therefore, a very important one, but its practicability is a matter for close study by experts as it would perhaps result in a tendency for growers to concentrate on the cultivation of early and late varieties of cane at the

expense of cane maturing during the rest of the season, and this would be of considerable embarrassment to the factories.

20. The average cost of transport of cane by carts per maund per mile is as follows in the Presidency:—

Locality.	Price
	per maund per mile.
	Pies.
<b>I Circle—</b>	
Vizagapatam . . . . .	1
Godavari . . . . .	2
<b>II Circle . . . . .</b>	1-2
<b>III Circle . . . . .</b>	4-6
<b>IV Circle . . . . .</b>	1½
<b>V Circle . . . . .</b>	2-5
<b>VII Circle . . . . .</b>	Nearly 1 pie by boat.
<b>VIII Circle . . . . .</b>	1-25-2

21. The ryots employ their own carts as far as possible but as cane is cut and carted in bulk, other carts are employed and in this there is the practice of ryots helping each other. Where carts are hired the rates are as follows:—

**Coimbatore District—**

5-10 miles—Rs. 1-4 to Rs. 1-8 per trip.

10-15 miles—Rs. 1-12 to Rs. 2 per trip.

20-25 miles—Rs. 3 per trip.

Each cart will carry ½ to 1 ton depending on the condition of the road.

Guntur—Rs. 2-8 per day.

Vizagapatam—12 annas to rupee 1 per ton per mile.

Bellary—Cost of hiring is 4 annas per mile from field to factory.

The hire is not much higher than the prices mentioned in the previous answer.

22. Rail transport facilities are adequate at present. Attention is invited to the answer to question No. 23 which gives the various concessions secured by the Industries Department in railway freight rates for various sugar factories. Road facilities require improvement. Very little has been done in regard to feeder roads from cane-growing villages to factories; at the same time, factories with the exception of one or two, are not large enough to draw upon areas situated far away from factories. But the question of improvement of road transport will have to be considered sooner or later, especially in wet land tracts. There are no tramway facilities for transport of canes.

23. The Department of Industries has given a good deal of attention to the development of the sugar industry in the Presidency and some of the factories have been established under the guidance of the department. The department was largely responsible for the establishment of the Vuyyuru Co-operative Industrial and Credit Society, Ltd., which was formed for the purpose of setting up a 850-ton sugar factory at Vuyyuru in the Kistna District, in which district an area, at present insufficient in extent, has been brought under cultivation with certain of the deep-rooted varieties of Coimbatore sugarcane. The Society was granted a loan by the Madras Provincial Co-operative Bank, Ltd. The department advised in regard to the specification of the machinery and plant and negotiated the contract with the suppliers—Messrs. A. W. Smith & Co., Ltd.—at a very favourable



price which left little margin of profit to the manufacturers. The department also assisted in the starting of two of the smaller factories. Prior to the disastrous fall in sugar prices, the department considered the possibility of developing the cultivation of sugarcane in one or two areas of the Presidency with a view eventually to the starting of new factories, and the Sub-Committee of the Provincial Economic Council for Agricultural Development has recommended that an investigation of the possibility of developing sugarcane cultivation in a tract of land between the Cauvery and the Coleroon should be investigated. The department was closely associated with the investigation of the possibility of establishing a sugar factory in the Lalgudi area of the Trichinopoly district, as a result of which the Srimati Sugar Mills, Ltd., Lalgudi has been formed for the purpose of setting up a factory capable of crushing 250 tons of sugarcane per day. The whole of the Lalgudi taluk is admirably suited for sugarcane cultivation and as water is available for irrigation during the greater part of the year, sugarcane may be available for six months in the year in the initial stages of working, whilst it is anticipated that by introducing suitable varieties, it will be possible later on to extend the crushing season beyond this period. Sugarcane has been grown in the Lalgudi taluk for a very long time and the cultivators are accustomed to sugarcane cultivation and to the use of manures. Owing to the great delay in forming the company, however, it is doubtful whether the project will now mature, since owing to the fall in sugar prices, difficulty has been experienced in raising the requisite capital. The Department of Industries has been instrumental in securing concessions in freight rates for various sugar factories. At the instance of the department, specially reduced rates for the transport of sugarcane seed from Anakapalle, Poona, Repalle, Tenali and Coimbatore to Hospet, and for sugarcane from the Nizam's Dominions to Hospet, were introduced by the Madras and Southern Mahratta Railway Co., Ltd., during the year 1934-35. The department was also instrumental in securing reduced rates for the transport of sugarcane from Kunnattukidavu and Kovilpalaiyam and Pollachi to Podanur junction. Special freight rates for the transport from Madras of structural materials required for the Vuyyuru Co-operative Industrial and Credit Society, Ltd., were also secured. A reduction of rates on the transport of sugarcane to Bezwada, as also a reduction in the railway freight on sugar from Bezwada to Madras were also obtained for the same factory. The question of the minimum weight charged per railway wagons engaged on the transport of sugarcane was also taken up. In view of the fact that it is necessary to crush sugarcane as soon as possible after it is cut, as otherwise crushing becomes uneconomic, the Madras and Southern Mahratta Railway Co., Ltd., were requested to issue special instructions for trucks loaded with sugarcane to be attached to the next available goods train and they agreed to arrange for special quick transit to Bezwada. The attention of the Railway was also drawn to the fact that it was very necessary for loading facilities to be provided throughout the day and night at Bezwada during the months of January, February and part of March, and the railway authorities undertook to look into this and to arrange matters if possible. Although the Vuyyuru factory has not, owing to various reasons been able to take full advantage of some of the concessions obtained for them, several of the concessions obtained were of real benefit to the factories concerned and the efforts of the department on their behalf have been greatly appreciated.

24. (1) The Indian Sugars and Refineries, Ltd., Hospet, is allowed to take water from the Raya channel at a concession rate for the use of the factory.

(2) A loan of Rs. 50,000 was granted by Government under the State Aid to Industries Act to Sri Ramakrishna Sugar Mills, Ltd., Kirlampudi in March, 1936, for the purpose of (i) discharging a debt due to a bank, and (ii) for the purchase and installation of additional machinery to enable the factory to increase its capacity from 80 to 120 tons a day. The extensions to the Kirlampudi factory, carried out with the aid of the loan, comprised an increase in the number of rollers from 8 to 11 and the installation of an additional evaporator, vacuum pan, two centrifugals, boiler and filter-press.

25. There are three co-operative sugar factories working in the Madras Presidency in the following places:—

- (1) Vuyyur (Vuyyur Co-operative Industrial and Credit Society).
- (2) Ettikoppaka (Ettikoppaka Co-operative Industrial and Credit Society).
- (3) Tummappala (Sri Ramakrishna Co-operative Industrial and Credit Society) (under the management of Vizagapatam Sugars and Refineries, Ltd.).

A brief account of their working is given below:—

*Vuyyur Co-operative Industrial and Credit Society (Kistna District).*—The society was started on work in February, 1934, and the installation of the plant and machinery was completed towards the close of 1935. It is financed by the Madras Provincial Co-operative Bank. The society commenced to crush sugarcane on 15th January, 1936. The crushing capacity of the factory is about 850 tons per day. Assuming the normal working season to be 120 days, the factory requires at least 1 lakh of tons of cane. With a view to secure the required quantity of cane, the by-laws of the society provide that every member should grow one acre of sugarcane for every share taken by him and deliver it to the factory. But the members did not grow cane as prescribed in the by-laws with the result that the factory crushed about 34,000 tons during the first season and it incurred a net loss of Rs. 1,46,488. The society was unable to keep up its obligations to the Provincial Bank.

The results of the second season (1936-37) also have not been satisfactory; cane supply was inadequate during this season also. The society crushed 30,923 tons only and the duration of the crushing season was only 79 days. Of this there was crushing for only 56 days and the factory stopped work for 23 days. The stoppages on 16 out of 23 days were due to want of sugarcane. The average crushing per day was 391.5 tons as against the capacity of 850 tons. It is expected that the net loss during the second season will amount to about Rs. 1,85,063 and the total loss for the two years will be approximately Rs. 3,31,551. The society is not in a position to pay the instalment due to the Madras Provincial Co-operative Bank. The chief contributing causes for the heavy loss are as follows:—

- (1) Inadequate supply of cane.
- (2) The society paid Rs. 10 per ton of cane, this was very high when compared with the prevailing selling price of sugar Rs. 7 to Rs. 8 would have been reasonable.
- (3) Proper control was not exercised over the issue and consumption of store materials.
- (4) Want of loyalty among members who failed to grow sugarcane.
- (5) The expenditure during the off-season was not properly regulated.
- (6) The society had to pay interest at 5 per cent. right from the beginning (long before the society commenced crushing) on the loans borrowed from the Provincial Bank.
- (7) Fall in price of sugar and the heavy excise duty.

With a view to place the factory on a sound footing the following steps have been taken:—

- (1) The society has employed an Assistant Director of Agriculture having experience of sugarcane; it is expected that he will bring about 5,000 acres around the factory under cane cultivation during the next two years. On an average of 20 tons per acre, the society will then have 1 lakh of tons.
- (2) The society has requested the Provincial Bank to extend the period of the loans and also to reduce the rate of interest.

- (3) In future, the price of cane will be fixed by the General Manager with reference to the prevailing price of sugar.
- (4) All possible steps will be taken to cut down the expenditure to the minimum so as to reduce the cost of manufacture of sugar.

The present position of the society is unsatisfactory and this is mainly due to the inadequate supply of cane. The price of sugar has also fallen considerably to about Rs. 15 per bag. The excise duty has been increased from Rs. 2 to Rs. 3 per bag and unless the price of sugar rises to about Rs. 19 or Rs. 20 per bag, the society cannot make any profit. It remains to be seen whether the society will crush 1 lakh of tons of cane in a year or two and whether it will be able to earn a profit. For the coming 1937-38 season, the cane available may not exceed 40,000 tons.

2. *Ettikoppaka Co-operative Industrial and Credit Society.*—The society started work in April, 1933, and it commenced crushing in January, 1934. The results at the end of the season were not satisfactory for the following reasons:—

- (1) Want of experience in working sugar factories.
- (2) Late arrival of machinery.
- (3) Faulty installations and consequent stoppages from time to time.

Though the factory was expected to crush 50 tons per day, the average crushing did not exceed 35 tons per day. The recovery of sugar was only 5 per cent. and the society sustained a net loss of Rs. 15,518 by the end of 1933-34.

Additional machinery was installed in the year 1934-35 and the factory worked for 74 days only during the year and did not crush the expected number of tons. Stoppages in the working of the factory were common and at every stage technical advice had to be sought for. At the end of the year the net loss increased to Rs. 31,431.

During 1935-36, the factory worked for 127 days and crushed 5,132 tons. The recovery was 7.1 per cent. The average crushing capacity was far below the maximum. The price of sugar which was Rs. 20 or Rs. 19 in the previous years fell to Rs. 15.8 or Rs. 16 in 1935-36. The manufacturing costs and the cost of establishment remained as they were; the fall in price of sugar together with the heavy excise duty did not give any scope to the society to earn any profit and the net loss at the end of the year 1935-36 rose up to Rs. 56,644.

During the current year, the society commenced crushing only on 27th January, 1937 while it should have begun work in December, 1936; this was due to the delay in the arrival of the additional machinery from England. Up to 17th May, 1937 it has worked for 107 days. The average crushing capacity was 45½ tons while towards the close of the season, the crushing capacity reached 60 tons. The recovery was 8.3 per cent. As the price of sugar is very low, the society will be unable to earn any profit. Now that the capacity has been increased to 60 tons, it remains to be seen whether the society will be able to wipe off the losses in future years.

3. *Thummapala Co-operative Industrial and Credit Society.*—The society was registered in April, 1933 and it took a long time before the installation of the plant could be completed. Early in 1935, it was found that the society required further capital to pay off the debt due to Messrs. Massey & Co., on account of the additional plant purchased from them and other sundry debts and that the members were unwilling or unable to put further money into the society. A transitory by-law was enacted and registered on 5th May, 1935, under which the management of the society was handed over to a private company called the "Vizagapatam Sugars and Refineries, Ltd.". The society has now ceased to function as a Co-operative concern.

During the 1936-37 season, the factory worked for 94 days and crushed 4,918 tons of sugarcane. The average crushing capacity was 52 tons only while the maximum capacity is 120 tons per day. The average recovery was 8 per cent. Delay in the arrival of additional machinery till February, 1937, the fall in the price of sugar and heavy excise duty have resulted in a net loss to the concern.

26. Government have not heard to the contrary.

27. (i) A statement of wholesale prices of sugar imported and Indian prevailing in the Madras, Cochin, Calicut, Madura, Tuticorin and Cocanada markets is enclosed. The prices have been supplied by Messrs. Parry & Co., Ltd.

(ii) A statement of retail prices of sugar supplied by the Triplicane Urban Co-operative Society, Madras, is attached.

A statement of prices of sugar extracted from the daily sheets of Messrs. Parry & Co., Ltd., is enclosed. These prices represent those charged by dealers for supplies of under five bags at a time to petty dealers, coffee hotels, etc.

A statement of prices of jaggery extracted from the daily sheets of Messrs. Parry & Co., Ltd., and another collected from the Triplicane Urban Co-operative Society are enclosed.

#### MADRAS MARKET.

*Wholesale prices per maund of imported and Indian sugars.*

Month and year.	Imported.		Indian.	
	Rs.	A. P.	Rs.	A. P.
<b>1931.</b>				
March	9	0 0	...	...
April	9	0 9	...	...
May	9	7 4	...	...
June	9	5 2	...	...
July	9	4 5	...	...
August	9	4 0	...	...
September	11	0 4	...	...
October	11	1 1	...	...
November	11	0 0	...	...
December	11	5 6	...	...
<b>1932.</b>				
January	11	3 0	...	...
February	10	15 7	...	...
March	10	4 7	...	...
April	10	6 5	...	...
May	10	5 8	...	...
June	10	9 9	...	...
July	10	12 8	...	...
August	10	10 10	...	...
September	10	12 8	...	...
October	11	5 6	...	...
November	11	2 2	...	...
December	11	3 3	...	...

## MADRAS MARKET—contd.

Wholesale prices per maund of imported and Indian sugars—contd.

Month and year.	Imported.	Indian.	
	Rs. A. P.	Rs. A. P.	Rs. A. P.
<b>1933.</b>			
January . . . . .	10 7 6	...	...
February . . . . .	10 8 3	...	...
March . . . . .	10 8 3	...	...
April . . . . .	10 7 2	...	...
May . . . . .	10 13 4	...	...
June . . . . .	10 9 0	...	...
July . . . . .	10 9 0	...	...
August . . . . .	10 7 6	...	...
September . . . . .	10 9 4	...	...
October . . . . .	10 10 6	...	...
November . . . . .	10 2 6	...	...
December . . . . .	10 1 8	...	...
<b>1934.</b>			
January . . . . .	9 14 8	9 11 0 to	9 14 0
February . . . . .	10 1 8	9 11 9 to	9 14 8
March . . . . .	10 1 8	9 11 9 to	9 14 8
April . . . . .	10 4 7	9 13 3 to	10 0 2
May . . . . .	9 13 7	9 10 3 to	9 12 6
June . . . . .	10 0 11	9 11 5 to	...
July . . . . .	10 0 11	9 13 3 to	9 14 0
August . . . . .	9 13 7	9 12 1 to	9 12 10
September . . . . .	9 15 1	9 13 3 to	9 14 0
October . . . . .	9 10 3	... to	...
November . . . . .	9 15 5	... to	...
December . . . . .	9 12 6	9 4 5 to	9 8 10
<b>1935.</b>			
January . . . . .	10 1 8	9 10 3 to	9 14 8
February . . . . .	10 0 2	9 4 5 to	9 5 11
March . . . . .	...	9 3 8 to	9 5 2
April . . . . .	...	9 5 11 to	9 8 10
May . . . . .	...	9 7 4 to	9 11 0
June . . . . .	...	9 8 1 to	9 12 6
July . . . . .	...	9 7 4 to	9 10 3
August . . . . .	9 14 8	9 7 4 to	9 11 0
September . . . . .	10 3 1	9 15 5 to	10 0 11
October . . . . .	10 6 1	10 4 7 to	...
November . . . . .	9 12 6	9 8 10 to	...
December . . . . .	9 11 9	9 7 4 to	9 8 10
<b>1936.</b>			
January . . . . .	9 11 0	9 5 2 to	9 11 0
February . . . . .	9 11 0	8 14 7 to	9 5 11
March . . . . .	9 11 9	9 0 0 to	9 7 4
April . . . . .	9 11 9	8 14 2 to	9 8 1

## MADRAS MARKET—concl'd.

Wholesale prices per maund of imported and Indian sugars—concl'd.

Month and year.	Imported.	Indian.	
	Rs. A. P.	Rs. A. P.	Rs. A. P.
<i>1936—cont'd.</i>			
May . . . . .	9 11 9	8 12. 4 to	9 4 5
June . . . . .	9 11 9	8 12. 4 to	9 6 7
July . . . . .	9 11 9	8 10. 1 to	9 5 2
August . . . . .	9 11 9	8 7 2 to	9 4 5
September . . . . .	9 11 9	8 5. 9 to	9 4 5
October . . . . .	9 10 3	8 1 4 to	9 0 0
November . . . . .	9 10 3	7 14 4 to	8 8 8
December . . . . .	9 8 10	7 5. 7 to	8 4 4
		8 1 4 to	8 4 4
			Old Crop.
			New Crop.
<i>1937.</i>			
January . . . . .	9 8 10	7 7 0 to	8 4 4
February . . . . .	9 7 4	7 1. 2 to	7 11 6
March . . . . .	9 8 10	7 3 5 to	7 11 5
April . . . . .	9 7 4	7 0. 5 to	7 11 5
May . . . . .	...	6 14 2 to	7 8 6
June . . . . .	...	6 13. 6 to	7 8 6

## COCHIN MARKET.

Wholesale selling prices per maund of imported and Indian sugars.

Month and year.	Imported.	Indian.	
	Rs. A. P.	Rs. A. P.	Rs. A. P.
<i>1932.</i>			
January . . . . .	...	11 14 0	...
February . . . . .	...	11 13 6	...
March . . . . .	...	11 13 0	...
April . . . . .	...	10 10 8	...
May . . . . .	...	10 6 9	...
June . . . . .	...	10 6 9	...
July . . . . .	11 0 5	9 15 0 to	11 0 3
August . . . . .	10 14 0	9 13 1 to	10 8 8
September . . . . .	10 14 6	...	9 15 0
October . . . . .	10 8 8	9 15 0 to	10 15 1
November . . . . .	10 13 7	11 8 2	...
December . . . . .	10 9 9	10 0 11 to	11 8 3
<i>1933.</i>			
January . . . . .	10 9 8	10 2. 11 to	11 4 4
February . . . . .	10 8 8	9 13. 1 to	10 14 6
March . . . . .	10 11 1	9 15. 0 to	10 8 8
April . . . . .	10 13 7	9 13. 1 to	10 6 9
May . . . . .	10 8 9	10 0. 11 to	10 6 9
June . . . . .	10 7 3	9 15. 0 to	10 8 9
July . . . . .	10 10 6	9 15. 0 to	10 8 8

## COCHIN MARKET—contd.

Wholesale selling prices per maund of imported and Indian sugars—contd.

Month and year.	Imported.	Indian.	
	Rs. A. P.	Rs. A. P.	Rs. A. P.
<i>1933—contd.</i>			
August	10 3 10	9 15 0	to 10 2 10
September	10 5 9	9 6 4	to 9 15 0
October	10 4 10	9 3 5	to 9 9 3
November	...	...	...
December	...	...	...
<i>1934.</i>			
January	...	...	...
February	...	...	...
March	9 15 8	9 15 6	to 10 4 7
April	9 15 1	...	...
May	9 12 1	...	...
June	9 12 1	...	...
July	10 1 5	...	...
August	9 12 1	...	...
September	9 11 6	...	...
October	9 10 4	...	...
November	9 15 1	...	...
December	9 5 6	...	...
<i>1935.</i>			
January	9 7 11	...	...
February	9 5 5	...	...
March	9 3 8	...	...
April	9 10 4	...	...
May	9 13 9	...	...
June	9 15 0	...	...
July	9 15 0	...	...
August	10 1 4	...	...
September	9 14 5	...	...
October	9 15 1	...	...
November	9 9 0	...	...
December	9 9 0	...	...
<i>1936.</i>			
January	9 9 0	...	...
February	9 9 0	...	...
March	9 9 0	...	...
April	9 12 0	9 1 0	...
May	9 13 0	9 1 3	...
June	...	8 10 2	...
July	...	8 4 5	...
August	...	8 3 8	to 8 15 3
September	...	8 8 0	to 8 12 9
October	...	8 5 5	to 8 10 9
November	...	8 4 4	to 8 9 8
December	...	8 6 4	to 8 9 9

## COCHIN MARKET—concld.

Wholesale selling prices per maund of imported and Indian sugars—concld.

Month and year.	Imported.	Indian.	
	Rs. A. P.	Rs. A. P.	Rs. A. P.
<i>1957.</i>			
January . . . . .	...	7 6 3 to	8 0 3
February . . . . .	...	7 4 9 to	7 8 5
March . . . . .	...	7 2 0 to	7 4 10
April . . . . .	...	7 4 0 to	7 6 9
May . . . . .	...	6 14 9 to	6 15 11

## CALCUT MARKET.

Wholesale selling prices per maund of imported and Indian sugars for the last seven years.

Month and year.	Imported.	Indian.
	Rs. A. P.	Rs. A. P.
<i>1930.</i>		
March . . . . .	9 8 9	10 4 7
April . . . . .	9 8 9	10 5 1
May . . . . .	9 8 9	10 1 8
June . . . . .	9 5 11	9 12 9
July . . . . .	9 4 5	9 6 10
August . . . . .	9 2 11	9 7 4
September . . . . .	8 13 1	8 15 0
October . . . . .	8 9 5	8 13 0
November . . . . .	8 5 0	8 14 0
December . . . . .	8 7 11	8 14 0
<i>1931.</i>		
January . . . . .	8 14 6	8 15 0
February . . . . .	9 2 2	9 12 9
March . . . . .	9 3 8	9 11 3
April . . . . .	9 7 4	9 11 3
May . . . . .	9 8 9	10 0 8
June . . . . .	10 3 1	10 4 7
July . . . . .	9 14 9	10 1 8
August . . . . .	9 11 9	9 15 8
September . . . . .	10 7 6	11 10 1
October . . . . .	11 3 4	11 10 6
November . . . . .	11 12 1	12 5 3
December . . . . .	11 5 6	12 1 11
<i>1932.</i>		
January . . . . .	11 3 4	11 11 2
February . . . . .	11 6 2	11 8 2
March . . . . .	10 14 10	11 8 2
April . . . . .	10 8 3	10 12 3
May . . . . .	10 8 11	10 8 6
June . . . . .	11 4 9	11 8 2
July . . . . .	11 3 4	11 7 1



## CALICUT MARKET—contd.

Wholesale selling prices per maund of imported and Indian sugars for the last seven years—contd.

Month and year.	Imported.	Indian.
	Rs. A. P.	Rs. A. P.
<i>1932—contd.</i>		
August . . . . .	11 0 4	11 5 3
September . . . . .	11 0 4	11 7 1
October . . . . .	10 15 7	12 1 11
November . . . . .	10 15 7	12 5 10
December . . . . .	10 13 5	12 13 8
<i>1933.</i>		
January . . . . .	10 7 6	11 0 4
February . . . . .	10 9 8	10 12 5
March . . . . .	10 14 3	10 13 4
April . . . . .	10 9 8	10 11 5
May . . . . .	10 12 8	10 12 5
June . . . . .	10 10 6	10 12 5
July . . . . .	10 10 6	10 11 5
August . . . . .	10 6 1	11 1 5
September . . . . .	10 11 11	11 1 8
October . . . . .	10 11 3	11 1 5
November . . . . .	10 6 1	10 15 4
December . . . . .	10 6 9	10 15 4
<i>1934.</i>		
January . . . . .	10 0 10	10 1 8
February . . . . .	10 3 2	10 1 8
March . . . . .	10 2 5	10 1 8
April . . . . .	9 13 2	9 14 9
May . . . . .	9 14 9	9 14 9
June . . . . .	9 14 9	9 14 9
July . . . . .	10 3 1	10 6 7
August . . . . .	9 14 10	...
September . . . . .	9 11 4	...
October . . . . .	9 12 6	...
November . . . . .	10 0 2	...
December . . . . .	9 9 6	...
<i>1935.</i>		
January . . . . .	9 14 1	9 10 9
February . . . . .	9 9 6	9 10 9
March . . . . .	9 8 9	9 8 9
April . . . . .	9 11 9	9 10 9
May . . . . .	10 0 10	9 15 8
June . . . . .	10 4 7	10 6 1
July . . . . .	9 14 9	...
August . . . . .	9 13 11	...
September . . . . .	9 14 4	...
October . . . . .	9 14 9	...
November . . . . .	9 10 4	...
December . . . . .	9 9 6	...

## CALICUT MARKET—concl'd.

Wholesale selling prices per maund of imported and Indian sugars for the last seven years—concl'd.

Month and year.	Imported.	Indian.
	Rs. A. P.	Rs. A. P.
<i>1936.</i>		
January . . . . .	9 11 9	...
February . . . . .	9 10 8	...
March . . . . .	9 10 8	9 11 9
April . . . . .	...	9 6 11
May . . . . .	...	9 7 4
June . . . . .	...	8 11 7
July . . . . .	...	8 9 5
August . . . . .	...	8 5 0
September . . . . .	...	8 1 4
October . . . . .	...	8 7 2
November . . . . .	...	8 8 7
December . . . . .	...	8 4 3
<i>1937.</i>		
January . . . . .	...	8 1 4
February . . . . .	...	7 8 6
March . . . . .	...	7 4 10
April . . . . .	...	7 4 10
May . . . . .	...	7 1 2

## MADURA MARKET.

Wholesale and retail selling prices per maund of imported and Indian sugars.

Month and year.	Wholesale prices.		Retail prices.	
	Imported	Indian.	Imported	Indian.
	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.
<i>1930.</i>				
April . . . . .	9 14 8	9 14 2	10 4 7	10 4 7
May . . . . .	10 9 0	...	11 1 9	...
June . . . . .	9 6 7	...	9 14 0	...
July . . . . .	9 8 1	...	9 14 0	...
August . . . . .	9 8 10	...	9 14 0	...
September . . . . .	9 8 10	...	9 14 0	...
October . . . . .	9 0 9	...	9 7 5	...
November . . . . .	9 0 9	9 0 11	9 7 5	9 7 5
December . . . . .	9 1 6	...	9 7 5	...
<i>1931.</i>				
January . . . . .	9 11 9	...	10 4 7	...
February . . . . .	9 8 5	9 7 10	10 4 7	10 4 7
March . . . . .	9 14 8	...	10 4 7	...
April . . . . .	9 12 6	...	10 4 7	...
May . . . . .	10 2 8	...	10 11 2	...
June . . . . .	9 15 5	9 8 9	10 11 2	10 11 2
July . . . . .	9 11 9	...	10 4 7	...
August . . . . .	10 0 2	...	10 4 7	...

## MADURA MARKET—contd.

Wholesale and retail selling prices per maund of imported and Indian sugars—contd.

Month and year.	Wholesale prices.				Retail prices.				
	Imported.		Indian.		Imported.		Indian.		
	Rs.	A. P.	Rs.	A. P.	Rs.	A. P.	Rs.	A. P.	
<i>1931—contd.</i>									
September	11	10	0	11	11	7	12	5	6
October	11	7	10	11	9	8	12	5	6
November	11	13	7	11	5	3	12	5	6
December	11	11	10	11	3	4	12	5	6
<i>1932.</i>									
January	11	7	4	...	...	...	12	5	6
February	11	7	0	11	8	2	11	14	11
March	10	6	1	...	...	...	11	14	11
April	10	12	0	...	...	...	11	1	9
May	10	14	11	10	11	11	11	1	9
June	11	0	4	10	11	5	11	8	4
July	11	1	10	10	11	0	11	8	4
August	11	6	4	10	11	5	11	14	11
September	11	1	10	10	12	11	11	14	11
October	11	5	10	10	13	5	11	14	11
November	11	6	2	10	15	10	11	14	11
December	11	0	0	...	...	...	11	8	4
<i>1933.</i>									
January	10	10	10	10	7	0	11	8	4
February	10	11	11	10	8	0	11	1	9
March	10	8	7	10	8	6	11	1	9
April	10	13	0	10	12	5	11	1	9
May	11	3	3	11	1	9	11	8	4
June	10	14	6	...	...	...	11	8	4
July	11	0	4	10	13	11	11	8	4
August	10	13	5	...	...	...	11	8	4
September	10	14	6	10	11	11	11	8	4
October	10	14	6	...	...	...	11	8	4
November	10	10	1	10	9	6	11	8	4
December	10	8	3	...	...	...	11	1	9
<i>1934.</i>									
January	10	5	8	10	0	8	11	1	9
February	10	6	5	10	0	2	11	1	9
March	10	7	11	9	15	8	11	1	9
April	10	6	5	10	4	7	11	1	9
May	10	4	11	10	2	8	11	1	9
June	10	6	1	10	1	2	11	1	9
July	10	7	2	10	4	1	11	1	9
August	10	5	4	10	4	1	10	11	2
September	10	2	9	10	4	1	10	11	2
October	10	2	9	10	3	1	10	11	2
November	10	2	2	10	0	2	10	11	2
December	9	15	9	...	...	...	10	11	2

## MADURA MARKET—conold.

Wholesale and retail selling prices per maund of imported and Indian sugars—conold.

Month and year.	Wholesale prices.		Retail prices.	
	Imported.	Indian.	Imported.	Indian.
	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.
<i>1935.</i>				
January	10 2 4	9 14 2	10 4 7	10 4 7
February	10 0 2	9 11 9	10 4 7	10 4 7
March	9 15 9	9 11 3	10 4 7	10 4 7
April	10 2 9	10 2 2	10 4 7	10 4 7
May	...	10 6 7	10 11 2	10 11 2
June	10 6 5	10 5 1	10 11 2	10 11 2
July	10 5 4	...	10 11 2	10 11 2
August	10 4 11	10 2 2	10 11 2	10 11 2
September	10 12 0	10 8 6	10 11 2	10 11 2
October	10 10 6	10 8 6	11 1 9	11 1 9
November	10 4 11	10 2 2	10 11 2	10 11 2
December	10 4 7	9 15 8	10 11 2	10 11 2
<i>1936.</i>				
January	10 7 2	10 1 2	10 11 2	10 11 2
February	10 6 9	10 2 2	10 11 2	10 11 2
March	...	9 11 9	10 11 2	10 11 2
April	...	9 8 9	...	10 4 7
May	...	9 9 3	...	10 4 7
June	...	9 1 11	...	9 14 0
July	...	9 10 3	...	9 14 0
August	...	9 9 10	...	9 14 0
September	...	8 15 8	...	9 0 10
October	...	9 0 9	...	9 0 10
November	...	9 0 0	...	9 0 10
		to		
		8 13 1	...	
December	...	9 0 0	...	9 8 10
		to		
		8 4 8	...	
<i>1937.</i>				
January	...	8 1 0	...	9 0 10
February	...	7 4 9	...	9 0 10
March	...	8 1 4	...	9 0 10
April	...	...	...	...
May	...	...	...	...

## TUTICORIN MARKET.

Wholesale selling prices per maund of imported and Indian sugars.

Month and year.	Imported.	Indian.
	Rs. a.	Rs. a.
<i>1930.</i>		
January	9 0	...
February	8 11	...
March	9 7	...

## TUTICORIN MARKET—contd.

Wholesale selling prices per maund of imported and Indian sugars—contd.

Month and year.	Imported. Rs. A.	Indian. Rs. A.
<b>1930—contd.</b>		
April . . . . .	9 12	...
May . . . . .	10 4	...
June . . . . .	10 3	...
July . . . . .	9 1	...
August . . . . .	9 6	...
September . . . . .	9 0	...
October . . . . .	8 14	...
November . . . . .	8 14	...
December . . . . .	8 13	...
<b>1931.</b>		
January . . . . .	8 12	...
February . . . . .	9 6	...
March . . . . .	9 8	...
April . . . . .	9 9	...
May . . . . .	9 9	...
June . . . . .	9 13	...
July . . . . .	9 7	...
August . . . . .	9 5	...
September . . . . .	10 7 to 10 10	...
October . . . . .	11 5	...
November . . . . .	11 3	...
December . . . . .	11 6	...
<b>1932.</b>		
January . . . . .	11 3 to 11 4	...
February . . . . .	11 4 to 11 6	...
March . . . . .	10 4 to 10 9	...
April . . . . .	10 4	...
May . . . . .	10 4 to 10 5	...
June . . . . .	10 7 to 10 9	...
July . . . . .	10 13 to 11 0	...
August . . . . .	10 13	...
September . . . . .	11 3 to 11 4	...
October . . . . .	10 13	11 2
November . . . . .	11 0	10 13
December . . . . .	10 15	...
<b>1933.</b>		
January . . . . .	10 9	...
February . . . . .	10 4 to 10 6	...
March . . . . .	10 4 to 10 6	...
April . . . . .	10 5 to 10 6	...
May . . . . .	10 9 to 10 10	...
June . . . . .	10 10	10
July . . . . .	10 9	10 6

## TUTICORIN MARKET—concl'd.

Wholesale selling prices per maund of imported and Indian sugars—concl'd.

Month and year.	Imported.		Indian.	
	Rs. A.	Rs. A.	Rs. A.	Rs. A.
<i>1933—contd.</i>				
August . . . . .	10 7	to 10 9	...	
September . . . . .	10 7	to 10 8	...	
October . . . . .	10 7	to 10 9	...	
November . . . . .	10 6	to 10 7	...	
December . . . . .	10 4	to 10 5	...	
<i>1934.</i>				
January . . . . .	9 14	to 9 15	...	
February . . . . .	10 0		...	
March . . . . .	10 1		...	
April . . . . .	10 1		...	
May . . . . .	9 9	to 10 0	...	
June . . . . .	9 9	to 10 0	...	
July . . . . .	9 9	to 10 1	...	
August . . . . .	10 0	to 10 2	...	
September . . . . .	9 15	to 10 2	...	
October . . . . .	9 9	to 9 11	...	
November . . . . .	9 10		...	
December . . . . .	9 11		9 15	
<i>1935.</i>				
January . . . . .	9 9		9 15	
February . . . . .	9 5	to 9 9	...	
March . . . . .	9 6	to 9 10	...	
April . . . . .	9 9		...	
May . . . . .	9 13		...	
June . . . . .	10 0		...	
July . . . . .	10 0		...	
August . . . . .	9 14		...	
September . . . . .	9 15		...	
October . . . . .	10 6		...	
November . . . . .	10 1		...	
December . . . . .	9 15	to 10 1	...	
<i>1936.</i>				
January . . . . .	9 14		...	
February . . . . .	9 15		...	
March . . . . .	9 15		9 15	
April . . . . .	9 15		9 15	
May . . . . .	9 15		9 10	
June . . . . .	...		9 4 to 9 5	
July . . . . .	...		9 0 to 9 6	
August . . . . .	...		9 0 to 9 6	
September . . . . .	...		8 13 to 9 0	
October . . . . .	...		8 10 to 8 14	
November . . . . .	9 0		8 10 to 8 14	
December . . . . .	...		8 7 to 8 10	

## COCANADA MARKET.

*Wholesale and retail selling prices per maund of imported and Indian sugars.*

Month and year.	Wholesale prices.		Retail prices.	
	Imported.	Indian.	Imported.	Indian.
	Rs. A.	Rs. A.	Rs. A. P.	Rs. A. P.
<i>1930.</i>				
January . . . . .	9 14	9 14	10 4 7	10 4 7
February . . . . .	9 13	9 13	10 4 7	10 4 7
March . . . . .	10 3	10 4	10 4 7	10 4 7
April . . . . .	10 3	10 8	10 4 7	10 11 2
May . . . . .	10 3	10 8	10 4 7	10 11 2
June . . . . .	10 3	10 4	10 4 7	10 11 2
July . . . . .	9 15	9 15	10 4 7	10 4 7
August . . . . .	9 15	10 0	10 4 7	10 4 7
September . . . . .	9 15	9 8	10 4 7	9 14 0
October . . . . .	9 15	9 4	10 4 7	9 7 5
November . . . . .	9 15	9 0	10 4 7	9 7 5
December . . . . .	9 15	9 1	10 4 7	9 7 5
<i>1931.</i>				
January . . . . .	9 0	9 0	9 7 5	9 7 5
February . . . . .	9 10	9 12	9 14 0	9 14 0
March . . . . .	9 10	9 12	9 14 0	9 14 0
April . . . . .	9 10	9 8	9 14 0	9 14 0
May . . . . .	9 10	9 12	9 14 0	9 14 0
June . . . . .	9 10	10 2	9 14 0	10 4 7
July . . . . .	10 0	10 2	10 4 7	10 4 7
August . . . . .	9 10	9 6	9 14 0	9 14 0
September . . . . .	10 0	10 0	10 4 7	10 4 7
October . . . . .	11 5	11 5	11 14 11	11 14 11
November . . . . .	11 5	11 9	11 14 11	12 5 6
December . . . . .	11 5	12 0	11 14 11	12 5 6
<i>1932.</i>				
January . . . . .	11 14	11 7	11 8 4	11 8 4
February . . . . .	11 0	10 15	11 1 9	11 1 9
March . . . . .	11 6	11 7	11 8 4	11 8 4
April . . . . .	10 10	10 9	11 1 9	11 1 9
May . . . . .	10 10	10 11	11 1 9	11 1 9
June . . . . .	10 10	10 12	11 1 9	11 1 9
July . . . . .	10 12	10 14	11 1 9	11 1 9
August . . . . .	10 15	10 15	11 1 9	11 1 9
September . . . . .	10 12	10 11	11 1 9	11 1 9
October . . . . .	10 10	10 12	11 1 9	11 1 9
November . . . . .	10 14	10 14	11 1 9	11 1 9
December . . . . .	10 15	11 0	11 1 9	11 1 9

## COCANADA MARKET—contd.

Wholesale and retail selling prices per maund of imported and Indian sugars—contd.

Month and year.	Wholesale prices.		Retail prices.	
	Imported.	Indian	Imported:	Indian.
	Rs. A.	Rs. A.	Rs. A. P.	Rs. A. P.
<b>1933.</b>				
January	10 12	10 14	11 1 9	11 1 9
February	10 12	10 13	11 1 9	11 1 9
March	10 12	10 13	11 1 9	11 1 9
April	10 12	10 13	11 1 9	11 1 9
May	10 12	10 13	11 1 9	11 1 9
June	10 10	10 10	11 1 9	11 1 9
July	10 10	10 10	11 1 9	11 1 9
August	10 10	10 11	11 1 9	11 1 9
September	10 0	10 0	11 1 9	11 1 9
October	9 8	9 8	9 14 0	9 14 0
November	10 4	10 4	11 1 9	11 1 9
December	10 4	10 4	11 1 9	11 1 9
<b>1934.</b>				
January	9 11	9 0	9 14 0	9 0 10
		to		to
		9 11		9 14 0
February	9 11	9 0	9 14 0	9 0 10
		to		to
		9 12		9 14 0
March	9 12	9 2	9 14 0	9 0 10
		to		to
		9 14		9 14 0
April	9 12	9 2	9 14 0	9 0 10
		to		to
		9 13		9 14 0
May	9 13	9 2	9 14 0	9 0 10
		to		to
		9 13		9 14 0
June	9 14	9 2	10 4 7	9 0 10
		to		to
		9 14		10 4 7
July	9 14	9 3	10 4 7	9 7 5
		to		to
		9 14		10 4 7
August	9 14	9 2	10 4 7	9 7 5
		to		to
		9 13		10 4 7
September	10 0	9 7	10 4 7	9 14 0
		to		to
		10 0		10 4 7



## COCANADA MARKET—contd.

Wholesale and retail selling prices per maund of imported and Indian sugars—contd.

Month and year.	Wholesale prices.		Retail prices.	
	Imported.	Indian.	Imported.	Indian.
	Rs. A.	Rs. A.	Rs. A. P.	Rs. A. P.
<i>1934—contd.</i>				
October	10 0	9 7	10 4 7	9 14 0
		to		to
		10 0		10 4 7
November	9 15	9 7	10 4 7	9 14 0
		to		
		9 13		
December	9 12	9 3	9 14 0	9 14 0
		to		to
		9 9		9 7 5
<i>1935.</i>				
January	...	9 0	...	9 0 10
		to		to
		9 9		9 14 0
February	...	9 0	...	9 0 10
		to		to
		9 13		9 14 0
March	...	9 4	...	9 0 10
		to		to
		9 13		9 14 0
April	...	9 1	...	9 0 10
		to		to
		9 15		9 14 0
May	...	9 2	...	9 0 10
		to		to
		9 11		9 14 0
June	...	9 2	...	9 0 10
		to		to
		9 11		9 14 0
July	...	9 0	...	9 0 10
		to		to
		9 8		9 14 10
August	...	9 0	...	9 0 10
		to		to
		9 9		9 14 0
September	...	9 0	...	9 0 10
		to		to
		9 7		9 14 0
October	...	9 5	...	9 7 5
		to		to
		10 6		10 4 7
November	...	9 0	...	9 0 10
		to		to
		9 8		9 14 0
December	...	9 0	...	9 0 10
		to		to
		9 1		9 7 5

## COCANADA MARKET—concl'd.

Wholesale and retail selling prices per maund of imported and Indian sugars—concl'd.

Month and year.	Wholesale prices.		Retail prices.	
	Imported.	Indian.	Imported.	Indian.
	Rs. A.	Rs. A.	Rs. A. P.	Rs. A. P.
1936.				
January . . .	...	9 0	...	9 0 10
		to		to
		9 8		9 14 0
February . . .	...	9 0	...	9 0 10
		to		to
		9 4		9 14 0
March . . .	...	9 1	...	9 0 10
		to		to
		9 6		9 14 0
April . . .	...	9 0	...	9 0 10
		to		to
		9 4		9 14 0
May . . .	...	8 14	...	9 0 10
		to		to
		9 1		9 7 5
June . . .	...	8 8	...	8 10 3
		to		to
		8 12		9 0 10
July . . .	...	8 8	...	8 10 3
		to		to
		8 12		9 0 10
August . . .	...	8 4	...	8 3 8
		to		to
		8 6		8 10 3
September . . .	...	8 0	...	8 3 8
		to		to
		8 3		8 10 3
October . . .	...	8 0	...	8 3 8
		to		to
		8 3		8 10 3
November . . .	...	8 0	...	8 3 8
		to		to
		8 3		8 10 3
December . . .	...	7 10	...	7 13 1
		to		to
		7 12		8 3 8

## Statement showing the price per viss of sugar.

(Prices have been collected from the Triplicane Urban Co-operative Society.)

N.B.—The dates noted against the prices are those on which the prices have altered.

Date of alteration.	Price.	Date of alteration.	Price.
	Rs. A. P.		Rs. A. P.
<b>1913.</b>		<b>1916—contd.</b>	
24th January . . .	0 6 3	30th August . . .	0 8 9
29th January . . .	0 6 6	4th September . . .	0 9 0
12th February . . .	0 6 9	3rd October . . .	0 8 9
9th March . . .	0 6 6	31st October . . .	0 9 0
24th June . . .	0 6 3	2nd November . . .	0 9 3
5th July . . .	0 6 0	14th November . . .	0 10 0
8th July . . .	0 5 9	25th November . . .	0 10 6
13th July . . .	0 5 6	1st December . . .	0 10 3
14th July . . .	0 5 3	3rd December . . .	0 10 0
22nd July . . .	0 5 0	20th December . . .	0 9 9
24th September . . .	0 4 9	30th December . . .	0 9 6
<b>1913.</b>		<b>1917.</b>	
24th May . . .	0 5 0	10th January . . .	0 9 3
8th August . . .	0 4 9	21st January . . .	0 9 0
11th November . . .	0 4 6	18th February . . .	0 9 3
<b>1914.</b>		27th April . . .	0 9 0
7th June . . .	0 4 9	18th May . . .	0 8 9
4th August . . .	0 5 6	29th May . . .	0 8 6
5th August . . .	0 6 0	1st June . . .	0 8 3
8th August . . .	0 6 6	12th June . . .	0 8 0
16th August . . .	0 6 3	25th June . . .	0 7 9
26th August . . .	0 7 0	29th June . . .	0 7 3
29th August . . .	0 6 9	2nd July . . .	0 7 0
4th September . . .	0 6 6	9th July . . .	0 7 6
15th October . . .	0 6 3	20th July . . .	0 8 0
10th November . . .	0 6 6	25th July . . .	0 8 6
17th November . . .	0 7 0	20th August . . .	0 8 3
29th November . . .	0 7 6	7th October . . .	0 8 0
12th December . . .	0 7 0	19th October . . .	0 8 3
<b>1915.</b>		30th October . . .	0 8 6
29th January . . .	0 7 6	24th October . . .	0 8 0
<b>1916.</b>		12th December . . .	0 7 9
11th April . . .	0 8 3	22nd December . . .	0 7 6
19th April . . .	0 8 6	<b>1918.</b>	
29th April . . .	0 8 9	6th February . . .	0 7 3
23rd May . . .	0 8 6	22nd March . . .	0 7 6
6th June . . .	0 8 3	23rd March . . .	0 8 0
28th July . . .	0 8 6	7th April . . .	0 8 3
		15th April . . .	0 8 6
		16th April . . .	0 9 0

## Statement showing the price per viss of sugar—contd.

Date of alteration.	Price.	Date of alteration.	Price.
	Rs. A. P.		Rs. A. P.
<i>1918—contd.</i>		<i>1920—contd.</i>	
20th April . . . . .	0 9 3	29th January . . . . .	1 2 0
26th April . . . . .	0 8 9	3rd February . . . . .	1 1 6
29th April . . . . .	0 8 0	14th February . . . . .	1 1 0
10th May . . . . .	0 8 6	24th February . . . . .	1 0 6
17th May . . . . .	0 8 3	26th March . . . . .	1 0 3
19th May . . . . .	0 8 0	13th April . . . . .	1 1 6
24th May . . . . .	0 7 9	4th May . . . . .	1 2 0
26th May . . . . .	0 8 0	8th May . . . . .	1 3 0
31st May . . . . .	0 7 9		
12th June . . . . .	0 7 6	<i>1921.</i>	
<i>1919:</i>		14th February . . . . .	1 3 0
22nd March . . . . .	0 10 3	22nd February . . . . .	1 0 9
11th April . . . . .	0 11 0	4th March . . . . .	1 2 0
20th April . . . . .	0 11 3	11th March . . . . .	1 2 6
23rd April . . . . .	0 11 6	16th March . . . . .	1 3 0
26th April . . . . .	0 11 9	29th March . . . . .	1 2 6
28th April . . . . .	0 11 6	2nd April . . . . .	1 2 0
7th May . . . . .	0 13 0	6th April . . . . .	1 1 6
13th May . . . . .	0 12 6	19th April . . . . .	1 1 6
31st May . . . . .	0 13 0	26th April . . . . .	1 1 6
1st July . . . . .	0 13 6	6th May . . . . .	1 2 0
4th July . . . . .	0 14 0	15th May . . . . .	1 1 3
6th July . . . . .	0 14 6	21st May . . . . .	1 0 0
8th July . . . . .	0 15 0	24th May . . . . .	0 15 6
13th July . . . . .	1 0 0	27th May . . . . .	0 15 3
19th July . . . . .	0 15 6	31st May . . . . .	0 15 0
29th July . . . . .	0 15 0	4th June . . . . .	0 14 3
14th August . . . . .	0 15 6	8th June . . . . .	0 14 0
18th August . . . . .	0 15 0	11th June . . . . .	0 14 6
23rd August . . . . .	0 14 6	17th June . . . . .	1 0 0
26th August . . . . .	0 14 0	20th June . . . . .	0 15 6
6th September . . . . .	0 13 6	2nd July . . . . .	1 0 0
13th September . . . . .	0 13 0	6th July . . . . .	0 15 0
20th September . . . . .	0 13 6	8th July . . . . .	0 13 0
11th October . . . . .	0 14 0	9th July . . . . .	0 14 0
28th October . . . . .	0 14 6	11th July . . . . .	0 13 6
8th November . . . . .	0 15 0	26th July . . . . .	0 12 6
11th November . . . . .	0 15 6	8th August . . . . .	0 12 3
20th December . . . . .	1 0 0	13th August . . . . .	0 12 0
23rd December . . . . .	1 0 6	14th August . . . . .	0 11 6
		26th August . . . . .	0 11 9
		29th August . . . . .	0 11 6
		11th September . . . . .	0 11 3
<i>1920.</i>		16th September . . . . .	0 10 9
6th January . . . . .	1 1 0	20th September . . . . .	0 10 6
20th January . . . . .	1 1 6	23rd September . . . . .	0 10 0
24th January . . . . .	1 1 3		

## Statement showing the price per viss of sugar—contd.

Date of alteration.	Price.	Date of alteration.	Price.
	Rs. A. P.		Rs. A. P.
<i>1921—contd.</i>		<i>1923—contd.</i>	
14th October . . .	0 9 6	3rd February . . .	0 9 3
23rd October . . .	0 9 0	8th February . . .	0 9 6
6th November . . .	0 8 9	10th February . . .	0 10 0
8th November . . .	0 8 6	17th February . . .	0 10 6
20th November . . .	0 8 9	19th February . . .	0 10 3
21st November . . .	0 9 0	25th February . . .	0 10 6
29th November . . .	0 9 3	8th March . . .	0 10 9
16th December . . .	0 9 0	11th March . . .	0 11 0
		15th March . . .	0 11 6
		16th March . . .	0 12 6
<i>1922.</i>		22nd March . . .	0 13 0
21st January . . .	0 9 3	7th April . . .	0 12 6
24th January . . .	0 9 6	27th April . . .	0 12 9
26th January . . .	0 10 0	20th May . . .	0 13 3
27th January . . .	0 10 6	22nd May . . .	0 13 6
28th January . . .	0 10 6	27th May . . .	0 13 9
30th January . . .	0 10 0	31st May . . .	0 13 6
11th February . . .	0 9 9	9th June . . .	0 13 0
15th February . . .	0 10 0	1st July . . .	0 13 3
27th February . . .	0 11 0	8th July . . .	0 14 0
6th March . . .	0 10 6	9th July . . .	0 13 3
17th March . . .	0 11 0	13th July . . .	0 13 0
28th March . . .	0 10 9	15th July . . .	0 12 9
3rd April . . .	0 10 6	21st July . . .	0 12 6
4th April . . .	0 10 3	24th July . . .	0 12 3
8th April . . .	0 10 0	28th July . . .	0 12 0
16th April . . .	0 10 3	11th August . . .	0 10 9
23rd May . . .	0 10 0	6th August . . .	0 10 6
6th June . . .	0 10 3	7th August . . .	0 10 3
7th September . . .	0 10 0	15th August . . .	0 10 0
6th October . . .	0 9 9	22nd September . . .	0 10 3
7th October . . .	0 10 6	16th October . . .	0 10 6
19th November . . .	0 10 3	12th November . . .	0 10 9
8th December . . .	0 10 6	17th November . . .	0 11 0
15th December . . .	0 11 0	24th November . . .	0 11 6
28th December . . .	0 10 9	26th November . . .	0 12 6
29th December . . .	0 10 6	29th November . . .	0 12 3
		30th November . . .	0 12 0
		4th December . . .	0 12 6
<i>1923.</i>		14th December . . .	0 12 3
3rd January . . .	0 10 0	16th December . . .	0 12 9
5th January . . .	0 9 9		
6th January . . .	0 9 6	<i>1924.</i>	
12th January . . .	0 9 9	10th January . . .	0 12 6
18th January . . .	0 9 6	9th February . . .	0 12 9
19th January . . .	0 9 9	18th February . . .	0 13 3
25th January . . .	0 9 6		

## Statement showing the price per viss of sugar—contd.

Date of alteration.	Price.	Date of alteration.	Price.
	Rs. A. P.		Rs. A. P.
<i>1924—contd.</i>		<i>1925—contd.</i>	
8th March . . . . .	0 13 0	7th August . . . . .	0 7 3
29th March . . . . .	0 12 3	15th August . . . . .	0 7 0
3rd April . . . . .	0 12 6	21st August . . . . .	0 7 3
9th April . . . . .	0 12 0	29th August . . . . .	0 7 6
16th April . . . . .	0 11 9	9th September . . . . .	0 7 9
21st April . . . . .	0 11 6	14th September . . . . .	0 8 0
25th April . . . . .	0 11 3	21st September . . . . .	0 8 3
29th April . . . . .	0 11 0	23rd September . . . . .	0 7 6
2nd May . . . . .	0 10 9	25th September . . . . .	0 7 3
5th May . . . . .	0 10 6	5th October . . . . .	0 7 0
18th May . . . . .	0 10 9	6th November . . . . .	0 6 9
26th May . . . . .	0 11 0	25th November . . . . .	0 6 6
27th May . . . . .	0 11 3	27th November . . . . .	0 6 9
2nd June . . . . .	0 11 0	30th November . . . . .	0 7 0
14th June . . . . .	0 10 9	11th December . . . . .	0 7 0
16th June . . . . .	0 10 6	16th December . . . . .	0 7 3
21st June . . . . .	0 10 0		
27th June . . . . .	0 10 3	<i>1926.</i>	
4th July . . . . .	0 10 0	16th January . . . . .	0 7 6
2nd August . . . . .	0 9 9	5th February . . . . .	0 7 9
4th August . . . . .	0 9 6	15th February . . . . .	0 8 0
16th August . . . . .	0 9 9	5th March . . . . .	0 7 9
22nd August . . . . .	0 10 0	25th March . . . . .	0 7 6
25th August . . . . .	0 10 3	19th April . . . . .	0 7 3
30th August . . . . .	0 10 0	24th April . . . . .	0 7 6
1st September . . . . .	0 9 6	7th May . . . . .	0 7 9
27th September . . . . .	0 9 3	12th May . . . . .	0 8 0
1st October . . . . .	0 9 0	7th August . . . . .	0 7 3
5th November . . . . .	0 8 9	3rd September . . . . .	0 7 6
15th November . . . . .	0 8 6	6th September . . . . .	0 7 9
15th December . . . . .	0 8 3	10th September . . . . .	0 7 6
17th December . . . . .	0 8 0	24th September . . . . .	0 7 9
		23rd October . . . . .	0 7 6
<i>1925.</i>		12th November . . . . .	0 7 9
5th January . . . . .	0 7 9	22nd November . . . . .	0 8 0
7th January . . . . .	0 8 3	29th November . . . . .	0 8 3
10th February . . . . .	0 8 0	10th December . . . . .	0 8 6
6th April . . . . .	0 8 6	15th December . . . . .	0 8 9
19th May . . . . .	0 8 3		
22nd May . . . . .	0 8 6	<i>1927.</i>	
27th May . . . . .	0 8 3	29th January . . . . .	0 8 6
10th June . . . . .	0 8 0	5th February . . . . .	0 8 3
17th June . . . . .	0 7 9	12th February . . . . .	0 8 6
3rd July . . . . .	0 7 6	5th March . . . . .	0 8 3
6th July . . . . .	0 7 3	2nd May . . . . .	0 7 6
17th July . . . . .	0 7 6	16th June . . . . .	0 7 3
		17th July . . . . .	0 7 0

## Statement showing the price per viss of sugar—contd.

Date of alteration.	Price.	Date of alteration.	Price.
	Rs. A. P.		Rs. A. P.
<i>1927—contd.</i>		<i>1932—contd.</i>	
31st July . . . . .	0 7 3	10th November . . . . .	0 7 0
27th September . . . . .	0 7 0	1st December . . . . .	0 7 3
31st October . . . . .	0 6 9	15th December . . . . .	0 7 6
		22nd December . . . . .	0 8 0
<i>1928.</i>		<i>1933.</i>	
3rd January . . . . .	0 7 0	4th January . . . . .	0 7 9
7th January . . . . .	0 6 9	12th January . . . . .	0 7 3
7th April . . . . .	0 7 6	21st January . . . . .	0 7 0
10th May . . . . .	0 7 3	1st February . . . . .	0 6 9
23rd June . . . . .	0 7 0	9th February . . . . .	0 6 6
26th June . . . . .	0 6 9	23rd February . . . . .	0 6 8
17th July . . . . .	0 6 6	23rd March . . . . .	0 6 6
		30th March . . . . .	0 6 8
<i>1929.</i>		5th April . . . . .	0 6 6
11th January . . . . .	0 6 6	18th May . . . . .	0 6 8
18th April . . . . .	0 6 3	4th June . . . . .	0 6 9
19th July . . . . .	0 6 0	5th June . . . . .	0 7 0
		22nd June . . . . .	0 6 9
<i>1930.</i>		29th June . . . . .	0 6 8
1st January . . . . .	0 5 9	6th October . . . . .	0 6 9
6th February . . . . .	0 5 10	16th October . . . . .	0 6 10
20th February . . . . .	0 6 0	19th October . . . . .	0 7 0
3rd March . . . . .	0 6 3	26th October . . . . .	0 6 10
20th March . . . . .	0 6 0	1st November . . . . .	0 6 9
27th March . . . . .	0 6 3	16th November . . . . .	0 6 8
26th June . . . . .	0 6 0	23rd November . . . . .	0 6 6
Prices not available from 1st July 1930 to 30th June 1931.			
<i>1931.</i>		<i>1934.</i>	
1st July . . . . .	0 6 3	1st March . . . . .	0 6 4
5th August . . . . .	0 6 0	2nd March . . . . .	0 6 6
1st October . . . . .	0 6 9	27th March . . . . .	0 6 3
2nd October . . . . .	0 7 0	23rd April . . . . .	0 6 4
4th October . . . . .	0 7 3	21st June . . . . .	0 6 3
		27th July . . . . .	0 6 4
<i>1932.</i>		20th September . . . . .	0 6 6
14th January . . . . .	0 7 6	18th October . . . . .	0 6 3
21st January . . . . .	0 7 3	29th November . . . . .	0 6 4
2nd March . . . . .	0 7 0	13th December . . . . .	0 6 3
21st March . . . . .	0 6 9		
14th May . . . . .	0 6 6	<i>1935.</i>	
18th June . . . . .	0 6 9	7th January . . . . .	0 6 0
5th September . . . . .	0 7 0	31st January . . . . .	0 6 3
27th October . . . . .	0 7 3	7th March . . . . .	0 6 0
		11th April . . . . .	0 5 11
		18th April . . . . .	0 6 0
		30th May . . . . .	0 6 2

## Statement showing the price per viss of sugar—concl'd.

Date of alteration.	Price.	Date of alteration.	Price.
	Rs. A. P.		Rs. A. P.
<i>1935—contd.</i>		<i>1936—contd.</i>	
20th June . . . . .	0 6 3	20th August . . . . .	0 5 9
5th October . . . . .	0 6 6	27th August . . . . .	0 5 6
7th October . . . . .	0 7 0	22nd October . . . . .	0 5 4
31st October . . . . .	0 6 9	29th October . . . . .	0 5 6
7th November . . . . .	0 6 6		
14th November . . . . .	0 6 3	<i>1937.</i>	
5th December . . . . .	0 6 2	21st January . . . . .	0 5 4
12th December . . . . .	0 6 0	28th January . . . . .	0 5 3
		15th February . . . . .	0 5 0
<i>1936.</i>		22nd February . . . . .	0 4 10
5th March . . . . .	0 5 10	4th March . . . . .	0 5 3
19th April . . . . .	0 6 0	11th March . . . . .	0 5 0
4th June . . . . .	0 5 10	15th March . . . . .	0 4 9
18th June . . . . .	0 5 9	25th April . . . . .	0 5 0
11th July . . . . .	0 5 10	6th May . . . . .	0 4 9

## Prices of sugar (Per Cwt.) extracted from the Daily Statement of Messrs. Parry &amp; Co., Ltd.

Dates.	Java.	Nellikuppam.	Northern India (Factorys' (names given).
	Rs. A. P.	Rs. A. P.	Rs. A. P.
<i>1933.</i>			
25th February . . . . .	14 5 0	14 1 4	...
1st March . . . . .	14 7 0	14 4 0	...
6th March . . . . .	14 6 0	14 4 0	...
13th March . . . . .	14 7 0	14 5 4	...
20th March . . . . .	14 7 6	14 2 8	...
28th March . . . . .	14 5 0	14 2 8	...
3rd April . . . . .	14 5 0	14 2 8	...
10th April . . . . .	14 4 0	14 2 8	...
18th April . . . . .	14 3 6	14 2 0	...
24th April . . . . .	14 4 0	14 2 0	...
1st May . . . . .	14 3 6	14 2 0	...
8th May . . . . .	14 4 0	14 3 4	...
15th May . . . . .	14 6 0	14 8 0	...
22nd May . . . . .	14 6 0	14 6 8	...
29th May . . . . .	14 8 0	14 9 4	...
5th June . . . . .	14 15 0	15 5 4	...
12th June . . . . .	14 9 0	15 5 4	...
19th June . . . . .	14 7 0	14 8 0	...
26th June . . . . .	14 7 0	14 5 4	...
3rd July . . . . .	14 6 6	14 5 4	...
10th July . . . . .	14 6 6	14 5 4	...
17th July . . . . .	14 6 6.	14 5 4	...



Prices of Sugar (Per Cwt.) extracted from the Daily Statement of  
Messrs. Parry & Co., Ltd.—contd.

Dates.	Java.	Nellikuppam	Northern India. (Factory's names given).	
	Rs. A. P.	Rs. A. P.	Rs. A. P.	
1933—contd.				
24th July .	14 6 0	14 5 4	...	
31st July .	14 6 0	14 5 4	...	
7th August .	14 6 0	14 5 4	...	
14th August .	14 6 6	14 6 8	...	
22nd August .	14 4 6	14 4 0	...	
18th August .	14 4 0	14 4 0	...	
4th September .	14 3 6	14 4 0	...	
11th September .	14 2 6	14 4 0	...	
18th September .	14 4 0	14 5 4	...	
25th September .	14 4 0	14 5 4	...	
2nd October .	14 8 0	14 9 4	...	
9th October .	14 9 0	14 10 8	...	
16th October .	14 12 0	14 14 8	...	
23rd October .	14 7 0	14 6 8	...	
30th October .	14 7 0	14 8 0	...	
6th November .	14 5 0	14 6 8	...	
13th November .	14 1 0	14 5 4	...	
20th November .	13 15 0	14 1 4	...	
27th November .	13 15 0	14 1 4	...	
4th December .	13 14 0	14 1 4	...	
11th December .	13 14 0	14 1 4	...	
18th December .	13 13 0	13 4 8	...	
23th December .	13 12 0	13 12 8	...	
1934.				
2nd January .	13 12 6	13 12 8	...	
8th January .	13 12 0	13 12 8	...	
15th January .	13 9 0	13 8 0	...	
22nd January .	13 10 0	13 6 8	...	
29th January .	13 10 0	13 6 8	...	
5th February .	13 10 6	13 6 8	13 9 0	Motipur.
13th February .	13 12 0	13 8 0	13 7 0	"
19th February .	13 10 6	13 6 8	13 6 0	"
26th February .	13 11 0	13 6 8	13 8 0	"
5th March .	13 10 0	13 8 0	13 8 0	"
12th March .	13 10 0	13 8 0	13 8 0	"
19th March .	13 11 0	13 8 0	13 8 0	"
27th March .	13 13 0	13 6 8	13 10 0	"
3rd April .	13 12 0	13 6 8	13 8 0	"
9th April .	13 12 0	13 9 4	13 8 0	"
16th April .	13 13 0	13 9 4	13 8 0	"
23rd April .	14 0 0	13 9 4	13 10 0	"
30th April .	14 0 0	13 9 4	13 10 0	"

Prices of sugar (Per Cwt.) extracted from the Daily Statement of  
Messrs. Parry & Co., Ltd.—contd.

Dates.	Java.	Nellikuppam.	Northern India (Factory's names given).
	Rs. A. P.	Rs. A. P.	Rs. A. P.
<i>1934—contd.</i>			
7th May .	Not quoted	13 10 0	13 9 0 Matipur.
14th May .	13 9 0	13 5 4	13 7 0 "
21st May .	13 10 0	13 5 4	13 6 0 "
28th May .	13 7 6	13 5 4	13 5 0 "
5th June .	13 5 6	13 5 4	13 5 0 "
11th June .	13 6 0	13 4 8	13 5 0 "
18th June .	13 6 0	13 4 8 to 13 5 4	13 4 0 "
26th June .	13 6 0	13 4 8 to 13 5 4	13 4 0 "
3rd July .	13 5 0	...	13 3 6 Sardarnagar.
9th July .	13 5 6	13 6 0	13 3 6 "
16th July .	13 12 0	13 9 4	13 7 0 "
23rd July .	13 12 0	13 9 4	13 7 0 "
30th July .	13 11 0	13 8 8	13 6 0 "
6th August .	13 10 0	...	13 5 0 "
13th August .	13 7 0	...	13 4 0 "
20th August .	13 6 6	...	13 4 0 Champatia.
27th August .	13 6 0	...	13 4 0 "
3rd September .	13 8 0	...	13 5 0 "
10th September .	13 10 0	...	13 7 0 Champatia.
17th September .	13 11 0	...	13 8 0 "
24th September .	13 8 0	...	13 6 0 "
1st October .	13 8 0	...	...
9th October .	13 7 0	...	...
15th October .	13 5 6	...	...
22nd October .	13 4 0	...	...
29th October .	13 3 0	...	...
5th November .	13 3 0	...	...
12th November .	13 1 6	...	...
19th November .	13 0 6	...	...
26th November .	13 4 0	...	...
3rd December .	13 7 0	...	...
10th December .	13 7 0	...	...
17th December .	13 3 0	...	12 12 0
24th December .	13 5 0	...	12 10 0
<i>1935.</i>			
2nd January .	13 6 0	...	12 10 0
8th January .	13 8 0	...	12 10 0
15th January .	13 8 0	12 10 8	12 10 0
21st January .	13 12 0	12 10 8	12 10 0
28th January .	14 0 0	13 8 0	13 4 0
4th February .	13 10 0	13 2 8	13 0 0

Prices of sugar (Per Cwt.) extracted from the Daily Statement of  
Messrs. Parry & Co., Ltd.—contd.

Dates.	Java.	Nellikuppam.	Northern India (Factory's names given).
	Rs. A. P.	Rs. A. P.	Rs. A. P.
1935—contd.			
11th February . . . . .	13 10 0	13 1 4	12 13 0
18th February . . . . .	13 10 0	13 1 4	12 12 0
25th February . . . . .	13 10 0	13 1 4	12 10 0
4th March . . . . .	13 10 0	13 0 0	12 10 0
11th March . . . . .	...	12 13 4	12 10 0
18th March . . . . .	...	12 12 8	12 9 0
25th March . . . . .	...	12 12 8	12 10 0
9th April . . . . .	...	12 14 0	12 11 0
15th April . . . . .	...	12 15 4	12 14 0
23rd April . . . . .	...	12 15 4	12 14 0
29th April . . . . .	...	12 15 4	12 14 0
8th May . . . . .	...	12 14 8	12 13 0
20th May . . . . .	...	12 14 8	12 13 0
27th May . . . . .	...	13 1 4	13 0 0
4th June . . . . .	...	13 4 0	13 2 0
10th June . . . . .	...	13 4 0	13 2 0
17th June . . . . .	...	13 4 0	13 2 0
24th June . . . . .	...	13 5 4	13 3 0
2nd July . . . . .	...	13 4 8	13 1 0
8th July . . . . .	...	13 3 4	13 1 0
15th July . . . . .	...	13 2 8	13 1 0
22nd July . . . . .	...	13 2 0	13 1 0
29th July . . . . .	...	13 0 8	13 0 0
5th August . . . . .	...	13 0 8	13 0 0
12th August . . . . .	...	13 0 8	13 0 0
19th August . . . . .	...	13 0 8	13 0 0
26th August . . . . .	...	13 1 4	13 0 0
3rd September . . . . .	...	13 2 8	13 1 0
9th September . . . . .	...	13 2 8	13 1 0
16th September . . . . .	...	13 3 4	13 3 0
23rd September . . . . .	...	13 4 8	13 5 0
30th September . . . . .	...	13 10 8	13 9 0
7th October . . . . .	14 14 0	14 10 8	14 10 0
14th October . . . . .	14 14 0	14 8 0	14 10 0
21st October . . . . .	14 10 0	14 8 0	14 8 0
28th October . . . . .	14 2 0	14 3 4	14 0 0
4th November . . . . .	13 11 0	...	13 10 0
11th November . . . . .	13 8 0	13 5 4	13 4 0
18th November . . . . .	13 7 0	13 4 0	13 4 0
25th November . . . . .	13 5 6	13 2 0	13 2 0
2nd December . . . . .	13 5 0	13 0 8	13 0 0
9th December . . . . .	13 4 0	13 0 8	12 15 0
16th December . . . . .	13 4 0	...	12 14 0
23rd December . . . . .	13 4 0	...	12 14 0

Champatia.

Prices of sugar (Per Cwt.) extracted from the Daily Statement of  
Messrs. Parry & Co., Ltd.—contd.

Dates.	Java.	Nellikuppam.	Northern India (Factory's names given).
	Rs. A. P.	Rs. A. P.	Rs. A. P.
1936.			
2nd January . . .	13 4 0	...	12 14 0
6th January . . .	13 5 0	...	12 14 0
15th January . . .	13 6 0	...	13 0 0
20th January . . .	13 6 0	...	13 0 0
27th January . . .	13 5 0	...	13 1 0
10th February . . .	13 4 0	12 14 8	13 0 0
17th February . . .	13 4 0	12 13 4	12 9 0
24th February . . .	13 3 0	12 10 8	12 6 0
2nd March . . .	13 3 0	12 10 8	12 4 0
9th March . . .	13 3 0	...	12 4 0
16th March . . .	13 4 0	12 12 0	12 9 0
23rd March . . .	13 4 0	12 12 0	12 8 0
30th March . . .	13 4 0	12 12 0	12 6 0
6th April . . .	13 4 0	12 12 0	12 5 0
14th April . . .	13 4 0	12 12 0	12 5 0
20th April . . .	13 4 0	12 12 0	12 5 0
27th April . . .	13 4 0	...	12 5 0
4th May . . .	13 4 0	...	12 4 0
11th May . . .	13 4 0	...	12 4 0
18th May . . .	13 4 0	...	12 3 0
25th May . . .	13 4 0	...	12 3 0
1st June . . .	13 4 0	...	12 3 0
8th June . . .	13 4 0	...	12 1 0
15th June . . .	13 4 0	...	12 1 0
22nd June . . .	13 4 0	...	12 1 0
29th June . . .	13 4 0	...	12 2 0
6th July . . .	13 4 0	...	12 2 0
13th July . . .	13 4 0	...	12 0 0
20th July . . .	13 4 0	...	12 0 0
27th July . . .	13 4 0	...	12 0 0
3rd August . . .	13 4 0	...	11 14 0
10th August . . .	13 4 0	...	11 10 0
17th August . . .	13 4 0	11 8 0	11 10 0
24th August . . .	13 4 0	11 10 0	11 12 0
31st August . . .	13 4 0	11 10 0	11 12 0
7th September . . .	13 4 0	11 10 0	11 12 0
14th September . . .	13 4 0	11 9 0	11 10 0
		(normal)	
21st September . . .	13 4 0	11 9 0	11 10 0
28th September . . .	13 4 0	11 9 0	11 9 0
5th October . . .	13 2 0	11 7 0	11 8 0
12th October . . .	13 2 0	...	11 8 0

Prices of sugar (Per Cwt.) extracted from the Daily Statement of  
Messrs. Parry & Co., Ltd.—concl'd.

Dates.	Java.	Nellikuppam.	Northern India (Factory's names given).
	Rs. A. P.	Rs. A. P.	Rs. A. P.
1936—contd.			
19th October .	13 2 0	...	11 8 0
27th October .	13 2 0	...	11 8 0
2nd November .	13 2 0	11 10 0	11 6 0
9th November .	13 2 0	11 10 0	11 6 0
16th November .	13 2 0	11 10 0	11 6 0
23rd November .	13 2 0	...	11 4 0
30th November .	13 2 0	...	11 4 0
7th December .	13 0 0	...	11 4 0
14th December .	13 0 0	...	11 4 0
21st December .	13 0 0	...	11 2 0
29th December .	13 0 0	...	11 1 0
1937.			
11th January .	13 0 0	11 1 0	11 6 0 Champaran.
19th January .	...	10 14 0	11 4 0
26th January .	13 0 0	10 14 0	11 4 0
2nd February .	13 0 0	10 13 0	10 14 0
9th February .	12 14 0	10 13 0	10 12 0
16th February .	12 14 0	10 1 0	10 8 0
24th February .	12 14 0	10 1 0	10 8 0
2nd March .	13 0 0	10 13 0	10 14 0
9th March .	13 0 0	10 8 0	10 4 0
16th March .	13 0 0	10 8 0	10 5 0
23rd March .	13 0 0	10 8 0	10 8 0
31st March .	13 0 0	10 8 0	10 8 0
6th April .	13 0 0	10 6 0	10 8 0
15th April .	13 0 0	10 6 0	10 8 0
22nd April .	12 14 0	10 6 0	10 8 0
29th April .	12 14 0	10 6 0	10 8 0
1st May .	12 14 0	10 0 0	10 6 0
8th May .	12 14 0	10 0 0	10 4 0
15th May .	No stock.	10 0 0	10 2 0
22nd May .	Do.	9 12 0	10 2 0
1st June .	Do.	9 12 0	10 2 0
8th June .	Do.	9 9 0	10 2 0

*Prices of Jaggery extracted from the Daily Statement of Messrs.  
Parry & Co., Ltd.*

Date.	Good-eating cane jaggery ex-go- down Madras, per candy.		Palm jaggery for refining f.o.r. Nelli- kuppam, per candy.		Palm jaggery (Madras) ex-godown Madras, per candy (500 lbs.).		
	Rs. A.	Rs. A.	Rs. A.	Rs. A.	Rs. A.	Rs. A.	Rs. A.
<i>1933.</i>							
6th March .	32 0	to 35 0	23 0				...
13th March .	32 0	„ 35 0	22 0				...
20th March .	32 0	„ 35 0	22 0				...
28th March .	32 0	„ 35 0	22 0				...
3rd April .	32 0	„ 35 0	22 0				...
10th April .	32 0	„ 35 0	22 0				...
18th April .	32 0	„ 35 0	22 0				...
24th April .	32 0	„ 35 0	22 0				...
1st May .	30 0	„ 32 0	22 0				...
8th May .	25 0	„ 28 0	22 0				...
15th May .	25 0	„ 28 0	22 0				...
22nd May .	25 0	„ 28 0	22 0				...
29th May .	25 0	„ 28 0	22 0				...
5th June .	25 0	„ 28 0	19 0				...
12th June .	25 0	„ 28 0	19 0				...
19th June .	25 0	„ 28 0	19 0				...
26th June .	25 0	„ 28 0	19 0				...
3rd July .	25 0	„ 28 0	19 0				...
10th July .	25 0	„ 28 0	19 0				...
17th July .	25 0	„ 28 0	19 0				...
24th July .	25 0	„ 28 0	19 0				...
31st July .	25 0	„ 28 0	19 0				...
7th August .	25 0	„ 28 0	19 0				...
14th August .	25 0	„ 28 0	19 0				...
22nd August .	25 0	„ 28 0	19 0				...
28th August .	25 0	„ 28 0	19 0				...
4th September .	20 0	„ 28 0	19 0				...
11th September .	20 0	„ 28 0	19 0				...
18th September .	20 0	„ 28 0	19 0				...
25th September .	20 0	„ 28 0	19 0				...
2nd October .	20 0	„ 28 0	19 0				...
9th October .	20 0	„ 28 0	19 0				...
16th October .	20 0	„ 28 0	19 0				...
23rd October .	20 0	„ 28 0	19 0				...
30th October .	20 0	„ 28 0	19 0				...
6th November .	20 0	„ 28 0	19 0				...
13th November .	20 0	„ 28 0	19 0				...
20th November .	20 0	„ 28 0	19 0				...
27th November .	20 0	„ 28 0	19 0				...
4th December .	20 0	„ 28 0	19 0				...
18th December .	20 0	„ 28 0	19 0		19 0	to 27 0	
28th December .	20 0	„ 28 0	19 0		18 0	„ 27 0	

Prices of Jaggery extracted from the Daily Statement of Messrs.  
Parry & Co., Ltd.—contd.

Date.	Good-eating cane jaggery ex-go- down Madras, per candy.		Palm jaggery for refining f.o.r. Nelli- kuppam, per candy.		Palm jaggery (Madras) ex-godown Madras, per candy (500 lbs.).		
	Rs. A.	Rs. A.	Rs. A.	Rs. A.	Rs. A.	Rs. A.	Rs. A.
<i>1934.</i>							
2nd January .	20 0	to 28 0	19 0		18 0	to 27 0	
8th January .	20 0	„ 28 0	19 0		18 0	„ 27 0	
15th January .	20 0	„ 28 0	19 0		19 0	„ 27 0	
22nd January .	20 0	„ 28 0	19 0		19 0	„ 27 0	
29th January .	22 0	„ 28 0	22 12		36 0		
5th February .	22 0	„ 28 0	22 12		36 0		
13th February .	22 0	„ 28 0	22 12		36 0		
19th February .	22 0	„ 28 0	22 12		36 0		
26th February .	22 0	„ 28 0	22 12		36 0		
5th March .	22 0	„ 28 0	22 12		36 0		
12th March .	22 0	„ 28 0	22 12		36 0		
19th March .	22 0	„ 28 0	22 12		36 0		
27th March .	22 0	„ 28 0	22 12		36 0		
3rd April .	22 0	„ 28 0	22 12		36 0		
9th April .	22 0	„ 28 0	22 12		36 0		
16th April .	22 0	„ 28 0	22 12		36 0		
23rd April .	22 0	„ 28 0	22 12		36 0		
30th April .	22 0	„ 28 0	22 12		36 0		
7th May .	22 0	„ 28 0	22 12		36 0		
14th May .	22 0	„ 28 0	22 12		36 0		
21st May .	22 0	„ 28 0	22 12		36 0		
28th May .	22 0	„ 28 0	22 12		36 0		
5th June .	22 0	„ 28 0	22 12		36 0		
11th June .	22 0	„ 28 0	22 12		36 0		
18th June .	22 0	„ 28 0	22 12		36 0		
26th June .	24 0	„ 28 0	22 0		30 0		
3rd July .	24 0	„ 28 0	22 0		30 0		
9th July .	24 0	„ 28 0	22 0		30 0		
16th July .	30 0	„ 35 0	22 0		35 0	to 45 0	
23rd July .	30 0	„ 35 0	22 0		35 0	„ 45 0	
30th July .	30 0	„ 35 0	22 0		35 0	„ 45 0	
6th August .	30 0	„ 35 0	22 0		35 0	„ 45 0	
13th August .	30 0	„ 35 0	22 0		35 0	„ 45 0	
20th August .	30 0	„ 35 0	22 0		35 0	„ 45 0	
27th August .	30 0	„ 35 0	22 0		35 0	„ 45 0	
	40 0	„ 50 0	22 0		36 0	„ 46 0	
10th September .	40 0	„ 50 0	22 0		36 0	„ 46 0	
17th September .	40 0	„ 50 0	22 0		36 0	„ 46 0	
24th September .	40 0	„ 50 0	22 0		36 0	„ 46 0	
1st October .	40 0	„ 50 0	22 0		36 0	„ 46 0	
9th October .	40 0	„ 50 0	22 0		36 0	„ 46 0	

*Prices of Jaggery extracted from the Daily Statement of Messrs.  
Parry & Co., Ltd.—contd.*

Date.	Good-eating cane jaggery <i>ex-godown</i> Madras, per candy.		Palm jaggery for refining f.o.r. Nelli- kuppam, per candy.		Palm jaggery (Madras) <i>ex-godown</i> Madras, per candy (500 lbs.).		
	Rs. A.	Rs. A.	Rs. A.	Rs. A.	Rs. A.	Rs. A.	Rs. A.
1934—contd.							
15th October .	40 0	to 50 0	22 0		36 0	to 46 0	
22nd October .	40 0	„ 50 0	22 0		36 0	„ 46 0	
29th October .	40 0	„ 50 0	22 0		36 0	„ 46 0	
5th November .	40 0	„ 50 0	22 0		36 0	„ 46 0	
12th November .	40 0	„ 50 0	22 0		36 0	„ 46 0	
19th November .	40 0	„ 50 0	22 0		36 0	„ 46 0	
26th November .	40 0	„ 50 0	22 0		36 0	„ 46 0	
3rd December .	40 0	„ 50 0	22 0		36 0	„ 46 0	
10th December .	40 0	„ 50 0	22 0		36 0	„ 46 0	
17th December .	40 0	„ 50 0	22 0		36 0	„ 46 0	
24th December .	40 0	„ 50 0	22 0		36 0	„ 46 0	
1935.							
2nd January .	40 0	„ 50 0	22 0		36 0	„ 46 0	
8th January .	40 0	„ 50 0	22 0		36 0	„ 46 0	
15th January .	40 0	„ 50 0	22 0		36 0	„ 46 0	
21st January .	40 0	„ 50 0	22 0		36 0	„ 46 0	
28th January .	40 0	„ 50 0	22 0		36 0	„ 46 0	
4th February .	35 0	„ 38 0	21 0		45 0		
11th February .	35 0	„ 38 0	21 0		45 0		
18th February .	35 0	„ 38 0	21 0		45 0		
25th February .	35 0	„ 38 0	21 0		45 0		
4th March .	35 0	„ 38 0	21 0		45 0		
11th March .	35 0	„ 38 0	21 0		45 0		
18th March .	35 0	„ 38 0	24 0	to 30 0	41 0	to 43 0	
25th March .	35 0	„ 38 0	24 0	„ 30 0	41 0	„ 43 0	
9th April .	30 0	„ 32 0	25 0	„ 28 0	35 0	„ 38 0	
15th April .	30 0	„ 32 0	25 0	„ 28 0	35 0	„ 38 0	
23rd April .	32 0	„ 34 0	25 0	„ 28 0	38 0	„ 40 0	
29th April .	32 0	„ 34 0	25 0	„ 28 0	38 0	„ 40 0	
8th May .	32 0	„ 34 0	25 0	„ 28 0	38 0	„ 40 0	
20th May .	32 0	„ 34 0	25 0	„ 28 0	38 0	„ 40 0	
27th May .	32 0	„ 34 0	25 0	„ 28 0	38 0	„ 40 0	
4th June .	32 0	„ 34 0	25 0	„ 28 0	38 0	„ 40 0	
10th June .	32 0	„ 34 0	23 0	„ 26 0	35 0	„ 40 0	
17th June .	32 0	„ 34 0	23 0	„ 26 0	35 0	„ 40 0	
24th June .	32 0	„ 34 0	23 0	„ 26 0	35 0	„ 40 0	
2nd July .	32 0	„ 34 0	23 0	„ 26 0	35 0	„ 40 0	
8th July .	30 0	„ 35 0	23 0	„ 26 0	35 0	„ 40 0	
15th July .	30 0	„ 35 0	23 0	„ 26 0	35 0	„ 40 0	
22nd July .	28 0	„ 36 0	26 0		36 0	„ 40 0	
29th July .	30 0	„ 38 0	26 0		38 0	„ 40 0	



Prices of Jaggery extracted from the Daily Statement of Messrs.  
Parry & Co., Ltd.—contd.

Date.	Good-eating cane jaggery ex-go- down Madras, per candy.		Palm jaggery for refining f.o.r. Nelli- kuppam, per candy.		Palm jaggery (Madras) ex-godown Madras per candy (500 lbs.).	
	Rs. A.	Rs. A.	Rs. A.	Rs. A.	Rs. A.	Rs. A.
<i>1935—contd.</i>						
5th August .	31 8	to 35 8	...	...	40 0	
12th August .	31 8	„ 35 8	...	...	40 0	
19th August .	31 8	„ 35 8	...	...	40 0	
26th August .	31 8	„ 35 8	...	...	40 0	
3rd September .	30 0	„ 37 0	...	...	38 0	
9th September .	30 0	„ 37 0	...	...	38 0	
16th September .	30 0	„ 37 0	...	...	38 0	
	(nominal).				(nominal).	
23rd September .	30 0	„ 37 0	...	...	38 0	
30th September .	35 0	„ 40 0	...	...	42 0	
7th October .	35 0	„ 40 0	...	...	42 0	
14th October .	35 0	„ 38 0	...	...	40 0	
21st October .	35 0	„ 38 0	...	...	40 0	
28th October .	30 0	„ 37 0	...	...	38 0	
4th November .	30 0	„ 37 0	...	...	38 0	
11th November .	25 0	„ 32 0	...	...	32 0	
18th November .	25 0	„ 32 0	...	...	32 0	
25th November .	25 0	„ 32 0	...	...	32 0	
2nd December .	25 0	„ 32 0	...	...	32 0	
9th December .	25 0	„ 32 0	...	...	32 0	
16th December .	25 0	„ 32 0	...	...	32 0	
23rd December .	25 0	„ 32 0	...	...	32 0	
<i>1936.</i>						
2nd January .	25 0	„ 32 0	...	...	32 0	
6th January .	25 0	„ 32 0	...	...	32 0	
15th January .	25 0	„ 32 0	...	...	32 0	
20th January .	25 0	„ 38 0	...	...	32 0	
27th January .	25 0	„ 38 0	...	...	32 0	
10th February .	25 0	„ 38 0	...	...	32 0	
17th February .	22 12	„ 28 0	...	...	31 4	
24th February .	22 12	„ 28 0	...	...	31 4	
2nd March .	22 12	„ 28 0	...	...	31 4	
9th March .	22 12	„ 28 0	...	...	31 4	
16th March .	22 12	„ 28 0	...	...	31 4	
23rd March .	22 12	„ 28 0	...	...	31 4	
30th March .	20 0	„ 26 0	...	...	31 4	
6th April .	20 0	„ 26 0	...	...	31 4	
14th April .	20 0	„ 26 0	...	...	31 4	
20th April .	20 0	„ 26 0	...	...	31 4	
27th April .	20 0	„ 26 0	...	...	31 4	

Prices of Jaggery extracted from the Daily Statement of Messrs.  
Parry & Co., Ltd.—concl'd.

Date.	Good-eating cane jaggery ex-go- down Madras, per canday.		Palm jaggery for refining f.o.a. Nelli- kuppam, per cadday.		Palm jaggery (Madras) ex-godown Madras, per candy (500 lb.).	
	Rs. a.	Rs. a.	Rs. a.	Rs. a.	Rs. a.	Rs. a.
1936—cont'd.						
4th May	20 0	to 26 0	...		31 4	
11th May	20 0	" 26 0	...		31 4	
18th May	20 0	" 23 0	...		30 0	
25th May	21 0	" 24 8	...		30 0	
1st June	21 0	" 24 8	...		30 0	
8th June	21 0	" 24 8	...		30 0	
15th June	21 0	" 28 4	...		32 0	
22nd June	21 0	" 28 4	...		32 0	
29th June	21 0	" 28 4	...		32 0	
6th July	21 0	" 28 4	...		32 0	
15th July	21 0	" 28 4	...		32 0	
20th July	20 0	" 25 0	...		30 0	
27th July	20 0	" 25 0	...		30 0	
3rd August	21 0	" 26 4	...		31 4	
10th August	21 0	" 26 4	...		31 4	
17th August	21 0	" 26 4	...		31 4	
24th August	21 0	" 26 4	...		31 4	
31st August	21 0	" 26 4	...		31 4	
7th September	21 0	" 26 4	...		31 4	
14th September	21 0	" 26 4	...		31 4	
21st September	21 0	" 26 4	...		31 4	
28th September	17 8	" 26 4	...		28 0	
5th October	17 8	" 26 4	...		28 0	
12th October	17 8	" 26 4	...		28 0	
19th October	17 8	" 26 4	...		28 0	
27th October	17 8	" 26 4	...		28 0	
2nd November	17 8	" 26 4	...		28 0	
9th November	17 8	" 26 4	...		28 0	
16th November	17 8	" 26 4	...		28 0	
23rd November	17 8	" 26 4	...		28 0	
30th November	17 8	" 26 4	...		28 0	
7th December	17 8	" 26 4	...		28 0	
14th December	15 0	" 25 0	22 0 to	26 0	25 0	
21st December	15 0	" 25 0	22 0	" 26 0	25 0	
29th December	15 0	" 25 0	22 0	" 26 0	25 0	
1937.						
11th January	15 0	" 25 0	22 0		25 0	
9th February	15 0	" 25 0	22 0		25 0	
16th February	15 0	" 25 0	22 0		25 0	

## Statement showing the price per viss of Jaggery.

(Prices have been collected from the Triplicane Urban Co-operative Society.)

N.B.—The dates noted against the prices are those on which the prices have altered.

Date of alteration.	Price.	Date of alteration.	Price.
	As. P.		As. P.
<i>1912.</i>		<i>1919.</i>	
24th January . . .	4 3	7th January . . .	5 0
9th March . . .	4 0	4th June . . .	5 6
6th April . . .	3 9	22nd June . . .	6 0
27th April . . .	4 0	13th July . . .	6 6
1st July . . .	4 6	15th July . . .	7 0
14th July . . .	4 3	14th August . . .	8 0
18th October . . .	4 9	18th August . . .	7 6
30th October . . .	4 6	2nd December . . .	8 0
<i>1913.</i>		23rd December . . .	9 0
24th February . . .	4 3	27th December . . .	9 6
8th March . . .	4 0	<i>1920.</i>	
<i>1914.</i>		20th January . . .	10 0
14th March . . .	3 9	21st February . . .	9 6
17th June . . .	4 0	24th February . . .	9 0
20th June . . .	4 3	7th March . . .	8 6
14th July . . .	4 6	9th March . . .	8 0
20th July . . .	5 0	15th May . . .	9 0
1st September . . .	5 6	22nd May . . .	10 0
15th October . . .	5 3	22nd June . . .	10 6
8th December . . .	5 6	29th June . . .	10 0
29th December . . .	6 0	6th July . . .	10 6
<i>1915.</i>		17th July . . .	11 0
13th January . . .	5 0	6th August . . .	11 6
<i>1916.</i>		3rd September . . .	13 0
11th April . . .	6 0	11th September . . .	14 0
23rd May . . .	6 6	23rd December . . .	13 0
3rd September . . .	6 0	<i>1921.</i>	
26th September . . .	5 6	10th January . . .	10 0
22nd November . . .	5 3	13th January . . .	9 0
<i>1917.</i>		21st January . . .	8 0
20th January . . .	5 0	2nd February . . .	8 6
6th February . . .	4 9	5th February . . .	10 0
5th May . . .	4 6	26th February . . .	9 0
26th May . . .	4 9	6th April . . .	8 6
12th June . . .	5 0	30th April . . .	9 0
		31st May . . .	10 0
		27th August . . .	9 6
		6th November . . .	9 6
		15th November . . .	9 0

## Statement showing the price per viss of Jaggery—contd.

Date of alteration.	Price.	Date of alteration.	Price.
	As. P.		As. P.
<i>1922.</i>		<i>1926.</i>	
16th January . . .	8 6	5th January . . .	8 0
17th February . . .	8 0	11th January . . .	7 6
29th April . . .	7 9	19th January . . .	7 0
5th May . . .	8 0	24th March . . .	6 0
2nd July . . .	7 9	16th April . . .	5 6
8th September . . .	7 0	21st April . . .	6 0
16th December . . .	6 6	24th May . . .	6 3
21st December . . .	7 0	7th June . . .	6 6
<i>1923.</i>		28th June . . .	7 0
9th February . . .	7 6	<i>1927.</i>	
25th February . . .	7 0	27th January . . .	6 6
1st March . . .	8 9	18th February . . .	6 0
2nd March . . .	6 0	21st March . . .	5 9
5th April . . .	6 0	28th May . . .	6 0
23rd May . . .	5 3	5th November . . .	5 9
27th May . . .	5 6	29th November . . .	5 6
27th July . . .	5 6	<i>1928.</i>	
10th August . . .	6 0	11th January . . .	6 0
5th September . . .	6 6	26th January . . .	5 6
26th September . . .	6 3	23rd February . . .	5 0
23rd October . . .	6 0	15th March . . .	4 6
17th November . . .	6 6	7th April . . .	4 9
10th December . . .	7 0	24th May . . .	4 6
16th December . . .	7 6	8th June . . .	5 0
23rd December . . .	7 0	3rd July . . .	5 3
<i>1924.</i>		<i>1929.</i>	
16th March . . .	6 6	11th January . . .	8 0
30th May . . .	7 0	7th February . . .	7 6
1st July . . .	7 6	14th February . . .	7 0
11th July . . .	8 0	7th March . . .	6 6
12th August . . .	8 6	21st March . . .	7 0
23rd August . . .	8 0	28th March . . .	6 6
13th September . . .	8 6	18th April . . .	6 0
28th November . . .	8 3	28th May . . .	6 6
29th November . . .	8 0	4th June . . .	7 6
<i>1925.</i>		10th July . . .	8 0
28th January . . .	7 6	21st August . . .	6 2
9th February . . .	7 0	22nd August . . .	8 3
3rd March . . .	6 6	5th September . . .	8 6
3rd April . . .	6 0	10th October . . .	8 3
10th April . . .	6 3	7th November . . .	8 6
1st June . . .	7 0	5th December . . .	8 0
21st September . . .	7 6	29th December . . .	7 6
24th October . . .	7 0		
7th December . . .	7 6		

## Statement showing the price per viss of Jaggery—contd.

Date of alteration.	Price.	Date of alteration.	Price.
	As. P.		As. P.
<i>1930.</i>		<i>1934—contd.</i>	
1st January . . . . .	7 6	19th April . . . . .	3 0
16th January . . . . .	7 0	17th May . . . . .	2 9
23rd January . . . . .	7 6	24th May . . . . .	3 0
30th January . . . . .	7 0	5th June . . . . .	3 3
20th February . . . . .	6 6	28th June . . . . .	3 6
21st February . . . . .	6 0	5th July . . . . .	3 9
27th March . . . . .	5 6	23rd July . . . . .	4 0
1st May . . . . .	6 0	23rd August . . . . .	4 3
Price not available from May, 1930 to July, 1931.		27th August . . . . .	4 6
		31st August . . . . .	5 3
<i>1931.</i>		3rd September . . . . .	5 6
5th August . . . . .	3 6	6th September . . . . .	5 9
7th August . . . . .	3 9	13th September . . . . .	6 0
13th August . . . . .	4 0	20th September . . . . .	5 9
1st October . . . . .	3 9	24th September . . . . .	5 6
4th November . . . . .	3 6	27th September . . . . .	5 3
24th December . . . . .	4 6	11th October . . . . .	5 6
		25th October . . . . .	5 3
<i>1932.</i>		1st November . . . . .	5 0
5th January . . . . .	5 0	6th December . . . . .	4 6
28th January . . . . .	4 6	13th December . . . . .	4 3
3rd February . . . . .	4 3	27th December . . . . .	4 0
2nd March . . . . .	4 0		
21st April . . . . .	3 9	<i>1935.</i>	
15th September . . . . .	4 3	24th January . . . . .	3 9
5th October . . . . .	4 0	11th February . . . . .	4 0
		16th May . . . . .	4 3
<i>1933.</i>		23rd May . . . . .	4 6
21st January . . . . .	3 6	23rd August . . . . .	4 3
16th March . . . . .	3 3	3rd October . . . . .	4 0
23rd March . . . . .	3 0	24th October . . . . .	4 3
30th March . . . . .	2 9	7th November . . . . .	4 0
13th April . . . . .	2 6		
16th April . . . . .	2 9	<i>1936.</i>	
22nd June . . . . .	3 0	31st January . . . . .	4 3
29th June . . . . .	3 3	13th February . . . . .	4 0
5th July . . . . .	3 0	20th February . . . . .	3 9
27th July . . . . .	3 3	25th February . . . . .	3 6
28th December . . . . .	3 6	5th March . . . . .	3 3
		16th April . . . . .	3 0
<i>1934.</i>		26th April . . . . .	3 3
24th January . . . . .	3 3	28th May . . . . .	3 0
1st March . . . . .	3 0	30th July . . . . .	3 3
22nd March . . . . .	2 9	6th August . . . . .	3 4
		13th August . . . . .	3 3

## Statement showing the price per viss of Jaggery—concl'd.

Date of alteration.	Price.	Date of alteration.	Price.
	As. P.		As. P.
1936—contd.		1937.	
24th September . . .	3 6	1st January . . .	3 0
8th October . . .	3 3	15th January . . .	3 3
3rd December . . .	3 6	28th January . . .	3 0
5th December . . .	3 3	4th March . . .	2 9

28. A statement showing the average retail and wholesale prices of sugar each month in Madras from January, 1924, to April, 1937, is enclosed. The retail prices are those supplied by the Triplicane Urban Co-operative Society, Madras, from whom it has been ascertained that their supplies of sugar are obtained from Messrs. Parry & Co., Ltd. The wholesale prices shown in the statement are the average of the maximum and minimum prices of sugars Indian supplied by Messrs. Parry & Co., Ltd., which has been given in the statement supplied in answer to Question No. 27.

The percentage difference between wholesale and retail prices is shown in a separate column in the statement enclosed. The percentage difference ranges from 3.7 to 14.9. The absence of uniformity in the variation between retail and wholesale prices of sugar may be explained in the following way. The retail dealers in Madras generally buy their requirements wholesale from Messrs. Parry & Co., Ltd., or other supplier and until the consignments bought are exhausted, the retail prices charged on the sales will, in general, be fixed, and will approximate to the wholesale prices at which the consignments have been bought *plus* the merchants' profit and the cost of transport. Though the wholesale prices may have varied in the meantime, their effect will not generally be felt on the retail prices until the old stocks are exhausted, and fresh stocks are laid in. The correspondence between retail and wholesale prices will therefore depend on the frequency of purchase of their consignments by the retail dealers from the wholesale dealers or direct from the factories. The more frequently they buy their requirements or in other words the smaller the consignments bought each time, the more uniform will be the variation between the retail and wholesale prices. On the other hand, when consignments are bought at long intervals, the correlation between retail and wholesale prices will generally be characterised by the existence of a time lag. This will be clear from an examination of the prices shown in the statement. Thus, barring the two months October and November, 1934, for which figures of wholesale prices are not available, and considering the variation month by month, the wholesale prices appear to have risen on 15 occasions as compared with the previous month's prices, but retail prices have risen concurrently only thrice during those 15 months. There was also a fall in wholesale prices on 19 occasions, followed by a fall in retail prices on only 8 of those occasions. During the two months on which the wholesale prices were stationary, the retail prices either rose or fell. Thus concurrent rise or fall in retail and wholesale prices was in evidence in only eleven out of thirty-six months.

Comparative statement showing the average wholesale and retail prices of sugar each month in Madras. The prices are in rupees per imperial maund of 82½ lbs.

Month.	1934.			1935.			1936.			1937.		
	Wholesale price of Sugar Indian supplied by Messrs. Parry & Co., Ltd.	Retail price of Sugar supplied by the Urban Triplacane Co-operative Society.	Per centage difference between retail and wholesale price.	Wholesale price of Sugar Indian supplied by Messrs. Parry & Co., Ltd.	Retail price of Sugar supplied by the Urban Triplacane Co-operative Society.	Percentage difference between retail and wholesale price.	Wholesale price of Sugar Indian supplied by Messrs. Parry & Co., Ltd.	Retail price of Sugar supplied by the Triplacane Urban Co-operative Society.	Per centage difference between retail and wholesale price.	Wholesale price of Sugar Indian supplied by Messrs. Parry & Co., Ltd.	Retail price of Sugar supplied by the Triplacane Urban Co-operative Society.	Percentage difference between retail and wholesale price.
1	2	3	4	5	6	7	8	9	10	11	12	13
January .	Rs. 9-781	Rs. 10-834	10-8	Rs. 9-779	Rs. 10-138	3-7	Rs. 9-505	Rs. 9-999	5-2	Rs. 7-854	Rs. 9-026	14-9
February .	9-826	10-834	10-3	9-323	10-415	11-7	9-141	9-999	9-4	7-393	8-471	14-6
March . .	9-826	10-693	8-8	9-276	10-138	9-3	9-229	9-719	5-3	7-464	8-191	9-7
April . .	9-919	10-415	5-0	9-461	9-999	5-7	9-195	9-858	7-2	7-370	8-053	9-3
May . . .	9-711	10-554	8-7	9-573	9-999	4-5	9-023	6-999	10-8	..	..	..
June . . .	9-714	10-554	8-6	9-643	10-277	6-6	9-091	9-719	6-9	..	..	..
July . . .	9-852	10-415	5-7	9-549	10-415	9-1	8-977	9-719	8-3	..	..	..
August . .	9-779	10-554	7-9	9-573	10-415	8-8	8-862	9-581	8-1	..	..	..
September .	9-852	10-693	8-5	10-010	10-415	4-0	8-818	9-167	4-0	..	..	..
October . .	—	10-693	—	10-287	11-386	10-7	8-542	9-167	7-3	..	..	..
November .	—	10-415	—	9-552	10-693	11-9	8-218	9-167	11-5	..	..	..
December .	9-414	10-415	10-6	9-505	10-138	6-7	8-177	9-167	12-1	..	..	..

29. Sugar and its allied products received two headings in the accounts relating to the Inland Trade of India, namely, "Sugar, refined and unrefined," and "Gur, rab, molasses, jaggery, etc.," and it was not possible under this arrangement to distinguish between white sugar and gur or, as a corollary, to arrive at an estimate of the consumption of sugar in the Madras Presidency. The matter was taken up with the Director-General of Commercial Intelligence, and it was decided in consultation with the Sugar Technologist of the Imperial Council of Agricultural Research to substitute the existing head "Sugar—Refined and unrefined" by "Sugar—All kinds". The revised head includes all sugar which is treated as such in ordinary commerce and comprises (i) all imported sugar, (ii) sugar manufactured by central sugar factories in India, (iii) sugar manufactured by gur refineries in India, and (iv) sugar produced by khandsari factories. Figures for gur, rab, molasses, jaggery, etc., continue to be shown under the existing omnibus heading. From 1936-37, therefore, it should be possible to estimate with more precision the consumption of sugar in the Madras Presidency. Unfortunately, however, statistics of railborne trade are available at present only for the first ten months of the year 1936-37, but assuming that the arrivals by rail in each of the months February and March were about equal to those in January and making somewhat arbitrary allowances for the distribution to, and consumption, in Travancore and Cochin, I estimate that the net amount of sugar received into the Presidency by sea and rail *plus* the production amounted to a little over 100,000 tons during 1936-37 and this may be taken as the approximate consumption. This, it may be mentioned, compares with an estimated production of the cane and palmyra factories in the Madras Presidency in the 1936-37 season of about 33,000 tons. The estimated consumption of sugar by South India, including Mysore, Travancore and Cochin and a little of the southern part of Hyderabad, is 120,000 tons against a total production of the Madras Presidency, Mysore and Travancore of about 56,000 tons in 1936-37. It will be seen, therefore, that there is still considerable scope for the development of the sugar industry in the Madras Presidency provided that a reasonable level of prices can be maintained. There should be a gradual, albeit slow, increase in the consumption of sugar consequent on the drift to the towns from the countryside, whilst it seems to be the case that white sugar is being used to an increasing extent in the ordinary Indian household; although there are certain purposes for which jaggery must always be used.

The details of consumption of sugar are as follows:—

	Tons.
Net railborne imports . . . . .	54,674
Net imports by sea—foreign and coastwise . . . . .	15,640
Production in Madras Presidency . . . . .	33,120
Allowance for sugar brought over the borders of French India . . . . .	2,000
	<hr/>
	105,434
Less Cochin consumption estimated at . . . . .	1,500
	<hr/>
	103,934
	<hr/>

It has been taken that the imports by sea into Travancore *plus* the production in that State are about equivalent to the consumption within it. On the above basis the consumption of sugar has been estimated at a little over 100,000 tons. The estimate of 120,000 tons for the consumption in South India including Madras, Mysore, Travancore and Cochin and a little of the southern part of Hyderabad, is an arbitrary estimate which has been put forward by Messrs. Parry & Co., Ltd., and is, I consider, fairly accurate.



The details of production in the different factories in the Madras Presidency during the last season are as follows:—

	Tons.
Nellikuppam . . . . .	13,343
Samalkot . . . . .	7,780
Thummapala (estimated) . . . . .	326
Ettikoppaka (estimated) . . . . .	365
Thachanallur and Alwartirunagari (estimated) . . . . .	1,400-
Bobbili . . . . .	2,062
Hospet . . . . .	3,519
Kirlampudi . . . . .	794
Podanur . . . . .	866
Vuyyuru . . . . .	2,401
Mailpatti . . . . .	210
Kallianpur . . . . .	54
	<hr/>
	33,120
	<hr/>

If to this figure of 33,120 tons is added the production of the Mysore factory which was about 22,000 tons and of the Thuckalay factory in Travancore which was about 1,290 tons we get a figure of about 56,000 tons as representing the total production of the Madras Presidency, Mysore and Travancore.

30. In addition to the confectionery manufactories attached to the sugar factories of the East India Distilleries and Sugar Factories, Ltd., and the Deccan Sugar and Abkari Co., Ltd., at Nellikuppam and Samalkot respectively, there are nine confectionery manufactories in this Presidency. These are located at Madras (2), Rajahmundry (2), Kumbakonam, Shiyali, Calicut, Madura and Thoraiyur. In addition, there are manufactories at Bangalore Cantonment, Cochin, Krishnarajapuram in Mysore, Pondicherry, and two at Secunderabad. The products of these factories comprise, for the most part, boiled sweets and lozenges. One variety of boiled sweets is made of two-thirds ordinary crystalline sugar and one-third glucose with colours and flavouring essences. The glucose it is understood is ordinarily imported from Belgium and the colours and flavouring essences from England, France, Germany and Italy. One hard variety of sweets turned out by the factories appears to be made of sugar only with successive layers of caramel covering round a nucleus of vegetable seed. Lozenges are made mostly in small establishments, information as to the number of which is not available. Lozenges are made of sugar well powered and mixed with gelatine. The equipment required is very simple as no process of heating is involved and no mechanical appliances are employed except the small hand operated dies.

31. (i) Sugar Industry has not developed to such an extent in the province as to necessitate the introduction of zone system by allotting special areas to different factories for their supply of cane. The factories are few and are located far from each other.

(ii) & (iii) There is no case as far as South India is concerned to fix a quota for sugar manufacture by factories. For the sugar industry here is in a nascent state and every encouragement is necessary to put it on a sound financial basis. Climatically South India is extremely suitable for growing good quality of cane. But it is desirable to fix a quota for sugar manufacture in parts of North India where there is already overproduction. In such places, licensing of new factories should be done guardedly. In this presidency, several factories are small and are uneconomic to run. It is perhaps desirable to extend such of them with a view to run them

more efficiently and economically. Undue development in North India is bound to have repercussions here and would tend to stifle an industry which needs to be fostered.

32. There is no statistical information available in regard to the total production or consumption of sweets in this Presidency, but the general opinion among the manufacturers seems to be that the demand is more or less met by the existing manufacture *plus* the small imports of high class sweets. In regard to syrups, the demand is so limited that the confectionery manufacturers do not think it would be remunerative to take up the preparation of these products. The question of the development of the fruit preservation and canning industry has been considered recently by a Sub-committee of the Sub-committee of the Provincial Economic Council for Agricultural Development which considered that a large expansion of fruit growth in this Presidency is a dietetic desideratum, whilst the general economic value of fruit cultivation should be considerable if the industry is developed on sound lines. The Sub-committee considered, however, that fruit cultivation on any extensive scale is impracticable, unless a fruit preservation and canning industry is developed contemporaneously with it, or in other words that experimental work on fruit preservation and canning must be considered as complementary to the conduct of research on fruit cultivation. The Sub-committee considered that the Department of Agriculture should extend its activities to research on fruit preservation and that the following lines of work, amongst others should be taken up and developed:—

- (i) The utilization of the various mango varieties of the Presidency for canning mango pulp and mango slices and the preparation of mango jams, pickles, chutneys, candies, crystallized and dried fruits, etc.
- (ii) The putting up of fruit mostly in a semi-dry condition, in cakes, bars, blocks, rings, slices, etc., with and without nutritious addenda, such as nuts, groundnut or pulse meal, cereal flours, spices, etc., for consumption by the masses.
- (iii) The drying, desiccation, and crystallization of fruits in general.
- (iv) The storage of fruit, mainly as pulp.
- (v) The utilization of cheap fruits and vegetables as bases of preserves and jams.
- (vi) The preparation of jelly, marmalade, etc., from inferior qualities of citrous fruits.
- (vii) The extraction and use of fruit juices for the preparation of syrups, cordials, squashes, crushes, and carbonated beverages from limes, oranges and other citrous fruits and the preparation of juices for unfermented beverages after the fashion of grape juice.
- (viii) The preparation of dried bananas or banana fig, banana meal and preserves.

The Sub-committee recommended also that the Superintendent of the Fruit Research Station at Anantarajupeta should be asked to undertake research on two or three important kinds of fruit with a view to standardizing the manufacture of fruit juices and fruit syrups with a view to enabling the preparation of such products to be carried on as a cottage industry. The Sub-committee further recommended that a station for experimental work on fruit preservation and canning should be attached to the Fruit Research Station at Anantarajupeta and that a similar fruit research station would be required at Coonoor for hill fruits. The Sub-committee also recommended that short courses of training in fruit preservation and the preparation of juices, syrups, jellies, etc., should be provided in the fruit research stations at Cuddapah and Coonoor. On the other hand the expert attached to the Imperial Council of Agricultural Research thinks that Madras would be unwise to launch any elaborate scheme of fruit preservation

and canning mainly owing to the difficulty of marketing the goods but should rather concentrate on fruit cultivation as there is yet unlimited scope for fresh fruits as such. The whole question is now under consideration.

33. The total production of cane in this Presidency may be taken at 3,511,000 tons in 1934-35 and 3,789,600 tons in 1935-36. Making an allowance of 16.1392 per cent. for chewing and seed, and deducting the quantity of cane crushed in factories, the quantity of cane used for the manufacture of jaggery in 1934-35 and 1935-36 will be approximately as follows:—

	Estimated quantity of cane produced.	Estimated quantity used for chewing and seed.	Quantity of cane crushed in sugar factories.	Quantity of cane turned into gur.
	Tons.	Tons.	Tons.	Tons.
1934-35	3,511,000	566,647	159,881	2,784,472
1935-36	3,789,600	611,611	191,380	2,986,609

In the absence of information as to the quantity of sugarcane crushed in sugar factories during the earlier years, it will not be possible to estimate with confidence the quantity of cane used for the manufacture of gur in the years previous to 1934-35. If the extraction of gur from cane is taken at 10 per cent., the quantity of gur produced in 1934-35 comes to 278,472 tons and in 1935-36 to 298,661 tons.

34. Jaggery is produced in the Madras Presidency not only from cane but also from palmyra and to a small extent from the date and coconut palms. The chief centres of the palmyra jaggery industry are Tinnevely, Coimbatore, Malabar and West Godavari Districts. The industry of preparing jaggery is carried on by the Nadars in Tinnevely, by Sanars in Coimbatore, by Thiyas in Malabar and by Kalais in West Godavari District. It is estimated that the production of palmyra jaggery in Tinnevely, Coimbatore and Malabar is normally about 20,000 tons and in the West Godavari area about 10,500 tons. Coconut palm jaggery is manufactured on a small scale on the West Coast, but it is not possible to give any estimate of the quantity produced. Sub-committee No. III of the Sub-committee of the Provincial Economic Council for Agricultural Development pointed out in a report issued last year that coconut jaggery is prepared in much the same way as palmyra jaggery, and as it has been found possible to prepare good marketable sugar from palmyra juice by the open pan system, it is not unlikely that sugar could also be produced from the juice of the coconut by the same process. In order to determine the economics of producing white sugar and whether sugar manufacture is likely to be more profitable than the preparation of jaggery, or the collection and sale of nuts, however, it would be necessary to carry out experiments on the manufacturing scale, but in view of the available sources of sugar in the Presidency, the Sub-committee did not consider it necessary to recommend the initiation of experiments in regard to the manufacture of sugar from the juice of the coconut palm, and with this view the Agricultural Development Sub-committee of the Provincial Economic Council concurred. In the Madras Presidency, jaggery is also prepared from date palm juice, but so far no attempts appear to have been made to prepare sugar direct from the juice, except at Peddapavani in the Nellore District where the Department of Industries carried out some experiments in the preparation of sugar in the year 1933. These experiments showed that it is possible to prepare good white sugar from date palm juice by the open pan system using centrifugal machines, but the data forthcoming from the experiments was insufficient to enable any very definite opinion to be formed as to the economics of such manufacture. The two important factors in the manufacture of date palm sugar are that a large number of trees should be situated in a compact block and that an abundance of cheap fuel should be available. In their report the Sub-committee referred to previously stated that there are several areas in the Madras Presidency, mostly in the Ceded Districts

and the Northern Circars, having some 2,000 tappable date trees within a radius of from 2 to 2½ miles from a central place and they considered that if possible another demonstration of the manufacture of white sugar from date palm juice should be carried out. It is not possible to give any estimate of the quantity of jaggery prepared from date palm juice.

35. A statement showing the monthly average wholesale prices of gur at important market centres in this Presidency for the years 1933-34 to 1936-37 is enclosed. The wholesale prices of gur are not available for the earlier years. The statement below gives the annual average prices at each station calculated from the figures of monthly prices:—

Station.	Average price per Imperial Maund.			
	1933-34.	1934-35.	1935-36.	1936-37.
Vizagapatam . . . . .	3.37	4.96	4.62	2.91
Rajahmundry . . . . .	3.93	5.14	5.16	4.13
Bellary . . . . .	4.08	5.50	5.52	3.76
Vellore . . . . .	3.39	5.07	4.83	3.60
Erode . . . . .	5.12	7.36	5.20	4.29
Trichinopoly . . . . .	3.92	5.36	4.11	3.09

From the above figures it will be observed that there was a marked increase in the price of gur in 1934-35 as compared with the price in 1933-34. The increase ranged from about 31 per cent. in Rajahmundry to about 50 per cent. in Vellore. The prices showed a downward trend in the following year and save for a very slight increase in Rajahmundry and Bellary to the extent of about 0.4 per cent., the prices were definitely lower at the other stations, especially at Erode and Trichinopoly where the prices fell by about 29 per cent. and 23 per cent. respectively. The downward trend of prices continued in 1936-37 and it was in evidence at all the reporting stations, prices having fallen from about 18 per cent. in Erode to about 37 per cent. in Vizagapatam as compared with the prices in the previous year.

Figures of acreage under sugarcane from 1932-33 do not show much variation in this province, nor do the figures of production of gur which have been estimated, reveal much variation. The estimated production from 1932-33 is shown in the following statement:—

Year.	Production of Gur in tons to the nearest thousand.
1932-33 . . . . .	279,000
1933-34 . . . . .	283,000
1934-35 . . . . .	278,000
1935-36 . . . . .	298,000

Taking the above figures in conjunction with the figures of net imports of gur by rail and sea, and estimating the total available supply of gur in the Presidency on the same lines as in answer to Question No. 36, the quantity of gur available for consumption in the different years is as follows:—

Year.	Total quantity of gur available for consumption in tons (to the nearest thousand).
1933-34 . . . . .	252,000
1934-35 . . . . .	261,000
1935-36 . . . . .	262,000
1936-37 . . . . .	284,000

It is very difficult to account for the large increase in the price of gur which was noticeable in 1934-35. The total available supply of gur in 1934-35 was actually in excess of that in 1933-34. An attempt has been made by the Director of Industries to find an explanation for the great increase in price in 1934-35. The prices of sugar for the two years, were examined but they did not seem to afford any clue. But when the prices of jaggery were examined over a period of four or five years previous to 1933-34 he noticed that from about the beginning of 1929 up to about the middle of 1930, the price of jaggery ruled very high and in fact on the average higher than the price of sugar. This will be clear on an examination of the retail prices supplied by the Triplicane Urban Co-operative Society, Madras.

The Director of Industries, Madras, thinks that this great increase in the price of gur in 1929-30 was presumably due to a decrease in the acreage under sugarcane in the previous year, which, when compared with the average acreage in the three years previous to it, i.e., in the period 1925-26 to 1927-28 shows a decrease of nearly 20 per cent. This is clear from the following statement which shows the figures of acreage under sugarcane and the seasonal factor for cane over a period of 11 years:—

Year.	Area under Sugarcane in acres.	Seasonal factor.
1925-26	112,821	98
1926-27	114,495	93
1927-28	105,950	93
1928-29	89,075	96
1929-30	98,107	98
1930-31	114,877	98
1931-32	116,105	98
1932-33	120,921	99
1933-34	121,650	101
1934-35	125,310	98
1935-36	123,361	101

The production of cane in 1928-29 should thus have been roughly 20 per cent. short of the normal production, the seasonal factor in 1928-29 having been more or less of the same magnitude as the average seasonal factor in the triennial period 1925-26 to 1927-28. The deficit production of cane in 1928-29 should have led to an increase in the price of gur in the following year, and in fact so high was the price of gur in 1929 and in the first few months of 1930, that it actually became more economical to buy sugar during that period. In his opinion this state of affairs may have led to an increasing substitution of sugar for jaggery by the poorer classes, and it is quite conceivable that ultimately this process of substitution of sugar for gur resulted in creating a fairly big "carry over" of gur in 1930-31. The price of gur in 1930-31 was on the average much lower than in 1929-30, though the production of cane in 1929-30 was somewhat low. It was of course not so low as in 1928-29 in which year, as already stated, the production of cane was nearly 20 per cent. less than the normal. The production in 1929-30 was in fact about 12 per cent. short of the normal. But the high price of 1929-30 was not maintained in 1930-31, due largely, he presumes, to the effect of the "carry over" with which the year 1930-31 started. In subsequent years, there was an increase in the acreage under sugarcane, and the price of gur fell, touching a very low level in 1933-34. But in 1934-35, there was a sharp increase in the price. This was due probably to a depletion of the large "carry over" which started in 1930-31 and which should have gradually spent itself in subsequent years.

*Statement showing the wholesale prices of Cane Jaggery at Important Stations.*

Prices are in Rupees per Imperial Maund and are the average of the weekly prices furnished by the Agents of the Imperial Bank of the India at the Stations concerned.

V-III

Station.	April.	May.	June.	July.	August.	Septem-ber.	October.	Novem-ber.	Decem-ber.	January.	Febru-ary.	March.	Average.
1933-34.													
Vizagapatam . . .	3-03	3-43	3-89	3-49	3-43	3-43	3-43	3-43	3-43	3-37	3-07	2-97	3-37
Rajahmundry . . .	3-83	3-79	4-10	4-32	4-32	4-13	4-12	4-12	3-87	3-63	3-29	3-62	3-93
Bellary . . . . .	3-91	3-58	3-99	4-14	4-13	3-96	3-87	4-22	4-53	4-53	4-27	3-87	4-08
Vellore . . . . .	2-96	2-96	3-29	3-29	3-29	3-42	3-62	3-62	3-62	4-03	3-54	3-03	3-39
Erode . . . . .	4-29	5-57	6-00	6-00	5-14	5-14	5-14	5-14	5-14	5-04	4-89	4-46	5-12
Trichinopoly . . .	3-23	3-12	4-06	4-15	3-53	3-76	3-82	4-04	4-34	4-41	4-04	4-53	3-92
1934-35.													
Vizagapatam . . .	3-75	4-34	4-42	4-23	5-96	6-88	6-11	5-39	4-11	5-06	4-19	4-48	4-96
Rajahmundry . . .	4-12	4-17	4-53	4-63	6-10	6-85	6-76	5-64	4-40	4-53	4-76	5-13	5-14
Bellary . . . . .	4-01	3-91	4-24	4-53	5-68	7-46	7-77	6-48	4-87	5-25	5-92	5-93	5-50
Vellore . . . . .	2-96	3-25	3-86	4-82	6-12	7-82	7-12	5-66	4-77	4-77	4-86	4-77	5-07
Erode . . . . .	5-14	5-14	5-14	5-36	6-00	7-71	10-29	10-29	10-29	9-42	6-86	6-68	7-36
Trichinopoly . . .	3-89	3-82	4-47	4-70	5-00	6-02	7-05	7-05	7-05	5-73	5-14	4-41	5-36

N 20

Statement showing the wholesale prices of Cane Jaggery at Important Stations—contd.

Station.	April.	May.	June.	July.	August.	Septem-ber.	October.	Novem-ber.	Decem-ber.	January.	Febru-ary.	March.	Average.
1935-36.													
Vizagapatam . . . . .	5-12	5-26	5-20	4-91	4-59	4-67	4-69	4-80	4-80	4-30	3-79	3-26	4-62
Rajahmundry . . . . .	5-36	5-72	5-97	5-86	5-66	5-32	5-40	5-10	4-80	4-32	4-12	4-27	5-16
Belary . . . . .	5-61	5-97	6-37	6-58	6-42	5-35	5-35	5-35	5-21	4-94	4-58	4-32	5-52
Yellore . . . . .	4-77	5-60	5-39	5-27	5-27	5-02	4-90	4-67	4-61	4-61	4-12	3-73	4-83
Erode . . . . .	5-57	5-14	5-14	5-14	5-14	5-14	5-14	..	..	..	..	..	5-20
Trichinopoly . . . . .	4-41	4-41	4-41	4-41	4-41	4-41	4-41	4-41	3-92	3-71	3-23	3-16	4-11
1936-37.													
Vizagapatam . . . . .	3-39	2-93	3-03	3-20	2-97	2-91	2-78	2-86	3-39	2-51	2-43	2-49	2-91
Rajahmundry . . . . .	4-32	4-32	4-32	4-32	4-32	4-32	4-32	4-67	4-51	3-51	3-24	3-37	4-13
Bellary . . . . .	4-14	4-05	4-12	3-95	4-12	4-12	3-70	3-70	3-70	3-55	3-13	2-86	3-76
Yellore . . . . .	3-62	3-62	3-62	3-75	3-79	3-79	3-69	3-29	3-29	3-96	3-70	3-13	3-60
Erode . . . . .	..	..	..	..	..	..	..	..	..	4-34	4-20	4-34	4-29
Trichinopoly . . . . .	2-87	2-65	2-65	2-70	2-87	2-65	2-53	3-23	3-23	4-04	3-89	3-73	3-09

36. The estimated production of gur in 1934-35 and 1935-36 taken in conjunction with the movements of gur by rail and sea in 1935-36 and 1936-37 respectively will provide an estimate of the consumption of gur in the latter two years. As already indicated in answer to question No. 33 there are difficulties in the way of estimating the production of gur in the years previous to 1934-35. An estimate of the consumption of gur in this province in 1935-36 and 1936-37 may be struck on the following lines:—

The total consumption of gur in the Madras Presidency and the Cochin State in any one year may be taken as equivalent to the production of gur in these two areas in the previous year, plus net imports of gur by rail and sea into these two areas in the year in question. The production of gur in the Madras Presidency has been already estimated for 1934-35 and 1935-36 in the answer to question No. 7. An estimate of the production in Cochin has therefore to be made. A reference to the Agricultural Statistics of India, Volume II, shows that the area under sugarcane in the Cochin State in 1932-33 was 797 acres. This is the latest year for which this information is available. Assuming that the yield per acre of cane in the Cochin State is the same as that in the adjacent district of Malabar, the production of cane in the Cochin State may be estimated at 21,430 tons in 1932-33. Making an allowance of 16-1392 per cent. for chewing and seed, which is the same percentage as that adopted for the Madras Presidency and considering that no sugar is manufactured in the Cochin State the quantity of cane turned to the manufacture of gur in this State in 1932-33 may be estimated at 17,971 tons. The yield of gur from 17,971 tons of cane will be nearly 1,800 tons and if we allow for a slight increase in the acreage of sugarcane in the years subsequent to 1932-33, the yield of gur in the Cochin State in 1935-36 and 1936-37 may be assumed to be 2,000 tons. The figures of movements by rail shown against "Madras" and "Madras Ports" in the monthly statement of rail-borne trade published by the Director General of Commercial Intelligence and Statistics relates not only to the Madras Presidency proper, but to the bordering States of Cochin and Travancore as well. In striking an estimate of the total consumption of gur in the Madras Presidency and the Cochin State, we have therefore to leave out of account the movements of gur relating to Travancore. The best we can do is to make an allowance on this account. The net imports of gur by rail in 1935-36 amounted to -11,462 tons. The movements during the first ten months of 1936-37 for which figures are available, give a net import of -5,941 tons, but on the assumption that the movements during the remaining two months were of the same magnitude as those in the month preceding them, i.e., in January, 1937, which assumption is justified on account of the fact that the crushing season generally extends from January to April when the movements of gur are heavy, the net import in 1936-37 may be estimated at -7,399 tons. We may not be far wrong if we assume that out of this the Madras Presidency and the State of Cochin together accounted for -6,500 tons. We may also assume that in 1935-36 they accounted for -10,000 tons. The latter figure is probably somewhat vitiated on account of the fact that previous to 1936-37, the classification of sugar and gur adopted in the statements of rail-borne trade published by the Director General of Commercial Intelligence and Statistics was rather confused as sugar was shown under sugar 'refined and unrefined', in which category, there was presumably every chance of jaggery also being inadvertently included. It was only in 1936-37 that the classification was altered on the representation of the Director of Industries, Madras. Sugar is now shown in a separate category and gur with molasses, rab, etc., in another category. As for movements by sea, the figures relating to this province include movements into and from Cochin. In 1935-36, the net imports of gur by sea into this province inclusive of Cochin amounted to -1,644 tons in 1936-37 to



-2,544 tons. The relevant statistics are shown below in the form of a tabular statement:—

Year.	Quantity of gur produced in		Net imports of gur by sea into the Madras Presidency and the Cochin State.	Net imports of gur by rail into the Madras Presidency and the Cochin State.	Consumption of gur in the Madras Presidency and the Cochin State, i.e., total of Col. 2, 3, 4 and 5.
	Madras Presidency.	Cochin.			
1	2	3	4	5	6
	Tons.	Tons.	Tons.	Tons.	Tons.
1934-35	278,447	2,000	-1,644	-10,000	268,803
1935-36	298,661	2,000	-2,544	-6,500	291,617

On the basis of the above figures of total consumption of gur in the Madras Presidency and the Cochin State, we have to make the best estimate possible of consumption in the Madras Presidency. This can best be done on a population basis. The population of the Cochin State according to the Census of 1931 was 1,205,016 and that of the Madras Presidency was 46,740,107. The population of the Madras Presidency therefore accounts for 97.49 per cent. of the population of the Madras Presidency and Cochin State together. Calculating the consumption of gur on this basis, the consumption in 1935-36 may be estimated at 262,056 tons or 262,000 tons (rounded) and that in 1936-37 at 284,297 tons or 284,000 tons (rounded). In the above calculations the Madras Presidency has been taken to mean the Presidency as it existed before the reconstitution of the districts of Ganjam and Vizagapatam. There has been an increase of 22,000 tons or 8.4 per cent. in the consumption of gur in 1936-37 as compared with the consumption in the previous year. This can be accounted for by the low level of prices of gur which prevailed in 1936-37, especially as compared with the prices in the two previous years. Gur is a favourite article of consumption with the poorer classes on festive occasions and when prices are low they naturally resort to it to an increasing extent.

37. Gur (jaggery) is imported into the Madras Presidency by rail mainly from Mysore, Bihar and Orissa and the Nizam's Dominions. The imports by sea are negligible, amounting only to seven tons from Bombay during 1936-37. Figures of imports by rail during 1935-36 and 1936-37 (ten months only, April, 1936, to January, 1937), are given below:—

Province or State from which imported.	Quantity of gur, rab, molasses, jaggery, etc., imported by rail into the Madras Province in	
	1935-36.	1936-37 (ten months only, April, 1936, to January, 1937).
1	2	3
	Tons.	Tons.
Mysore . . . . .	4,034	5,937
Bihar and Orissa . . . . .	192	121
Nizam's Territory . . . . .	46	453
Bombay Presidency . . . . .	38	12
United Province of Agra and Oudh . . . . .	2	12
Total . . . . .	4,312	6,535

38. Gur/jaggery is exported from the Madras Presidency by rail mainly to the Nizam's Dominions, Bombay Presidency, Central Provinces and Berar, Mysore, Bihar and Orissa and Bengal Presidency, and by sea mainly to Ceylon, Federated Malay States, Kathiawar and Bombay. Figures of exports by rail during 1935-36 and 1936-37 (ten months only, April, 1936, to January, 1937), and of exports by sea during 1936-37 are given below:—

Province or State to which exported.	Quantity of gur, rab, molasses, jaggery, etc., exported by rail from the Madras Presidency in	
	1935-36.	1936-37 (ten months only, April, 1936, to January, 1937).
I	2 Tons.	3 Tons.
Nizam's Territory . . . . .	5,547	3,406
Bombay Province . . . . .	4,668	2,597
Central Provinces and Berar . . . . .	3,584	4,031
Mysore . . . . .	936	328
Bihar and Orissa . . . . .	569	1,575
Bengal Province . . . . .	463	536
Central India . . . . .	7	1
Total . . . . .	<u>15,774</u>	<u>12,474</u>

## II.

Country to which exported.	Quantity of molasses including palmyra and cane jaggery exported by sea from the Madras Presi- dency in 1936-37.	
	Tons.	
Ceylon . . . . .	924	
United Kingdom . . . . .	350	
Straits Settlements . . . . .	4	
Federated Malay States . . . . .	4	
Kathiawar . . . . .	1,207	
Bombay . . . . .	60	
Sind . . . . .	1	
Burma . . . . .	1	
Others . . . . .	1	
Total . . . . .	<u>2,552</u>	

39. (1) As there is considerable divergence of opinion on the question whether there is any correspondence between the prices of gur and sugar, the Director of Industries considered it worthwhile to examine the question in some detail and in as scientific a manner as possible. The following is an extract from his report:—

“From the records of retail prices of Aska sugar and gur supplied by the Triplicane Urban Co-operative Society which are attached to the answer to question 27, the annual average prices of each of these commodities were calculated for the period 1912-13 to 1928-29 and from the averages so calculated, two series of index numbers, one for gur and the other for





sugar, were constructed for the entire period, taking the average price in 1912-13 as equivalent to 100 in each case. The series are shown below:—

*Annual average price of jaggery.*

Base: Average price for 1912-13=100.

Year.	Price per viss.	Index No.
1912-13	4 3	100
1913-14	3 11	92
1914-15	5 2	122
1915-16	5 8	124
1916-17	5 4	125
1917-18	5 0	118
1918-19	5 1	120
1919-20	8 3	194
1920-21	11 1	261
1921-22	8 9	206
1922-23	6 10	161
1923-24	6 6	153
1924-25	7 6	176
1925-26	6 11	163
1926-27	6 7	155
1927-28	5 5	127
1928-29	6 0	141

*Annual average price of Aska sugar.*

Base: Average price for 1912-13=100.

Year.	Price per viss.	Index No.
1912-13	0 4 11	100
1913-14	0 4 8	95
1914-15	0 6 10	139
1915-16	0 7 9	153
1916-17	0 9 0	133
1917-18	0 8 0	163
1918-19	0 8 9	178
1919-20	1 0 2	329
1920-21	1 2 3	371
1921-22	0 10 5	212
1922-23	0 11 0	224
1923-24	0 11 7	236
1924-25	0 8 6	173
1925-26	0 7 6	153
1926-27	0 8 0	163
1927-28	0 7 0	142
1928-29	0 6 4	129

(2) The two series were correlated with each other and the coefficient of correlation calculated from them. The coefficient came to 0.8484, proving the existence of a very high degree of correlation between the prices of the two commodities. The last Tariff Board on the Sugar Industry in India had doubted the existence of any significant correlation between the prices of gur and sugar and had observed that such correlation as

emerged from the figures relating to the two was the result rather of variations in the general level of prices than of any direct reaction of sugar prices on gur. To test the validity of this observation, an endeavour was made to work out the correlation between the two series of gur and sugar prices after eliminating from each series the effect of a general movement of prices. It was necessary for this purpose to construct a series showing the general level of prices in this Presidency. Table I shows separate series of price indices for rice, cholam, cumbu, ragi, groundnut, cotton and sugarcane for the period 1912-13 to 1928-29 on the assumption that the average price in 1912-13 is 100 in each case. In view of the great importance of the above commodities in this province, a series of price movements which combines in itself the movements of prices relating to the different commodities is bound to reflect the general movement of prices in this Presidency. The problem was therefore to give proper weights to individual series. In Table II are set out the weights which have been given to the several series in the different years. The process of calculating the weights was as follows:—From a record of the areas under the several commodities in the different years, the percentage area of each commodity in each year was calculated. As this percentage will be representative of the relative importance of the commodity in the year in question, it was taken as the weight pertaining to it in that year. The weights were reduced to a system of percentages, merely for facility in calculating the weighted index. Weighting the series for the different commodities in Table I with the weights in Table II, a series of the general movement of prices was constructed. It was as follows:—

Year.	Weighted index of prices of commodities in the Madras Presidency.	Year.	Weighted index of prices of commodities in the Madras Presidency.
1912-13	100	1921-22	145
1913-14	96	1922-23	138
1914-15	87	1923-24	144
1915-16	88	1924-25	153
1916-17	95	1925-26	136
1917-18	106	1926-27	135
1918-19	157	1927-28	137
1919-20	180	1928-29	128
1920-21	149		

(3) Calling the series of index numbers of gur prices as '1', the series of sugar prices as '2' and the weighted index series as '3', the correlation between '1' and '2', '2' and '3' and '1' and '3' was separately calculated. Let  $r_{12}$  be the correlation coefficient between '1' and '2',  $r_{23}$  the correlation coefficient between '2' and '3', and  $r_{13}$  the correlation coefficient between '1' and '3', and  $r_{12}$  worked out to .8484 as already stated,  $r_{23}$  worked out to .6380 and  $r_{13}$  to .6638.

Adopting the above coefficients of correlation, a partial correlation between gur and sugar prices, i.e., a correlation from which the effect of the third factor, namely the general movement of prices of commodities, was eliminated, was calculated. It worked out to .7378. This is fairly high and the result of eliminating the general movement of prices has been merely to reduce the correlation from .8484 to .7378, i.e., by 14 per cent.

(4) The above calculations therefore prove the existence of a real correlation between gur and sugar prices. Even on *a priori* grounds it may be argued that the prices of the two commodities would tend to move sympathetically as both of them are manufactured from the same source and as their prices are therefore in a large measure dependent, other things being equal, on the price of cane which accounts for the greater portion of the cost of production of each of these products."

TABLE I.—Index numbers of the prices of commodities in the Madras Presidency.

Base: Average price in 1912-13=100.

Year.	Rice 2nd sort.	Cholam.	Cumbu.	Ragi.	Groundnut.	Cotton.	Jaggery.
1912-13 . .	100	100	100	100	100	100	100
1913-14 . .	96	94	100	97	100	96	92
1914-15 . .	91	88	92	92	63	64	122
1915-16 . .	90	83	88	88	79	88	124
1916-17 . .	93	90	95	92	72	134	125
1917-18 . .	94	103	102	99	70	195	118
1918-19 . .	132	156	152	145	153	256	120
1919-20 . .	161	197	206	201	186	170	194
1920-21 . .	140	156	176	163	128	133	261
1921-22 . .	135	147	157	153	153	153	206
1922-23 . .	129	129	145	140	147	185	161
1923-24 . .	127	136	148	140	149	224	153
1924-25 . .	144	150	157	156	149	190	176
1925-26 . .	134	134	144	141	130	140	163
1926-27 . .	134	137	150	144	123	118	155
1927-28 . .	133	140	151	146	121	146	127
1928-29 . .	123	129	137	138	121	138	141

TABLE II.—Table giving the weights for the several commodities on the basis of the areas under them.

Year.	Rice.	Cholam.	Cumbu.	Pagi.	Groundnut.	Cotton.	Sugarcane.	Total.
1912-13 .	44.07	17.05	12.61	10.39	5.86	9.62	0.40	100
1913-14 .	42.35	19.00	11.46	9.79	6.37	10.70	0.33	100
1914-15 .	41.96	19.69	13.44	9.38	7.20	8.05	0.28	100
1915-16 .	42.78	21.05	13.99	9.63	4.33	7.86	0.36	100
1916-17 .	44.05	18.18	13.03	9.16	6.86	8.28	0.44	100
1917-18 .	43.84	18.39	12.45	9.37	5.32	10.15	0.48	100
1918-19 .	41.53	20.10	12.62	9.46	3.97	12.43	0.49	100
1919-20 .	44.01	20.77	12.34	9.37	4.32	8.84	0.35	100
1920-21 .	43.18	20.32	11.72	9.89	6.23	8.26	0.40	100
1921-22 .	43.54	21.51	12.34	9.63	5.64	6.88	0.46	100
1922-23 .	42.73	19.90	11.65	9.78	6.64	8.80	0.50	100
1923-24 .	42.14	18.62	10.60	10.39	7.24	10.53	0.48	100
1924-25 .	41.52	18.88	11.64	9.32	7.27	10.95	0.42	100
1925-26 .	42.14	16.92	11.44	8.67	9.67	10.74	0.42	100
1926-27 .	41.88	18.13	11.90	8.78	10.35	8.52	0.44	100
1927-28 .	40.66	17.97	12.19	8.56	12.42	7.81	0.39	100
1928-29 .	40.53	18.97	11.28	8.29	13.53	9.07	0.33	100

40. It is not possible to say to what extent Indian factory sugar is replacing jaggery in this province. There is some reason to believe, however, that white sugar is being used in Indian households to an increasing extent in replacement of jaggery although jaggery will always be preferred for the preparation of certain domestic confections, and for use in connexion with certain ceremonial purposes.

41. The method of jaggery making as generally practised here suffers from the following defects, viz., incomplete removal of scums, uncontrolled liming and prolonged boiling of the juice and as a result the jaggery produced is, more often than not black, unclean and of poor quality.

Though measures such as judicious liming, reduction in the time of boiling and efficient removal of scum have been able to effect some improvement in the quality, much yet remained to be done.

Accordingly, investigations were started to this end in the laboratory of the Agricultural Chemist, Coimbatore, in 1932, and it is gratifying to record that during the following years a simple and practical method was developed by the adoption of which the quality of the jaggery could be considerably improved.



The method consists in the use of activated carbon for clarification of the sugarcane juice.

The activated carbon recommended for the process is made from the cheap, waste product, paddy husk, by the following simple process. The latter is first carbonised at low temperature, subsequently heated out of contact with air at a high temperature for a few hours and then boiled with caustic soda. It is then thoroughly washed with water and dried in the sun. The active carbon thus produced is comparatively low in cost and of sufficiently high activity to produce excellent results.

The manner in which the above carbon is used for clarifying the juice is as follows:—

The raw juice is raised to the boiling temperature, the collecting scum efficiently removed, and the hot juice passed through a bed of activated carbon contained in a conical cylinder with a perforated bottom. The active carbon, by virtue of its highly porous structure, is able to absorb most of the colloidal impurities and the entire colouring matter present in the juice during the course of its passage through the layer of the carbon. The resultant percolate is colourless and transparent and on concentration to jaggery by the ordinary process yields a product of excellent colour and high quality. The product is further very clean and attractive.

It will be seen that both the above processes, viz., the process of making active carbon and the method of its use in jaggery making, are simple and are capable of being adopted by any ryot of average means.

The new process has been demonstrated in numerous villages in different parts of the Presidency with ryots' canes in their own fields and the results have been uniformly successful.

As regards the economics of the method, it may be stated as a result of experience gained so far that a premium of 25 per cent. in price for the new product would leave a fair margin of profit to the manufacturer.

Small scale tests conducted in the laboratory have revealed the great potential value of the process with Palm products as well. The improvement effected in the case of Palmyra and Coconut jaggeries has been even more pronounced than with Cane jaggery.

42. The number of open pan factories in this province is negligible and although no estimate of the outturn of sugar, gur and molasses in such units can be given it must be very small indeed.

43. No reliable figures are available as to the cost of manufacture of sugar from cane in open factories in this Presidency. The cost of preparing sugar from palmyra juice at Navadur in the West Godavari district is as follows:—

Yield from 2,000 lbs. of juice—54 lbs. of sugar and 155 lbs. of molasses jaggery.

	Rs. a. p.
Cost of juice . . . . .	3 15 3
Boiling of juice . . . . .	2 8 0
Centrifuging . . . . .	0 5 0
Chemicals . . . . .	0 15 3
Salaries of staff . . . . .	1 2 0
Interest and depreciation on capital . . . . .	1 13 8
Total . . . . .	10 11 2

44. So far as is known no open pan factories have been closed down as a result of competition from factory sugar, but the competition of factory sugar may have discouraged the setting up of open pan establishments in some areas.

45. The question of the open pan system of sugar manufacture was considered by a sub-committee of the Sub-committee of the Provincial Economic Council for Agricultural Development last year. The Sub-committee observed from a note on the subject by the Director of Agriculture, Bihar and Orissa, that the Khandsari sugar industry in that province had declined in importance during the last few years owing to (i) the comparative high cost of production rendering manufacture unremunerative at the reduced prices which sugar now commands and (ii) the competition of a large number of vacuum pan sugar mills which have been established. The Sub-committee considered that the open pan system of cane-sugar manufacture with centrifugals may have a limited field of usefulness in the interior tracts of the country where owing, either to want of communications or the scattered nature of the cane areas, manufacture in vacuum pan factories is impossible. Under such conditions, the Sub-committee opined that the open pan system of sugar manufacture may play a useful part in providing an outlet for surplus cane and assist to maintain the price of jaggery, since the cost of production by this method is not so great as might be supposed. Overhead charges are low and the cost of supervision is negligible and this goes to offset the loss incurred by low extraction. But even under these conditions the market price of jaggery will, in the opinion of the Sub-committee, be a basic factor in determining the relative advantages of manufacturing sugar or jaggery, and at the prices then ruling for jaggery, it was considered that it would not be profitable to manufacture sugar by the open pan system in preference to utilizing the cane for the preparation of jaggery in areas where the jaggery industry is carried on, though if the price of jaggery falls below Rs. 24 per candy, the open pan system of sugar manufacture might be the more profitable of the two, provided there is a demand for the sugar produced at a reasonable price. Even so, if the ryot can dispose of his cane at anything over Rs. 10 per ton, it would in the view of the Sub-committee be more profitable for him to do so than to manufacture his own sugar by the open pan process. The chief advantage of this process appears to lie in the fact that, where there is no vacuum pan factory nearby, it enables the ryot to get from his cane crop a return comparable to what he may obtain by selling his cane to a factory when the manufacture of jaggery is not a profitable proposition, but as the production of vacuum pan factory sugar is increasing, the future of the open pan system does not, in the view of the Sub-committee, appear to be at all promising, especially if regard be had to the fact that Khandsari sugar is of lower quality than sugar produced in vacuum pan factories. The Sub-committee reported that no data was available in regard to the economics of the open pan method of sugar manufacture from cane when carried on in comparatively large scale units, producing from one to five tons of sugar per day, and this could only be determined definitely by experimental trial, but the falling off in the production of Khandsari sugar in Northern India went to show, in their view, that the open pan system is uneconomic as compared with vacuum pan manufacture. The Agricultural Development Sub-committee of the Provincial Economic Council, which considered the report of the sub-committee, arrived at the conclusion that the open pan method of sugar manufacture is uneconomic.

46. Work done in the Chemical laboratory at Coimbatore on rah making by activated carbon treatment has been limited to small scale tests only. The indications are however promising. There is considerable improvement in the colour of the rah made by carbon treatment and the sugar obtained from such raba compares favourably in colour with the white sugar in the market. The yield of sugar on rah also appears to be increased to a certain extent as a result of the rise in purity of the juice due to carbon treatment. From further experiments conducted in the laboratory, it appears that the present technique of rah making will admit much improvement. For example, a rah struck at 112° C., aerated in the usual

way and kept at a temperature of 60°-70° C. for a few hours with frequent stirring, has been found to yield 25 per cent. more sugar than the rab treated in the ordinary way.

No systematic large scale tests in rab making have however yet been made, using activated carbon.

47. (i) *Cane-grower*.—The price of cane having fallen, it has not benefited the cultivator but has tended to reduce his profits. The additional duty of 1937 has increased the working costs of the factory and this has also affected the grower inasmuch as the factories pay less for cane. In certain districts the value offered is said to be below cost of production. In Coimbatore this decrease synchronised with a slight increase in the cost of jaggery which is said to have made the growers not to sell the cane to the factory.

(ii) *Manufacturer*.—The tendency for the manufacturer is to throw the burden on the grower or consumer and he finds it easier to do so on the grower. In the case of the manufacturer it may be said that his profits if any are reduced. For when the supply of cane is insufficient, the factory works below its full capacity and it naturally increases cost of production and thereby reduces the profits. These in turn make the factory hesitate to pay a good price for cane. It therefore works in a vicious circle. The price paid by the consumer is affected by the competition set up between North Indian, foreign and local sugar.

(iii) *Dealer*.—Not affected.

(iv) *Consumer*.—As stated above, the consumer is not affected in view of the internal competition between different sugar producers.

48. Due to competition set up between Indian Sugar producers, the protective duties have probably helped the consumer to get his sugar cheaper than before, especially in view of the fact that the imported article has been considerably reduced in quantity.

49. The answer is in the negative.

50. *Statistics of acreage and outturn*.—The primary agency for the recording of the figures of acreage and outturn of sugarcane, as indeed of all other crops for which estimates of area and yield are prepared, is the village accountant. In the ordinary course of his work, which involves a detailed inspection of fields in the village, the village accountant sends each month to the Revenue Inspector, i.e., the officer in charge of a group of villages varying in number, a detailed statement showing the sowings of crops and their estimated harvested outturn in terms of annas under the five separate heads—0 to 3 annas, 4 to 7 annas, 8 to 11 annas, 12 annas and 13 to 16 annas, 12 annas representing a normal crop. At the close of the fasli year, the Revenue Inspector prepares from the figures reported by the village accountants a statement of sowings of crops in his firka and their estimated outturn, classified according to the different anna heads. The statement so prepared is forwarded to the Tahsildar who consolidates the firka figures into taluk totals. The Tahsildar in turn submits the taluk figures of area and outturn to the Collector, in whose office the district statement of area and outturn is prepared before being finally sent to the Department of Industries.

The statistics of areas under crops are accurate in the case of ryotwari tracts which have been carefully surveyed, but the same cannot be said of Zamindari and whole inam areas which account for nearly a third of the Presidency, and of which only a part has been surveyed. Further, there is not the same elaborate revenue organisation in the latter areas, nor are the village accountants as efficient as those in the ryotwari areas. For these reasons, the agricultural statistics reported from the Zamindari and whole inam areas are not as accurate as those relating to the ryotwari tracts. In view of the defects inherent in the statistics relating to the Zamindari and whole inam areas, the Tahsildar or Deputy Tahsildar concerned estimates the area and outturn of crops as well as he can from the reports he receives

from the estate officials, modified in the light of his own knowledge and experience.

The yield of a crop is the resultant of three factors, namely, (i) the area under the crop in acres, (ii) the normal yield per acre and (iii) the seasonal factor or condition figure which represents the percentage relation of the crop in the field to the normal crop. The first of these factors has been discussed already. As regards the second factor, the normal yield per acre for sugarcane was last fixed by the Director of Agriculture in 1919. The figures of normal yield for the different districts are given in Appendix VIII to the Season and Crop Report. Steps have been taken to revise the present normals with reference to crop cutting experiments conducted on fields selected at random. Only when the results of the experiments now going on are known, will it be possible to pronounce an opinion as to the magnitude of the error introduced into the statistics of production by the adoption of standard yields fixed in 1919.

As regards the seasonal factor, the procedure adopted is as follows:—

The average anna figure for each crop in the district is first determined.

Let A acres be the total area under a crop made up of—

- $a_1$  acres under 0 to 3 annas,
- $a_2$  acres under 4 to 7 annas,
- $a_3$  acres under 8 to 11 annas,
- $a_4$  acres under 12 annas,
- $a_5$  acres under 13 to 16 annas.

so that  $A = a_1 + a_2 + a_3 + a_4 + a_5$ .

The average anna figure (reported) will then be—

$$Y = \frac{(a_1 \times 1\frac{1}{2}) + (a_2 \times 5\frac{1}{2}) + (a_3 \times 9\frac{1}{2}) + (a_4 \times 12) + (a_5 \times 14\frac{1}{2})}{A}$$

and the equivalent percentage figure will be  $P = \frac{Y}{12} \times 100$  as 12 annas is equivalent to normal (=100). For sugarcane, figures of P are available from 1902-03 or thereabouts. A study of these figures has revealed that their average over a number of years rarely approximates to 100 as one would expect, but actually ranges from 70 to 90. This is due to the inherent pessimism of the village accountant, who is always inclined to underestimate the crop. His pessimism has to be allowed for in some way. The process of allowing for it is explained below with the help of an illustration:—

Let 80 be the average of the P's for sugarcane over a number of years in a district. If 75 is the P for the year in question, the corrected percentage (condition factor) will be entered as—

$$75 \times 100 / 80 = 93.75 \text{ or } 94.$$

100/80 is called the correcting factor and this figure varies for each district.

*Accuracy.*—The figures of area are on the whole fairly accurate. There is, however, a certain amount of inaccuracy in the figures reported from the Zamindari and whole inam tracts and this will no doubt to some extent react on the accuracy of the provincial totals of area and yield. The figures of normal yield per acre are out of date having been fixed in 1919, but as the result of crop cutting experiments now going on, revised normals will be available in a year or two and they will certainly be an improvement on the present standards, as the crop cutting experiments have been planned very carefully with due regard to the randomness of the experiments and the sufficiency of their number. As regards the seasonal factor, the process of correcting the annawari estimates of yield originating from the village accountants will to a large extent mitigate the error arising from this source. It is not possible to estimate the degree of error in the figures of production of gur published in the Season and Crop report; as they cannot be subjected to a post-mortem examination in the absence of figures of consumption of gur. The figures of production which are at present published are also largely hypothetical, as they are based on the assumption that the whole of the sugarcane produced is utilised for the manufacture of gur and no allowance is made for the other uses of cane.

Nevertheless there is every reason to suppose from the manner in which the statistics are compiled that the statistics of acreage, normal yield and seasonal factor published in respect of cane are in no way inferior to those published for other crops. It has, for instance been discovered as a result of post-mortem examination of the cotton forecasts in this Presidency, with reference to trade and consumption figures, that the forecasts compare favourably with the actuals. Since the reporting agency is the same for sugarcane and the manner of compiling the statistics is also the same, there is no reason to suspect the existence of any serious discrepancy in the figures of production of gur except to the limited extent indicated that the figures published take into account the whole of the sugarcane crop without making separate allowance for the cane turned into jaggery, used for chewing, etc.

*Prices.*—Continuous records of wholesale prices of jaggery at selected stations in the Presidency are available from January, 1933. Since 1st January, 1937, a new scheme of prices publication has been in operation in this Presidency, whereby the prices of both jaggery and sugar, among other commodities, ruling at important market centres in the Presidency on Monday each week are reported by the Agents of the Imperial Bank of India at the several centres so as to reach the Director of Industries the next day in time for publication in the *Fort St. George Gazette*. The retail prices of jaggery and sugar are also included in this scheme, but these prices are reported by the Tahsildars. Both the retail and wholesale prices are published in terms of rupees per imperial maund. The wholesale prices reported by the agents of the Imperial Bank of India are reliable. The retail prices reported by the Tahsildars are also on the whole fairly accurate, though occasionally discrepancies between retail and wholesale prices arise, and these are reconciled by correspondence with the reporting agencies.

51. Answers to questions 4, 7, 61, 94, 108, 109 and 110 of the General Questionnaire are attached.

Enclosure II.

#### GENERAL QUESTIONNAIRE.

4. The new factories which have come into existence in the Madras Presidency during the last few years employ the sulphitation process of manufacture. The carbonation process has not been adopted in any factory in the Madras Presidency. In the latter process the large amount of lime used attacks the invert sugar, forming compounds which are insoluble when the operation is properly conducted. In consequence, the clarified juice is of a higher purity than is yielded by the sulphitation process. For the carbonation process to be successful, however, it requires closer chemical control than the sulphitation process and to that extent is not particularly suitable for small size factories where the technical control is often not of the highest standard. Also the large amount of lime needed and the necessity for carbonic acid gas render a lime kiln at the factory more or less essential when the carbonation process is employed and this also requires continuous skilled attention. For these reasons, it is somewhat unlikely that factories employing the carbonation process will be set up in the Madras Presidency, except under special circumstances.

7. There is no optimum size of a sugar factory as in each case the capacity must necessarily be dependent on the area from which the cane supply is drawn and the position in regard to, and the facilities for, transport. Up to a point, the larger the factory, the lower will be the proportion of overhead charges in the cost of the finished product. In most sugar countries the view is held, it is said that a factory of less than 400 tons crushing capacity per day cannot prove economic except under special circumstances. In the Madras Presidency, however, the main difficulty attending the further development of the industry is the comparative absence of areas under sugarcane sufficient in extent to support sugar factories of

a size generally regarded as representing an economic unit and this explains why some sugar factories of small capacity have been established in the Madras Presidency. These small sugar factories were planned and erected even before the original excise duty was thought of and unless there is a substantial improvement in the price level of sugar, it will be impossible for these small factories to earn a profit after paying the enhanced excise duty, allowing for depreciation, and paying a reasonable price to the growers, whilst, if as a result of the overproduction in the North, prices fall away further, their position is likely to become extremely serious. There is therefore a strong case for waiving the excise duty in the case of small factories with a crushing capacity, of say, not more than 125 tons a day, and especially co-operative factories. If it is not possible to abolish entirely the excise duty on sugar produced by the small factories, they might well be placed on the same basis as Khandsari and open pan factories and called upon to pay only the lower excise duty applicable to such units.

61. *Molasses*.—In South India at present the disposal of molasses by the sugar factories, especially those which have no distilleries attached to them, presents a problem of considerable difficulty as there is little or no demand for this by-product except to a very small extent for tobacco curing. Molasses, it is understood, is now being exported from some ports in Northern India to Europe where it is used for the production of industrial alcohol, by yeast makers, and as an ingredient for cattle foods, but it is believed that the requirements of the exporting corporation represent less than half the production. This development therefore hardly appears to afford a solution of the problem of molasses disposal even in Northern India. In Mysore, experiments are in progress in regard to the use of molasses as a road surfacing material but it seems doubtful whether an outlet for any considerable quantity of molasses is likely at present to be found in this direction. Although it is possible to burn molasses in the boiler furnaces of sugar mills, no completely satisfactory furnace which will overcome the clinkering difficulty appears to have been evolved as yet. At Vuyyuru, however, the bagasse is sprayed with molasses through a perforated pipe at the point where the bagasse enters the conveyor from the mill, and as molasses has about the same calorific value as bagasse, a saving of bagasse is effected in this way, whilst no special difficulty in regard to clinkering appears to have been met with. The Agricultural Development Sub-committee of the Provincial Economic Council considered last year the question of conducting experiments in the matter of adding molasses to the diet of cattle on the Government Farms. As molasses by itself and in the form of molassine meal is used to a large extent in England and is considered a very useful food, particularly for milch cows, the Sub-committee considered that experiments could usefully be carried out in this direction by the Agricultural Department, and recommended that the offer of Messrs. Parry & Co., Ltd., Madras, to supply up to five tons of molasses free from their Samalkot factory for experimental purposes be accepted with thanks. The Sub-committee understood that field experiments carried out by Professor N. R. Dhar at Allahabad with molasses when mixed with soil showed that there is an appreciable increase in the total nitrogen and ammoniacal nitrogen contents and that as molasses contains potash, phosphate and lime, and as nitrogen is fixed in molassed lands, it is an excellent fertiliser for tropical soils. In short, the experiments carried out by Professor Dhar appeared to indicate that molasses is a useful fertiliser and reclaiming agent for alkaline soils and the Agricultural Development Sub-committee has recommended that the Agricultural Department should initiate experiments with a view to ascertaining the possibilities of utilising molasses as a fertiliser.

Another possible way of utilizing the molasses produced by sugar factories situated not far from ports would be to manufacture butyl alcohol from molasses by the direct fermentation process. Butyl alcohol is becoming of increasing importance as it is widely used in the varnish and lacquer

industries. It is a solvent for rosin, ester gum, dammer, shellac, mastic, manilla, and sandarac, whilst it counteracts the effect of moisture and gives flow in spray finishes and acts as a bloom-resisting agent in spirit varnishes; it is used as an anti-foam agent, is a constituent of penetrating oils, and is employed as a blending agent between methylated spirit and petroleum hydrocarbons. By the process referred to, acetone and ethyl alcohol are also produced, whilst hydrogen and CO<sub>2</sub> are obtained as by-products.

Acetone is one of the most widely used low-boiling point solvents for cellulose nitrate, cellulose acetate, ethyl cellulose, gums, oils, fats and waxes. It is used in large quantities in the manufacture of artificial silk, for all lacquers and dopes, celluloid, explosives, paint-removers and rosin varnishes. Ethyl alcohol is one of the most widely used chemicals in industrial processes. It can be converted into methylated spirit or used as a constituent of motor fuel, or in the preparation of perfumes, flavouring essences, xylonite, dyestuffs, explosives, varnishes, stains, celluloid, lamp filaments, lotions, photography, paints, etc. A plant handling 15 tons of molasses (with a sucrose content of 50 per cent.) and 2½ tons of rice per day would produce 726.5 tons of mixed solvents comprising 436 tons of butyl alcohol, 218 tins of acetone, and 72½ tons of ethyl alcohol, whilst the hydrogen output would be 1920 cubic metres a day. The possibility of attaching a factory for the manufacture of these chemicals to a sugar mill located within easy distance of a port would seem to be worthy of detailed examination although the production of butyl alcohol and acetone would have to be exported to England, as there is very little demand for the former in India at present and no demand for the latter except to a very limited extent by the Aruvankadu Cordite Factory. If, however, the manufacture of staple fibre by the acetate process could be developed in this country, a demand would arise for acetone. The whole productions of ethyl alcohol should be easily saleable in India. A factory manufacturing the solvents mentioned would seem to have an advantage over a factory manufacturing the same products in England from imported molasses. The capital required for a factory of the capacity mentioned, it is understood, would be in the region of Rs. 4,50,000. It is believed, however, that owing to competition between two combines, the prices of solvents in England has declined rendering the proposition less attractive than it appeared to be sometime ago, and two firms that considered the question of setting up a factory have decided not to proceed further with it.

Whatever uses may be found for molasses there is little doubt that the most important and universal use to which molasses could be put is the manufacture of power alcohol from it and in view of the increasing production of molasses and the difficulty of disposing of the by-product, it is very desirable that the question of introducing legislation rendering compulsory the admixture of a certain proportion of industrial alcohol with petrol for use as motor spirit should be taken up. For no industry can be considered at having been placed on a sound basis unless its by-products can be utilized commercially.

As a cattlefood, molasses by itself has very limited application, but an attempt has been made to make a compound cake with molasses which may be found useful in cattle feeding and as an outlet for molasses. This cake is made by mixing molasses and powdered groundnut cake and mineral mixture. The mixture is put into jaggery mould and allowed to set. It gives a hard brick, which is rapidly soluble in water and relished by cattle. In this form molasses can be handled easily. The cake keeps free from moulds, etc., for a year on ordinary storage. Experiments will be carried out with this product when it is made in bulk to determine its nutritive value.

In general, the question of molasses being fed on a large scale, turns on the economic aspect of cattle feeding. Molasses is a carbohydrate rich product and can thus only replace carbohydrate foods in animal feeding.

Here in India, carbohydrate rich foods, i.e., Brans, and Dhall husk, are cheap and plentiful, and their per lb. calorific value compares favourably with molasses, under these conditions it is hardly likely that molasses will replace the Brans and Dhall husk to any appreciable degree as it has done in Western countries, which being non-agricultural have to import such foods, while molasses can be had cheaply and produced at home. There are few prospects therefore of molasses finding a large outlet in that direction.

Molasses contains only 0.88 per cent. potash, 0.03 per cent. phosphoric acid, 2.2 per cent. lime (CaO) and 0.2 per cent. of Nitrogen (N)—based on a moisture content of 19.0 per cent.

The mineral content being very small, molasses cannot be called a fertiliser. As a soil improver, Dr. Dhar has made claims that by its use alkaline soils can be reclaimed. These claims need to be substantiated.

Work done at Coimbatore has shown that when used for wet lands and garden lands there was no increase in crop yield, and molasses made no contribution to the soil in the shape of organic matter, the whole of the molasses having been fermented by bacterial action and lost as CO<sub>2</sub>.

The use of molasses for reclamation of alkaline soils will be tried at the Siruguppa Irrigation Research Station.

94. In view of the overproduction of sugar in Northern India and of the resultant fall in prices, the need for a central sugar marketing organisation has become manifest. The reduction in price of Indian sugar has been due to intensive inter-factory competition and there seems no reason why if an organisation was set up to undertake the orderly marketing of sugar for the factories, higher prices should not be realised. A well ordered system of distribution of sugar from various producing centres to the consuming markets would eliminate wasteful competition and minimise freight charges. What seems to be required is a central marketing organisation on the lines of the NIVAS of Java, which would undertake to sell sugar jointly on behalf of the various sugar factories. The cement industry has shown what can be done by the introduction of efficient marketing methods, although the problem was admittedly far simpler in the case of the cement industry which is confined to a small number of manufacturers. Nevertheless, the cement industry has evinced a spirit of co-operation which the sugar industry might well strive to emulate, since the former industry has not only been able to compete successfully with imported cement, but also to raise price and institute quotas among the constituent factories. The creation of a central selling organisation for sugar would, however, in all probability have to be preceded by a survey of the markets in India, and also by the establishment of definite sugar standards in accordance with which sugar would be produced by the several factories comprising the marketing organisation.

108. In the short space of five years the industry has reached a stage where it is practically independent of foreign supplies of sugar, and it may reasonably be claimed that this remarkable development of the industry has fully vindicated the policy of protection afforded to it by the State. The grant of protection to the industry has assisted to improve the economic condition of a large number of cane cultivators, and has created a new avenue of employment for chemists, engineers and others engaged by the large number of factories which have come into existence. It has been computed that India is retaining 15 or 16 crores of rupees annually that had previously been paid to foreign producers and this represents a considerable economic gain to the country. Further, the consumer has not been affected as he is not paying more for his sugar now than before the grant of protection.

109. As is well known, the cost of production of sugar is much lower in Java than in India, as most of the factories in Java control their own sugarcane cultivation, and the yields per acre and the sucrose content of the cane are considerably higher. The efficiency of the Java sugar



factories is also greater than that of the factories in India. All these factors influence the cost of production and will render it necessary for protection to be given to the Indian sugar industry for a long time to come. The question of the rates of protection required by the industry involves a study of the costs of production of the several factories. These details will no doubt be supplied to the Tariff Board by the factories direct, but a good deal may be gleaned from an examination of the prices of Java and Indian sugars at ports. On the 28th May, 1937, the price of Java sugar at Calcutta was Rs. 9-9 per maund, or without the import duty of Rs. 6-13, Rs. 2-12 per maund, whereas the price of Padrauna Crystal No. 1 per maund ex-factory Cawnpore was Rs. 5-11-6 or Rs. 4-3-6 per maund excluding the excise duty of Rs. 1-8. If the freight from Cawnpore to Calcutta of As. 13-7 is added, a figure of Rs. 5-1-1 delivered at Calcutta is arrived at, or Rs. 6-9-1 inclusive of the excise duty. In Madras, the last reported price of Java sugar on the 8th of May 1937 was Rs. 12-14 per cwt., or less the import duty of Rs. 9-4, Rs. 3-10 per cwt. This compares with a price of Rs. 9-6 per cwt. for Padrauna sugar ruling on the 5th of June, 1937. The nominal price of Nellikuppam sugar in Madras on the 5th of June, 1937, was Rs. 9-12 per cwt. These rates may not be strictly comparable and no provision has been made for handling and sales commission charges, etc.; which may have to be added in some cases, but they do at least go to show that a considerable degree of protection is still required by the Indian sugar industry. If the fall in prices cannot be arrested and unless a recovery in prices sets in, the Indian sugar industry will be faced with a crisis of considerable magnitude and a reduction in the present rate of protection might be expected to have a demoralising effect on the industry and seriously to shake any confidence in the long term outlook for sugar which may yet remain.

110. The problems of the sugar industry are essentially problems of research, of the introduction of more efficient methods of sugarcane cultivation, of reduction in manufacturing costs, of organisation, and of marketing. Three main necessities are, a reduction in the cost of cane, improvement in extractive efficiency, and the utilization of molasses. It has been stated in reply to the previous question that, for the reasons briefly touched upon, the cost of production of sugar is much lower in Java than in India, and the ultimate success of the industry must, therefore, depend upon the availability of suitable cane at considerably lower prices than at present. More money should be set aside from the excise duty for providing grants for research with a view to the propagation of cane of higher sucrose content, of higher tonnage, and of early and late ripening varieties which would enable the crushing season to be prolonged and the factories to obtain a better recovery at the beginning and end of the season, thus reducing the cost of production of sugar. Without a reduction in the cost of production of cane, the cost of production of sugar cannot be reduced to a level at which India can hope to compete on equal terms with Java, since the cost of cane is the largest item in the cost of production of sugar. It will doubtless take a long time for these objects to be fully realised, but given an adequate protective tariff and other suitably regulated forms of assistance over a sufficiently long period, the industry should eventually be able to face foreign competition in the home market with only a revenue duty on foreign sugar. It is not obviously possible, however, to set a period within which it will be possible to dispense with protection.

(4) *Note on the economic condition of the tapper in the Madras Presidency, supplied by the Director of Industries, Madras.*

In the note on the palmyra sugar industry of the Madras Presidency which I prepared in June last and which, I believe, was transmitted to the Sugar Tariff Board by my Government, the position of the industry was reviewed and the conclusion arrived at that the palmyra sugar industry

could not bear the burden of an excise duty. It was pointed out *inter alia* that the preparation of palmyra jaggery for refining purposes, is essentially a cottage industry affording a means of subsistence, directly or indirectly, to some 200,000 people, and that in the interests of the rural employment which the palmyra tapping industry provides, it is in the highest degree necessary that the palmyra sugar industry should continue to be exempted from excise duty, if widespread distress amongst the tapper community is to be avoided, especially in view of the marked fall in sugar prices which in itself is rendering increasingly difficult the position of this struggling industry. In the course of my oral evidence before the Sugar Tariff Board, I was asked to supply further information in regard to the economic condition of the tapper and my three Assistant Industrial Engineers in charge of the Tanjore, Coimbatore and Bezwada divisions were instructed to collect information in regard to the income of the tapper, whether he devotes himself exclusively to tapping, or has other employment, or how he spends his time apart from tapping, how the tapping industry is organised, i.e., how the tapper deals with the middlemen and on what basis the tapper is remunerated by them. The Assistant Industrial Engineers were also informed that any other information which has a bearing on the economic condition of the tapper and the organisation and economics of the industry would be of value. I enclose the reports received from the Assistant Industrial Engineers in regard to the economic position of the tapper in the west Godavari, Tinnevely and Coimbatore Districts. Unfortunately, the Assistant Industrial Engineer, Coimbatore Division, has not submitted a report in regard to the tapping industry in the Palghat area, from where Messrs. Parry & Co., Ltd., and the Lakshmi Sugar Mills, Podanur, derive part of their supplies of jaggery for refining purposes.

2. It is extremely difficult to obtain accurate information from tappers in regard to their economic condition and as the Assistant Industrial Engineers have no experience of the industry, the figures given by them should perhaps be accepted with a certain amount of reserve. I am not altogether satisfied with the details of a tapper's expenditure supplied by the Assistant Industrial Engineer, Bezwada, who states that the expenditure for two persons engaged in tapping would be Rs. 147, but the expenditure of Rs. 73-8 for which he has given details is in respect only of a unit of 60 trees from which a yield of four candies of jaggery is given. If the tapping expenses went up to Rs. 147 by the employment of two tappers, the number of trees tapped would presumably be increased and so also the production of jaggery, since according to Messrs. Parry & Co., Ltd., the average production of a tapper in the Nidadavol area is from three to ten candies per unit of 60 trees per season. I have asked the Assistant Industrial Engineer to verify and elucidate his figures. Allowing for some possible inaccuracies in the figures given by the Assistant Industrial Engineers in their reports, however, it is only too evident that the economic position of the tapper is deplorable and that the imposition of an excise duty on palmyra sugar, which would in all probability result in the sugar factories paying still lower prices for jaggery—if they continued to buy jaggery at all—would be disastrous to the tapper community. The reports of the Assistant Industrial Engineers appear to indicate that there is scope for improving the economic condition of the tapper by co-operative methods with a view to eliminating the middlemen and the malpractices to which they are said to resort, so that the tapper may derive the full benefit from his labour. A demonstration of the manufacture of white sugar and improved jaggery from palmyra juice was carried out by the Department of Industries at Navadur in the west Godavari District last year, and the results went to confirm the conclusions arrived at from the experiments previously carried out at Rettakulam in the Tinnevely District, that marketable white sugar could be produced from palmyra juice and that it is possible to prepare from palmyra juice, jaggery of a superior quality which should realise a higher price than

the jaggery at present prepared. The results of the experiments conducted at Navadur went to show that under the conditions then obtaining it would be more profitable to prepare improved jaggery than sugar and that this is likely to remain the case unless a greater yield of sugar is obtained or the price of jaggery declines further. Preliminary steps were taken with a view to organising a Co-operative Society for preparing the improved jaggery, but soon afterwards, the tappers went on strike and the Co-operative Department considered it desirable to defer the registration of the society until conditions became more normal. The Deputy Registrar of Co-operative Societies, Rajahmundry, informed me recently that conditions in the Navadur area had not yet reverted to normal, and that he proposed to take up the registration of the proposed Co-operative Society this month.

3. Since I prepared the note on the palmyra industry referred to in paragraph 1 *supra*, I have received some further data from Messrs. Parry & Co., Ltd., I understood that, according to their estimates, the approximate amount of palmyra jaggery produced during an average year is:—

	Candies of 500 lbs. each.
Palghat . . . . .	20,000 to 25,000
Tinnevelly . . . . .	80,000 to 90,000
Nidadavol . . . . .	50,000 to 60,000

All this jaggery is not, of course, absorbed by refineries as considerable quantities go into direct consumption locally. The importance of the palmyra jaggery industry is further brought out by the following figures given to me by Messrs. Parry & Co., Ltd., of their expenditure on the purchase of jaggery in the three areas. To these figures would have to be added the value of jaggery going into direct consumption and of that purchased by other refineries.

*Palghat.*—17,000 to 18,000 candies at Rs. 16 per candy—Rs. 2,72,000 to Rs. 2,88,000.

*Tinnevelly.*—About 25,000 candies at Rs. 13 per candy—Rs. 3,25,000.

*Nidadavol.*—60,000 to 60,000 candies at Rs. 19 per candy—Rs. 9,50,000 to Rs. 11,40,000.

The purchase of these large quantities of jaggery by Messrs. Parry & Co., Ltd., during the season results in the disbursement of considerable sums of money in the tapping areas, and if this money ceased to circulate as a result of the imposition of an excise duty on palmyra sugar rendering refining unprofitable, considerable hardship would be caused to the rural population in the areas affected.

The following figures in regard to the net earnings of the tapper per month in a season of five months have been supplied to me by Messrs. Parry & Co., Ltd.:—

<i>Palghat—</i>	Lowest produc- tion—Two candies.		Highest produc- tion—Three candies.	
	Rs.	A. P.	Rs.	A. P.
1931 . . . . .	1 11 0	to 4 6 0		
1932 . . . . .	2 0 5	to 4 14 0		
1933 . . . . .	1 15 7	to 4 13 2		
1934 . . . . .	1 7 2	to 4 0 7		
1935 . . . . .	5 1 7	to 9 8 2		
1936 . . . . .	3 9 7	to 7 4 2		
1937 . . . . .	2 3 2	to 5 2 7		

	Lowest production Two and a half candies.		Highest production Four candies.	
	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.
<b>Tinnevelly—</b>				
1931 . . . . .	2 13 0	to 7 6 0		
1932 . . . . .	3 8 0	to 8 9 0		
1933 . . . . .	1 11 0	to 5 10 0		
1934 . . . . .	2 5 0	to 6 10 0		
1935 . . . . .	3 10 0	to 8 11 0		
1936 . . . . .	3 3 0	to 8 0 0		
1937 . . . . .	0 15 0	to 4 6 0		
<b>Nidadavol—</b>				
1930 . . . . .	10 14 0			
1931 . . . . .	7 7 0			
1932 . . . . .	8 12 0			
1933 . . . . .	10 10 0			
1934 . . . . .	7 1 0			
1935 . . . . .	10 2 0			
1936 . . . . .	8 0 0			
1937 . . . . .	No production.			

It will be noted that the earnings of the tappers in the Tinnevelly District fell considerably in 1937, and also, but to a lesser extent, in Palghat. Owing to the strike of tappers practically no jaggery has been purchased by Messrs. Parry & Co., Ltd., in the Nidadavol area this year, but the price fixed by them at the beginning of the season was the lowest they have ever offered due to the fall in sugar prices.

**REPORT BY THE ASSISTANT INDUSTRIAL ENGINEER, TANJORE, ON THE ECONOMIC CONDITION OF THE TAPPER IN THE TINNEVELLY DISTRICT.**

The industry of preparing jaggery from the sweet juice of palmyra palm, known botanically as *Borassus Flabelliformis*, is carried on by Nadars in the Tinnevelly District. Millions of palms grow in the coastal taluks of Tiruchendur, Nanguneri, Srivaikuntam and the western taluks of Tinnevelly, Ambasamudram and Tenkasi. They are nature's gift and the trees require practically no attention at all.

I visited Tinnevelly, Srivaikuntam, Tiruchendur, Udangudi, Tisayanvilai, Nanguneri, Panangudi and Tenkasi and met several tappers and their families actually engaged in the industry, middlemen or brokers who purchase the jaggery from the cottage workers, and some merchants who gather all the local jaggery and market it. I give below as accurately as possible the process of manufacturing jaggery and whatever information could be gathered in regard to the income of the tapper.

Tapping is a delicate and complicated art. Men who are conversant with the art are found in the Tinnevelly District itself but quite a large number of tappers migrate from the neighbouring state of Travancore during the tapping season. Palms utilised for jaggery manufacture are exempt from the excise tree tax. Trees below 10 years' growth are not generally ripe for tapping. Smooth trees which are of over 10 years' growth, are fit for tapping. Eastern pots freshly coated with lime on the inside are tied to the tree and a sweet juice trickles from the trees into these pots. These pots are emptied twice a day, morning and evening. The juice is saccharine and is liable to get fermented, hence the coating of lime which is the cheapest and best preservative. Jaggery manufacture is the process of eliminating water and non-sugar substances without affecting

the sucrose. The water is eliminated by evaporation. The non-sugar substances are separated by removing the scum that comes to the surface of the liquid when boiled. Heat must be applied quickly and constantly till the liquid becomes syrupy and after that the fire should be reduced. When the syrup becomes viscous it is poured into moulds of cocoanut shell.

The tapping palmyrah trees are of two varieties known in Tinnevely as Kattupanai and Parvappanai or the male and the female. The former can be tapped for about two months beginning from February when the sprouts shoot out. The Paruvappanai yields juice for over three months, the season ending in July in Tinnevely. The tapping season is therefore from February to July. An active tapper with a good constitution can climb on an average 50 trees a day, each tree having to be climbed two to three times daily. But for purposes of working out the economies of the industry it is safe to assume that an average tapper can climb 30 trees per day. This means that he can tap about 100 trees during the season. A tree yields from quarter to one and a half gallons of juice per day, the yield being greatest in the months of April, May and June. The quantity of juice that a tapper collects per day varies from six gallons during the first few days and the fag end of the season, to 30 gallons during the period of maximum juice flow. A fair average for the six months season may be assumed to be 16 gallons of juice per day for a tapper, who works at least 10 hours.

*Income of the tapper.*—It is assumed that the tapper takes on lease a palmyra tope containing about 100 tapping trees, 100 saplings and about 200 other trees or 400 palms in all, and that he pays an annual rent of Rs. 30. From 16 gallons of juice, which is the tapper's average daily outturn 150 palams of jaggery is made. One palam is approximately 5½ rupees weight. This jaggery is sold by the tapper to the local broker, the price prevailing at the time of my investigation being As. 2-6 per thooku of 30 palams. A standard thooku is only 25 palams but the broker purchases from the tapper with an extra 20 per cent. or 5 palams per thooku as his brokerage. The tapper therefore gets As. 12-6 for the day and the broker makes an easy profit of As. 2-6. The tapper's gross receipt for the six months by the sale of jaggery therefore works out to As. 12-6 × 160 = Rs. 125 (number of working days is taken as 160 allowing for non-working days due to illness, festivals, etc.).

In addition to this he derives a small income by the sale of several articles made out of little parts of the palmyra tree. Leaves are lopped off from the non-tapping trees in August. These leaves are used for roofing houses and for making mats, baskets, fans, water buckets, toys and other articles. From the ribs, which are removed with a little leaf attached, winnowing and onion baskets are made. From the stem of the leaves the upper smooth portion is extracted and used for caning cots, chairs, etc., for making ropes and for baskets. From trees under 10 years growth fibre is extracted from the portion that holds the stem to the trunk of the palm. A few years back there appears to have been a good demand for this fibre from exporting firms in Tuticorin, and the tappers got a good price. But now the demand is not so great. Untapped Paruvappanai or the female tree bears a fruit which is eaten when tender. The ripe fruit is also eaten. The ripe fruit is also buried underground for about a month and the roots that sprout out are sweet and are a delicacy with the local people. Thus the tapper engages himself in tapping during the tapping season when his wife, children and other members of his family will be employed in the boiling of juice, collecting firewood and manufacturing jaggery. During part of the off-season all of them engage themselves in the several small industries connected with the palmyra as detailed above, and at other times they work as coolies in their villages and earn whatever they can. The tapper's wife will be able to earn on an average about As. 2 a day by the sale of one or other of the several sundry articles made out of the palmyra.

*Subsidiary income of the tapper from sale of the little products, mentioned above.*

	Rs. A.
1. By the sale of leaves . . . . .	15 0
2. By the sale of nongu and fruit . . . . .	6 0
3. By the sale of rope made from fibres . . . . .	2 0
4. By the sale of charcoal obtained from the tappers furnace (the charcoal formed in the course of the previous days' work is collected every morning and sold periodically) . . . . .	6 0
5. By the sale of mats or baskets or fibre, etc., at As. 2 a day for about 80 days . . . . .	10 0
6. By cooly labour during the off-season (assuming that the tapper gets work for about three days a week and earns As. 8 a day for about 80 days) . . . . .	15 0
	54 0

Thus, the gross income, i.e., by the sale of jaggery and the subsidiary sales works out to Rs. 125 plus Rs. 54=Rs. 179 or Rs. 180 for a year for the tapper and his family.

Out of this income the tapper has to pay—

	Rs. A.
1. Rent for the palms . . . . .	30 0
2. Cost of about 100 earthen pots for collecting juice . . . . .	1 8
3. Cost of 8 boiling pots at As. 2 each . . . . .	1 0
4. Lime, Oil seeds, etc. . . . .	1 0
5. Firewood purchased in addition to the dried leaves, etc., collected from the tope . . . . .	6 8
	40 0

Therefore net annual income Rs. 180 minus Rs. 40=Rs. 140.

The tapper lives in the tope itself and the manufacture of jaggery is also done in the same tope in another shed. The family expenditure for the year is roughly as below:—

	Rs. A.
Rice at Rs. 5 a month . . . . .	60 0
Other provisions (purchased in the weekly shandy) . . . . .	60 0
Clothes for tapper . . . . .	2 8
Clothes for his wife . . . . .	5 0
Clothes for his children . . . . .	5 0
Festivals . . . . .	6 0
Miscellaneous . . . . .	1 8
	140 0

Leaving nothing at all as the year's savings, the tapper and his family therefore eke out a hand to mouth living though they work over 10 hours a day during six months in the year and do whatever work is available during the rest of the year. Their condition is obviously very pitiable.

The industry therefore needs every help and encouragement, and whatever can be done to improve the price of jaggery will be a boon to the tapper. It has been said above that the jaggery is sold in retail at As. 2-6 of 25 palams. I understand that the price was nearly double this sometime back when the tapper was able to eke out a better livelihood.

The tapping industry is not at all organised. Most of the palms are leased out by the owners to individual tappers who manufacture jaggery as a cottage industry and sell it to their village broker. Where local tappers are not available the Nadar owners bring tappers from the neighbouring state of Travancore and have their trees tapped on a fifty fifty basis, i.e., the owner gets the juice every alternate day and the tapper takes the rest to himself. The jaggery manufactured by these people is also sold to the local broker. The brokerage charged is as I have already indicated 20 per cent., i.e., the broker weighs out 30 palams of jaggery and pays to the tapper the price for 25 palams only. If this brokerage can possibly be prevented and a way found for the tapper to derive the full benefit for his labours the industry will be greatly helped. But it appears from the little I have seen of the industry that the tapper must suffer. The broker passes on the jaggery to the merchant. The largest centre in the district for the export of jaggery is Nazareth in the Tiruchendur taluk. In the year 1936 about 18,600 candies of jaggery valued at Rs. 3,72,000 were exported from Nazareth to Madura, Trichinopoly, Ramnad, and other districts.

With a view to help the tapper and the industry, the Tinnevely District Jaggery Loan and Sales Co-operative Society, Ltd., was started with its office at Udangudy on the Tiruchendur Tisayanvilai light railway. I met Mr. G. Y. Jeevamonny, Secretary of the Society, and learnt that though the society was intended to help the tapper it is if at all helping the middlemen only. These middlemen take advances of upto Rs. 500 each and repay it from their profits in the business. The tapper is not able to obtain any loan as he is not in a position to offer sufficient security. Any small loan advanced by the brokers to the tappers is recovered with interest during the season; the rate of interest is always higher than what is charged by the Co-operative Society.

It seems to be that a minimum price for the jaggery should be fixed so that the hard labour of the tapper is properly paid for. Any arrangement that can be framed to enable the tapper to sell his jaggery at a price not below this minimum will be greatly appreciated. If a model sugar factory is run in the heart of the palmyra country and sugar is made from the sweet juice the lot of the tapper will probably be improved. The Kulasekharapatnam Factory owned by Messrs. Parry & Co. is reported to have run very successfully for some time and then failed. If any excise duty is levied on palmyra sugar the tapper will be immediately hit and his lot will be much worse even than now. Even without a charge of a duty he gets very little for his work, as we have seen above, and six months hard labour leaves the family practically nothing to fall back upon during a period of enforced idleness due to illness or other causes. It appears very surprising that the tapper should continue to do such hard work for such a low return. The reason is perhaps that he cannot find any other work to keep him living.

**REPORT BY THE ASSISTANT INDUSTRIAL ENGINEER, COIMBATORE, ON THE ECONOMIC CONDITION OF THE TAPPER IN THE COIMBATORE DISTRICT.**

I have visited the following villages of Coimbatore District to collect information in regard to the economics of tapping industry and the economic conditions of tappers:—

- (1) Perundururai, (2) Chennimalai, (3) Pallakkatu, (4) Seenapuram,
- (5) Appichimadam, (6) Pulankulam, (7) Kunnathur and
- (8) Uttukuli.

The preparation of palmyra jaggery is carried on in and around these villages as a cottage industry by "Sanars" who are also called "Nadars" in these parts. It has been estimated on the strength of information gathered in these villages, that about 50,000 people in this district are directly or indirectly engaged in this industry and the annual production of jaggery is normally about 500 tons.

The tapping season for the palmyra tree commences in December each year and lasts till about April of the following year. The duration is therefore about five months in a year. The yield of juice from palmyra trees decreases as the season advances and completely ceases at the end of five months period.

On an average, a tapper of good physique can tap 25 trees in a day, and would be able to collect about 25 Madras measures of juice each day. When the day's collection of juice is over by about noon, the female member of the family would start boiling the juice for preparing the jaggery, while the male member again starts climbing each tree in the afternoon to renew the lime coat in each pot intended to collect juice and beat the yielding stem ("Palai" in Tamil) of each tree to permit free flow of juice. Thus the entire family has full work for the day. The 25 Madras measures of juice that can be collected by a tapper in one day, it is gathered, would give on an average about  $\frac{1}{3}$  of a maund of jaggery. Thus, ordinarily, one male member and one female member can produce  $\frac{1}{3}$  maund of jaggery in one day. This quantity is sold for nine to ten annas depending on the quality and demand. The present market rate for palmyra jaggery ranges from As. 12 to As. 14 per maund. The retail dealer sells at As. 15 to Re. 1 per maund. Taking an average gross earning of As. 10 per day, the net earnings will work out as follows:—

*Expenditure for the whole season of five months.*

	Rs. A.
Cost of pots for tapping and pots for boiling juice and other sundries . . . . .	2 8
Cost of lime for coating the inside of pots and cost of castor seeds for mixing with the boiling juice. (roughly one anna per day) . . . . .	10 0
Hire for 25 palmyra trees payable to the owner of the grove for the entire season . . . . .	5 0
Fuel for boiling juice (roughly two annas per day) . . . . .	20 0
Total for 5 months . . . . .	37 8

$$\text{Average daily expenditure} = \frac{37.8}{5 \times 30} = \text{As. } 4.$$

The average net earnings per day would therefore come to six annas which may be distributed as a wage of annas four for the male member and annas two for the female member. This appears to be an inadequate living wage even though the labour involved is arduous and risky of all other rural occupations. Enquiries go to show that the tapper is not able to earn even this scanty wage during the remaining period of the year.

It is understood that formerly there was a fair demand for palmyra jaggery prepared in these parts from Messrs. Parry & Co., but there has been no such demand for the past two years as I gather that the percentage of sugar obtained from jaggery produced in these parts is rather low. Messrs. Parry & Co. are, therefore, obtaining their requirements of palmyra jaggery from Palghat and surrounding villages in Malabar District. Consequently, there has been a gradual fall in the price of palmyra jaggery in this district, as almost all the quantity produced has to go into direct consumption by the villagers. The tappers generally prepare jaggery every day during the season and stock it for a week to sell the produce in local



shandies. There are local merchants who purchase jaggery from the tappers on shandy days and sell in bulk to retail dealers. The tapper is not always able to dispose of his produce readily and at times he is forced to sell it at low rates without waiting for better rates, in order to avoid difficulty for the maintenance of his family. It is therefore apparent that this struggling industry is a very difficult means of subsistence to the tapper community.

The economic condition of tapper is precarious in the non-tapping season. The tappers in these parts find it extremely difficult to eke out their livelihood. This difficulty may be attributed chiefly to the limited scope for employment in rural areas, the inability on the part of the tappers to adjust themselves to other occupations and to the fact that the period during which the demand for agricultural labour is greatest synchronises with the tapping season. The tappers in these parts are generally engaged, apart from tapping, on the following occupations:—

1. Tapping coconut trees for manufacturing coconut jaggery.
2. Tapping toddy from coconut trees on wages.
3. Collecting palmyra leaves for thatching roofs.
4. Collecting fuel for sale in villages.
5. Engaging themselves as coolies on petty wages.
6. Manufacturing fibre from half grown and tender palmyra leaves.

Detailed enquiries have also been made into the economic conditions of tappers engaged in these subsidiary occupations and it is gathered that the earnings of the tappers in this period (May to November) are less than those in the tapping season. The tapping of coconut trees for jaggery making also gives the same rate of earnings, but the number of trees available are not many. The coconut trees available for tapping toddy in these parts are reported to be few. Therefore about 5 per cent. of the tappers, who are able-bodied are only employed in this work and paid Rs. 2 to Rs. 2-8 per week. Those who are engaged in collecting palmyra leaves for thatched roofing are able to earn daily annas two to three per head by collecting about 75 leaves per day. Those who cannot find work and who are not strong enough to do any manual labour engaged themselves on collecting fuel and sell them to villagers; thus making about a couple of annas per day.

Those who can do hard labour engage themselves as petty labourers in villages. They are able to get about three to four annas per day.

As regards the palmyra fibre industry the following information is gathered during the course of the enquiry. Palmyra fibre is taken from the leaves of young and half grown trees. It is sold by tappers in bundles to local merchants who have small factories for curing the fibre and making it a finished product (sample sent separately). It is understood that this fibre is used for caulking the joints of boats and for preparing ropes. I visited one such factory at Perundurai, 10 miles from Erode, owned by Mr. Daivasikamani Chettiar. Fibre from the factory is exported to Tuticorin. The raw fibre is purchased from the sanars in bundles at As. 12 per maund weight. It is gathered that it will take a week for a man to prepare about a maund and a half of fibre. Therefore a man engaged in this work cannot ordinarily earn more than two to two and a half annas a day.

From the facts given in the foregoing paragraphs it would appear that the tapping industry is quite uneconomic and the condition of tappers who solely depend on this industry, is miserable. In spite of the existing and risky labour involved in this industry, the tapper is hardly able to earn a minimum living wage. I had during my visits an opportunity to acquaint myself with the conditions of the tappers in interior rural areas. Their condition is very distressing and many of them including women and children do not have sufficient food and proper clothing not to speak of

other necessities of life. In order not to make their condition worse and also not to make the problem of rural unemployment more acute, it is necessary that the palmyra sugar industry should continue to be exempted from excise duty.

REPORT OF THE ASSISTANT INDUSTRIAL ENGINEER, BEZWADA, ON THE ECONOMIC  
CONDITION OF THE TAPPERS IN WEST GODAVARI DISTRICT.

Bhimavaram Taluk in West Godavary District is the centre of the major portion of tapper community. Nearly 70 per cent. of the tappers from this taluk go annually to several villages of Kovvur Taluk in the same district with their entire families. There are a good number of palmyra trees in that taluk which gives very good juice depending on the soil conditions there. The remaining 80 per cent. of the tappers who are in a somewhat more affluent position, remain in their villages and tap the trees therein and prepare the jaggery with some pains and care and sell it for local consumption during shandy days at a price of from Rs. 25 to Rs. 30 per candy according to the quality.

This kind of migration takes place generally at the end of December each year. The tappers remain there till the end of May. During this period each tapper taps about 30 male and 30 female trees generally assisted by his wife, widowed mother and two or three children. His family members help him in carrying the juice from the trees to the place of boiling, in collecting fuel for the hearth and in feeding the furnace, etc. The yield of the juice from the trees is very limited and scanty in the first and last month and is at its maximum in the middle three months. An average tapper assisted by his wife, mother and two or three young children can manufacture about four candies of palmyra jaggery during this period. Though the rate at which it is settled that Parry & Co. should buy the jaggery is Rs. 17-8 per candy delivery at their Nidadavole, godowns, the jaggery is purchased by the middlemen from the tapper at its site of manufacture at Rs. 15 per candy. This is what the tapper actually receives per candy of jaggery produced by him. This gives a margin of Rs. 2-8 per every candy to the middlemen being his share of profit and expenses.

Details for Rs. 2-8 are given below:—

	Rs. A.
Carrying expenses from the site to Parry & Co. godowns and also fines levied by the company for the inferior qualities of jaggery if any . . . . .	1 0
4 gunny bags for each candy . . . . .	1 0
Gain per candy for the middlemen . . . . .	0 8
	2 8

He in addition makes some more profit by incorrectly weighing the stuff at site as the tapper is ignorant and also generally does not see to the weighment made by the middlemen due to utter exhaustion from which he suffers after a day's exacting laborious work.

The middlemen weighs the jaggery and takes it off from the tapper either once or twice or thrice a week according to his convenience. He further advances loans to the tapper even at the beginning of the tapping season and also during the continuance of the season and whenever the tapper approaches him for the same at exorbitant rates. He adjusts the interest and some portion of the principal every time and takes the jaggery from the tapper, thus always keeping him indebted to him.

It is seen from the figures that the jaggery of four candies manufactured by the tapper for the whole season is not fetching the expenses met by a tapper and further the tappers are paying fines for infringing the rules.

So the tappers are not at all earning any income but they are burdening themselves with debts year after year. The money lender is earning at

the expense of the tapper a good lot by false weighment and high interest and other illegal ways. I understand the tappers are compelled to sell the little landed or house property if any in the course of two or three years to the money lenders.

Some years back the price of the jaggery was Rs. 35 per candy for the best quality and Rs. 25 for the second quality. Now the price offered is very low and the quality of the jaggery also is very inferior.

The major portion of the tappers has to pass the rest of the seven months on agricultural operations only. Some take lands on lease and some live on cooly wages only in attending to agricultural operation in and around the villages. Generally they will have to be idle for a couple of months in a year for want of work and then they go in for petty loans for their maintenance. They go to Kovvur Taluk at the end of December with the hope of earning something to clear these debts but unfortunately they come back after the season with heavy debts on the other hand. So the major portion of them are always indebted. Their migration to Kovvur for tapping and manufacturing jaggery which is their hereditary profession is more for relaxation and enjoyment as they can enjoy drink free than for making money.

The major portion of the tappers are illiterate. They do not care to send their children to schools, but engage them on some petty works or other to get some income for the family.

The season for the tapping begins generally from January and ends by May. Thus it lasts for five months in a year. Details of expenses and income of an average tapper consisting of himself, his wife, 4 children and aged mother are furnished below:—

	Rs. A.
1. Expenses to go and return after tapping to his village	8 0
2. Rice for the family of 7 members (10 bags of rice for 5 months at Rs. 8 per bag)	80 0
3. Miscellaneous expenses at one rupee per week	20 0
4. Sundries, cloth, etc.	20 0
	<hr/> 128 0
Expenses for one tapper for tapping the trees (as per details below)	73 8
1. Rent for 30 male and 30 female trees	20 0
2. Implements for tapping, 2 knives, leather belt, ropes, shoes	5 0
3. Chunam	5 0
4. Pots for trees and collecting and carrying the juice from the tope to manufacturing place	12 0
5. Pan for boiling the juice	5 0
6. Fuel	10 0
7. Jungili oil	2 0
8. Unforeseen expenses	1 0
9. Mamool to excise staff	4 0
10. Each tapper is allowed one male and one female tree for toddy to his family, so he has to pay to the Government at Rs. 3-12 per tree for 2 trees	7 8
11. Mamool for marking the tree to the peons—one rupee for each tree, for two trees	2 0
	<hr/> 73 8
The expenses to be met by a tapper for one season	<hr/> 73 8

Generally in most of the families two persons tap, viz., father and son. So the expenses for tapping will be Rs. 147. Thus, the total expenses that a family of two tappers will have to incur is Rs. 128 plus Rs. 147 or Rs. 275—

	Rs. A.
Income of the tapper is 4 candies of jaggery, each at Rs. 15 per candy (father and son)	120 0
The loss incurred by the tapper for the season	155 0

The economic condition of the tappers in the West Godavari District is generally very poor and illiteracy is very great. There is no co-operation among them. To elevate this class of people who are industrious by themselves and make them live peacefully the following are suggested:—

1. Free elementary and compulsory education to the children.
2. Starting of co-operative credit and non-credit societies in every village and groups of villages and grant of loans and facilities to carry on their industry on an economic basis.
3. Arrangements may be made for the purchase of all jaggery prepared by them, by the society and for storing in a suitable building till better prices are available in the market. By this the tapper will be able to get better price for his jaggery and thus a decent income for himself. If he is to supply to a co-operative society he will be compelled to manufacture good quality as they were once doing.

An attempt can be made to better the economic condition of the tapper at this stage.

From the present situation of the tappers it is clear that there is very little chance for levying any tax on the palmyra sugar and I am afraid unless the Government take some interest and that too very shortly this industry will die and thus a good lot of people with their families must face death by starvation.

---

(5) *Letter, dated the 28th August, 1937, from the Government of Madras, Development Department, Madras.*

---

**SUGAR TARIFF BOARD, MADRAS PROVINCE, SUGARCANE GROWING AREA  
TRANSFERRED TO ORISSA.**

I am directed to state that the Director of Industries, Madras, estimates that the acreage of Sugarcane producing area transferred from the Madras Presidency to the Province of Orissa with effect from 1st April, 1936, is about 12,500 acres.

---

(6) *Letter, dated the 21st September, 1937, from the Government Madras, Development Department, Madras.*

---

**SUGAR TARIFF BOARD, FURTHER REPRESENTATIONS.**

I am directed to invite a reference to my letter, dated the 30th June, 1937, forwarding the Madras Government's replies to the questionnaire for Local Government as at present constituted fully endorse the views already expressed on the various questions raised. They are, however, anxious to stress the case for palmyra sugar Industry once again. The palmyra sugar is at present exempted from excise duty. As has been pointed out on more

than one occasion the palmyra sugar industry in this province is not on the whole a paying proposition. In spite of exemption from excise duty the production of palmyra sugar has not increased and the industry is struggling for bare existence. Any imposition of excise duty will not only consign it to annihilation but also throw thousands of poor tappers out of employment. I am directed to state that in view of these facts the Madras Government are very strongly of opinion that the exemption from excise duty the palmyra sugar now enjoys should be continued.

---

(7) *Letter, dated the 9th October, 1937, from M. K. B. Bhatia, I.C.S., Secretary, Tariff Board, to Mr. P. H. Rama Reddi, Esqr., Director of Agriculture, Madras.*

Will you please refer to Mr. Paul's letter, dated the 30th June, 1937, forwarding Local Government's replies to the Boards' Questionnaire for Local Governments? In reply to question 4 of the Questionnaire the Board has been furnished by the Director of Agriculture with a statement showing the Sucrose content of some of the important varieties of sugarcane. It is shown to be 20.28 in the case of Fiji B and P.O.J. 2878 in Samalkot. As the figure appears to be very high could you please let me know whether this percentage has been calculated on the weight of juice or of cane itself?

---

(8) *Letter, dated the 15th October, 1937, from Mr. P. H. Rama Reddi, Director of Agriculture, to Mr. K. B. Bhatia, I.C.S., Secretary, Tariff Board.*

With reference to your D. O. letter, dated the 9th October, 1937, regarding the sucrose content of Fiji B and P.O.J. 2878 at Samalkot, I have to inform you that the percentage has been calculated on the weight of juice only.

---

(9) *Letter No. 442, dated the 11th July, 1937, from the Tariff Board, to the Government of Madras, Development Department, Madras.*

During the course of evidence given by the Directors of Agriculture and Industries before the Tariff Board at Madras on 7th July, it was considered necessary to supplement the reply of the local Government by obtaining information on the following points:—

- (1) The forecast of area under cane for the year 1937-38.
- (2) The average rainfall in each of the four divisions mentioned in answer to question 2 (Local Government Questionnaire).
- (3) Water rates in different districts have been given in very full statements in reply to question 3. It is, however, desirable that a statement showing the water rates for sugarcane grown in the neighbourhood of and serving the sugar factories may kindly be supplied. It may also show the water rates for the area which is served by Cauvery-Mettur dam.
- (4) The cost of cultivation of cane to the cultivator in various districts has been shown in answer to question 4 and the average yield of cane per acre has also been given in reply to the same question. During the examination, it however, transpired that the figures for the yield did not correspond with the actual holdings for which the cost of cultivation had been obtained. It is requested that a statement giving the details of the cost of cultivation in particular fields with the

yield in those fields may kindly be supplied. It may also be noted what the local Government consider a fair price to the grower for cane in different areas.

- (5) A note on the wrapping and propping of cane and its cost to the cultivator in the Madras Presidency.
- (6) A note on the research work done on provincial Government agricultural farms and the results of various experiments carried out there. A summary of the work done has already been given in reply to question 11 but the Board consider a fuller note will be useful.
- (7) A note on the tappers of palmyra juice, their relations with middlemen and the general economics of the tapping industry.
- (8) A note on the results of crop outturn experiments recently conducted in three districts of the Presidency.
- (9) A note on the four natural divisions indicated in reply to question 2 to show the districts included in each division, the area under cane and the area under improved varieties of cane, the distribution of factories and the total crushing capacity of factories in each division.
- (10) A note on the reduction of freights for rail borne cane obtained through the efforts of the local Government.
- (11) The figures supplied in reply to various questions may also be completed for the year 1936-37.

2. I am directed to request that the information on the points mentioned in the first paragraph may be supplied when it is available.

---

(10) *Letter No. 449, dated the 11th July, 1937, from the Tariff Board to the Government of Madras, Development Department, Madras.*

In continuation of this office letter No. 442, dated the 12th July, 1937, I am directed to request that the method of calculation of sucrose content the figures for which have been given in reply to question 4 (Questionnaire for Local Government) may kindly be explained, i.e., has the percentage been calculated on the total weight of cane or on the sugarcane juice obtainable from it.

---

(11) *Letter No. 456, dated the 12th July, from the Secretary, Tariff Board to the Government of Madras, Development Department, Madras.*

In continuation of this office letter No. 449, dated the 11th July, 1937, I am directed to request that figures for sugarcane in the area serving Nellikuppam Factory for the last seven years may kindly be furnished.

---

(12) *Letter, dated the 8th October from the Government of Madras, Development Department, Madras.*

Reference your letters No. 442, dated the 11th July, 1937, No. 449, dated the 11th July, 1937, and No. 456, dated the 12th July, 1937, regarding supplementary information required by the Sugar Tariff Board.

With reference to paragraph 1 of your letter No. 442, dated the 11th July, 1937, I am directed to forward—vide Appendices I to VII—the information called for in respect of items (1) (forecast of areas under cane for 1937-38), (2) (average rainfall), (4) (cost of cultivation and average yield and fair price for cane), (5) (note on the wrapping and propping of cane), (6) (note on research work done), (9) (area under cane, distribution of factories, etc.) and (10) (reduction of freights). I am to add that, in respect of item (1) the report sent is the first forecast report for 1937-38, showing area up to 25th July, 1937. The next forecast report, i.e.,

the 2nd report will be ready only by about the middle of October, 1937. The prices given in Appendix III [*vide* item (4) above] would, in the opinion of the Director of Agriculture, be fair prices to growers in different areas. The Provincial Government have not examined the figures.\* \* \* \* \* As regards the excepted items (3), (7), (8) and (11) in paragraph I of your letter referred to above, I am to state as follows:—

The details called for in respect of item (3) (water rates in different districts) will be furnished separately later. As regards item (7), a note on the tappers of palmyra juice, their relations with middle men and the general economics of the tapping industry was forwarded by the Director of Industries direct to the Board on 10th September, 1937, and hence no note is now furnished. As regards the note on the results of the recent crop outturn experiments required by the Tariff Board [*vide* item (8)], I am to inform you that the results are not yet to hand and that it is unsafe to proceed on one year's results. As regards item (11), I am to state that the Director of Industries reports that it is not possible at this stage to complete the figures supplied in the replies to questions (14) and (33) for the year 1936-37. I am also to enclose a statement [*vide* Appendix IX] showing the figures that may be added to several statements attached to the replies to question (27) to bring it up to date. In case of questions (28), (29), (36), (37), (38) and (39) the original replies require revision with reference to latest figures. I am accordingly to enclose revised replies in these cases embodying the latest figures [*vide* Appendix X].

2. In regard to the information relating to the method of calculating the sucrose content asked for in your letter No. 449, dated 11th July, 1937, the Director of Agriculture explains that it was calculated on the juice obtained and that with the help of the extraction percentage, the sucrose content on the weight of cane was worked out. Details asked for in your letter No. 456, dated the 12th July, 1937, will be furnished on receipt of further information called for from the Director of Agriculture.

## APPENDIX I.

### *Statistics—Crop—Sugarcane—1937-38—First Report.*

The average of the areas under sugarcane in the Madras Presidency during the five years ending 1935-36, has represented 3·4 per cent. of the total area under sugarcane in India.

2. The area under sugarcane up to the 25th July, 1937, is estimated at 81,620 acres. When compared with the area of 98,950 acres estimated for the corresponding period of last year, it reveals a decrease of 17·5 per cent. The decrease in area is general except in Anantapur, Malabar and South Kanara. The area is estimated to be the same as in the previous year in Anantapur and to have increased slightly in Malabar and South Kanara. The decrease in area elsewhere is generally attributed to the low price of jaggery which prevailed at the time of planting of cane.

3. The condition of the crop is generally satisfactory.

4. The wholesale price of jaggery per imperial maund of 82½ lbs. as reported from important markets on 2nd August, 1937, was Rs. 5-8 in Adoni, Rs. 4-12 in Mangalore, Rs. 4-11 in Erode, Rs. 4-6 in Trichinopoly, Rs. 4-2 in Salem and Coimbatore, Rs. 3-13 in Cuddalore, Rs. 3-10 in Rajahmundry, Rs. 3-5 in Vellore, Rs. 2-15 in Cocanada, Rs. 2-12 in Vizianagram, Rs. 2-7 in Bellary and Rs. 2-6 in Vizagapatam. As compared with the prices reported in the corresponding forecast of last year, these prices reveal a fall of 41 per cent. in Bellary, 25 per cent. in Vizagapatam and Cocanada, 16 per cent. in Rajahmundry, and Adoni and 9 per cent. in Vellore and a rise of 49 per cent. in Trichinopoly, 16 per cent. in Salem and 7 per cent. in Mangalore the price remaining stationary in Coimbatore.

## 5. Figures by districts are given below:—

(Area in tens of acres, i.e., 0 being omitted.)

District and group	Estimate of the area sown up to the end of July.		Increase (+) or decrease (-) of the area in column (3) as compared with the area in column (2).
	1936.	1937.	
	Acs.	Acs.	Acs.
(1)	(2)	(3)	(4)
Vizagapatam . . . . .	2,600	2,500	-100
East Godavari . . . . .	800	600	-200
West Godavari . . . . .	250	200	-50
Kistna . . . . .	220	150	-70
Guntur . . . . .	100	50	-50
<b>Total, Circars</b> . . . . .	<b>3,970</b>	<b>3,500</b>	<b>-470</b>
Kurnool . . . . .	80	40	-40
Bellary . . . . .	800	670	-130
Anantapur . . . . .	250	250	...
Cuddapah . . . . .	36	25	-11
<b>Total, Deccan</b> . . . . .	<b>1,166</b>	<b>985</b>	<b>-181</b>
Nellore . . . . .	10	5	-5
Chingleput . . . . .	34	26	-8
South Arcot . . . . .	860	700	-160
<b>Total, Carnatic</b> . . . . .	<b>904</b>	<b>731</b>	<b>-173</b>
Chittoor . . . . .	970	800	-170
North Arcot . . . . .	1,100	620	-480
Salem . . . . .	370	300	-70
Coimbatore . . . . .	500	400	-100
Trichinopoly . . . . .	330	260	-70
<b>Total, Central</b> . . . . .	<b>3,270</b>	<b>2,380</b>	<b>-890</b>
Tanjore . . . . .	50	40	-10
Madura . . . . .	110	90	-20
Ramnad . . . . .	13	13	...
Tinnevely . . . . .	20	20	...
<b>Total, South</b> . . . . .	<b>193</b>	<b>163</b>	<b>-30</b>
Malabar . . . . .	2	3	+1
South Kanara . . . . .	390	400	+10
<b>Total, West Coast</b> . . . . .	<b>392</b>	<b>403</b>	<b>+11</b>
<b>Total, Presidency</b> . . . . .	<b>9,895</b>	<b>8,162</b>	<b>-1,733</b>

L. B. GREEN,  
Director of Industries.

Madras, 10th August, 1937.



APPENDIX II.

AVERAGE RAINFALL—MADRAS PRESIDENCY.

District	1930-31.	1931-32.	1932-33.	1933-34.	1934-35.	1935-36.	1936-37.	Average for 7 years.
1	2	3	4	5	6	7	8	9
Vizagapatam . . . . .	43.51	54.48	35.89	42.46	36.57	33.57	49.67	42.28
East Godavari . . . . .	50.36	54.19	40.02	46.82	38.57	42.18	58.57	47.17
West Godavari . . . . .	48.58	49.50	45.20	44.68	31.00	40.28	53.40	44.66
Kistna . . . . .	49.45	44.57	36.26	41.77	30.89	35.36	43.41	40.24
Guntur . . . . .	38.95	39.66	33.03	33.32	29.01	28.35	38.23	34.36
Nellore . . . . .	52.43	43.72	30.58	28.31	28.99	30.98	38.66	36.25
Average (6 districts)	47.21	47.69	36.83	39.48	32.51	35.09	46.99	40.83
Chingleput . . . . .	63.77	57.82	47.67	38.78	40.81	44.42	37.96	47.32
South Arcot . . . . .	52.41	60.21	53.13	42.29	43.04	45.62	39.78	48.07
North Arcot . . . . .	49.22	45.69	37.30	32.74	35.92	43.84	32.12	39.55
Tanjore . . . . .	56.74	58.49	58.62	40.51	32.02	49.96	35.22	47.37
Trichinopoly . . . . .	44.56	38.93	44.82	39.66	25.97	36.54	28.50	37.00
Madura . . . . .	40.52	35.65	36.15	44.86	23.16	36.16	31.54	35.43

Ramnad . . . . .	36-90	36-50	39-31	36-94	25-28	30-62	32-66	34-03
Tianevelly . . . . .	26-82	31-92	29-26	37-58	20-67	28-85	33-82	29-77
Salem . . . . .	37-60	31-58	40-72	34-62	27-84	30-16	32-38	33-56
Coimbatore . . . . .	41-58	25-33	36-18	38-19	22-18	26-01	26-68	30-88
Average (10 districts)	45-01	42-21	42-32	38-62	29-53	37-17	33-06	38-29
Chittoor . . . . .	47-86	36-84	30-51	31-52	29-56	35-77	32-74	34-97
Cuddapah . . . . .	35-09	22-68	19-33	23-47	20-90	30-22	22-60	24-90
Kurnool . . . . .	23-76	23-85	22-68	28-40	20-30	28-46	22-83	24-04
Ballary . . . . .	22-64	21-18	30-25	24-03	15-85	23-91	23-65	24-52
Anantapur . . . . .	26-12	15-56	22-05	25-90	12-14	24-48	21-29	21-08
Average (5 districts)	31-09	24-02	24-98	28-26	19-75	28-57	24-62	25-90
Malabar . . . . .	118-85	138-10	142-89	161-01	98-67	102-13	123-76	128-49
South Kanara . . . . .	141-12	171-68	154-69	183-57	131-14	148-06	160-30	155-89
Average (2 districts)	129-98	154-89	148-69	172-29	114-91	125-09	142-28	141-19

225

## APPENDIX III.

*Sugar Tariff Board, 1937—Cost of cultivation per acre of sugarcane in the Madras Presidency and yield of cane in tons per acre.*

(Supplementary answer to question 4 of the Questionnaire for Local Governments.)

District.	Locality.	Total cost of cultivation.	Yield in tons in respect of the fields for which cost of cultivation is given in column 3.	Yield in tons as furnished to the Tariff Board previously.
1	2	3	4	5
Vizagapatam	Kota Uratle	Rs. A. P. 413 13 4	39	30
	Kassapet	177 5 4	23½	20
East Godavari	Paddapur	388 15 0	43	43
	Veeravaram	210 3 8	28	28
West Godavari	Panja Vemavaram	435 6 0	39	39
Guntur	Bapatla and Tenali taluks.	426 0 0	30	35
Kistna	Gudivada and Gannavaram.	134 0 0	19	20
Cuddapah	Chennur	338 1 7	30	30
Kurnool	Kurnool taluk	353 0 0	28	28
	Cumbam taluk	275 6 0	22	24
Bellary	Hospet	372 8 0	24	20 to 25 and 25 Fiji B.
	Kampli	382 8 0	25	Ditto.
Anantapur	Hindupur taluk	359 6 0	20	..
South Arcot	..	326 0 0	25 Improved variety.	30 } All thick
	..	172 12 4	19 Nanal cane.	35 } canes.
North Arcot	..	267 1 6	23	23 and 28.
Trichinopoly	Lalgudi taluk	268 1 0	25 Improved variety.	25 to 30 Improv-
	Trichinopoly taluk	179 12 0	Ditto	ed variety. 12 to 15 Local cane.
Madura	Periyar area	221 4 0	25 to 30	25 to 30
Ramnad	Ditto	260 0 0	25 to 20	Ditto.

## APPENDIX III—contd.

District.	Locality.	Total cost of cultivation.	Yield in tons in respect of the fields for which cost of cultivation is given in column 3.	Yield in tons as furnished to the Tariff Board previously.
1	2	3	4	5
		Rs. A. P.		
South Kanara	Mangalore . . .	295 0 0	35	25 to 30
	Udipi . . .	344 0 0	40	Ditto.
	Coondapur . . .	255 0 0	30	Ditto.
Coimbatore	Coimbatore taluk .	305 3 4	25	Ditto.
	Udumalpet . . .	338 9 4	30	Ditto.
Salem	Wet land . . .	369 0 0	30	30
	Garden land . . .	230 0 0	15	15
Chittoor	..	362 12 0	28	28

NOTE.—Column 5 represents the average for the district.

## Statement showing fair prices to the grower for cane in different districts.

Place.	Variety.	Fair price per ton.	
		Rs.	
Vizagapatam . . .	J. 247 . . . . .	10	(Factory).
	Co. 213 . . . . .	9	"
Godavari . . . . .	J. 247 . . . . .	11	"
Kistna . . . . .	....	10	(Field).
Bellary . . . . .	....	12	(Factory).
South Arcot . . . . .	Fiji B. . . . .	15	"
	Co. 281 . . . . .	12	"
	P.O J. 2871 . . . . .	13	"
Tanjore and Trichinopoly	All improved varieties . . .	12	"
Malabar and South Kanara.	Red Mauritius . . . . .	10	(Field).
Coimbatore . . . . .	{ Co. 290 Thin canes . . .	10	
	{ Co. 213 . . . . .		
	Thick canes.. 413, 412 . . . . .	11	(Field).
	Poovan . . . . .	12	

## APPENDIX IV.

## NOTE ON THE WRAPPING AND PROPPING OF CANE.

I.—*Godavari District.*

Wrapping and propping is an important item of aftercultivation. It usually commences in the month of June for the normal crop. The first wrapping consists in removing old dry leaves and dead shoots and twisting two to four pairs of leaves round the stalks of plants themselves. The second wrapping is given a month later simultaneously with propping. About 4,000 bamboos are fixed into the ground *along rows of clumps*, one for every two or three clumps. These clumps of canes are wrapped and looped on to these bamboos. The third wrapping is given a month later and proceeds in the usual manner. The fourth wrapping and central propping proceed simultaneously. About 1,000 big bamboos are fixed into the ground *between rows of clumps*, one for three or four small bamboo units. The clumps are wrapped on to the small bamboos first and from each unit, some one or two pairs of canes are wrapped and looped on to the central bamboos. The fifth and sixth wrappings are given as the fourth one at intervals of 25 to 30 days. Sometimes the seventh one called "Panta chutta" is given. It consists in wrapping canes of a clump together and finally tying up to the top of the last sheath.

2. The following is the cost of the operation of wrapping and propping:—

	Men (man at 4 as.)	Rs. A.
1st wrapping . . . . .	10	2 8
2nd wrapping and propping . . . . .	35	8 12
‡ cost of small bamboos at Rs. 30 per 1,000 (4,000 small bamboos) . . . . .	...	40 0
3rd wrapping . . . . .	25	6 4
4th wrapping and propping . . . . .	30	7 8
‡ cost of 1,000 big bamboos at Rs. 45 per 1,000 . . . . .	...	15 0
5th wrapping . . . . .	25	6 4
6th wrapping . . . . .	25	6 4
7th wrapping . . . . .	30	7 8
Total . . . . .	180	100 0

II.—*Vizagapatam District.*

In the Vizagapatam District, sugarcane is usually planted in March to May and commencing from June to July, three to five (rarely six to seven) wrappings of leaves around the canes are usually given at intervals of five to eight weeks. In some tracts individual canes are wrapped while as in others they are wrapped in pairs or rarely in triples. The actual mode of wrapping is different in different tracts and has to be learnt by actual practice, the winding of the leaves round the canes being done usually from upwards down.

2. The wrapping by itself prevents lodging to a certain extent by giving a free passage to the wind through the crop without offering much resistance. In some tracts where propping is not generally resorted to, the stools of cane are cocked two to four together to prevent lodging, in the course of the later wrappings which thus serve the object of propping. Even in cases where a crop lodges unexpectedly, it would be easier to lift and prop such a crop, if it was previously wrapped. In the case of crops, propped with bamboos or other material, wrapped canes are easily tied up to the props without additional ropes or other means.

3. Besides the above mechanical advantages, wrapping is also believed to quicken growth, though growth measurements on the Anakapalle Research Station do not confirm the belief. Wrapping is also believed to protect some varieties from cracking and infection with stem-borer and fungi, while keeping the cane soft and facilitating milling. It is also believed to prevent the shooting of buds by keeping off light. In the final wrapping, the number of leaves left in the top shoot are further reduced and this is believed to hasten the ripening of the cane.

4. Propping is usually resorted to in the case of shallow rooted canes, such as B. 208 and Purple Mauritius and tall growing ones such as J. 247 and in heavy and ill drained soils when the root system becomes shallow during the rainy season. The material used for propping and the method of propping depend upon the local conditions and the means of the ryot. Bamboos are the most commonly used material, but other jungle wood is also often used in areas near the hills owing to its cheapness.

5. Propping is usually done in conjunction with the second wrapping in July or August, but sometimes later if the crop is not sufficiently grown up by that time. In well-grown crops each large stool or two or three small stools together are propped on a single bamboo or other prop. If the props used are weak or if the crops overgrow them, a second propping with stronger bamboos is sometimes given later on usually with the fourth wrapping.

6. The lower ends of the props used are sharpened to a point and driven into the wet soil. One big bamboo is usually driven in the centre of every four small props previously fixed and all the four clumps tied together by their own leaves. Bamboo props usually last three to five years according to their size and equality.

7. A typical wrapping and propping calendar with labour required and the estimated cost is given separately in the appendix.

8. With the recent advent of deep rooted varieties such as Co. 213, some crops are being grown without any wrapping and propping or with a single preliminary wrapping, 15-20 tons of cane being obtained. In the Northern Taluks of Vizagapatam district in general, fairly good crops (yielding 20-30 tons) are grown with wrapping alone, while in the Southern Taluks, propping is also done as shown in the statement, and yields 30-40 tons are obtained.

*A Typical Wrapping and Propping Calendar with estimated labour and costs.*

Month.	Week.	Particulars.	Labour.		Cost.
			Men at 4 annas.	Women or boys at 2 annas.	
					Rs. A. P.
June	3rd	1st wrapping and removing surplus shoots and removal of trash, etc.	16	4	4 8 0
August	1st	Sharpening ends and fixing bamboos.	12	..	3 0 0
		2nd wrapping and removing trash.	20	4	5 8 0
		1rd cost of 4,000 bamboos at Rs. 30 per 1,000 bamboos.	..	..	40 0 0

*A Typical Wrapping and Propping Calendar with estimated labour and costs*  
—contd.

Month.	Week.	Particulars.	Labour.		Cost.
			Men at 4 annas.	Women or boys at 2 annas.	
					Rs. A. P.
September	2nd	3rd wrapping and removing trash.	24	4	6 8 0
October	4th	<i>Second Propping</i>			
		Sharpening the ends and fixing bamboos.	6	..	1 8 0
		4th wrapping and removing trash.	30	4	8 0 0
		$\frac{1}{2}$ th cost of 1,000 big bamboos at Rs. 50 a thousand.	..	..	12 8 0
December	2nd	5th wrapping and removing trash.	30	4	8 0 0
		Total	138	20	89 8 0

## APPENDIX V.

## I.—VARIETAL EXPERIMENTS.

(a) *Anakapalle (Vizagapatam District)*.—The study of sugarcane varieties from the Imperial Sugarcane Breeding Station, from time to time, forms one of the main items of work on this station. A very comprehensive scheme of investigations on the new varieties received, is laid out in order to find which of these varieties will suit this particular tract. Experience in sugarcane cultivation in this Presidency and elsewhere shows that varieties if grown year after year, deteriorate in yield or become susceptible to pests and diseases, so much so, that the trial of new varieties should be going on always.

Prior to 1928, B. 208, Bontha and certain other local varieties were the common varieties grown in that tract. Introduction of J. 247 was done afterwards. A seedling cane imported from Coimbatore, but selected at Anakapalle called M. A. 21 was compared with B. 208 and found to yield better than B. 208 giving as much as 57.62 per cent. higher yield in 1931 and this variety, being also found to resist drought condition and maturing early was introduced in that tract. This variety was, however, discarded later in favour of J. 247 which though a late maturing cane, gives very high tonnage and good jaggery.

Introduction of new Coimbatore seedling canes, namely, Co. 213, 281, 243, 313, etc., necessitated, the classification of varieties into two classes, namely, class I canes including hardy canes of the type of Co. 213, 243, requiring less water and manure and class II canes comprising B. 208, M. A. 21, etc., which require more irrigation and manure. According to

this system the canes as they are received from the Breeder are tested and classified under these classes.

Co. 213 did very well when compared with J. 247, M. A. 21 and B. 208. It yielded more, requiring practically no manure and irrigation save at the time of planting. The elaborate and very costly process of wrapping and propping which was a rule in the Circars could be done away with in the case of this cane, so much so that the cost of production of a ton of cane fell to a minimum. This cane resisted drought as well as water-logged conditions and did not respond to higher doses of Nitrogenous manure. To this was added Co. 243 which in some respects behaved better. Co. 281 and Co. 313 belonging to Class I gave higher yields than J. 247, better jaggery and one very good feature about these canes is they are early maturing, and rich canes giving good jaggery from November onwards. Then the sorghum hybrids were introduced. They were early maturing, drought resisting and by growing the sorghum hybrids (Co. 351—Co. 357) and Co. 281 and Co. 313, a factory can start work in November, thereby increasing the working period of factories by about two months. P.O.J. 2878, the wondercane of Java, was tested on this station and was found to be very promising. It is a particularly rich cane, early maturing and high yielding.

The recent introduction of Co. 419 and Co. 421, two thick canes from Coimbatore marks a new era in the study of new varieties in Madras Presidency. They combine in them all the desirable qualities of sugarcane. They possess a good habit, very high yielding capacity and very rich giving more than 19 per cent. sucrose in juice. Co. 419 is late in maturity while Co. 421 is earlier.

At present at Anakapalle the promising canes are Co. 419, Co. 421, P.O.J. 2878, Co. 213, Co. 243, Co. 313 and Co. 281. Co. 419 and Co. 421 have thrown J. 247 to the background.

(b) *Samalkot (Godavary District)*.—Conditions differ widely at Samalkot, when compared to Anakapalle. The soils here are very heavy alluvial clay with regular and steady supply of channel water throughout the growing season. Here, there is not much necessity to try drought resistant varieties. Thick canes which give bumper yields are most suitable.

Purple Mauritius is the cane of the tract. This is being replaced by J. 247, as this gives higher yields and resists drought better than purple Mauritius during one and a half months when the Godavari canals are closed. The recent introductions of cane varieties, viz., Co. 213, 243, 281, P.O.J. 2878, Co. 419 have given very good results here. Among these, Co. 213 is suited to uplands where water supply is not assured. P.O.J. 2878 has done well and it resists drought during summer better than J. 247. Co. 419 is one of the best of the new introductions there. Among sorghums, Co. 356 was found to suit this tract for it resists drought best during the summer. Here, cane is planted during February-March just before the closure of the canals and till June no water is available and so varieties which suffer for want of water in the early period of their growth are not suited to this tract.

At present Co. 213, Co. 243, Co. 313, J. 247, P.O.J. 2878, Co. 419, and Co. 421 are the important varieties at Samalkot.

(c) *Palur (South Arcot District)*.—Several varieties were tried on this station for a number of years. But all of them had to be discarded as unsuitable in favour of Fiji, B., which is the cane of the tract. More recently, however, J. 247 has been gaining ground. Co. 419 which was introduced recently is a promising cane. Sorghum hybrids are noted for their early maturity. P.O.J. 2878 is also very much liked for its high yield and rich juice. Co. 243, however, gives the highest tonnage. But P.O.J. 2878 gives the highest amount of jaggery. Co. 281 is noted for its early maturity and for its keeping well without deterioration even during cyclonic weather.



## II.—MANURIAL EXPERIMENTS.

(a) *Anakapalle*.—The relative effects of groundnut cake and ammonium sulphate were tested at Anakapalle as well as at Samalkot. At Anakapalle it was found that application of groundnut cake up to 15 cwt. per acre was economical. But the application of ammonium sulphate on the same nitrogen basis was giving more profits per acre although there was some difficulty in the setting of the jaggery from cane manured with ammonium sulphate. A profit of Rs. 83 per acre was recorded in favour of ammonium sulphate in 1931 as against Rs. 24 with groundnut cake on the same nitrogen basis. The same experiment was continued till 1933 and it was shown that ammonium sulphate was better than groundnut cake. To test the varied response of different varieties of cane, viz., Co. 213, Co. 356, P.O.J. 2878 and J. 247, to the amount of nitrogenous manure, a complex scheme of experiments was laid with the above varieties giving nitrogen at 25 lbs., 50 lbs., 75 lbs., and 100 lbs., per acre. Increasing dose of nitrogen did not give correspondingly increased yield in the case of Co. 213, whereas with P.O.J. 2878 higher yields were recorded with higher amounts of nitrogen. In general, in all varieties, increased dose of nitrogen made the juice poorer and resulted in jaggery of very poor keeping qualities. No potassic manure was tried on sugarcane as these soils are rich in the plant food. Phosphate, however, was noted to make the juice richer. In the matter of yield, phosphate has no bearing. An experiment on the nutrition of cane was laid with the three important plant foods, namely, N. K. & P. The results are not of any practical application. Another experiment was made in which the seed sown was got from a manured plot and was compared with the "unmanured seed." Excepting in the matter of germination, the manured seed was not found superior to "unmanured seed."

(b) *Samalkot*.—The common practice in the tract is to apply Castor cake at the rate of 10 bags per acre (1,640 lbs.). To test whether this can be profitably substituted by ammonium sulphate, an experiment was laid which showed that so far as yield was concerned castor cake can be substituted by the application of 525 lbs. of sulphate of ammonia. But as there is possibility of the quality of jaggery being affected when cane is manured with sulphate of ammonia only, a partial substitution was advocated, using groundnut cake with  $\text{AmSO}_4$ .

Different quantities of Nitrogen from 25 to 100 lbs. N. per acre were applied to see the response of the varieties Co. 213, Co. 281, and J. 247, and purple Mauritius. It was found that J. 247, and purple Mauritius responded best to 100 lbs. while Co. 213 and Co. 281, responded to lower doses as 50 to 75 lbs.

(c) *Palur*.—One of the most important experiments done on sugarcane on the station is the manurial experiment. It was found the best dose is 200 lbs. N. per acre for Fiji B under Palur conditions. When applied at 200 lbs. N. Groundnut cake gave the best yield. But when a lower dose of Nitrogen is given the best results were in favour of replacing a portion by Ammonium Sulphate. The best method of applying is 30 per cent., 40 per cent. and 30 per cent. at the time of planting, at the time of first earthing after 3 months, and at the time of second earthing up after 5 months, respectively. A test was made to apply the manure in pits dug 6" deep near the stools; this method gave favourable yields in certain years but in others the higher yield obtained was not statistically significant. Phosphate and Potash were found to be not necessary for these soils. Sodium nitrate was compared with Ammonium Sulphate, for the supply of inorganic nitrogen and the latter was found superior.

## III.—CULTURAL EXPERIMENTS.

### (i) *Irrigation*.

(a) *Anakapalle*.—Irrigation is the most costly and important item in sugarcane cultivation. Successful attempts were made at Anakapalle station, to grow cane with one irrigation at the time of planting. Varieties such

as Co. 213, Co. 243, Co. 281, Co. 313, Co. 419, Co. 421, etc., behaved very encouragingly and it is now possible to grow some of these varieties with one irrigation under Anakapalle conditions. Attempts were also made with some success to grow cane under purely rainfed conditions, starting the crop in June or September.

Sugarcane varieties Co. 213, Co. 281, P.O.J. 2878, Co. 419 were tried under swamp conditions, with the result that these canes besides giving normal yield matured earlier by about 2 months. This is another method for supplying cane to sugar factories earlier than the usual season.

(b) *Samalkot*.—As at Anakapalle it was found possible to grow sugarcane with one irrigation or as a purely rainfed crop but the yields were below normal by 50-60 per cent. When the varieties like Co. 281, Co. 313, P.O.J. 2878 were flooded they matured earlier, by a month or more. Again, when irrigation was withheld after the north-east monsoon the crop matured a month earlier.

(c) *Palur*.—No remarks.

#### (ii) *Wrapping*.

(a) *Anakapalle*.—Another costly item of work in sugarcane cultivation of cane is wrapping and propping which is practised extensively in the Circars. In order to obviate this, experiments were started with and without wrapping. It was found that some varieties of the type of Co. 213, Co. 243, etc., can be grown without propping and wrapping, thus decreasing the cost of production. The only difference between wrapped and unwrapped canes was that in the case of wrapped canes the juice was a bit richer.

(b) *Samalkot*.—It is not possible to leave canes of the type of J. 247, P.O.J. 2878 unwrapped in this tract as the canes grow very tall and cannot stand the very severe cyclonic weather during October and November.

(c) *Palur*.—No remarks.

#### (iii) *Chemical*.

(a) *Anakapalle*.—One important problem that confronts the sugarcane grower in this presidency now is to supply raw material to factories for a longer period. Therefore the ryot, by some means, must be able to start supplying millable canes earlier than the normal season and to continue supplying till long after the cessation of the normal season for the cane. Work was done at Anakapalle to see which of the varieties mature early and what cultural alterations would make the cane mature earlier and keep on in the field longer without deterioration. As already stated elsewhere in the note, Co. 351, Co. 357, Co. 313, Co. 281, Co. 419 and P.O.J. 2878 are early maturing. By growing the canes under water-logged conditions, canes mature earlier. For purposes of maturity the important cane varieties can be classified as follows:—

(1) Canes that mature early and keep on for a long time on the field without deterioration—Co. 281, Co. 313, Co. 357 and P.O.J. 2878.

(2) Canes that mature early and deteriorate early—Co. 243 and Co. 213.

(3) Canes that mature late—J. 247 and Co. 419.

(b) *Samalkot*.—No remarks.

(c) *Palur*.—The use of superphosphate to clarify juice at the time of jaggery-making was not found to be necessary. Jaggery obtained from cane grown with cake nitrogen only was the best and increasing dose of ammonium sulphate correspondingly increased the stickiness of jaggery.

#### (iv) *Spacing and seed-rate*.

(a) *Anakapalle*.—The economical seed rate under Anakapalle conditions was found to be 12,000 setts per acre. This differs slightly with the germination capacity of the variety. Spacing with 4 or 5 links does not give

any difference in yield but in the case of 3 link spacing low yields were recorded.

(b) *Samalkot* (Spacing).—By growing 4 lines in a bed, higher yields are recorded instead of growing 2 lines or 6 lines.

(c) *Palur*.—No remarks.

(v) *Ratooning*.

(a) *Anakapalle*.—Ratooning is not common in South India. Elsewhere in other countries where sugarcane is grown extensively this system is practised to a large extent. An experiment was started at Anakapalle to find the varieties best suited for ratooning and the effects of ratooning on the soil. Results so far achieved show that Co. 243 ratoons best and Co. 281 and Co. 213 came next. It is too early to say anything on the effect of ratooning on the soil and the economics of ratooning.

(b) *Samalkot*.—No remarks.

(c) *Palur*.—It was found uneconomical to ratoon sugarcane in this tract.

(vi) *Trench vs. Furrow Planting*.

(a) *Anakapalle*.—An increase of 5 per cent. in germination in favour of trench planting was recorded.

*Trench vs. Bed Planting*.

(b) *Samalkot*.—When cane is planted in trenches, it matures earlier and withstands lodging to a certain extent.

(c) *Palur*.—No remarks.

(vii) *Rotational experiments*.

*Palur*.—The rotational experiment is the foremost among the cultural experiments conducted at Palur. After the advent of the Nellikuppam Sugar Factory the ryots near about Nellikuppam started growing sugarcane every alternate year. Although in first few years they were getting economic yields, soon the soils got exhausted and they did not seem to give any economic returns afterwards.

To test this, an elaborate experiment was started and the following are the results:—

(1) In the 2 year rotation although good yields are obtained in the first few years very soon it was found uneconomical.

(2) The three year rotation, namely:—

Sugarcane—March to March,

Cumbu dry—June to September,

Ragi and Groundnut—January to August,

Garden paddy—October to February.

was found to be most sound economically.

(3) The four year rotation is not economical although higher yields are recorded.

(viii) *Short crop system*.

*Palur*.—For the supply of best seed material the short crop system was found very good. The cost of production of 1,000 setts was always below Rs. 2 which is far less than the local price.

(ix) *White-ant control*.

*Palur*.—This was successfully controlled by the application of tar emulsion with irrigation water.

*Work done on sugarcane on a small scale in the rest of the farms.*

Name of Station.	Area under sugarcane.		
	1934-35.	1935-36.	1936-37.
	Ac.	Ac.	Ac.
1. Hagari . . . . .	1-60	1-52	1-95
2. Kalahasti . . . . .	2-25	1-50	1-60
3. Adaturai . . . . .	1-97	1-01	2-22
4. Pattukkottai . . . . .	...	2-25	1-50
5. Koilpatti . . . . .	...	0-19	0-25
6. Taliparamba . . . . .	0-59	0-635	0-692
7. Central Farm . . . . .	2-78	3-19	3-29

*Objects of growing cane in the above farms.*

1. To multiply seed material and distribute to the Hospet factory area.
2. To test the suitability of different improved varieties of cane to the tract.
3. To find suitable varieties for the Tanjore delta and the effect of restricted irrigation.
4. Varietal trials as well as trials to see whether the crop will mature by 31st January before closure of channels.
5. Multiplication of varieties for distribution.
6. The introduction and comparison of the important varieties, M. 55, J. 247, Red Mauritius, P.O.J. 2878 and H. M. 544 and other Coimbatore varieties.
7. Varietal trials, investigations about ratooning, economics of reduced cost of cultivation, monthly plantings and Mosaic disease control.

RESEARCH WORK THAT HAS BEEN UNDERTAKEN IN REGARD TO SUGARCANE AND THE CONTROL OF DISEASE.

*Control of diseases and insect pests.*

## Investigations on—

- (1) Red-rot,
- (2) Mosaic and
- (3) Smut diseases of sugarcane have been carried out.

1. *Red-rot*.—Research was directed towards finding out cheap and effective control measures under South Indian conditions. They are (1) planting disease free setts, (2) improvement of drainage in the fields, (3) replacement of old degenerate varieties by more vigorous ones and (4) allowing a longer interval between two successive sugarcane crops than is usual (i.e., at least 3 years).

2. *Sugarcane Mosaic*.—Attention was paid to the investigation of this disease.

(1) The comparative susceptibilities of a large number of sugarcane varieties have been tested by carefully laid out field experiments with a view to evolve disease resistant varieties.

(2) The loss in yield (tonnage and sugar contents) due to this disease has been determined for the variety Co. 213. Under experimental conditions it has been found that the loss is more than 15 per cent. in tonnage and 10 per cent. in sugar contents.

(3) The transmissibility of the disease to Sorghum and maize has been established.

(4) The peculiar behaviour of masking and attenuation of virus by certain varieties like Co. 360 and Co. 361 towards this disease has also been studied.

3. *Sugarcane smut*.—Field experiments in the methods of control were done at Nellikuppam, South Arcot (Messrs. Parry & Co.'s plantations).

(1) Selection of setts from healthy clumps.

(2) Adequate sanitary measures in infected fields, i.e., prompt removal of affected shoots and rendering them innocuous by destroying them by fire with precautions to prevent spreading of infection have proved effective in controlling the disease. A gang of coolies provided with cloth bags (of closely woven material such as drill) go round the fields and collect the smutted shoots taking care to avoid disturbing the shoots in the process. When the bag is full it is immersed in boiling water and allowed to remain there for about 10 minutes in order that the fungus may be completely killed. The shoots are then burnt. This method reduces the possibility of dispersal of spores at the time of collection and also sterilises the bags immediately after use.

#### *Insect Pests.*

There are a number of pests of sugarcane such as the moth borers, white ants, mealy bugs, leaf hoppers, mealy wings, aphids, thrips, grasshoppers, etc. Of these the most important pests are the moth borers. White ants, mealy bugs, leaf hoppers, and mealy wings also do damage in certain localities. The others are only very minor pests.

2. *Moth borers*.—Much attention is being paid to the study of the moth borers in Coimbatore. Information on the different species concerned, their distribution, seasonal occurrence, nature and extent of damage, natural enemies, and control methods is being gathered. Detailed studies of the habits and life-history of the three borers—*Distraea stricraspi*, *D. Venosata* and *Scirpophage*—are being made. The egg and larval parasites of these pests are also receiving attention. The control measures which are suggested at present are the collection of egg masses and destruction of plants showing 'dead hearts'. The question of utilising the natural enemies especially the egg parasite *Trichogramma* is under investigation. Earthing up of soil for the control of *Diatraea* larvae is also being tried.

3. *Mealy bugs*.—Another pest which is receiving some attention at Coimbatore is the cane mealy bug *Ripersia*. Life-history studies of the pest have shown progress. The more important of the natural enemies of the pest include a Lady bird and a chalcid fly. Dipping setts of cane in Crude oil emulsion, Fish oil, Rosin soap, etc., is being tried to see whether this method is effective in reducing the mealy bug attack.

4. It may be stated in this connection that until more staff is appointed as suggested by the Imperial Council of Agricultural Research an elaborate study of the various pests affecting cane in different parts of the Presidency and their control including parasite liberation will not be possible.

APPENDIX VI.

Natural division as previously reported.	District comprising of	Average rainfall for the last 7 years.	Total area under cane in 1936-37.	Area under improved varieties of cane in 1936-37.	Sugar factories working.		Remarks.
					Capacity.	Factory located at No.	
1	2	3	4	5	6	7	8
		Inches.	Ac.	Ac.	Tons.		
The Northern Circars	Vizagapatam . . .	42-28	32,300*	19,921	150	Bobbili, Bobbili Taluk. Thummapala, Anakapalle Taluk.	(3)
	East Godavari . . .	41-17	10,307		* 50		
	West Godavari . . .	44-66	2,378	120	Kirlampudi, Peddapur Taluk.	(1).	
	Kistna . . . . .	40-24	2,267	1,102	850	Vuyyur, Gennavaram Taluk.	(1).
	Guntur . . . . .	34-36	1,282		..		
	Nellore . . . . .	36-25	78	..			
The Southern Districts	Chingleput . . . .	47-32	451	329	..		
	South Arcot . . . .	48-07	10,222	9,860	850	Nellikuppam, Cuddalore Taluk.	(1).
	North Arcot . . . .	39-55	11,710		50	Mailpatti, Gudiyattam Taluk.	(1) Not manufactured sugar yet.
	Tanjore . . . . .	47-37	719	2,682	200	Karur, Karur Taluk.	(2) Proposed to be started in the future.
Trichinopoly . . . .	37-00	5,488	250		Lalgudy, Lalgudy Taluk.		

\* Estimated in the final forecast for 1936-37, actuals not yet received by the Director of Industries.

Natural division as previously reported.	District comprising of	Average rainful for the last 7 years.	Total area under cane in 1936-37.	Area under Improved varieties of cane in 1936-37.	Sugar factories working.		Remarks.
					Capacity.	Factory located at No.	
1	2	3	4	5	6	7	8
		Inches.	Ac.	Ac.	Tons.		
The Southern Districts —contd.	Madura . . .	35.43	1,900*	} 4,053	50	Podanur, Taluk.      Coimbatore	(1) No crushing done in 1936-37 season.
	Ramnad . . .	34.03	200*				
	Tinnevely . . .	29.77	236				
	Salem . . .	33.56	4,926				
	Coimbatore . . .	30.88	6,270				
The Ceded Districts and Chittoor.	Chittoor . . .	34.97	11,508	374	400	Hospet, Hospet Taluk	(1).
	Cuddapah . . .	24.90	519				
	Kurnool . . .	24.04	781				
	Bellary . . .	24.52	10,000*	200			
The West Coast	Anantapur . . .	21.08	2,794	} 3,900	50	Kalyanpur, Udipi Taluk	(1).
	Malabar . . .	126.49	31				
	South Kanara . . .	155.89	4,042				

\* Estimated in the final forecast for 1936-37, actuals not yet received by the Director of Industries.

## APPENDIX VII.

*Freight concessions obtained for Sugar Factories.*

The concessions on the transport of cane obtained so far from the Railways converge round three factories, namely, those at Vuyyuru, Hospet and Podanur.

*Podanur.*—The following rates were granted for the transport of cane from the undernoted stations to Podanur:—

	Ordinary rate	Special rate	Percentage reduction.
	per maund.	per maund.	
	As. P.	As. P.	Per cent.
Kinnattukadavu . . . . .	1 8	0 10	50
Kovilpalayam . . . . .	1 10	0 11	50
Pollachi . . . . .	2 1	1 0	52

*Hospet.*—The rates per maund granted for cane for sowing purposes were as follows:—

	As. P.
Poona to Hospet . . . . .	7 0
Anakapalli to Hospet . . . . .	9 1

These concessions, which were granted from 1st November, 1934, were subsequently withdrawn and again reintroduced with effect from 1st November, 1935.

Concessions were also granted for the carriage of cane for crushing from Munirabad to Hospet and the rate was a lump sum wagon rate of Rs. 10 per four-wheel wagon, excluding siding charge of Rs. 1-8 per wagon. Another concession obtained in respect of cane for seed purposes was as follows:—

	Ordinary rate	Special rate	Percentage reduction.	Rs. A. P.	
	per maund.	per maund.		Rs. A. P.	Per cent.
From Coimbatore to Hospet via Jalarpet.	1 1 3	0 11 0	36	S. I. Ry. 0 3 9	
				M. S.-M. Ry. 0 7 3	

This was granted with effect from 1st April, 1935.

The Madras and Southern Mahratta Railway Company, Limited, also granted the following concessional rates for the transport of cane for crushing from 5th October, 1935:—

From	To	Per four-wheeled wagon.
Ginigara . . . . .	India Sugars and Refineries siding at Hospet..	Rs. A. P. 8 4 0
Hampapatnam . . . . .	....	9 4 0
		} including the siding charges of Rs. 1-8
III-A		2 0



*Vuyyuru*.—Special rates for sugarcane for crushing purposes were granted from certain stations to Bezwada with effect from 22nd October, 1935. The rates ranged from 9 pies to As. 2-4 per maund. These rates were subsequently (with effect from 18th December, 1936) reduced and the highest and lowest rates per maund amounted to As. 1-10 and 3 pies.

Concessions were also introduced with effect from 25th January, 1936, on cane from certain stations to Gudivada subject to certain conditions. The rates ranged from 3 pies to As. 1-6.

With effect from 25th August, 1936, the following rates were introduced:—

From	To	Rate.
		Rs. A. P.
Dwarapudi . . . . .	Bezwada . . . . .	0 2 1
Biccavole . . . . .	Do. . . . .	0 2 3
Samalkot . . . . .	Do. . . . .	0 2 5

The rates were said to be on a lower basis than the rate offered to the Nizam's State Railway from Bonakulu to Bezwada. The latter rate had, however, been reduced with effect from 15th August, 1936, from As. 2-9 to 1 anna per maund, or by 64 per cent.

The last concession was the grant of a rebate amounting to the difference between the existing rates ordinary or special—and Rs. 2 per ton to any one consignee at Bezwada receiving sugarcane from Rajahmundry, Kadium, Dwarapudi, Anaparti, Biccavole, Madapeedu and Samalkot, provided a quantity of not less than 5,000 tons was booked during the period 11th January to 30th June, 1937, both days inclusive.

A statement is attached showing the rates in force in January, 1934, and August, 1937. It will be seen that the percentage reduction was in all cases over 50 per cent. and in some instances amounted to as much as 85 per cent.

*Sugarcane—OR, L W/300 BG., W/160 MG.*

From	To Bezwada.	
	Rate during January, 1934.	Rate in August, 1937.
	Per maund.	Per maund.
	As. P.	As. P.
Akividu . . . . .	3 1	1 2
Ammanabrolu . . . . .	3 5	1 7
Anakapalle . . . . .	7 3	3 3
Angalakuduru . . . . .	1 11	0 6
Ampapuram . . . . .	1 11	0 5
Appikatala . . . . .	2 7	0 10
Badampudi . . . . .	3 3	1 4
Bapatla . . . . .	2 8	1 0
Bhatuprolu . . . . .	2 4	0 9
Bhimadol . . . . .	2 10	1 0
Bhimavaram . . . . .	3 5	1 5
Biccavol . . . . .	4 7	1 3
Chagallu . . . . .	3 8	1 9
Chebrole . . . . .	3 1	1 3

From	To Bezwada.	
	Rate during January, 1934.	Rate in August, 1937.
	Per maund.	Per maund.
	As. P.	As. P.
Chiluyur . . . . .	1 7	0 3
Chinnaganjam . . . . .	3 5	1 5
Chirala . . . . .	3 0	1 2
Denduluru . . . . .	2 8	0 11
Dosapadu . . . . .	2 0	0 6
Duggirala . . . . .	1 8	0 4
Dwarapudi . . . . .	4 4	1 3
Ellore . . . . .	2 5	0 9
Gannavaram . . . . .	1 8	0 3
Gudivada . . . . .	2 1	0 7
Guntur . . . . .	1 11	0 5
Indupalli . . . . .	1 10	0 5
Kodavakoduru . . . . .	3 4	1 5
Kaikaram . . . . .	3 0	1 2
Kaikalur . . . . .	2 8	1 0
Karavadi . . . . .	3 7	1 8
Kavali . . . . .	5 0	2 1
Kistna Canal . . . . .	1 7	0 3
Kolakalur . . . . .	1 9	0 4
Kolakonda Quarry Siding . . . . .	1 7	0 3
Kollar Road . . . . .	2 2	0 7
Kovvur . . . . .	3 10	1 10
Mandavalli . . . . .	2 7	0 10
Medapadu . . . . .	4 9	1 3
Moturu . . . . .	2 3	0 8
Modukuru . . . . .	2 2	0 7
Mustabada . . . . .	1 7	0 3
Narasapatnam Road . . . . .	6 5	2 10
Navabpalem . . . . .	3 5	1 6
Nidadavolu . . . . .	3 6	1 8
Nidamanuru . . . . .	1 7	0 3
Nidubrolu . . . . .	2 4	0 9
Nuzvid . . . . .	2 1	0 7
Ongole . . . . .	3 9	1 9
Palekol . . . . .	3 7	1 8
Pallevada . . . . .	2 10	1 1
Pallikonda . . . . .	2 5	0 10
Peddabutapalli . . . . .	1 9	0 4
Paddavaldapudi . . . . .	1 7	0 3
Penutharu . . . . .	2 4	0 8
Pulla . . . . .	2 11	1 1
Putalacheruvu . . . . .	2 5	0 9
Repalli . . . . .	2 7	0 10

From	To Bezvada.	
	Rate during January, 1924.	Rate in August, 1937.
	Per maund.	Per maund.
	As. P.	As. P.
Ramavarappadu . . . . .	1 7	0 3
Samalkot . . . . .	5 0	1 3
Sanganjagarlamudi . . . . .	2 1	0 6
Stuartpuram . . . . .	2 10	1 1
Tarigoppula . . . . .	1 9	0 4
Tsundunu . . . . .	2 1	0 7
Tenali . . . . .	1 11	0 5
Uppalaru . . . . .	1 8	0 3
Undi . . . . .	3 3	1 4
Uppugundur . . . . .	3 5	1 6
Vatlur . . . . .	2 9	0 8
Vajenda . . . . .	2 2	0 7
Vetapalem . . . . .	3 2	1 3
Zampani . . . . .	2 1	0 7
Tadapalligudem . . . . .	3 4	1 5
	To Gudivada.	
Akividu . . . . .	2 2	0 8
Aravalli . . . . .	2 10	1 0
Attili . . . . .	2 11	1 1
Bhimavaram . . . . .	2 7	0 10
Kaikalur . . . . .	1 10	0 5
Kaldhari . . . . .	3 4	1 4
Lankalakoderu . . . . .	2 10	1 1
Mandavalli . . . . .	1 8	0 4
Moturu . . . . .	1 7	0 3
Narasapur . . . . .	3 2	1 3
Nidadavolu . . . . .	3 5	1 6
Palakol . . . . .	3 0	1 2
Pallevada . . . . .	2 0	0 6
Pennada Agharam . . . . .	2 8	0 11
Putlacheruvu . . . . .	1 7	0 3
Relangi . . . . .	3 0	1 2
Tanuku . . . . .	3 2	1 3
Undi . . . . .	2 5	0 9
Vendra . . . . .	2 8	1 0
Viravasaram . . . . .	2 9	1 0

From.	To Hospet.		
	Rate during January, 1934.		Rate in August, 1937.
	Per maund.	Per wagon.	Per maund.
	As. P.	Rs. A.	As. P.
Munirabad . . . . .	1 7	7 8	or 0 6 (a)
Gipigera . . . . .	1 7	8 4	or 0 7 (a)

## APPENDIX IX.

27. The following figures may be added to the statement attached to the answer to this question showing the price per viss of sugar obtained from the Triplicane Urban Co-operative Society:—

Date of alteration.	Price per viss.
	As. P.
28th May, 1937 . . . . .	4 6
13th July, 1937 . . . . .	4 8
29th July, 1937 . . . . .	4 9

The following figures may be added to the statement showing the prices of sugar extracted from daily statement of Messrs. Parry & Co., Ltd.:—

Date.	Java.	Nellikuppam.		Northern India.	
		Per cwt.		Per cwt.	
		Rs. A.	Rs. A.	Rs. A.	Rs. A.
16th June, 1937 . . . . .	No stock.	9 9	10 2		
22nd June, 1937 . . . . .	Do.	9 9	10 2		
29th June, 1937 . . . . .	Do.	9 8	10 0		
6th July, 1937 . . . . .	Do.	9 10	10 2		
13th July, 1937 . . . . .	Do.	9 12	10 4		
20th July, 1937 . . . . .	Do.	9 12	10 4		
27th July, 1937 . . . . .	Do.	9 13	10 4		
3rd August, 1937 . . . . .	Do.	9 13	10 0		
10th August, 1937 . . . . .	Do.	9 14	10 2		
17th August, 1937 . . . . .	Do.	...	10 2		
24th August, 1937 . . . . .	Do.	...	10 2		

The following figures may be added in the statement showing the price per viss of jaggery obtained from the Triplicane Urban Co-operative Society:—

Date of alteration.	Price per viss.
	As. P.
27th May, 1937 . . . . .	2 8
29th June, 1937 . . . . .	2 9
13th July, 1937 . . . . .	3 0

(a) Maund rate shown after deducting siding charge of Rs. 1-8 and taking the carrying capacity of the wagon as 200 maunds.

OR:—Owner's risk.

W/300:—Minimum wagon load of 300 maunds.

L:—Owners to load and unload.

W/160:—Minimum wagon load of 160 maunds.

## APPENDIX X.

28. *Revised reply.*—A statement showing the average retail and wholesale prices of sugar each month in Madras from January, 1934, to June, 1937, is enclosed. The retail prices are those supplied by the Triplicane Urban Co-operative Society, Madras, from whom it has been ascertained that their supplies of sugar are obtained from Messrs. Parry & Co., Ltd. The wholesale prices shown in the statement are the averages of the maximum and minimum prices of sugars Indian supplied by Messrs. Parry & Co., Ltd., which has been given in the statement supplied in answer to Question No. 27.

The percentage difference between wholesale and retail prices is shown in a separate column in the statement enclosed. The percentage difference ranges from 9.7 to 14.9. The absence of uniformity in the variation between retail and wholesale prices of sugar may be explained in the following way. The retail dealers in Madras generally buy their requirements wholesale from Messrs. Parry & Co., Ltd., or other supplier and until the consignments bought are exhausted, the retail prices charged on the sale will, in general, be fixed, and will approximate to the wholesale prices at which the consignments have been bought plus the merchant's profit and the cost of transport. Though the wholesale prices may have varied in the meantime, their effect will not generally be felt on the retail prices until the old stocks are exhausted, and fresh stocks are laid on. The correspondence between retail and wholesale prices will therefore depend on the frequency of purchase of their consignments by the retail dealers from the wholesale dealers or direct from the factories. The more frequently they buy their requirements or in other words the smaller the consignments bought each time, the more uniform will be the variation between the retail and wholesale prices. On the other hand, when consignments are bought at long intervals, the correlation between retail and wholesale prices will generally be characterised by the existence of a time lag. This will be clear from an examination of the prices shown in the statement. Thus, barring the two months October and November, 1934, for which figures of wholesale prices are not available, and considering the variation month by month, the wholesale prices appear to have risen on 15 occasions as compared with the previous month's prices, but retail prices have risen concurrently only thrice during those 15 months. There was also a fall in wholesale prices on 21 occasions, followed by a fall in retail prices only 10 of those occasions. During the two months on which the wholesale prices were stationary, the retail prices either rose and fell. Thus concurrent rise or fall in retail and wholesale prices was in evidence in only 13 out of thirty-eight months.

29. *Revised reply.*—Sugar and its allied products received two headings in the accounts relating to the Inland Trade of India, namely "Sugar refined and unrefined", and "Gur, rab, molasses, jaggery, etc.", and it was not possible under the arrangement to distinguish between white sugar and gur or, as a corollary, to arrive at an estimate of the consumption of sugar in the Madras Presidency. The matter was taken up with the Director-General of Commercial Intelligence, and it was decided in consultation with the Sugar Technologist of the Imperial Council of Agricultural Research to substitute the existing head "Sugar—Refined and Unrefined" by "Sugar—All kinds". The revised head includes all sugar which is treated as such in ordinary commerce and comprises (i) all imported sugar, (ii) sugar manufactured by central sugar factories in India, (iii) sugar manufactured by gur refineries in India, and (iv) sugar produced by khandasari factories. Figures for gur, rab, molasses, jaggery, etc., continue to be shown under the existing omnibus heading. From 1936-37, therefore, it should be possible to estimate with more precision the consumption of sugar in the Madras Presidency. Making somewhat arbitrary allowances for the distribution to and consumption in Travancore and Cochin, the Director of Industries estimates that the net amount of sugar received into the Presidency by sea and rail plus the production amounted to a little short of 100,000 tons

during 1936-37 and this may be taken as the approximate consumption. This, it may be mentioned, compares with an estimated production of the cane and palmyra factories in the Madras Presidency in the 1936-37 season of about 33,000 tons. The estimated consumption of sugar by South India, including Mysore, Travancore and Cochin and a little of the southern part of Hyderabad, is 120,000 tons against a total production of the Madras Presidency, Mysore and Travancore of about 56,000 tons in 1936-37. It will be seen, therefore, that there is still considerable scope for the development of the sugar industry in the Madras Presidency provided that a reasonable level of prices can be maintained. There should be a gradual, albeit, slow, increase in the consumption of sugar consequent on the drift to the towns from the countryside, whilst it seems to be the case that white sugar is being used to an increasing extent in the ordinary Indian household, although there are certain purposes for which jaggery must always be used.

The details of consumption of sugar are as follows:—

	Tons.
Net railborne imports . . . . .	50,312
Net imports by sea—foreign and coastwise . . . . .	15,640
Production in Madras Presidency . . . . .	33,120
Allowance for sugar brought over the borders of French India . . . . .	2,000
	101,072
Less Cochin consumption estimated at . . . . .	2,500
	98,572

It has been taken that the imports by sea into Travancore *plus* the production in that State are about equivalent to the consumption within it. On the above basis the consumption of sugar has been estimated at a little short of 100,000 tons. The estimate of 120,000 tons for the consumption in South India including Madras, Mysore, Travancore and Cochin and a little of the southern part of Hyderabad, is an arbitrary estimate which has been put forward by Messrs. Parry & Co., Ltd., and is, the Director of Industries considers, fairly accurate.

The details of production in different factories in the Madras Presidency during the last season are as follows:—

	Tons.	
Nellikuppam . . . . .	13,343	
Samalkot . . . . .	7,780	
Thummapala . . . . .	326	}
Ettikoppaka . . . . .	365	
Thachanallur and Alwartirunagari . . . . .	1,400	
Bobbili . . . . .	2,062	
Hospet . . . . .	3,519	
Kirlampudi . . . . .	794	
Podanur . . . . .	866	
Vuyyuru . . . . .	2,401	
Mailpatti . . . . .	210	
Kallianpur . . . . .	54	
	33,120	

If to this figure of 33,120 tons is added the production of the Mysore factory which was about 22,000 tons and of the Thuckalay factory in Travancore which was about 1,290 tons we get a figure of about 56,000 tons as representing the total production of the Madras Presidency, Mysore and Travancore.

36. *Revised Reply.*—The estimated production of gur in 1934-35 and 1935-36 taken in conjunction with the movements of gur by rail and sea in 1935-36 and 1936-37 respectively will provide an estimate of the consumption of gur in the latter two years. As already indicated in answer to question No. 33 there are difficulties in the way of estimating the production of gur in the years previous to 1934-35. An estimate of the consumption of gur in the province in 1935-36 and 1936-37 may be struck on the following lines:—

The total consumption of gur in the Madras Presidency and the Cochin State in any one year may be taken as equivalent to the production of gur in these two areas in the previous year, plus net imports of gur by rail and sea into these two areas in the year in question. The production of gur in the Madras Presidency has been already estimated for 1934-35 and 1935-36 in the answer to question No. 7. An estimate of the production in Cochin has therefore to be made. A reference to the Agricultural Statistics of India, Volume II shows that the area under sugarcane in the Cochin State in 1933-34 was 330 acres. This is the latest year for which this information is available. Assuming that the yield per acre of cane in the Cochin State is the same as that in the adjacent district of Malabar, the production of cane in the Cochin State may be estimated at 8,870 tons in 1933-34. Making an allowance of 16.1392 per cent. for chewing and seed, which is the same percentage as that adopted for the Madras Presidency and considering that no sugar is manufactured in the Cochin State, the quantity of cane turned to the manufacture of gur in this State in 1933-34 may be estimated at 7,438 tons. The yields of gur from 7,438 tons of cane will be nearly 740 tons and if we allow for a slight increase in the acreage of sugarcane in the years subsequent to 1933-34, the yield of gur in the Cochin State in 1935-36 and 1936-37 may be assumed to be 1,000 tons. The figures of movements by rail shown against "Madras" and "Madras Ports" in the monthly statement of Railborne Trade published by the Director General of Commercial Intelligence and Statistics relates not only to the Madras Presidency Proper, but to the bordering States of Cochin and Travancore as well. In striking an estimate of the total consumption of gur in the Madras Presidency and the Cochin State, we have, therefore, to leave out of account the movements of gur relating to Travancore. The best we can do is to make an allowance on this account. The net imports of gur by rail in 1935-36 amounted to -11,462 tons and in 1936-37 to -10,206 tons. We may not be far wrong if we assume that out of these imports the Madras Presidency and the State of Cochin together accounted for -10,000 tons in 1935-36 and -8,700 tons in 1936-37. The figure for 1935-36 is probably somewhat vitiated on account of the fact that previous to 1936-37, the classification of sugar and gur adopted in the statements of Railborne Trade published by the Director General of Commercial Intelligence and Statistics was rather confused as sugar was shown under sugar refined and unrefined; in which category, there was presumably every chance of jaggery also being inadvertently included. It was only in 1936-37 that the classification was altered on the representation of the Director of Industries, Madras. Sugar is now shown in a separate category and gur with molasses, rab, etc., in another category. As for movements by sea, the figures relating to this province include movements into and from Cochin. In 1935-36, the net imports of gur by sea into this province inclusive of Cochin amounted to -1,644 tons and in

1936-37 to -2,544 tons. The relevant statistics are shown below in the form of a tabular statement:—

Year.	Quantity of gur produced in		Net imports of gur by sea into the Madras Presidency and the Cochin State in the following year.	Net imports of gur by rail into the Madras Presidency and the Cochin State in the following year.	Consumption of gur in the Madras Presidency and the Cochin State in the following year, i.e., total of Cols. 2, 3, 4 & 5.
	Madras Presidency.	Cochin.			
1	2	3	4	5	6
	Tons.	Tons.	Tons.	Tons.	Tons.
1934-35 . . .	278,447	1,000	—1,664	10,000	267,803
1935-36 . . .	298,661	1,000	—2,544	8,700	288,417

On the basis of the above figure of total consumption of gur in the Madras Presidency and the Cochin State, we have to make the best estimate possible of consumption in the Madras Presidency. This can best be done on a population basis. The population of the Cochin State according to the Census of 1931 was 1,205,016 and that of the Madras Presidency was 46,740,107. The population of the Madras Presidency, therefore, accounts for 97.49 per cent. of the population of the Madras Presidency, and Cochin State together. Calculating the consumption of gur on this basis, the consumption in 1935-36 may be estimated at 261,081 tons or 261,000 tons (rounded) and that in 1936-37 at 281,117 tons or 281,000 tons (rounded). In the above calculations the Madras Presidency has been taken to mean the Presidency as it existed before the reconstitution of the districts of Ganjam and Vizagapatam. There has been an increase of 20,000 tons or 7.7 per cent. in the consumption of gur in 1936-37 as compared with the consumption in the previous year. This can be accounted for by the low level of prices of gur which prevailed in 1936-37 especially as compared with the prices in the two previous years. Gur is a favourite article of consumption with the poorer classes on festive occasions and when prices are low they naturally resort to it to an increasing extent.

37. Gur (jaggery) is imported into the Madras Presidency by rail mainly from Mysore, Bihar and Orissa and the Nizam's Dominions. The imports by sea are negligible, amounting only to seven tons from Bombay during 1936-37. Figures of imports by rail during 1935-36 and 1936-37 are given below:—

Province or State from which imported	Quantity of gur, rab, molasses, jaggery, etc., imported by rail into the Madras Province in	
	1935-36.	1936-37.
	Tons.	Tons.
Mysore . . . . .	4,034	7,334
Bihar and Orissa . . . . .	192	121
Nizam's Territory . . . . .	46	607
Bombay Presidency . . . . .	38	16
United Provinces of Agra and Oudh . . . . .	2	12
Total . . . . .	4,312	8,090



38. Gur/jaggery is exported from the Madras Presidency by rail mainly to the Nizam's Dominions, Bombay Presidency, Central Provinces and Berar, Mysore, Bihar and Orissa and Bengal Presidency, and by sea mainly to Ceylon, Federated Malay States, Kathiawar and Bombay. Figures of exports by rail during 1935-36 and 1936-37 and of exports by sea during 1936-37 are given below:—

## I.

Province or State to which exported.	Quantity of gur, rab, molasses, jaggery, etc., exported by rail from the Madras Presidency in	
	1935-36.	1936-37.
	Tons.	Tons.
Nizam's Territory . . . . .	5,547	4,087
Bombay Province . . . . .	4,668	3,955
Central Provinces and Berar . . . . .	3,584	7,368
Mysore . . . . .	936	357
Bihar and Orissa . . . . .	569	1,723
Bengal Province . . . . .	463	594
Central India . . . . .	7	212
Total . . . . .	15,774	18,296

## II.

Country to which exported.	Quantity of molasses including palmyra and cane jaggery exported by sea from the Madras Presidency in	
	1936-37.	
	Tons.	
Ceylon . . . . .	924	
United Kingdom . . . . .	350	
Straits Settlements . . . . .	4	
Federated Malay States . . . . .	4	
Kathiawar . . . . .	1,207	
Bombay . . . . .	60	
Sind . . . . .	1	
Burma . . . . .	1	
Others . . . . .	1	
Total . . . . .	2,552	

39. As there is considerable divergence of opinion on the question whether there is any correspondence between the prices of gur and sugar, the Director of Industries considered it worthwhile to examine the question in some detail and in as scientific a manner as possible. The following is an extract from his report: "From the records of retail prices of sugar and gur supplied by the Triplicane Urban Co-operative Society, which are attached to the answer to question 27, the annual average prices of each of these commodities were calculated for the period 1912-13 to 1936-37 and from the averages so calculated two series of index numbers, one for gur and the other for sugar were constructed for the entire period, taking the average price in 1912-13 as equivalent to 100 in each case. The series are shown below:—

*Annual average price of jaggery.*

Base: Average price for 1912-13=100.

Year.	Price per viss.	Index No.
	Rs. A. P.	
1912-13	0 4 3	100
1913-14	0 3 11	92
1914-15	0 5 2	122
1915-16	0 5 3	124
1916-17	0 5 4	125
1917-18	0 5 0	118
1918-19	0 5 1	120
1919-20	0 8 3	194
1920-21	0 11 1	261
1921-22	0 8 9	206
1922-23	0 6 10	161
1923-24	0 6 6	153
1924-25	0 7 6	176
1925-26	0 6 11	163
1926-27	0 6 7	155
1927-28	0 5 5	127
1928-29	0 6 0	141
1929-30	0 7 6	176
1930-31	0 4 5(a)	104
1931-32	0 3 11	92
1932-33	0 3 6	82
1933-34	0 3 2	75
1934-35	0 4 5	104
1935-36	0 3 10	90
1936-37	0 3 0	71

(a) Estimated.

## Annual average price of sugar.

Base: Average price for 1912-13=100.

Year.	Price per viss.	Index No.
1912-13	0 4 11	100
1913-14	0 4 8	95
1914-15	0 6 10	139
1915-16	0 7 9	158
1916-17	0 9 0	183
1917-18	0 8 0	163
1918-19	0 8 9	173
1919-20	1 0 2	329
1920-21	1 2 3	371
1921-22	0 10 5	212
1922-23	0 11 0	224
1923-24	0 11 7	236
1924-25	0 8 6	173
1925-26	0 7 6	153
1926-27	0 8 0	163
1927-28	0 7 0	142
1928-29	0 6 4	129
1929-30	0 6 1	124
1930-31	0 6 0(a)	122
1931-32	0 6 9	137
1932-33	0 6 11	141
1933-34	0 6 6	132
1934-35	0 6 2	125
1935-36	0 6 1	124
1936-37	0 5 3	107

(a) Estimated.

2. The two series were correlated with each other and the co-efficient of correlation calculated from them. The co-efficient came to 0.7987, proving the existence of a very high degree of correlation between the prices of the two commodities. The last Tariff Board on the sugar industry in India had doubted the existence of any significant correlation between the prices of gur and sugar and had observed that such correlation as emerged from the figures relating to the two was the result rather of variations in the general level of prices than of any direct reaction of sugar prices on gur. In order to test the validity of this observation, an endeavour was made to work out the correlation between the two series of gur and sugar prices after eliminating from each series the effect of a general movement of prices. It was necessary for this purpose to construct a series showing the general level of prices in this Presidency. Table I shows separate series of price indices for rice, cholam, oumbu, ragi, groundnut, cotton and jaggery for the period 1912-13 to 1936-37 on the assumption that the average price in 1912-13 is 100 in each case. In view of the great importance of the above commodities in this province, a series of price movements which combines in itself the movements of prices relating to the different com-

modities must reflect the general movement of prices in this Presidency. The problem was therefore to give proper weights to individual series. In Table II are set out the weights which have been given to the several series in the different years. The process of calculating the weights was as follows:—From a record of the areas relating to the several commodities in the different years, the percentage area relating to each commodity in each year was calculated. As this percentage will be representative of the relative importance of the commodity in the year in question, it was taken as the weight pertaining to it in that year. The weights were reduced to a system of percentages, merely for facility in calculating the weighted index. Weighting the series for the different commodities in Table I with the weights in Table II, a series of the general movement of prices was constructed. It was as follows:—

Year.	Weighted index of prices of commodities in the Madras Presidency.
1912-13	100
1913-14	96
1914-15	87
1915-16	88
1916-17	95
1917-18	106
1918-19	157
1919-20	180
1920-21	149
1921-22	145
1922-23	138
1923-24	144
1924-25	153
1925-26	136
1926-27	135
1927-28	137
1928-29	123
1929-30	112
1930-31	85
1931-32	74
1932-33	72
1933-34	61
1934-35	74
1935-36	77
1936-37	74

3. Calling the series of index numbers of gur prices as "1", the series of sugar prices as "2" and the weighted index series as "3", the correlation between "1" and "2", "2" and "3" and "1" and "3" was separately calculated. Let  $r_{12}$  be the correlation co-efficient between "1" and "2",  $r_{23}$  the correlation co-efficient between "2" and "3" and  $r_{13}$  the correlation co-efficient between "1" and "3",  $r_{12}$  worked out to .7987 as already stated,  $r_{23}$  worked out to .6777, and  $r_{13}$  to .7920.

Adopting the above co-efficients of correlation, a partial correlation between gur and sugar prices, *i.e.*, a correlation from which the effect of the third factor, namely the general movement of prices of commodities was eliminated, was calculated. It worked out to .5835. This is a fairly

high correlation and when tested for significance by means of Fisher's "t" test, the co-efficient of partial correlation has been found to be quite significant. By eliminating the general movement of prices, the correlation between gur and sugar prices has, however, been reduced from .7987 to .5835, i.e., by about 27 per cent.

4. The above calculations therefore prove the existence of a real correlation between gur and sugar prices. Even on a *priori* grounds it may be argued that the prices of the two commodities would tend to move sympathetically as both of them are manufactured from the same source and as their prices are therefore in a large measure dependent, other things being equal, on the price of cane which accounts for the greater portion of the cost of production of each of these products."

TABLE I.

*Index numbers of the prices of commodities in the Madras Presidency.*

Base: Average price in 1912-13=100.

Year.	Rice 2nd sort.	Cholam.	Cambu.	Ragi.	Ground- nut.	Cotton.	Jaggery.
1912-13	100	100	100	100	100	100	100
1913-14	96	94	100	97	100	96	92
1914-15	91	88	92	92	63	84	122
1915-16	90	83	88	88	79	88	124
1916-17	93	80	95	92	72	134	125
1917-18	94	103	102	99	70	195	118
1918-19	132	156	152	145	153	256	120
1919-20	161	197	206	201	186	170	194
1920-21	140	156	176	163	128	133	261
1921-22	135	147	157	153	153	153	206
1922-23	129	129	145	140	147	185	161
1923-24	127	136	148	140	149	224	153
1924-25	144	150	157	156	149	190	176
1925-26	134	134	144	141	130	140	163
1926-27	134	137	150	144	123	118	155
1927-28	133	140	151	146	121	146	127
1928-29	123	129	137	138	121	138	141
1929-30	111	109	118	118	103	117	176
1930-31	89	79	92	88	66	86	104
1931-32	74	71	74	78	76	77	92
1932-33	69	71	78	73	71	73	83
1933-34	59	58	70	66	47	80	75
1934-35	69	74	83	80	69	87	104
1935-36	72	76	87	86	70	86	90
1936-37	69	73	82	79	75	83	71

TABLE II.

Table giving the weights for the several commodities on the basis of the areas under them.

Year.	Rice.	Cholam.	Osmbu.	Ragi.	Groundnut.	Cotton.	Sugar-cane.	TOTAL.
1912-13 . .	44.07	17.05	12.61	10.39	5.86	9.62	0.40	100
1913-14 . .	42.35	19.00	11.46	9.79	6.37	10.70	0.33	100
1914-15 . .	41.96	19.69	13.44	9.38	7.20	8.05	0.28	100
1915-16 . .	42.78	21.05	13.99	9.63	4.33	7.86	0.36	100
1916-17 . .	44.05	18.18	13.03	9.16	6.86	8.28	0.44	100
1917-18 . .	43.84	18.39	12.45	9.37	5.32	10.15	0.48	100
1918-19 . .	41.53	20.10	12.02	9.46	3.97	12.43	0.49	100
1919-20 . .	44.01	20.77	12.34	9.37	4.32	8.84	0.35	100
1920-21 . .	43.18	20.32	11.72	9.89	6.23	8.26	0.40	100
1921-22 . .	43.54	21.51	12.34	9.53	5.64	6.88	0.46	100
1922-23 . .	42.73	19.90	11.65	9.78	6.64	8.80	0.50	100
1923-24 . .	42.14	18.62	10.60	10.39	7.24	10.53	0.48	100
1924-25 . .	41.52	18.88	11.64	9.32	7.27	10.95	0.42	100
1925-26 . .	42.14	18.92	11.44	8.67	9.67	10.74	0.42	100
1926-27 . .	41.88	18.13	11.90	8.78	10.35	6.52	0.44	100
1927-28 . .	40.66	17.97	12.19	8.56	12.42	7.81	0.39	100
1928-29 . .	40.53	16.97	11.28	8.29	13.53	9.07	0.33	100
1929-30 . .	41.13	18.90	10.55	8.29	11.72	9.05	0.36	100
1930-31 . .	42.86	17.48	10.69	7.95	13.11	7.49	0.42	100
1931-32 . .	43.70	18.30	10.90	8.33	9.98	8.35	0.44	100
1932-33 . .	43.29	17.02	10.57	8.14	13.20	7.32	0.46	100
1933-34 . .	43.58	16.43	9.53	7.91	14.07	8.03	0.45	100
1934-35 . .	42.80	19.91	10.44	8.35	9.10	8.92	0.48	100
1935-36 . .	41.24	20.08	10.68	7.09	9.94	10.49	0.48	100
1936-37* . .	38.56	19.79	10.75	6.91	13.63	9.89	0.47	100

\* The percentage weights have been calculated with reference to the figures of area in the final forecasts in the case of some crops and in other cases on the basis of district reports so far as received.

## APPENDIX XI

*Sucrose content of cane in the Nellikuppam area.*

Messrs. Parry & Co., who purchase canes for their mills state as follows:—

"Generally we mix the different varieties for crushing in our Mills, and the only complete figures for sucrose content covering the whole season relate to the mixture of varieties crushed. These are as follows for the past five years:—

	Per cent.
1932-33 . . . . .	13.12
1933-34 . . . . .	11.37
1934-35 . . . . .	11.74
1935-36 . . . . .	12.93
1936-37 . . . . .	12.56

The sucrose is calculated from the following:—

- Actual weight of cane.
- Actual weight and polarization of juice.
- Actual weight of imbibition water.
- Calculated weight and polarization of bagasse.

It is not possible to submit accurate sucrose figures for each variety crushed."

The following were the areas of sugarcane crushed at the Nellikuppam factory:—

	Acres.
1932-33—1933 crushing season . . . . .	4,556
1933-34—1934 crushing season . . . . .	5,760
1934-35—1935 crushing season . . . . .	5,982
1935-36—1936 crushing season . . . . .	5,114
1936-37—1937 crushing season . . . . .	5,250

Of the 5,250 acres in 1937, the following were the proportionate areas in varieties:—

	Acres.
Fiji B . . . . .	3,500
P.O.J. 2878 . . . . .	250
Co. 281 . . . . .	1,500
	5,250

The Nellikuppam factory crushes every year from 3rd January to 21st May, i.e., for a period of 4½ months and the crushing is done for all the 24 hours of the day. After 21st May, there is no crushing as no canes are available for crushing as there is only one season of planting from February to May.

The percentages of extraction of sugar to cane are as follows:—

- Fiji B—10 per cent.
- Co. 281 and P.O.J. 2878—8 to 9 per cent.

(13) *Letter dated the 25th October, 1937, from the Government of Madras, Development Department, Madras.*

**SUGAR—TARIFF BOARD—SUPPLEMENTARY INFORMATION—WATER RATES.**

In continuation of my letter, dated the 8th October, 1937, I am directed to forward a statement (*vide* Appendix I) showing the water rates for sugarcane grown in the neighbourhood of and serving the sugar factories and those for the area served by Cauvery-Mettur Dam with reference to item (3) in paragraph 1 of your letter No. 442, dated the 11th July, 1937, I am to add that information will be furnished separately in respect of the rate in force in the South Kanara District. The Director of Industries has since completed the figures supplied in replies to questions (14) and (33) for the year 1936-37 and I am accordingly to forward revised answers to questions 14 and 33 (*vide* Appendix II) embodying up-to-date figures.



APPENDIX I.

District.	Taluk.	Factory at	Water cess on dry lands.		Wet assessment (W) ranging		Charge for sugarcane on wet lands.	Remarks.
			2nd class source.	1st class source.	From	To		
			Rs. A.	Rs. A.	Rs. A.	Rs. A.		
Vizagapatam .	Sarvasiddi .	Etikopaka . . .	4 8	6 0	5 6	8 5	1½ times wet assessment.	
	Anakapalle .	Thummapala . . .	} Zamindari. No water-cess levied.					
	Bobbili .	Bobbili . . .						
East Godavari .	Peddapur .	Kirlampudi . . .	7 8	..	9 3	13 8	Compounded wet assessment. No separate second crop charge. 1½ times W.	
	Cocanada .	Samalkota . . .	10 0	9 6	} Ryot-wari Inam & Zamindari.	4 8		
		(under Minor Irrigation tanks).	12 8	6 0			..	8 2
North Arcot .	Gudiyattam .	Mailpatti . . .	..	6 0	..	8 2		
South Kanara .	Udipi .	Kalyanpur . . .	No water-cess levied.		..	8 7*	No separate charge for sugarcane.	*Actual rate paid by the largest compact block.

Bellary . . .	Hospet . . .	Hospet . . .	4 8	15 0(a) 6 0(b)	} 5 15	13 0	1½ times W.	(a) Under Basavanna channel, Raya channel and Kamalapuram tank.
Tanjore . . .	Shiyali . . .	Kunnam village (no factory).	..	..		7 2	8 4	W plus 5 concessional rate. W plus 7½ ultimate rate.
Salem . . .	Nemakkal . . .	..	..	9 6 (ultimate rate). 7 8 concessional rate.	10 0	19 2	Compounded rate. No separate second crop charge.	} Area served by Cauvery-Mettur Dam.
Trichinopoly . . .	..	..	..	9 6 (ultimate rate). 7 8 concessional rate.	10 10	14 4	1½ W. concessional rate. W. plus 7-8-0 ultimate rate.	
Kistna . . .	Gannavaram . . .	Voyyur . . .	..	9 6 } 12 8 }	9 6*	17 13*	*Actual rate for sugarcane.	
South Arcot . . .	Cuddalore . . .	Nellikuppam . . .	No compact block liable to water-cess.		8 6	9 8	1½ W.	

2  
R  
2

6  
1  
63

## APPENDIX II.

14. The following are estimates for 1935-36 and 1936-37 in tons:—

	1935-36.	1936-37.
(a) . . . . .	191,380	242,800
(b) . . . . .	Negligible.	Negligible.
(c) . . . . .	2,986,609	2,595,553
(d) . . . . .	611,611	546,247
Total . . . . .	<u>3,789,600</u>	<u>3,384,600</u>

NOTE.—The total production of cane shown against the year 1935-36 is the estimated production for the Madras Presidency as it existed before the reconstitution of Ganjam and Vizagapatam districts. The total production shown against the year 1936-37 is however the estimated production for the Presidency as it exists now. Hence the figure for 1936-37 is about 10·7 per cent. lower than that for 1935-36.

33. The total production of cane in this Presidency may be taken at 3,511,000 tons in 1934-35, 3,789,600 tons in 1935-36 and 3,384,600 tons in 1936-37. Making an allowance of 16·1392 per cent. for chewing and seed, and deducting the quantity of cane crushed in factories the quantity of cane used for the manufacture of jaggery in 1934-35, 1935-36 and 1936-37 will be approximately as follows:—

Year.	Estimated quantity of cane produced.	Estimated quantity used for chewing and seed.	Quantity of cane crushed in sugar factories.	Quantity of cane turned into gur.
	Tons.	Tons.	Tons.	Tons.
1934-35 . . . . .	3,511,000	566,647	159,881	2,784,472
1935-36 . . . . .	3,789,600	611,611	191,380	2,986,609
1936-37 . . . . .	3,384,600	546,247	242,800	2,595,553

In the absence of information as to the quantity of sugarcane crushed in sugar factories during the earlier years, it will not be possible to estimate with confidence the quantity of cane used for the manufacture of gur in the years previous to 1934-35. If the extraction of gur from cane is taken at ten per cent., the quantity of gur produced in 1934-35 comes to 278,447 tons, in 1935-36 to 298,661 tons and in 1936-37 to 259,555 tons.

(14) Letter, dated the 6th December, 1937, from the Government of Madras, Development Department, Madras.

## SUGAR—TARIFF BOARD ENQUIRY—NELLIKUPPAM AREA.

With reference to your letter No. 456, dated the 12th July, 1937, and in continuation of my letter, dated the 8th October, 1937, I am directed to furnish below information regarding the total production of cane in the Nellikuppam factory area as estimated by the Director of Agriculture and—

the quantity crushed by the factory as given by Messrs. Parry & Co., Ltd., Madras—

Season.	Total production of cane in the factory area.	Quantity crushed by the factory.
	Tons.	Tons.
1930-31 . . . . .	62,291	60,032
1931-32 . . . . .	83,321	78,333
1932-33 . . . . .	95,271	94,395
1933-34 . . . . .	83,931	81,121
1934-35 . . . . .	144,756	129,639
1935-36 . . . . .	101,932	95,911
1936-37 . . . . .	110,905	108,501

Some of the cane produced in this area is used for chewing and also for the manufacture of jaggery.

(15) Letter dated the 27th July, 1937, from Government of Madras, Development Department, Madras.

PROTECTION TO SUGAR INDUSTRY—ENQUIRY—MOLASSES CONSUMED BY DISTILLERIES.

With reference to your letter No. 303, dated the 18th June, 1937, I am directed to state that there are ten distilleries in this Presidency out of which only three, viz., Samalkot, Nellikuppam and Technallur distilleries are using molasses. The total quantity of molasses consumed, the sources of their supply and their prices are given in the statements enclosed. There is no concern manufacturing rectified or denatured spirit other than distilleries.

Statement showing the aggregate quantity of molasses used in the three distilleries at Tachanallur, Samalkot and Nellikuppam in the Madras Presidency.

Year.	Molasses used.		Total Molasses Used.	Value.	Remarks.
	*Java.	Molasses from adjoining sugar houses of the distillers.			
1	2	3	4	5	6
	Candies.	Candies.	Candies.	Rs. A. P.	
1934-35 . . . . .	2,398.6	28,404.8	30,803.4	6,51,243 13 11	Amount shown in column 5 represents the total value of molasses for the year as declared by the Distillers. 1 candy = 500 lbs.
1935-36 . . . . .	3,244.6	33,636.35	36,880.95	7,82,920 13 8	
1936-37 . . . . .	3,648.0	34,424.25	38,072.25	7,31,594 0 19	

\* Imported from Java.

*Statement showing Molasses used for distilling purposes in the Madras Presidency at the Distillery at Tachanallur.*

Year.	Molasses used.		Total Molasses Used.	Rate per candy.	Total value.	Remarks.
	Java.	Molasses from adjoining sugar house of the distillers.				
1	2	3	4	5	6	7
1934-35	N&J	2,167.2	2,167.2	Rs. A. P. 20 0 0	Rs. A. P. 43,344 0 0	Amount shown in column (6) represents the total value of Molasses for the year as declared by the distillers.  1 candy=500 lbs.
1935-36	N&J	2,436.05	2,436.05	20 0 0	48,721 0 0	
1936-37	N&J	1,939.95	1,939.95	20 0 0	37,265 0 0	
				& 15 0 0		

*Statement showing Molasses used for distilling purposes in the Nellikuppam Distillery.*

Year.	*Java.	Molasses from adjoining sugar house of the Distillers.	Total Molasses used.	Rate per candy.	Total value.	Remarks.
1	2	3	4	5	6	7
	Candies.	Candies.	Candies.	Rs. A. P.	Rs. A. P.	Amount shown in column (6) represents the total value of molasses for the year as declared by the distillers.  1 candy=500 lbs.
1934-35	934.6	16,984.2	17,918.8	23 11 0	4,34,366 6 10	
				& 24 13 0		
1935-36	1,706.8	20,854.8	22,561.6	23 11 0	5,42,541 2 9	
1936-37	1,292.0	21,362.8	22,654.8	24 13 0	5,09,445 11 3	
				& 22 5 2		

\* Imported from Java.

Statement showing Molasses used for distilling purposes in the Samalkot Distillery.

Year.	Molasses used.		Total Molasses used.	Rate per Candy.	Total value.	Remarks.
	*Java.	Molasses from adjoining sugar house of the distillers.				
1	2	3	4	5	6	7
	Candies.	Can. dies.	Candies.	Rs. A. P.	Rs. A. P.	
1934-35	1,464-0	9,253-4	10,717-4	15 12 4	1,73,533 7 1	Amount shown in column 6 represent the total value of molasses for the year as declared by the distillers. 1 candy= 500 lbs.
1935-36	1,537-8	10,345-5	11,883-3	15 12 4 & 16 15 0	1,91,658 10 11	
1936-37	2,356-0	11,121-5	13,477-5	16 11 10 & 13 6 3	1,84,883 5 6	

\* Imported from Java.

(16) Letter, dated the 26th May, 1937, from the Government of Madras, Finance Department, Madras.

Reference your letter No. 181, dated the 15th May, 1937, addressed to the Secretary to Government, Development Department.

I am directed to state that the prevailing rate of interest on advances to cultivators is 5½ per cent.

(17) Letter, dated the 21st June, 1937, from the Agricultural Demonstrator, Mangalore.

SUB-QUESTIONNAIRE FOR JAGGERY MERCHANTS—MANGALORE.

As there are no merchants dealing only in jaggery and as the answers furnished by them may not indicate the actual state of affairs, for want of systematic records, the following information obtained, by approaching a number of merchants is furnished.

1. The principal marketing centres are smaller towns within the District.
2. (a) Local cube jaggery—known as "Urbilla".
- (b) Ghati cube jaggery—obtained from Mysore State.
- (c) Coimbatore cube jaggery.
3. (a) Local jaggery is obtained from the neighbouring villages of Kulur, Ullal and Harekala and sometimes from Kaseragode.
- (b) Ghati jaggery is obtained from Chikkamangalore, Hasan Mudgere and Sakaleshpur.
- (c) Coimbatore jaggery from Coimbatore.

## Quantity obtained for the last 7 years (approximate).

	Local.	Ghati.	Coimbatore.
	Mds.	Mds.	Mds.
1931 . . . . .	5,600	7,500	15,000
1932 . . . . .	56,700	9,000	18,000
1933 . . . . .	56,350	11,250	19,500
1934 . . . . .	56,700	12,000	19,500
1935 . . . . .	63,000	18,000	12,000
1936 . . . . .	65,000	19,500	9,000
1937 . . . . .	70,000	27,000	...

For the last 3 years the import of Coimbatore jaggery declined due to the fall in the price of Ghati jaggery from Mysore.

4. There is no variation in the Quality of jaggery in recent years.
5. The prices of jaggery.

	Local.		Ghati.		Coimbatore.	
	Rs. A.	Rs. A.	Rs. A.	Rs. A.	Rs. A.	Rs. A.
1931 . . . . .	5 0	to 5 12	4 8	to 5 0	5 4	to 6 0
1932 . . . . .	4 4	to 5 0	4 0	to 4 8	4 8	to 5 8
1933 . . . . .	5 0	to 5 12	4 8	to 5 0	5 8	to 6 4
1934 . . . . .	5 6	to 6 0	4 12	to 5 4	5 14	to 6 8
1935 . . . . .	4 10	to 5 6	4 0	to 4 8	5 2	to 5 14
1936 . . . . .	4 4	to 5 0	3 4	to 3 12	4 12	to 5 8
1937 . . . . .	3 14	to 4 6	3 4	to 4 0	No imports.	

The variation is due to the increase in the production in the Mysore State and the consequent fall in prices.

6. There is no relation between the price of jaggery and sugar.
7. There is no competition, sugar is not replacing jaggery in S. Kanara.
8. Keeping quality.
  - (a) Local jaggery for one year.
  - (b) Coimbatore from 3 to 5 months.
  - (c) Ghati only 3 months.

In the rainy season the jaggery absorbs moisture and gets deteriorated very quickly.

*Note on local jaggery—*

Coondapur:—Mostly liquid jaggery is made and sold in Ains.

Udipi:—Jaggery is sold in balls known as upper jaggery.

Mangalore:—Jaggery is sold in cubes bigger in size than Coimbatore.

Kaseragod:—Very big cubes are made.

Udipi and Coondapur are not importing Ghati or Coimbatore jaggery. The Ghati and Coimbatore jaggery is imported by lorries and rail to Mangalore and other towns and is consumed in Mangalore, Puthen and part of Karkal and Kaseragode Taluks.

The area under sugarcane is increasing in the district year after year.

The variation in the total quantity produced is due to the condition of the cane crop. The red rot disease is common in spite of careful selection of cane setts for planting and when even the disease spreads the production is less. Due to the fall in price for ghati jaggery the import from Mysore

is increasing by leaps and bounds. The total quantity imported may be estimated to be about 50 per cent. of the production in the district. The Ghati and Coimbatore jaggery is preferred to local jaggery for the preparation of coffee by the majority of people in the Mangalore Taluk.

REPLIES FROM THE GOVERNMENT OF ORISSA.

(1) Letter, dated the 4/6th August, 1937, from the Government of Orissa, Education Department, Cuttack.

Subject:—EXTENT OF PROTECTION REQUIRED BY THE INDIAN SUGAR INDUSTRY FROM THE PERIOD FROM THE 31ST MARCH, 1938, TO THE 31ST MARCH, 1946.

I am directed to enclose a statement containing replies to the questionnaire for Local Governments. The replies are not complete in certain cases as materials for complete answers are not available and it will take a long time to gather them.

1. The area under sugarcane in Orissa, during the last seven years has been as noted below:

Year.	Area.	Remarks.
1930 . . . . .	16,200	
1931 . . . . .	16,400	
1932 . . . . .	17,000	
1933 . . . . .	17,000	
1934 . . . . .	18,200	
1935 . . . . .	18,923	
1936 . . . . .	31,000	The increase in 1936 is due to the addition of Ganjam and Koraput districts from Madras to the newly created province of Orissa.

In north Orissa almost the entire cane crop consists of improved Coimbatore varieties, introduced by the Agricultural Department. These are Co. 213 for uplands and Co. 205 and Co. 285 in flooded and water-logged areas. Of the last two varieties, Co. 285 is replacing Co. 205.

The common improved variety grown in the Koraput and Ganjam Districts is J. 247.

The acreage under Co. 285 is about 6 to 8 per cent. of the total area under cane in North Orissa.

2. The cane growing area in Orissa may be broadly divided into two classes, (a) highland and (b) low land and flooded areas. The whole of the highland crop is irrigated. It has been found in the flooded area farm at Kujang that cane can be grown in those tracts without any irrigation at all, provided the planting is done by the end of October or early in November. At Kujang farm, the tonnage of Co. 285 has been as high as 1,000 maunds per acre, without any irrigation. This method is being demonstrated in the flooded tracts by the Agricultural Department, and it is gradually becoming popular.

3. The North Orissa irrigation rate (Canal) is Rs. 7-8 per acre. It is not known on what basis it has been determined. It has not varied during the last seven years.

4. The cost of cultivation in the Canal irrigated tracts is about Rs. 75 to 85 and in areas with lift irrigation about Rs. 85 to 95. In unirrigated areas in flooded tracts the cost comes up to about Rs. 70 to 75 per acre.

There has not been any appreciable variation in the last seven years.

The average yield per acre is about 500 maunds.



The sucrose content varies from 16 to 17 per cent. on juice in Co. 213 at different periods of maturity and 15-16 per cent. in Co. 285.

5. Under the present conditions, six annas per maund is a good price. The cost of cultivation is about As. 3 per maund. With cartage the cost comes to As. 4 or a little over. Hence As. 6 will represent fair earning.

6. The area under cane in Orissa is generally affected by two factors.

(1) Weather—years of heavy flood have been seen to be followed by larger area under cane in the affected tracts, on account of the power of resistance of the recommended variety to flooded conditions, which are too severe for other cultivated crops, and this appeals to the cultivators of the affected villages.

(2) Price of gur—low price of gur is generally followed by a shrinkage in area in the following season and similarly high price by an increase.

7. In Orissa there has been no overproduction in 1936-37 or in the previous years. On the other hand the high price of gur in Orissa, e.g., Rs. 5-8 to Rs. 3 in Cuttack in 1936, and the fact that Madras and Bihar are still exporting a fair quantity of it to Orissa, tend to show that there is much scope for further extension of the crop in suitable tracts in this province.

8. On fertile light loamy soil with irrigational facilities, tobacco and vegetables form an alternative to sugarcane. The profits from these crops are estimated at Rs. 100 per acre.

9. Vide Statement A.

10. The province did not receive any contribution from the Government of India out of the Sugar Excise Duty, until the present year. A sum of Rs. 10,000 has now been allotted by the Government of India and trained staff have recently been posted in four important centres, for the general improvement of cultivation by—

- (1) better and economical methods of cultivation,
- (2) use of improved implements, fertilizers and power irrigation,
- (3) correct method of harvesting,
- (4) manufacture of compost, and
- (5) supply of disease-free seeds.

The sum is not adequate as all the important cane growing tracts are not covered by it. Two more such units costing Rs. 2,500 each per year are necessary.

11. (1) The research work on sugarcane was confined mainly to variety trials to find out their suitability to conditions in Orissa with special reference to their sucrose content, tonnage, resistance to water-logging, etc., in the Central farm at Cuttack and also at small farms scattered over the province and to manurial trials.

No regular research work has so far been done on the control of diseases, except such precautionary measures as selection of seeds, etc. But work has been taken up in the present season in collaboration with the second Imperial Entomologist (in charge of the Imperial Council of Agricultural Research Scheme of Insect Pest of sugarcane) and for the trial of parasites on cane-borers.

(2) A large number of free demonstrations are annually given by the Department on cultivators' land in suitable tracts for the introduction of improved varieties suitable to the local conditions. Improved methods of cultivation, improved methods of planting, use of manures, improved methods of gur making, etc., form a regular feature of the propaganda work of the Department.

12. (1) None from the Imperial Council of Agricultural Research.

(2) All facilities are given by the Coimbatore Station. New seedlings are sent out by the station for trial.

## (3) None from the Institute of Sugar Technology.

There are no special funds for research, either agricultural or technical, on sugarcane. The cost of the work is met from the general grants.

Government have approved the proposal for an Assistant Agricultural Chemist for cane analysis work subject to budget provision.

13. The open pan factory at Banki has its own cane plantation and in consultation with the Agricultural Department it is experimenting with varieties with different periods of maturity for introduction among the cane-growers in the villages.

14. The quantities of cane crushed in the Vacuum Pan Factory at Aska are as follows:—

Year.	Maunds.
1930-31	37,155
1931-32	71,735
1932-33	89,079
1933-34	171,051
1934-35	196,060
1935-36	77,481
1936-37	95,028

## (b) In the open Pan factory in Banki:—

Year.	Maunds.
1934-35	36,878
1935-36	20,487
1936-37	67,293

(c) About 85 per cent. of the total production.

(d) About 10-15 per cent. of the total production.

15. The main difficulty of cane-growers is lack of capital, as it is an expensive crop to grow. Transport presents no difficulty as the factories draw the cane from a short range of 5-10 miles only.

16. There are no cane growing or cane supplying Co-operative Societies, but many members of many Co-operative Societies grow sugarcane financed by the Co-operative Banks. Certain Banks have trained Kamdars for general agricultural improvement in its Societies.

17. As Orissa is not a controlled area under the sugarcane Act XV of 1934, no minimum price has been fixed for sugarcane in the province.

18. In the absence of a larger number of factories this question does not arise in Orissa.

19. As Orissa is not a controlled area, with prices fixed under the sugarcane act, there is no case for the introduction of the bonus system.

20. It differs in different localities. The average is about 3 pies ( $\frac{1}{4}$  anna) per maund per mile.

21. Generally they use their own carts. When not available, they use hired carts, the rate being As. 2-6 a mile per cart.

22. It does not apply to Orissa with its two factories, situated in the centre of the cane growing areas.

23. No

24. No particular assistance has been rendered to any factory.

25. There is no Co-operative Sugar Factory in the Province.

26. Yes, generally speaking.
- 27 & 28. Figures are not available except for 1936-37. No conclusions can therefore be drawn.
29. The normal consumption will be approximately 200,000 maunds. The railway imports at the principal stations amount to 141,000. This perhaps excludes the import into the Koraput district through Vizagapatam. Adding 20,000 maunds for that district, the product of the 2 factories roughly about 10,000 maunds, the sea-borne trade (27,000), and allowing a margin, an estimate of 200,000 is considered fair. The consumption will increase naturally replacing gur, which, however, is a more suitable food than sugar in the diet of the people in general.
30. None.
31. No.
32. There are great possibilities for the manufacture of sweets, syrup, fruit canning, etc., in the province with the rapid popularisation of fruit-growing.
33. About 13-14 lakhs of maunds last year. This is calculated on the basis of 85 per cent. of cane produce "gur" and the cane gur is 10 per cent.
34. Date, cocoonut and palmyra palms are not used for gur making in this province.
35. Does not arise.
36. The information is not known. Figures can only be given as in Question No. 33.
37. Mostly from Madras, United Provinces and Bihar.

1930	.	.	.	.	.	12 lakhs of Standard maund.
1931	.	.	.	.	.	10       "       "
1932	.	.	.	.	.	8       "       "
1933	.	.	.	.	.	7       "       "
1934	.	.	.	.	.	6       "       "
1935	.	.	.	.	.	5       "       "
1936	.	.	.	.	.	4       "       "

The figures above have been supplied by a gur merchant—Abdul Gani Suleman. From the Bengal Nagpur Railway Return of Principal Commodities in 1935-36 it appears that about 100,000 maunds came into Orissa mainly from the United Provinces and Bihar and partly from Madras.

38. There is no export of the commodity from Orissa.
39. There is practically no relation between the price of gur and that of Indian factory sugar in this province. But the opinion is held by the cane-growers that if the price of Indian factory sugar is high at the time of cane harvest, the price of gur goes up.
40. The use of Indian factory sugar is necessarily restricted to the upper classes in the urban area in this province, but it is gradually extending amongst the poorer classes with the habit of tea drinking. It has not gone into the rural areas yet.
41. The Agricultural Department devised a special furnace and boiling pan for the purpose. Very clean gur is produced by the use of the improved furnace and pan and it is becoming increasingly popular among the cane-growers. Besides producing gur of a very good quality, the furnace is very economical in the matter of fuel.
42. (i) One open Pan Factory.

The outturn of Rab, sugar and molasses for the last three years is given below:—

Year.	Outturn of Rab.	Manufactured	Molasses.
	Cwt.	Sugar. Cwt.	Cwt.
1934-35 . . . . .	3,500	1,080	1,995
1935-36 . . . . .	1,870	650	950
1936-37 . . . . .	6,000	2,150	3,250

(ii) There is no Khandsar.

43. The Manager of the Open Pan Factory states that his cost is Rs. 1-6 per maund.

44. This has not happened in Orissa.

45. In view of a very small number of factories, Khandsars will be useful in taking off the surplus cane. But manufacture of gur is of greater importance at the present time and will remain so for some time to come for the home market.

46. No research work has been done on this line in this province.

47 & 48. We have in Orissa 2 small factories. The price of sugar and sugarcane over a period of years is not available, and not easily obtainable. In the absence of this data it is impossible to give any considered opinion based on practical observation on these two questions.

49. No industry in this province is dependent on the supply of sugar products or molasses.

50. The statistics are not reliable. One district, viz., Koraput, has not been surveyed. Of the other 5 districts the agency for reporting the acreage is the village chaukidar in 4 districts and the village official in the fifth district, which has come to the new province from Madras. Production is not based on crop-cutting experiments on any scale. Production in Government farms is known and this is reinforced by the experience of the agricultural officers. Price at important markets is collected by a reliable agency and verified from time to time by a senior officer of gazetted rank.

#### STATEMENT A.

1930-31—	Rs.
Seeds . . . . .	150
Manures . . . . .	472
*Pay and T. A. of Overseers and Kamdars . . . . .	1,265
Total . . . . .	1,887
1931-32—	
Seeds . . . . .	200
Manures . . . . .	228
Pay and T. A. of Overseers and Kamdars . . . . .	1,694
Total . . . . .	2,122
1932-33—	
Seeds . . . . .	280
Manures . . . . .	111
Pay and T. A. of Overseers and Kamdars . . . . .	1,265
Implements . . . . .	112
Total . . . . .	1,768

1933-34—	Rs.
Seeds . . . . .	390
Manures . . . . .	96
Pay and T. A. of Overseers and Kamdars . . . . .	2,445
Total . . . . .	2,931
1934-35—	
Seeds . . . . .	180
Manures . . . . .	136
Pay and T. A. of Overseers and Kamdars . . . . .	2,286
Total . . . . .	2,602
1935-36—	
Seeds . . . . .	432
Manures . . . . .	66
Pay and T. A. of Overseers and Kamdars . . . . .	2,966
Total . . . . .	3,464
1936-37—	
Seeds . . . . .	470
Manures . . . . .	114
Pay and T. A. of Overseers and Kamdars . . . . .	3,754
Total . . . . .	4,338

\* Represents Pay and T. A. for 3 months in a year, representing the share that sugarcane can claim in the general work of demonstrations.

(2) Letter, dated the 14th August, 1937, from the Government of Orissa, Education Department, Cuttack.

In continuation of my letter, dated the 4/6th August, 1937, I am directed to forward for your information copies of letters noted below:—

- (1) A copy of letter No. 4888, dated the 26/29th July, 1937, from the Director of Development, Orissa.
- (2) A copy of letter No. 5253 Agri., dated the 5th August, 1937, from the Director of Development, Orissa.

Copy of letter No. 5253 Agri., dated the 5th August, 1937, from the Director of Development, Orissa, to the Secretary to the Government of Orissa, Education, Health and Local Self Government Department.

In continuation of my letter No. 4888, dated the 29th July, 1937, I have the honour to report on the following points in connection with the enquiry of the Tariff Board.

- (1) Retail prices of sugar and gur of different qualities—A statement showing retail prices of sugar in the Cuttack town during the last three years is enclosed. Report in respect of Berhampur will follow.
- (2) Malpractices of sugar factories—No complaints of malpractices have been received.

- (3) Names of a few representatives of cane-growers who are suitable for examination.—There is no large cane-growers' Co-operative Society in this province and no accounts are kept by any cultivator of education to furnish useful information.
- (4) Report to Tariff Board of the names of those to whom their questionnaires have been distributed.

A list is given below—

<i>Names.</i>	<i>Questionnaires distributed.</i>
Manager, Aska Sugar Factory . . .	General questionnaire.
Manager, Banki Sugar Factory. . .	General questionnaire and questionnaire for manufacture of sugar by the open pan system.
Messrs. Tarmohamad Janoo, Cuttack	} Questionnaire for gur/jaggery Merchants.
Messrs. Kasimbhoi Monzi, Cuttack .	
Messrs. Hazizalal Noor Mahamad, Cuttack.	
Messrs. Kesurichand Gobori Chand, Cuttack.	
Messrs. Ghani Suleman, Cuttack .	
Messrs. Ganesh Das Dwaraka Das, Cuttack.	
Messrs. Surjomul Bindeswari Prasad, Cuttack.	
Messrs. G. Jagannath, Balasore .	

*Statement showing retail selling price of sugar in the Cuttack town, during the last three years.*

Name of town.	Variety of sugar.	1934-35.	1935-36.	1936-37.	REMARKS.
		Srs. Ch.	Srs. Ch.	Srs. Ch.	
Cuttack .	Indian sugar .	3 10	3 13	3 10	Seers per Rupee.
Do. .	Refined sugar .	2 15	3 3½	3 3½	Do.
Do. .	Crystal sugar .	5 0	5 5½	5 5½	Do.

*Statement showing retail selling price of gur in the Cuttack town, during the last three years.*

Name of town.	Variety of Gur	1934-35.	1935-36.	1936-37.	REMARKS.
		Srs. Ch.	Srs. Ch.	Srs. Ch.	
Cuttack .	....	6 8	7 4	7 4	Seers per Rupee.

*Copy of letter No. 4888, dated the 26/29th July, 1937, from the Director of Development to the Secretary to the Government of Orissa, Education, Health and Local Self Government Department.*

In continuation of my letter No. 219 T. Agri., dated the 20th July 1937, and with reference to question 3 of the Tariff Board's questionnaire for

local Government, I have the honour to furnish below details of the rates of sugarcane irrigation in force in this province.

	Per acre. Rs. A.
(1) For water supplied throughout the cultivation of the crop	7 8
(2) For supply of water between 1st April and 16th June on lands leased for a term of years	5 8
(3) For a single watering between 1st April and 16th June	1 5

(3) Letter, dated the 1st October, 1937, from the Director of Development, Orissa, Cuttack.

I have the honour to send a statement showing the retail and wholesale prices of sugar and gur in Berhampur town during the 3 years 1935 to 1937.

Statement showing retail and wholesale prices of sugar and gur in the Berhampur town, during the years 1935 to 1937.

	GUR.		
	1935.	1936.	1937.
	Per Md. Rs. A.	Per Md. Rs. A.	Per Md. Rs. A.
Retail price . . . . .	6 0	5 8	5 0
Wholesale price . . . . .	5 8	4 8	4 0
	SUGAR.		
<i>Aska (Ganjam) Sugar—</i>			
Retail price . . . . .	10 0	9 3	8 5
Wholesale price . . . . .	9 0	8 0	7 4
<i>Cawnpore Sugar—</i>			
Retail price . . . . .	13 5	11 10	10 0
Wholesale price . . . . .	9 8	8 0	7 8

(4) Letter, dated the 28th/30th June, 1937, from the Government of Orissa, Education Department, Cuttack.

With reference to your letter No. 181, dated the 15th May, 1937, I am directed to say that the rate of interest on loans to members of Co-operative Societies varies from 9½ per cent. to 15½ per cent. in North Orissa and from 7½ per cent. to 9½ per cent. in South Orissa, irrespective of the purpose for which money is borrowed. The rate of interest charged by the village money lenders varies from 12 to 18 per cent. in South and 18½ to 25 per cent. in North Orissa. The rate of interest charged on the money borrowed by the cultivators from Government as takavi loan is 6½ per cent.

(5) Letter, dated the 31st August, 1937, from the Government of Orissa, Education Department, Cuttack.

With reference to your letter No. 303, dated the 18th June, 1937, I am directed to enclose herewith a statement containing information about Orissa on all the points raised in your letter under reply.

## A. (1) The number of distilleries—One.

## (2) Total quantity of

## (a) molasses consumed—

	Cwts.
1934-35 . . . . .	3,289-6
1935-36 . . . . .	4,899-4
1936-37 . . . . .	2,889-5

## (b) Sources of their supply—Aska Sugar Factory, Ganjam.

## (3) The price paid for molasses—

	Rs. A. P.
1934-35 . . . . .	22,928 10 4
1935-36 . . . . .	33,365 3 8
1936-37 . . . . .	18,299 15 6

## B. (1), (2) &amp; (3). Nil

## REPLIES FROM THE GOVERNMENT OF CENTRAL PROVINCES AND BERAR.

## (1) Letter, dated the 9th July, 1937, from the Government, Central Provinces and Berar, Commerce and Industries Department, Nagpur:

## Sub.—ENQUIRY REGARDING CONTINUANCE OF THE PROTECTION AFFORDED TO THE SUGAR INDUSTRY.

I am directed by the Governor of the Central Provinces and Berar to refer to the correspondence resting with you letter No. 333, dated the 22nd June, 1937, on the subject noted above and to say that the provincial Government does not propose to depute any representative for tendering oral evidence before the Board, in addition to the Director of Industries and Registrar, Co-operative Societies and the Director of Agriculture, whom the Board wish to examine, as intimated in your letter No. 147, dated the 30th April.

2. As regards the representatives of cane-growers the Provincial Government is doubtful, if any cane-growers in the Province would be able to give material assistance to the Board. The following gentlemen are reported to have supplied cane to the Sugar Factory at Ghana, and if the Board considers it worthwhile to examine them they will be instructed to meet the Board at Nagpur, on the 11th August, 1937:—

- (1) Mr. Manoranjan Chatterjee, Pleader and Malguzar of Dundi, Piparia, and
- (2) Mr. Chironjilal Gosain, Retired Assistant Medical officer, Malguzar Lakhawara, tahsil and district Jubbulpore.

With reference to paragraph 2 of your letter No. 147, dated the 30th April 1937, I am to state that the qualities of gur that are generally sold in the local market and are most in demand are Ankapalli and Banarsi. Before the imposition of customs duty on imported sugar gur had a good demand but its sales at present are negligible. A kind of sugar known as "Desi Sugar" was being made out of imported sugar and was in good demand but it has disappeared from the market along with the imported variety. At present the largest sale in the local market is of Cawnpore quality, the Mirzapur quality coming next in order of preference. A statement showing prices of different varieties of gur and sugar in the local market for the years 1931 to 1937 is enclosed.



The provisions of sections 3 to 8 of the Sugarcane Act, 1934, have not yet been extended to this province and accordingly no minimum and maximum prices of sugarcane have been fixed by the Provincial Government. The question of malpractices referred to in paragraph 3 of your letter No. 147, dated the 30th April, 1937, does not therefore arise so far as this Province is concerned.

5. A statement containing replies to the questionnaire to be answered by the Provincial Government is enclosed. In view of the insignificant nature of the sugar industry in the province Government has no comments to offer on the other questionnaires.

*Average selling price of Gur and Sugar at Nagpur.*

Year.	Gur Rs. per maund of 13 seers.			Sugar—Rs. per maund of 12 seers and 13 chataks.		
	Banarsi.	Ankapalli.	Cawnpore.	Mirzapur.	Desi.	Javs.
	Rs. A.	Rs. A.	Rs. A.	Rs. A.	Rs. A.	Rs. A.
1931	2 6	2 6	4 8	6 0	3 4	4 8
1932	2 6	2 2	4 4	5 0	3 8	5 2
1933	2 6	2 0	4 0	4 8	..	..
1934	2 6	1 14	3 8	4 4	..	..
1935	2 14	2 4	3 8	4 0	..	..
1936	2 0	2 0	3 8	4 0	..	..
1937	1 7	1 6	2 12	3 8	..	..

REPLY TO QUESTIONNAIRE FOR PROVINCIAL GOVERNMENTS.

Season.	Total Acreage.	Improved varieties.
L. 1930-31	21,354	9,333
1931-32	22,042	10,556
1932-33	27,965	12,445
1933-34	28,806	14,087
1934-35	28,890	15,490
1935-36	30,483	16,901
1936-37	30,352	..

Coimbatore varieties Co. 210, Co. 219, Co. 237 are the improved varieties grown. Prior to the introduction of Coimbatore varieties, the Agriculture Department recommended Khari, Ponda, Ashy Stripped and Red Mauritius are mostly grown for chewing purposes.

Information regarding area under various improved varieties is not readily available.

2. This Province can be broadly divided into three tracts according to cropping, viz., (1) Rice, (2) Wheat and (3) Cotton tract.

Sugarcane cultivation is mostly in the Rice and Wheat tracts, only about 1/4th of the total cane acreage being in the cotton tract. Important cane growing districts are:—Chanda, Bhandara, Bilaspur, Balsghat and Raipur.

Most of the cane is grown as an irrigated crop. Statistics of irrigated and unirrigated area are as given below:—

Season.	Irrigated.	Unirrigated.
1930-31 . . . . .	19,396	1,958
1931-32 . . . . .	20,044	1,998
1932-33 . . . . .	25,220	2,745
1933-34 . . . . .	26,230	2,576
1934-35 . . . . .	26,768	2,123
1935-36 . . . . .	27,358	3,125

3. Water rates prevalent during the years 1929-30 to 1935-36—

- (i) All tanks and canals in Nagpur, Bhandara, Chanda, Chhindwara and Balaghat—Rs. 20 per acre.
- (ii) Balaghat and Wainganga canal and Pathree tank—Rs. 25 per acre.
- (iii) All tanks in the Jubbulpore District—Rs. 20 per acre for thick quality and Rs. 15 per acre for medium and thin quality.
- (iv) All tanks in the Saugor District including Damoh and Hutta Tahsils—Rs. 12 per acre for thick quality and Rs. 8 per acre for medium and thin quality.
- (v) All tanks and canals in Raipur Drug and Bilaspur Districts—Rs. 15 per acre.

NOTE 1.—The rates were not fixed on a definite basis but on general consideration of (1) the value of the crop and (2) the quantity of water required.

NOTE 2.—The rates have not been varied during the last 7 years.

4. In irrigated condition the cost of cultivation varies between Rs. 100 and Rs. 150 while under unirrigated condition it varies between Rs. 60 and 75. Average sucrose content is 16 per cent.

The outturn of gur under irrigated condition varies between 35 and 60 maunds per acre while under dry condition it is between 25 to 30 maunds.

5. Rs. 4 to Rs. 5 per maund of gur is a fair price to the grower.

6. There is a gradual rise owing to general fall in prices of staple crops. Area under unirrigated condition is also rising owing to value of alternative crops having gone down.

7. No over-production of sugarcane so far.

8. For the present there are no alternative cash crops to sugarcane which is mostly grown in areas where either rice or rabi crops were grown before. At certain places Onions, Brinjals, Garlic, Potatoes are the alternative paying crops.

9. Most of the work has been done by field staff of Agriculture Department and as this formed one of their several duties it is not possible to apportion cost for cane extension work.

10. No contribution is received.

11. (i) Research work consists of—

- (a) trials of Coimbatore canes suited to soil and climatic conditions of the tracts.
- (b) Manurial trials to find out economic dressings.
- (c) Methods of planting to bring down cost of cultivation.
- (d) Study of sugarcane insect pests and the control measures by Entomologist.
- (e) Measures to control spread of Striga disease by Mycologist.

(ii) Propaganda is done by means of ocular demonstrations on Government farm and private demonstration plots and demonstrations arranged at shows and fairs. The subjects are dealt with in Agricultural Association

meetings. District Staff also carries out propaganda in the improvement of cane cultivation in the course of their tour. Provision of taccavi loans is also made so as to enable cultivators to purchase seed and manure. Agricultural Associations stock costly Implements and give them on hire to the cultivators.

12. (i) No financial assistance from Imperial Council of Agricultural Research.

(ii) Seed of new varieties are received from Coimbatore.

(iii) The Agriculture Department deputed an Agricultural Assistant to Imperial Institute of Sugar Technology to undergo a course of open pan sugar factory methods.

13. No co-operation has been asked of or received from the one small factory that is working in the province.

14. Almost all the cane is turned into gur and only a small portion is used for chewing.

15. The large capital required including charges for irrigation is the main difficulty of cane-growers. The question of delivery to the factories does not arise.

16. No special assistance is rendered by Co-operative Department to cane-growers. Recently three Co-operative cane growing societies are started in the Eastern Circle.

17. No minimum prices have been fixed as the only factory in the province is very small and is struggling for its existence.

18. Does not arise.

19. Does not arise.

20. The average transport charges would be about 3 pies per maund for a distance of about four miles.

22. Yes, as regards second part no assistance has been given in this province towards the development of feeder roads and tramways leading to such factories.

23. At the instance of the Director of Industries, Mr. R. G. Pradhan, Sugar Technologist, H. R. Sugar Factory, Bareilly, surveyed the farm of Mr. S. S. Bhargava, Landlord, Jubbulpore, and surrounding villages and drew up a report on the establishment of a Sugar Factory near Jubbulpore. It has resulted in the establishment of the Sugar Factory entitled "The C. P. Sugar Factory" at Ghana near Jubbulpore.

24. Nil.

25. The Co-operative Agricultural Association, Balaghat, manufactures sugar on a small scale at Lanji in the Balaghat Tahsil.

26. Yes.

27. A statement showing the average (i) wholesale and (ii) retail prices of sugar in the province for the last seven years is enclosed herewith.

28. No.

29. (a) The normal consumption of sugar in the province is about 11.4 lakh maunds annually. (This is obtained by taking the average of the excess of imports over exports in the province, the production being negligible. A statement of imports and exports for the last few years is enclosed.)

(b) The consumption of sugar can be increased in the following ways:—

(1) Increase in the number of confectionery works and development of the existing ones.

(2) Establishment of fruit preserving and canning works.

(3) Grant of special waggon rates of freight by the Railway Company for importing sugar.

(4) Standardization of the quality of sugar made in the Indian Factories.

30. A list of peppermint factories in the province is as follows:—

Jethlal Chimanlal, Nagpur.

M. Sugnichand, Nagpur.

M. Sugnichand, Akola.

Haji Wali Ibrahim, Amraoti.

They use best white sugar crystals in their works.

31. No. There is only one sugar factory in the province.

32. There is good scope for starting more peppermint works as this article is being imported from other places into this province. Canned fruits are imported from the United Provinces. There appears to be some scope for starting more works of sweet and syrup manufacture and fruit preservation, especially orange preservation.

33. 15 tons of cane yielding about 40,642 maunds of gur. Percentage of gur to cane varies between 9 to 12.

34. Gur is not manufactured from any material other than cane in this province.

35. A statement showing the prices of the two main varieties of gur, viz., Ankapalli and Banarasi, sold in this province is enclosed.

Gur sold in the province is mainly imported from outside. The variation in prices is therefore not due to (i) and (ii) in this province. Indian sugar does not compete with gur.

37. The import of gur during the last seven years into the province was as follows:—

Year ended March.	Maunds.
1931 . . . . .	961,061
1932 . . . . .	981,322
1933 . . . . .	968,706
1934 . . . . .	1,088,526
1935 . . . . .	958,824
1936 . . . . .	1,262,053
1937 (for 10 months April, 1936 to January, 1937)	809,149

(for 10 months April, 1936 to January, 1937.)

It is mainly imported from Madras, United Provinces, Bihar, Orissa, and Bombay.

38. The export of gur outside this province is negligible. The figures of exports of gur during the last seven years are as follows:—

Year ending March.	Maunds.
1931 . . . . .	9,075
1932 . . . . .	10,537
1933 . . . . .	6,410
1934 . . . . .	13,574
1935 . . . . .	8,151
1936 . . . . .	5,601
1937 (for 10 months April, 1936 to January, 1937) . .	4,974

It is mainly exported to the Central India.

39. There is no definite relation.

40. The consumers of gur and sugar are different and one is not replaced by the other unless there is abnormal difference in prices, although there is a noticeable tendency to use more sugar.

41. Improved furnaces for the manufacture of gur are developed. Trials are also conducted to strain juice through activated charcoal to find out if the colour of gur and its keeping quality is improved.

42. There are no regular open pan factories in this province and only 1 Khandsari factory producing annually 1,434 cwts.

45. There does not appear to be any scope for the expansion of the industry in this province as the conditions are not so favourable as in other provinces for the growth of sugarcane.

46. Nil.

47. Sugar Excise duty has had no appreciable effect on the dealers and consumers in this province as the price of sugar has not increased on this account.

48. The duty does not seem to have led to any increase in price to the consumer. On the other hand the price of sugar has fallen, but this must be the result of the inter-action of a number of factors.

49. No.

50. Statistics of acreage is prepared by Land Records Department by actual inspection in each village and is fairly accurate. Production figures are based on the standard outturn and condition factor for the season. Agricultural Department carries crop cutting experiments from year to year in order to ascertain acreage yields. Fair degree of accuracy is obtained.

The prices of sugar and gur have been obtained from the account books of the past years of the prominent merchants. They may, therefore be taken to be fairly accurate. The statistics of imports have been taken from the "Annual Report of the Rail Borne Traffic of the Central Provinces and Berar" (now discontinued up to the year ended March, 1933) and thereafter from the "Accounts relating to the inland (Rail and River Borne) Trade of India" published by the Government of India.

51. No.

*Statement referred to in the answer to Question No. 27.*

*Sugar (Cawnpore).*

	Wholesale.		Retail.	
	Rs.	A.	Rs.	A.
1931	12	0	14	1
1932	12	0	13	4
1933	11	4	12	8
1934	10	6	10	15
1935	10	6	10	15
1936	10	6	10	15
1937	8	0	8	9

Statement referred to in the answer to Question No. 29.

EXPORTS AND IMPORTS OF SUGAR AND GUR IN THE CENTRAL PROVINCES AND BERAR.

SUGAR.

(In maunds.)

Year ending March.	Import.	Export.	Excess of imports over exports.
1931 . . . . .	1,223,373	12,625	1,210,748
1932 . . . . .	1,148,844	8,334	1,140,510
1933 . . . . .	1,412,760	7,666	1,405,094
1934 . . . . .	1,107,394	8,572	1,098,822
1935 . . . . .	1,050,463	8,200	1,042,263
1936 . . . . .	1,084,894	6,214	1,078,680
(10 months—April, 1936 to January, 1937) . . . . .	806,892	3,631	803,261

GUR.

(In maunds.)

Year ending March.	Import.	Export.	Excess of imports over exports.
1931 . . . . .	961,061	9,075	951,986
1932 . . . . .	981,322	10,537	970,785
1933 . . . . .	968,706	6,410	962,296
1934 . . . . .	1,088,526	13,574	1,074,952
1935 . . . . .	958,824	8,151	950,673
1936 . . . . .	1,262,053	5,601	1,256,452
1937 . . . . .	809,149	4,974	804,175

Statement referred to in the answer to Question No. 35.

Gur. Price Rs. per maund of 82-2/7 lbs.

	Ankapalli.		Banarasi.	
	Rs.	A.	Rs.	A.
1931 . . . . .	7	5	7	5
1932 . . . . .	7	5	6	9
1933 . . . . .	7	5	6	3
1934 . . . . .	7	5	5	12
1935 . . . . .	8	13	6	15
1936 . . . . .	6	3	6	3
1937 . . . . .	4	7	4	4

(2) Letter, dated the 23th May, 1937, from the Government of the Central Provinces and Berar, Revenue Department, Nagpur.

With reference to your letter No. 181, dated the 15th May, 1937, I am directed by the Governor of the Central Provinces and Berar to say that in this Province takavi under the Agriculturists' and Land Improvement Loans Acts is advanced to cultivators at one anna 3 pies per rupee or Rs. 7-13 per cent. per annum.

(3) Letter dated the 10th July, 1937, from the Government of the Central Provinces and Berar, Revenue Department, Nagpur.

I am directed by the Governor of the Central Provinces and Berar to refer to your letter No. 303, dated the 18th June, 1937 and to say that the number of distilleries in this province was 3 during each of the three years 1934, 1935 and 1936. The other information asked for is blank as molasses is not used in the distilleries of this province; nor is rectified nor denatured spirit manufactured here.

(4) Letter dated the 26th August, 1937, from the Director of Agriculture, Central Provinces and Berar, Nagpur.

With reference to my oral evidence before the Tariff Board at Bombay, I have the honour to forward herewith the following information:—

Area in acres under ratoon sugarcane in the Central Provinces and Berar.

Irrigated	Dry.	Proportion to total area under sugarcane.	
		Irrigated.	Dry.
4,941	138	15.3 per cent.	0.43 per cent.

(5) Letter dated the 17th September, 1937, from Director of Agriculture, Central Provinces and Berar, Nagpur.

With reference to my oral evidence given before the Board at Bombay, I have the honour to enclose herewith a statement showing the details of the cost of making gur per maund.

*Gul making cost per maund.*

	As. P.
Wages prevalent per day . . . . .	
{ Man . . . . .	3
{ Boy . . . . .	2
{ Pair . . . . .	6
One man and one boy working with a pair and a mill give 22 tins (880 lbs.) of juice per day. . . . .	
{ 1 man . . . . .	3
{ 1 boy . . . . .	2
{ 1 pair . . . . .	6
Depreciation per day on a mill costing Rs. 150 at 10 per cent. for a working period of 120 days in a season. . . . .	2
Boiling the above juice . . . . .	
{ 1 man . . . . .	3
{ 1 boy . . . . .	2
{ 1 female coolie . . . . .	2
Depreciation on Pan costing Rs. 30 at 33 per cent. in a season of 120 days. . . . .	1 6
Other miscellaneous charges Oil, Ropes, Furnace, etc. . . . .	2 6
Total output of Gul per day two maunds . . . . .	Rs. 1 8 0
or As. 12 per maund.	

(6) *Letter dated the 17th June, 1937, from the Superintendent, Government Seed Farm, Betul (Central Provinces).*

With reference to the Director of Industries, Central Provinces and Berar, Memo. No. 3180, dated the 8th June, 1937, I have the pleasure to inform you as follows:—

I. On this Government Farm about 8 to 12 acres of sugarcane of Coimbatore varieties is being grown under lift irrigation. The outturn is partly sold as seed to cultivators and partly turned into "gud". No sugar so far has been made. A little trial was attempted in the year 1933, which was not proved to be economical as "gud" could get ready market. This trial was made from "rab" to sugar. The "rab" was required to be kept for a week's time for crystallization and then it was centrifuged in centrifugal machine, giving sugar of ordinary colour which could not satisfy the public as compared with the local market sugar. Another difficulty, which was experienced, was of molasses which could get no market.

Due to these circumstances, no further attempts were made to manufacture sugar in this Farm. I reply some questions, required in this memo.

(i) The sugar is manufactured from "rab". The process of manufacture is given above.

(ii) We get the produce of our own Farm and turn it into "gud". We do not deal on business-line. We try to dispose of our own produces.

(iii) & (iv) We do not purchase juice or "rab" from outside.

(v) We do not make sugar, therefore, is not calculated. We use ordinary "Sultan bullock power crusher", which gives an extraction of 62 to 65 per cent. (cane to juice) according to varieties of cane. We are generally growing medium Coimbatore variety of cane.

(vi) No sugar making is tried.

(vii) We have got no details for the cost of manufacture of sugar as "gud" could get ready market for our limited cane cultivation area.

(viii) For "gud" we have got Berar as the chief market.

(ix) to (xiii) Do not arise, as no sugar is manufactured.

(xiv) In this tract, there is no irrigation facilities therefore it is not possible to start a sugar factory. The cost of cane cultivation, due to lift irrigation, increased per acre. "Gud" gets a ready market in Berar for our limited produce.

REPLIES FROM THE GOVERNMENT OF SIND.

(1) *Letter dated the 19th June, 1937, from the Government of Sind, Revenue Department, Karachi.*

*Subject:—INDIAN SUGAR INDUSTRY—PROTECTION REQUIRED BY THE—.*

With reference to your letter No. 147, dated the 30th April, 1937, to the address of the Secretary to the Government of Sind, Finance Department, on the subject noted above, I am directed to forward a copy of letter No. R.-3328, dated the 15th/16th June, 1937, from the Collector of Karachi furnishing information regarding the retail prices of (a) gur/jaggery, and (b) sugar of different qualities.

2. I am further to state that only in Sinjhore taluka of the Nawabshah District is sugarcane grown as a commercial crop. The growers are a Joint Stock Company styled "The Pioneer Sind Sugar Mills Company, Limited, Pritamabad". The Company owns about three thousands acres of land on lease from the neighbouring zamindars. As there is no cultivation of this kind in the neighbourhood of the Company's holdings on the part of other zamindars, the malpractices referred to in paragraph 3 of your letter do not exist in Sind.



*Copy of letter No. R./3328 of 1937, dated the 15th/16th June, 1937, from Mr. E. G. Taylor, Collector of Karachi, to the Secretary to Government, Revenue Department, Karachi.*

**Subject:—FIGURES REGARDING THE RETAIL PRICES OF GUR/JAGGERY AND SUGAR OF DIFFERENT QUALITIES.**

In reply to your endorsement No. E./2650, dated the 26th May, 1937, on the subject mentioned above, I have the honour to state that the figures of retail prices of—

- (1) Gur/jaggery and
- (2) Sugar of different qualities

for past years are not available.

The retail prices of the above commodities at present prevailing in the Karachi Market as reported by the City Deputy Collector, Karachi, are as follows:—

- Desi sugar thin chun chun—Rs. 7 a maund.
- Desi sugar thick chun chun—Rs. 7-8 a maund.
- Desi sugar thicker chun chun—Rs. 8 a maund.

There are two kinds of gur available in the market, viz.:—

- (1) Gur Chakla.
- (2) Gur Rava.

The retail price of the former is Rs. 4-8 a maund and that of the latter at Rs. 5-8 a maund.

No figures of retail prices prevalent at the mofussil markets in this district are available except for Mirpur Sakro.

The retail prices of gur and sugar per maund at which they were available at this market during the past five years were as follows:—

	1931-32.	1932-33.	1933-34.	1934-35.	1935-36.
	Rs.	Rs.	Rs.	Rs.	Rs.
Indian made sugar .	10	10	10	10	10
Gur (locally made) .	7	6	6	6	5

(2) *Express letter, dated the 2nd July, 1937, from the Secretary to the Government of Sind, Finance Department, Karachi.*

Reference to your letter No. 172, dated the 11th May, 1937, regarding protection required by the Sugar Industry.

2. Six spare copies of the answers of the following officers to the questionnaire for Local Governments are forwarded herewith as desired:—

- (1) Director of Agriculture, Sind.
- (2) Registrar of Co-operative Societies, Sind.
- (3) Assistant Director of Industries, Sind.

The views of this Government will follow.

*Letter No. 332, dated the 8th June, 1937, from the Assistant Director of Industries, Sind, to the Secretary to Government, Revenue Department, Karachi.*

I have the honour to refer to your Memorandum No. E.-2652, dated the 26th May, 1937, and also to the letter No. I. B. 3/7871, dated the 5th June, 1937, addressed to you by the Director of Industries, Bombay, on the above subject, and am enclosing herewith the questionnaire for Local Government. Several questions are such for which local inquiry is necessary. As the papers have to be submitted by the 8th June, 1937, it has been possible to give replies only to some of the questions in the questionnaire.

Local enquiries for information on other questions that can be dealt with by the Department of Industries are however being made and I shall submit any further information that may be obtained.

23. Assistance has been rendered only by supply of information.

24. The Department of Industries has rendered no help under these heads 1, 2 and 3. The Revenue Commissioner and the Public Works Department may have rendered help under 2 and 3; they will no doubt reply to this query.

30. Apart from the "Indian" style sweetmeat makers, there is one factory at Sukkur which makes sugar coated almonds, etc.

31. I do not consider this necessary at present for Sind.

32. Reasonably good possibilities.

41. No research has been undertaken by Department of Industries. The Department of Agriculture is concerned in the matter.

46. The Department of Agriculture is concerned in the matter.

48. The consumer has actually paid for his sugar progressively less for sugar than before protection was granted.

49. No.

*Letter No. R. E.-1193, dated the 12th June, 1937, from the Registrar, Co-operative Societies in Sind, Hyderabad, to the Secretary to Sind Government, Revenue Department, Karachi.*

In reference to your endorsement No. E.-2652, dated the 26th ultimo, I have the honour to state that the only questions in the questionnaire for Local Governments pertaining to this Department are Nos. 16 and 25 and my replies to them are as under:—

16. No separate society for cane-growers has yet been organized in Sind there being no demand to that effect either from the growers themselves or the Agricultural Department.

25. No such Co-operative Sugar Factory has yet been registered in Sind.

As regards my comments on other questionnaires I would state that I have none to offer.

*Memorandum No. 402-B. of 1937, dated Karachi Saddar, the 14th June, 1937, from the Director of Agriculture, Sind, to the Secretary to Revenue Department, Karachi.*

The Director of Agriculture, Sind, presents compliments to the Secretary to Government of Sind, Revenue Department, Karachi, and with reference to their endorsement No. E.-2652 of 26th ultimo, forwarding therewith a copy of Government, Finance Department No. 406-C. of 22nd May, 1937, with accompaniments, has the honour to enclose herewith six copies of replies to the questionnaire on sugarcane intended for Local Governments. The undersigned has no comments to make on questionnaires relating to factories, etc.

#### QUESTIONNAIRE FOR LOCAL GOVERNMENTS.

1. The area cropped with sugarcane, during the past seven years for which details are available in this office are as follows:—

	Acres.
1930-31	2,225
1931-32	2,644
1932-33	2,602
1933-34	2,656
1934-35	2,954
1935-36	3,072
1936-37	4,770

The local varieties, red and white canes are grown—red variety being more common. Of the improved varieties, Co. 213, Co. 313, Co. 331, Co. 290, Co. 312, Co. 270, P.O.J. 2878, occupy about 2,000 acres. It is not possible to give the area occupied by each variety separately as the details are not available. Of these varieties Co. 290 and Co. 213 are gradually being eliminated owing to their susceptibility to insect pests and other environmental factors.

2. Sugarcane areas may be classified as under:—

- (1) South Sind Area comprising of Karachi and Hyderabad Districts.
- (2) Barrage areas mostly in Middle Sind (Nawabshah District).
- (3) North Sind (Sukkur District).

Sugarcane is grown as an irrigated crop only. Sind has little rainfall.

3. Sugarcane is charged about Rs. 6 in Kharif season and about Rs. 4-12 in the Rabi season, i.e., Rs. 10-12 for the entire growing period. The Pioneer Sind Sugar Company, have obtained special facilities for water on their sugarcane Farm at Pritamabad in Nawabshah District and have been charged at the rate of Rs. 18 per acre ( $\frac{3}{10}$ ths for irrigation and  $\frac{1}{10}$ ths land assessment). It is proposed to introduce this enhanced rate uniformly in other places also. This rate is based on water requirement of sugarcane, i.e., 63 acre inches during the kharif season and 37 acre inches during rabi season, total 100 acre inches. The kharif dry crops say cotton require 36 inches of water and are charged Rs. 6 per acre and rabi crops require 16 inches of water and are charged at the rate of about Rs. 4-8.

4. The cost of cultivation is as follows:—

	Rs. a.	
Cost of Setts . . . . .	15 0	(normally the cultivator has his own setts for sowing).
Preparatory Tillage . . . . .	10 0	(this consists of 3 to 4 ploughings and samarings).
Making ridges . . . . .	5 0	
Sowing charges . . . . .	5 0	
Irrigations . . . . .	6 4	
Manure . . . . .	25 0	
Earthing Weeding . . . . .	15 0	
Striping and cutting . . . . .	31 4	
Carting (1 anna a maund of cane).		
	112 8	

There has been some increase in the wages of labour employed after the construction of the Lloyd Barrage Canals, i.e., since 1932 by about 10 per cent.

The average yield of cane is about 500 maunds per acre and yield of gur is about 90 maunds per acre.

5. Under the present conditions 5½ to 6 annas per maund would be a fair price of sugarcane to the growers.

6. With the opening of Pioneer Sugar Factory at Pritamabad, there has been marked increase in the cultivation of sugarcane in Nawabshah District. The conditions (i) to (iv) have made no alteration in the extension of the crop. On the other hand especial facilities of water supply given to the sugar Company have not been available to other growers; at the same time higher cost of cultivation, scarcity of labour and inadequate supply of manure have been discouraging factors for the cultivation of sugarcane.

7. The cane cultivation is very limited in Sind, hence the crop of 1936-37 was in no way over produced.

8. The most important cash crops in Sind are, cotton in the Kharif season and wheat in the rabi season. The actual yield of cotton is 8 maunds per acre valued at Rs. 56 of which half is paid to the tenant for the labour, seed, etc., and the remaining is retained by the zamindar who has to pay Rs. 6 as irrigation charges and land assessment leaving a balance of Rs. 22 per acre as net profit. Sugarcane requires  $1\frac{1}{2}$  times more water than cotton during the Kharif season. The wheat crop yields at the rate of about a 10 maunds per acre valued at Rs. 25, half of which goes to the hari (tenant) and half to the zamindar who pays Rs. 4-12 per acre as assessment leaving Rs. 7 per acre. Sugarcane requires  $2\frac{1}{2}$  times more water than wheat during rabi season. Thus it has been found that considering the water requirement, cost of cultivation, it is safer and more economical to grow cash crops like cotton and wheat than sugarcane.

9. No special effort is made for extension and improvement of sugarcane cultivation in the Province of Sind. As a matter of fact, the policy of the Department is not to encourage the sugarcane cultivation in the Barrage zone, in as much as Barrage canals are not designed to supply water for extensive sugarcane cultivation. Varietal tests have been made on a small scale and the successful varieties are distributed to zamindars. The expenditure on this account is small.

10. No contribution has hitherto been received from Central Government out of sugar excise or otherwise.

11. The research work on sugarcane crop consists of—

- (1) Testing of varieties which suit local climatic and soil conditions with special reference to—
  - (a) frost resistance,
  - (b) early maturing,
  - (c) high yielding capacity.
- (2) Testing promising varieties in demonstration plots on zamindari holdings in selected centres. In Karachi District this method has succeeded and Co. 213 is grown replacing the local red variety.
- (3) Cultivation methods—

No work has been done on diseases of sugarcane. With regard to measures adopted for the introduction of improved varieties of cane, improved methods of cultivation and use of manures, demonstration plots are taken up on zamindars' lands where improved varieties, etc., and improved methods of cultivation are demonstrated.

12. (i) Assistant Entomologist, Research Institute, Delhi, recently visited Sakrand and Pritamabad in connection with sugarcane pests.

(ii) Coimbatore sugarcane Research Station has been supplying sets free of charge whenever called for.

(iii) Advice from Imperial Institute of Sugar Technology has been called for whenever necessary.

There is no special grant for research work on sugarcane. If funds were available, the problem of water requirement of the crop and other problems connected with cultivation could be taken up.

13. There is only one factory in Sind which has fully co-operated with the Agricultural Department to test the varieties recommended by the Department. The method of sowing cane in furrows introduced by the Department is being adopted on this Estate as also the cultivation of green manure crops. Sulphate of Ammonia is applied as a top dressing to all the cane crop at the recommendation of the Department.

14. The crop of about 2,000 acres is being crushed in Sugar Factory for making sugar, while the remaining crop is mostly sown for chewing purposes. A small percentage is crushed in cane crushers and converted into gur. There are no open pan factories. Khandsari system of making sugar is not prevalent in Sind.

15. (1) Additional water supply required for cane is not allowed.

(2) High cost of production.

(3) Want of sufficient organic manure.

(4) Scarcity of labour are the main difficulties which come in the way of extended cultivation of sugarcane.

16. There is no cane-growers co-operative society in Sind.

17. No.

18. There is only one factory in the Province and the price paid for the cane last year was about 6 annas per maund delivered at the Factory.

19. System of bonus payment is out of question until facilities for cane-growing are available.

20. Average cost of transport per mile by carts works out approximately to 3 pies per maund, at Pritamabad (Nawabshah District).

21. The factory has its own carts and also employs local carts on hire. The charges are paid as shown in question 20.

22. This does not arise in view of the limited cultivation of sugarcane in Sind. A feeder line connecting Pritamabad with Khadro (J. Railway) would help the Sind Pioneer Sugar Company. Some feeder lines have been opened in Sind but they will not be helpful in Sind in the extension of cane cultivation.

23. Improved cane crushing sets were introduced some years ago by the Agricultural Department and they are reported to be working well. The Industries Department has been created only recently in Sind.

24. The Pioneer Sugar Factory has been assisted by the Agricultural Department on the following lines:—

(1) Extra water supply has been provided by the Irrigation Department at the recommendation of the Agricultural Department.

(2) Sets of improved varieties have been supplied to the Factory.

(3) Advice as regards cultivation irrigation, etc., is supplied free.

(4) Sprayers and other implements are lent free of charge.

(5) Agricultural Officers inspect the crop for remission of assessment in case of failures and liberal remissions are granted.

25. There are none.

26. Conditions of labour in Sind Factory may be said to be fairly satisfactory though owing to malaria and intensive cultivation in the neighbourhood it is difficult to obtain required labour and higher wages have to be paid.

27. Information is being collected.

28. Not known.

29. Not available.

30. Besides that country sweetmeats made from sugar the sweets like lemon drops, etc., are manufactured in some towns like Sukkur and Karachi.

31. No.

32. With the development of fruit orchards in Barrage areas preservation and canning industry are likely to be introduced in the future. I represent that laying of fruit orchards is going on at a fairly good pace.

33. Information is being collected.

34. No other material is utilised for making gur or jaggery.

35. Not known.

36. Information is being collected.
37. Gur is imported from Punjab, actual figures of import are being collected.
38. Gur is consumed locally.
39. Not known.
40. The local factory sugar is selling cheaper than the foreign sugar, as it is not so refined. It is possible that it may replace imported gur very considerably.
41. No research work has been done on improvement of methods of making gur.
42. There are no open pan factories and khandsaries in Sind.
47. As most of the crop is consumed locally for chewing and gur except at Pritamabad where a sugar factory has been installed, the price of sugar has fallen low and this has already made the position of the factory difficult for its existence. The additional excise duty has been another handicap in the economic working of the factory.
50. The figures of acreage under sugarcane are collected by Revenue Department and supplied to this office. Three forecast reports on sugarcane are issued by the Agricultural Department in August, October and January every year. The figures of production of gur and not of sugarcane are published. The yield of gur per acre as is normally taken into calculation is 7,200 lbs. per acre. Taking the average yield of gur per acre as shown above, the total yield of gur is worked out.

(3) *Letter dated the 15th July, 1937, from the Secretary to the Government of Sind, Finance Department, Karachi.*

In continuation of this Department express letter, dated the 2nd July, 1937, regarding protection required by the Sugar Industry, six copies of a statement showing the prices of sugar which have ruled in Karachi market during the last two years 1935-36 and 1936-37, are forwarded herewith.

This is with reference to the Director of Agriculture, Sind's answer to item 27 of the questionnaire for Local Government.

*Copy of Memorandum No. 402-B. of 1937, Karachi, dated the 25th June, 1937, from K. I. Thadani, Director of Agriculture, Sind, to the Secretary to Government, Revenue Department, Karachi.*

The Director of Agriculture, Sind, presents compliments to the Secretary to Government of Sind, Revenue Department, Karachi, and in inviting attention to this office memorandum No. 402-B. of 14th instant forwarding therewith 6 copies of replies to questionnaire of Sugarcane Tariff Board Enquiry, has the honour to forward 6 copies of the attached statement showing the prices of sugar which ruled in Karachi market during the last two years 1935-36 and 1936-37 only (reference item No. 27 of the questionnaire). The information on the remaining items, viz., 33 and 36 of the questionnaire is not available.

	Per cwt.	Per cwt.
	Rs. A. P.	Rs. A. P.
1935-36—		
Java Whites . . . . .	12 15 0 to	14 7 6
British Refined . . . . .	13 0 9 to	14 8 0
Motipur AA . . . . .	} 13 3 6 to	14 1 0
Motipur AA 1 . . . . .		
	to	
	12 14 0	

1935-36—

	Per cwt.	Per cwt.
	Rs. A. P.	Rs. A. P.
Lohat, Sakri . . . . .	12 14 0 to 14 1 0	
Marhowrah, Champaran . . . . .	13 2 0 to 14 5 0	

1936-37—

Java Whites . . . . .	13 4 0 to 12 15 6
British Refined . . . . .	13 5 6 to 13 4 9
British Refined (March, 1937) . . . . .	13 7 9 to 13 12 0
Motipur AA 1 . . . . .	12 12 0 to 10 8 0
Babnan . . . . .	13 2 0 to 11 14 0
Balrampur . . . . .	13 1 0 to 11 14 0
Champaran . . . . .	12 15 0 to 11 15 0
Lohat . . . . .	12 6 6 to 11 1 0
Hathwa . . . . .	12 14 0 to 10 10 0
Hargaon . . . . .	12 0 0 to 11 1 0

The above quotations are for Karachi market. For other markets you will know from other people.

(4) Letter dated the 14th August, 1937, from the Government of Sind, Finance Department, Karachi.

With reference to paragraph 2 of this Department letter, dated the 2nd July, 1937, regarding protection required by the Sugar Industry, six copies of the replies of this Government to the Questionnaire for Local Governments are forwarded herewith.

QUESTION No. 3—RATES OF ASSESSMENT IN DIFFERENT AREAS.

The District Officers report as under:—

Karachi.—The following irrigation rates are in existence in Talukas Mirpur Sakro, Tatta and Ghorabari:—

Mirpur Sakro—

	1st group.	2nd group.	3rd group.
	Rs. A.	Rs. A.	Rs. A.
Kharif . . . . .	1 4	1 0	0 12
Rabi . . . . .	1 14	1 8	1 2
Ghorabari—			
Kharif . . . . .	1 4	1 0	0 12
Rabi . . . . .	1 12	1 6	1 2
Tatta—)			
Kharif . . . . .	1 8	1 4	...
Rabi . . . . .	2 4	1 14	...

Hyderabad.—In non-barrage area, assessment is levied according to the mode of irrigation. The rates are as under:—

Lift—Rs. 2 per acre.

Flow—Rs. 2-12 per acre.

In barrage area sugarcane pays highest irrigation rate in each season in which it takes water, which is as under:—

Kharif Rs. 6-8 per acre—Flow.

Kharif Rs. 4-6 per acre—Lift.

Sukkur.—Not reported.

*Larkana*.—The irrigation rates which are the same as assessment rates for sugarcane during the last 7 years have been as under:—

Year.	Rate.
1929-30	} From Rs. 3-4 to Rs. 3-12 per acre.
1930-31	
1931-32	
1932-33	
1933-34	} Rs. 10-12 per acre.
1934-35	
1935-36	

The above rates are based mainly on facilities for water supply and also on the net profit from the crop to the cultivator. The rates have varied in the district after the advent of the Barrage.

*Nawabshah*.—The rates of assessment for cane cultivation are as under:—

	Group I.	Group II.	Group III.
	Rs. A.	Rs. A.	Rs. A.
1930-31—Other flow . . .	3 4	3 0	2 11
1931-32—			
Flow lift . . . . .	2 11	2 8	2 5
Other lift . . . . .	2 2	2 0	1 14
1932-33 to 1936-37 . . .	Sugarcane to pay the highest rate according to the mode of irrigation in each season in which it takes water.		
<b>Kharif—</b>			
Flow . . . . .	3 8	3 0	2 12
Lift . . . . .	2 6	2 0	1 14
Combined flow lift . . .	2 15	2 8	2 5
<b>Rabi—</b>			
Flow . . . . .	4 4	3 2	3 6
Lift . . . . .	2 14	2 8	2 4
Combined flow lift . . .	3 9	3 2	2 13

The Pioneer Sugar Mills Company, however, are charged at Rs. 18 per acre. This is levied on consumption of water and the rate has been agreed to by the Company.

*Thar Parkar*.—The irrigation rates (flow) prevailing in this district in the two sub-divisions, where sugarcane is grown are as under:—

	Group I.	Group II.	Group III.
	Rs. A.	Rs. A.	Rs. A.
Mirpurkhas sub-division . . .	6 0	5 8	5 0
Nara Valley sub-division . . .	5 8	5 0	...

The rates are based mainly on facilities for irrigation, quality of soil and not profits of the zamindar. The former rates were as under:—

	Group I.	Group II.	Group III.
	Rs. A.	Rs. A.	Rs. A.
Mirpurkhas sub-division . . .	4 0	3 12	3 6
Nara Valley sub-division . . .	4 0	3 12	...



The rates were enhanced on account of the improved water supply due to the functioning of the Barrage.

*Dadu.*—Sugarcane is mostly grown in the Barrage area and according to the Barrage Settlement, which came into force from the year 1932-33, sugarcane pays the highest rate according to the mode of irrigation in each season in which it takes water; the highest rate in this district is Rs. 5-4 in kharif and Rs. 4-4 in rabi.

*Upper Sind Frontier.*—The sugarcane is not grown in this district.

#### QUESTIONNAIRE FOR LOCAL GOVERNMENTS.

1. The area cropped with sugarcane, during the past seven years for which details are available in this office are as follows:—

	Acres.		Acres.
1930-31	2,225	1934-35	2,954
1931-32	2,644	1935-36	3,072
1932-33	2,802	1936-37	4,770
1933-34	2,656		

The local varieties, red and white canes are grown—red variety being more common. Of the improved varieties, Co. 213, Co. 313, Co. 331, Co. 290, Co. 312, Co. 270, P.O.J. 2878, occupy about 2,000 acres. It is not possible to give the area occupied by each variety separately as the details are not available. Of these varieties Co. 290 and Co. 213 are gradually being eliminated owing to their susceptibility to insect pests and other environmental factors.

#### REPLIES OF THE REVENUE DEPARTMENT TO THE QUESTIONNAIRE FOR LOCAL GOVERNMENTS.

1. A statement showing the figures of area under sugarcane during the last seven years is enclosed. The figures have been reported by the District Officers.

The varieties grown are shown in the Director of Agriculture's reply to this question (copy enclosed).

2. This department agrees with the classification proposed by the Director of Agriculture. There is no unirrigated sugar crop in Sind.

3. The rate of assessment is different in different areas. Copies of the replies of the District Officers on the point are enclosed. The reply of the Director of Agriculture has already been submitted. The existing rates in the Barrage area were fixed in the year 1932. They are due for revision next year.

In the non-Barrage area of the Province the rate of assessment has not undergone variation during the last 7 years while in the Barrage area it raised after the Barrage canals began to flow in the year 1932-33.

4 & 5, 7-15, 17, 24 & 25, 30-32, 34, 38 & 40. This Department agrees with the replies of the Director of Agriculture and has nothing to add to them.

6. There has been no marked variation in the sugarcane cultivation in Sind except in Nawabshah District on account of the recent opening of a sugar factory and the special water facilities allowed to it, the cultivation has increased considerably.

16. The Co-operative Department has given no assistance to cane-growers. Cane-growers are not organized. No cane-growing or cane supplying societies have been formed so far.

18. Does not arise in the case of Sind as there is only one sugar factory in the province.

19. Does not arise in the case of Sind as the cane required for the manufacture of sugar is grown by the owners of the sugar factory.

20. The sub-joined statement shows the average cost of transport of cane by carts per maund per mile in the several districts of Sind:—

Karachi—From 6 to 12 pies per maund per mile.

Hyderabad—6 pies per maund per mile.

Larkana—3 pies per maund per mile.

Dadu—3 pies per maund per mile.

Tharparkar—12 to 18 pies per maund per mile.

Upper Sind Frontier—No cane cultivation.

Nawabshah—2 pies per mile in the area commanded by the sugar mill.

Sukkur—6 pies per maund per mile.

21. The sugar mills in the Nawabshah District have their own means of transport while other cane-growers who grow for local consumption mostly use hired carts at the rates shown in reply to question No. 20.

22. Looking to condition of communications in Sind in general, it may be stated that road and rail facilities are fairly adequate and being improved. The tram facilities are not adequate.

23 & 49. This department has to add nothing to the replies given by the Assistant Director of Industries, Sind.

26. The condition of the labour in the Pritamabad Factory is reported to be satisfactory. There is no other cane factory in Sind.

27. The only important market in Sind for sugar is Karachi. The wholesale and retail prices of sugar for the period prior to 1935 are not available. The wholesale prices of sugar for the years 1935 and 1936 have been supplied by the Director of Agriculture. The retail prices of sugar for the same period are not available.

28. In the absence of retail prices of sugar it is not possible to say whether there has been considerable variation between the wholesale and retail prices of sugar.

29, 33 & 36. It has not been possible to collect information during the short time. It is not available on Government record.

35. The sub-joined statement shows the prices obtained for various kinds of gur in the various districts of Sind:—

Karachi—Varies from Rs. 4 to Rs. 6 per maund.

Hyderabad—Varies from Rs. 5 to Rs. 8 per maund.

Sukkur—Varies from Rs. 3 to Rs. 5 per maund.

Larkana, U. S. D.—Not supplied.

Nawabshah—Current price Rs. 4-12 per maund. The prices for past years are not available.

Tharparkar—Information not available.

Dadu—The prices for past years not available. Current price Rs. 3-12 to Rs. 4 per maund.

The variations are apparently due to competition by sugar turned out from sugar factories in India but this Department is not sure about it.

37. Gur is imported from the Punjab and United Provinces. The figures of import are not available.

39. Yes. Any marked variation in the price of sugar is bound to affect the price of gur.

41. This Department has nothing to add to the replies given by the Assistant Director of Industries or Director of Agriculture, Sind.

42-46. Does not arise in the case of Sind as there are no open pan factories and Khandseries in Sind,

47. Copies of the replies of the District Officers are herewith submitted. In the opinion of the Revenue Commissioner the Sugar Excise Duty of 1934 has not affected any of the four classes of persons concerned. The effect of the additional duty imposed in 1937 is still to be seen. It is expected that it will not be adverse.

48. The price of sugar has been falling. The protective duties have therefore not hit the consumer.

50. The statistics of acreage of sugarcane are obtained from the revenue records. No record is, however, kept of production and prices. These statistics are collected by local inquiries from dealers and zamindars specially growers. The accuracy of the information cannot therefore be vouchsafed.

51. No. It may, however, be stated that refined Java sugar is used by rich people only, the middle class people use desi sugar while gur is used by lower class people in the mofussil.

Statement showing the area in acres under sugarcane in the Hyderabad District during the last seven years.

Name of the district.	1929-30.	1930-31.	1931-32.	1932-33.	1933-34.	1934-35.	1935-36.	1936-37.	Remarks.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	
Karachi . . .	341	549	850	707	879	970	747	..	These figures are for Tatta sub-division.
Hyderabad . . .	634	710	584	817	986	798	536	..	
Sukkur . . . .	..	445	350	468	394	308	362	329	
Larkana . . . .	105	77	101	121	173	127	116	..	
Nawabshah . . .	249	249	237	289	242	958	1,698	2,403	
Thar Parkar . . .	352	569	1,087	1,185	656	635	931	..	
Upper Sind Frontier	No cane cultivation.								
Dadu . . . . .	..	..	..	290	53	65	54	52	The figures for the years 1929-30 to 1931-32 are not available as the district was created from 1st October 1931.
Total . . . . .	1,681	2,689	3,210	3,877	3,383	3,861	4,444	2,784	
Figures reported : by Director of Agriculture.	..	2,225	2,644	2,602	2,656	2,954	3,072	4,770	

- (5) *Letter dated the 14th August, 1937, from the Government of Sind, Revenue Department, Karachi.*

With reference to your letter No. 303, dated the 18th June, 1937, I am directed to sub-join the information required by the Tariff Board:—

“ A (1) 1.

(2) About 31,000 to 32,000 maunds. Originally the source of supply was Java, but now the molasses from the Punjab, the United Provinces and Pritambad in this Province are used.

(3) The Contractor of the distillery is not prepared to divulge the prices paid by him.

A copy of his letter is enclosed.

B (1) Nil.

(2) "

(3) ?.

- Letter dated 3rd August, 1937, from Adarjee Mancherjee Dalal and Co., Kotri Distillery Contractors, Karachi, to the Superintendent of Salt and Excise in Sind, Karachi.*

With reference to your letter No. 21/1003-E. of 1937-38, dated the 24th July, 1937, we have the honour to say that we extremely regret we are unable to supply the cost of molasses, which, being a business secret, we cannot divulge, as a general principle, and specially in view of the fact that tenders for the distillery contract are very shortly to be submitted. We trust you will be pleased to appreciate our difficulty in this matter.

- (6) *Letter dated the 23rd July, 1937, from the Secretary Tariff Board, to the Chief Secretary to the Government of Sind, Karachi.*

With reference to your letter, dated the 2nd July, 1937, I am directed to refer to reply to question 4 of the Local Government Questionnaire by the Director of Agriculture, Sind, in his memorandum No. 402-B, dated the 14th June, 1937, supplied as an enclosure to your letter, and to request that figures for the costs of cultivation per acre may kindly be supplied in as much detail as possible for the area which supplies cane to the factory together with an estimate of the average yield from such cultivation. The cost of transport from the field to the factory may be shown separately.

- (7) *Letter dated the 4th September, 1937, from the Government of Sind, Revenue Department, Karachi.*

With reference to your letter, dated the 23rd July, 1937, to the address of the Chief Secretary to the Government of Sind, I am directed to forward a copy of letter No. 402-B, dated the 26th August, 1937, from the Director of Agriculture, Sind, which supplies the information required by you.

- Letter No. 402-B of 1937, dated the 26th August, 1937, from the Director of Agriculture, Sind, to the Secretary to Government of Sind, Revenue Department, Sind.*

With reference to your endorsement No. 4321 of 17th instant forwarding therewith a copy of letter No. 523, dated 23rd July, 1937, from the Secretary, Tariff Board, addressed to the Chief Secretary to the Government of Sind, I have the honour to submit hereunder the details of the cost of

production of sugarcane crop per acre as required by the Secretary, Tariff Board:

	Rs. A.
1. The first operation that a cultivator attends to is the manuring of the cane land. Usually 40 cart loads of farm manure are applied per acre. The cost of a cart-load is As. 8 a maund. Spreading manure on the land and carting cost about As. 2 a cart-load. The total cost is therefore	25 0
2. <i>Preparatory tillage.</i> —The land is ploughed 4 times and rolled. A pair turns out 25 gunthas ( $\frac{1}{4}$ of acre) per day and the cost of one ploughing is Rs. 2. One dry ploughing given before spreading manure, therefore in all 5 ploughings at Rs. 2 per ploughing	10 0
3. <i>Making ridges and furrows.</i> —This is usually done with hand and costs wages of 10 men per acre at As. 8 each. If made with a ridger one acre costs Rs. 2 and 5 men are required to dress end portions and divide the plots in small compartments	4 8
4. <i>Planting sets.</i> —This operation consists of cutting sets and planting in furrows. 10 men are required to complete the operation per acre	5 0
5. <i>Irrigation.</i> —In all 25 irrigations are applied and one man is able to irrigate 2 acres per day. Therefore each irrigation costs As. 4 per acre	6 4
6. <i>Earthing and weeding.</i> —Normally one weeding and two earthings are given each costing 10 men per acre at As. 8 per day	15 0
7. <i>Stripping and cutting cane.</i> —This operation is usually done on contract at Rs. 4-8 to Rs. 5 per 100 maunds and costs 9 pies per maunds of produce. If 500 maunds is the yield the cost amounts to	23 7
8. <i>Carting.</i> —Carting by locomotive costs approximately 3 pies a maund. Therefore for 500 maunds the cost amounts to	7 13
9. Cost of 40 maunds sets at As. 5 a maund	12 8
10. Irrigation tax and assessment at Rs. 18 per acre	18 0
<b>Total</b>	<b>127 8</b>

### Replies from the Government of North West-Frontier Province.

(1) Letter dated the 23rd June, 1937, from the Revenue and Divisional Commissioner, North-West Frontier Province, Peshawar.

I have the honour to forward herewith answers to questionnaires received from the Deputy Commissioners, Mardan and Bannu. Similar answers from the Director of Agriculture and Allied Departments, North-West Frontier Province are still awaited and will be forwarded as soon as these are received.

## Questionnaire for Local Government.

1. The area under sugarcane in this district for both the varieties, viz., Ponda (Desi) and Coimbatore during the last 7 years was as under:—

Year.	Acres.	
1930-31 . . . . .	9,109	} There was no classification of sugar cane in these years.
1931-32 . . . . .	8,747	
1932-33 . . . . .	11,916	
1933-34 . . . . .	12,147	
1934-35 . . . . .	11,574	
1935-36 . . . . .	17,521	
1936-37 . . . . .	22,996	

Coimbatore sugarcane is the improved Passity which is gradually taking the place of Ponda.

2. Similar climatic conditions and methods of cultivation prevail throughout the whole district. The entire crop grows in irrigated area.

3. The Irrigation Department has fixed permanent irrigation rates for sugarcane at Rs. 10 per acre.

4. The cost of cultivation of sugarcane to the cultivators comes to about Rs. 80 per acre. Information in regard to variation in the cost of production during the last 7 years is—Average yield per acre of Ponda sugarcane is approximately 150 maunds and of Coimbatore variety between 250 to 300 maunds.

5. Four annas per maund would appear to be a fair price of sugarcane to the growers.

6. Yes, there has been a marked tendency towards increased cultivation of sugarcane which is attributable to enhanced price of gur during 1934-35 and 1935-36.

7. Yes, *vide* answer to question No. 6 above, but it does not seem desirable to restrict the area under cane at present.

8. Tobacco is the other principal cash crop in this district. Cultivators generally prefer sugarcane because of greater income when the rates for gur are favourable. Tobacco would suit as an alternative to sugarcane. The return per acre of various cash crops cannot be estimated at present.

9. & 10. Nil.

11. This concerns the Agricultural Department.

12. & 13. Nil.

14. (a) There is no sugar refinery in the district.

(b) 5 to 600 maunds of sugarcane per annum is utilized by the only small open pan factory at Takht Bai. This factory is, however, about to be closed down.

(c) Excepting the use at (b) above, the bulk of sugarcane is turned into gur.

(d) The use of sugarcane for chewing is smaller as compared with its use for conversion into gur.

15. Lack of capital constitutes the main difficulty of the cultivators. They are also confronted with another obstacle, viz., want of adequate means of transport.

16. No special assistance is given to sugarcane growers in their individual capacity. There are 65 Co-operative Societies in the Mardan Tehsil and nearly 20 members in each society are given timely help, whenever required, in the form of wages for labour price of seed. Loans are advanced to them to enable them to sell gur at better prices.

17. No

18. There being only one open pan factory, there is no competition of any sort.

19. Nil.

20. Nearly  $\frac{1}{2}$  anna per maund.

21. The cane growers generally use their own bullocks for conveyance of their produce to the nearer markets. They have to hire carts at Rs. 1-12 per cart per day for the transport of their goods to the distant marts.

22. Rail and road facilities are adequate but no assistance has so far been given towards development of feeder roads. Tramways do not exist in this district.

23 to 25. Nil.

26. Yes.

27. Year.	Rate per maund of sugar.	
	Wholesale.	Retail sale.
	Rs. A.	Rs. A.
1930 . . . . .	16 0	16 12
1931 . . . . .	14 0	14 12
1932 . . . . .	11 8	12 0
1933 . . . . .	12 0	12 8
1934 . . . . .	11 0	11 8
1935 . . . . .	10 12	11 4
1936 . . . . .	10 4	10 10
1937 . . . . .	9 0	9 8

28. Only khandsari sugar is manufactured in the district, the wholesale rate of which is nearly Rs. 7 per maund. Its retail price is Rs. 8 per maund. Variations in rates of sugar are contingent on the rates prevailing in the adjoining district markets.

29. Normal sugar consumption of the district cannot be estimated.

30. & 31. Nil.

32. There is plenty of fresh fruit in this district and there are possibilities of starting fruit preservation industry.

33. No information is available.

34. No material other than cane is used for manufacturing sugar or gur.

35. The average prices of gur and shakar (gur in powdered form) are given below. Prices have fallen now as the result of overproduction of sugarcane and also because of cheap factory sugar.

Year.	Rate per maund.	
	Gur.	Shakar.
	Rs. A.	Rs. A.
1930-31 . . . . .	6 8	7 10
1931-32 . . . . .	5 3	5 6
1932-33 . . . . .	4 3	4 11
1933-34 . . . . .	3 15	4 2
1934-35 . . . . .	4 14	5 3
1935-36 . . . . .	5 12	6 8
1936-37 . . . . .	4 10	5 6
Current rate . . . . .	2 10	3 1

36. No information is available.

37. No sugar is imported into this district from outside.

38. Gur is exported to the Hazara district as well as to Campbellpur, Rawalpindi, Mainwalli, Jhelum and Sargodha districts, in the Punjab.



39. Sugar affects the price of gur but the latter does not affect the former.

40. Sugar has almost replaced gur.

41. Nil.

42. There is only one open pan factory in the district as already stated. Outturn of sugar is given in the relevant questionnaires.

43. Rs. 10 per maund is the average cost of production of sugar by open pan system during the last five years.

44. Cheapness of factory sugar is responsible for the failure of open pan factory.

45. Khandsari sugar has been holding its own against the factory sugar until the imposition of excise duty on this sugar in 1934, when it was adversely affected by the cheap factory sugar. There seem to be no prospects for Khandsari sugar now.

46. Nil.

47. The manufacturer of Khandsari sugar alone has been adversely affected by duty.

48. Sugar of Indian manufacture has become much cheaper in consequence of the protective duty on foreign sugar.

49. Nil.

50. Statistics of acreage and price of sugar and gur are compiled by Revenue Officials. Statistics of production of Khandsari sugar are checked by Excise Officials by periodical inspections. These statistics are accurate as far as possible.

51. There are no special comments to offer except those detailed in the covering memorandum.

—————

*Questionnaire for manufactures of sugar by the open pan system and Khandsari.*

1. Sugar is manufactured from cane by open pan system.
2. Cane is obtained directly from the cultivators.
3. Average price per standard maund of sugarcane were as follows:—

	As. P.			As. P.
1933 . . . . .	4 0		1936 . . . . .	6 6
1934 . . . . .	5 0			
1935 . . . . .	6 6		1937 . . . . .	3 0

4. (a) There is no vacuum pan factory.

(b) Price of cane is dependant on the price of gur.

5. (i) 60 maunds juice.

(ii) Approximately 18 maunds.

(iii) About 35 maunds.

6. Only one quality, viz., the Khandsari sugar. The yearly output has been as under:—

Year.	Mds.
1933 . . . . .	1,250
1934 . . . . .	1,750
1935 . . . . .	350
1936 . . . . .	198
1937 . . . . .	122 upto 12th June, 1937.

## 7. Per one maund of sugar.

	1933	1934	1935	1936	1937
	Rs. a.	Rs. a.	Rs. a. p.	Rs. a. p.	Rs. a. p.
(i) Cost of cane	5 0	6 4	8 2 0	8 2 0	3 12 0
(ii) Cost of Manufacture	2 0	2 0	2 0 0	2 0 0	2 0 0
(iii) Labour	0 8	0 8	0 8 0	0 8 0	0 8 0
(iv) Over head charges	0 8	0 8	0 8 0	0 8 0	0 8 0
(v) Interest and depreciation.	0 1	0 1	0 1 0	0 1 0	0 1 0
(vi) Excise duty	Nil	Nil	0 7 4	0 7 4	0 11 8
(vii) Cost of gunny bags	0 3	0 3	0 3 0	0 3 0	0 3 0
(viii) Commission on sales	0 3	0 8	0 3 0	0 3 0	..
Total	8 7	9 11	12 0 4	12 0 4	7 14 8

8. Mardan, Havellian (Hazara) and Haripur (Hazara) are the markets for disposal of sugar manufactured in this factory. Sugar is sent to Mardan by carts and by rail to the Hazara District markets. Sales are made on credit basis.

9. The prices per maund obtained were as under:—

Year.	Rs. A.	Year.	Rs. A.
1933	11 0	1936	8 8
1934	10 0	1937	7 0
1935	9 8		

10. Our sugar is preferred to gur but not to Indian factory sugar, as it is not of refined quality and tastes like gur. Our sugar is consumed by humble classes and persons of orthodox views.

11. To a very great extent.

12. One other open pan factory at Takht Bai closed down working in their very first year because of factory sugar.

13. In this connection attention is invited to answers given against items 6, 7 and 9 above.

14. (1) The method of transport in rainy weather.

(2) Climatic conditions during the winter.

(3) Heavy cost of labour in this district.

(4) Dearthness of fuel in this district.

(5) Heavy duty on Khandasari sugar.

(6) Crude method of boiling juice.

(7) Low quantity of sugar manufactured.

(8) Molasses fetch no price in these days due to low prices of gur.

**Suggestions—**

(i) Improvement of boiling system.

(ii) Abolition of excise duty on Khandasari sugar.

(iii) Government's help in this industry.

Sd. W. N. Sawhney,  
Proprietor.

The Sawhney Sugar Factory, Takht Bai.  
(Mardan District, N.-W. F. Province.)

*Answers to Questionnaire for Local Government are as follows:--*

1. Area under sugarcane in Bannu district during last seven years is as follows:—

Year.	Irrigated acres.	Unirrigated acres.
1930 . . . . .	3,956	...
1931 . . . . .	4,377	2
1932 . . . . .	5,772	3
1933 . . . . .	4,798	9
1934 . . . . .	3,665	14
1935 . . . . .	4,145	24
1936 . . . . .	5,359	19

No improved varieties are cultivated, except the common local sugarcane of ordinary variety.

2. There are no different areas as regard the climatic condition. Crop sown under irrigated and unirrigated is shown above.

3. No irrigation rates are levied. The water belongs to the owners.

4. Estimate of cost is Rs. 32 per acre in irrigated and unirrigated areas. Variation in cost in last seven years is not much. Average yield per acre is 12 maunds.

5. Rs. 5 per maund would be the fair price of gur to the growers.

6. Sugarcane was sown abundantly in 1934 in Bannu assessment circle owing to fall in prices of grain.

7. No figure for 1936-37 is comparatively less than that of 1934-35. The fall of gur price is the only scheme for restricting the area under cane.

8. Vegetables are the only cash crops. But these are beneficial only to those growers who are located near the Bannu city. Estimate of return per acre to an average cultivator from vegetable crops is Rs. 250 per annum.

9. No amount was spent.

10 & 11. Not known.

12. No assistance has been received from either.

13. Not known.

14. 4,241 acres was turned into gur, 400 acres was used for—and 756 acres was used for chewing purpose last year.

15. No factory exists.

16. No special assistance has been received from Co-operative Department.

17. No.

18. As. No. 15.

19. In the absence of factories no system of bonus payments is deemed practicable.

20. Two annas.

21. Hired carts are used and the cost is As. 2 per maund per mile.

22. Rates of hiring rail, lorries, tongas are much higher than those of carts. None.

23-26. Not existing.

27.

—	1930.	1931.	1932.	1933.	1934.	1935.	1936.
	Rs. a.	Rs. a.	Rs. a.	Rs. a.	Rs. a.	Rs. a.	Rs. a.
Wholesale .	4 0	3 0	3 0	2 12	4 8	4 8	3 4 acre.
Retail .	4 4	3 4	3 4	3 0	4 12	4 12	3 8 „

28. Variation in wholesale and retail prices is not considerable.

29. Normal consumption of sugar per annum is about 18,000 maunds. There is no possibility of increasing it.

30. Not existing.

31. Not known.

32. None.

33. About 300,000 maunds.

34. None.

35 to 46. Not known.

47. No practical effect is noted in respect of (a), (b), (c) and (d).

48. Not known.

49. Statistics of acreage of gur is prepared from Girdawari, production from the settlement, directory and prices from the attestation of the dealers.

50. No.

(2) Letter dated 12th July, 1937, from the Revenue and Divisional Commissioner, North-West Frontier Province, Peshawar.

In continuation of this office letter, dated the 23rd June, 1937, I have the honour to forward herewith answers to questionnaires received from the Director of Agriculture and Allied Departments, North-West Frontier Province.

*Replies to questionnaire for Local Government.*

1. The area under sugarcane in the North-West Frontier Province during the last seven years has been as follows:—

Year.	Acres.
1929-30 . . . . .	(Not given in Season and Crop Report).
1930-31 . . . . .	46,877
1931-32 . . . . .	44,268
1932-33 . . . . .	53,212
1933-34 . . . . .	49,391
1934-35 . . . . .	42,844
1935-36 . . . . .	58,512

No statistics regarding improved varieties were taken till 1934 since when the following figures have been recorded:—

1934.		1936.	
Peshawar, Hazara and Bannu Districts.)		(Peshawar District.)	
	Aeres.		Acres.
Paundah . . . . .	37,400	Paundah . . . . .	41,982
Assam Red . . . . .	2,918	Assam Red . . . . .	14,910
Co. 290 . . . . .	751	Co. 290 . . . . .	7,814
Co. 263 . . . . .	4	Kahu . . . . .	122
Kahu . . . . .	63	Hazatawal . . . . .	7
Saharni . . . . .	14½		

2. There are three areas in the North-West Frontier Province which grow sugar:—

- (i) Peshawar District.
- (ii) Hazara District.
- (iii) Bannu District.

All the crop is irrigated.

3. Presumably information regarding the irrigation rights will be obtainable from the Canal Department.

4. The following is an estimate of the cost of cultivation per acre:—

*Cost of growing sugarcane per acre.*

	Rs. A. P.
(1) Two Rajah ploughings . . . . .	4 0 0
(2) One coiled breaking . . . . .	0 8 0
(3) Levelling . . . . .	1 8 0
(4) Four spring timed harrowings . . . . .	2 0 0
(5) Preparing cane seed . . . . .	4 0 0
(6) Cost of seed used . . . . .	20 0 0
(7) Raising ridges and plotting . . . . .	3 8 0
(8) Planting . . . . .	3 8 0
(9) Irrigations 24 . . . . .	7 8 0
(10) Two hoeings and one weeding . . . . .	8 8 0
(11) Cost of manure (compost) 16 carts at Re. 1-4 per cart . . . . .	20 0 0
(12) Dumping and casting manure . . . . .	4 0 0
(13) Spreading manure . . . . .	0 14 0
(14) Three bullock hoeings . . . . .	2 10 0
(15) Earthing up . . . . .	3 8 0
(16) Renewing channels, etc. . . . .	1 12 0
(17) Cutting and stripping . . . . .	14 0 0
(18) Carting . . . . .	9 8 0
(19) Revenue . . . . .	5 11 0
(20) Water rates . . . . .	6 10 0
<b>Total</b> . . . . .	<b>123 9 0</b>

The only variation in cost has been due to the practice of ratooning which has come in with the introduction of Coimbatore canes in the last 2-3 years. The average yield per acre may be put at:—

- (i) Paundah 365 maunds stripped cane with a sucrose content of 10-11 per cent.
- (ii) Coimbatore 290; 487 maunds with a sucrose content of 12-13 per cent.

5. Under present conditions 4 annas per maund would be a fair price of sugarcane to the growers.

6. There has been a large increase in cane in the Peshawar district in the last 2-3 years which is mainly due to the comparative ease with which cane can be cultivated by ratooning and also to the fact that the Coimbatore varieties are more frost resistant than the indigeneous poundah.

7. There was certainly a great over-production in the season 1936-37 especially in the Peshawar District. Some form of restriction of the area under cane is essential. The method of restriction which suggests itself is that cane should not be grown except under license and violations of the rule would be punishable by increased revenue demands.

8. The other cash crops in this province are (i) chillies, (ii) tobacco and (iii) cotton. The following is an estimate of the gross cost of cultivation and return per acre:—

- (i) *Chillies*.—Cost of cultivation Rs. 58 to Rs. 60. Net profit between Rs. 15 to Rs. 20.
- (ii) *Tobacco*.—Cost of cultivation Rs. 55 to 56. Net profit between Rs. 30 and Rs. 40.
- (iii) *Cotton*.—Cost of cultivation about Rs. 29. Net profit between Rs. 7 and Rs. 9.

9. It is not possible to give an accurate estimate of the amount spent during the last seven years for the extension and improvement of sugarcane in this province.

10. The North-West Frontier Province receives no contribution from the Government of India.

11. About 10 acres are allotted every year to sugarcane at the Government Research Station, Tarnab and 5 acres at Serai Naurang. Varietal, manurial, rotational and spacing trials are carried out.

Co. 290 and Co. 285 have been distributed in the districts. Demonstrations of the use of manures have been made on the zamindars lands. The use of the bullock hoe and plough for weeding and earthing up have been extensively recommended but very few zamindars have followed the advice of the Department.

12.(i) The Imperial Council of Agricultural Research has sanctioned a scheme of Sugarcane Research in this Province which it is hoped will start this year.

(ii) Coimbatore Sugarcane Research Station has sent many varieties for trial.

(iii) Advice has been obtained from the Imperial Institute of Sugar Technology on the subject of Power Crushers.

At present funds for research are by no means adequate, but matters will be improved when the Sugarcane Research Scheme starts.

13. There are no sugarcane factories in this province.

14. Of the sugarcane grown in this province 5 per cent. is used for chewing purposes and the rest for conversion into gur.

15. The main difficulties experienced by the cane growers in this province up to date have been the incidence of red rot on Poundah cane, with the introduction of Coimbatore varieties this difficulty has been overcome. The second main difficulty is on account of severe frosts which start in

this province in the beginning of December. Here again the introduction of Coimbatore varieties has overcome, to some extent, the difficulties.

16. The Co-operative Department, as far as I am aware, has not been able to render any assistance to cane growers.

17. Minimum prices of sugarcane are not fixed in this province.

18. Does not arise.

19. Does not arise.

20. The average cost of transport of cane may be put at approximately .65 pies per maund per mile on metalled roads and about 50 per cent. higher on village roads.

21. Cane growers usually use their own carts.

22 & 23. As there are no factories in this province the question does not arise.

24-28. As no factories exist in this province the questions do not arise.

29. The figure for consumption of sugar in this province is 245,700 maunds.

30. There are no large scale manufactories of confectionery in this province. Indian sweetmeats and pastry, etc., are prepared by local Halwais and Bakeries with a varied material of sugar, gur, maida, khawa, nuts, raisins, etc.

31. As no sugar industry exists in this province the question does not arise.

32. There are great possibilities in connection with fruit preservation, canning, etc., in this province but this industry is greatly handicapped by the high cost of sugar and containers. It is calculated that the sugar in imported jam only pays a duty of 1.1 annas per lb. whereas the manufacturer of jam who has to buy Indian sugar pays for it at a rate which depends on an import duty of 1.4 annas per lb.

33. Figures for the production of gur from sugarcane for the last seven years are as follows:—

	Mds.
1929-30 . . . . .	1,717,033
1930-31 . . . . .	figures not available.
1931-32 . . . . .	1,492,136
1932-33 . . . . .	1,217,034
1933-34 . . . . .	1,484,246
1934-35 . . . . .	1,112,038
1935-36 . . . . .	1,768,521

34. In this province sugar is not made from any other materials.

35. The following are the prices of gur for the last seven years:—

Year.	Price per standard maund.	Year.	Price per standard maund.
	Rs. A. P.		Rs. A. P.
1930 . . . . .	6 3 0	1934 . . . . .	4 8 7
1931 . . . . .	5 11 0	1935 . . . . .	6 7 10
1932 . . . . .	4 6 2	1936 . . . . .	4 13 7
1933 . . . . .	3 9 10	1937 . . . . .	2 8 0

The present low prices have been attributed to overproduction. The cheapness of sugar has also a depressing effect on the demand for gur and so affect gur prices.

36. It is estimated that two-third of the total production of gur is consumed in the province and one-third is exported to near Punjab markets, Kashmir, the neighbouring Tribal areas and States. On this basis the estimated normal consumption of the province would amount to 27,698 tons. The increasing consumption of sugar is replacing gur to some extent.

37. No gur or jaggery is imported into this province.

38. Gur is exported to near Punjab markets, Kashmir, the neighbouring Tribal areas and States. It has been estimated that the figures for normal exports amount to 13,849 tons. The exports to Punjab are decreasing to some extent owing to the increasing production of gur there and increasing use of sugar.

39. The cheapness of sugar has a depressing effect on the demand for gur and so affects gur prices.

40. The increasing use of sugar on account of its cheapness has no doubt replaced gur consumption to some extent. The imports of sugar are estimated at 9,000 tons and on this basis at present, sugar caters to 1/4th of the total combined consumption of gur and sugar in this province.

41. In the year 1935 the Hadi Gur Boiling Furnace was set up at Tarnab Farm and an expert from K. B. Hadi Khan was employed. The results were, however, disappointing as a yield of sugar to cane of 4.88 per cent. was obtained. Experiments were also carried out on the use of sumaphos and activated charcoal but were disappointing.

42. There were two small open pan factories in this province in 1933, 1934 and 1935 but they have both since closed down.

43. Below is given an estimate of the cost of manufacturing sugar by the open pan process (figures taken from the working of a small factory since closed down):—

1. *Labour employed and the working cost (daily).*

	Per mensem.	Per day.
	Rs.	Rs. A.
Head Mistri . . . . .	60	2 0
Two Assistant Drivers at Rs. 20 . . . . .	40	1 6
		3 6
<b>Total</b>		<b>3 6</b>

2. *Expenses of running the machinery.*

	Rs. A.
(a) Cost of Crude/Diesal oil—per 20 hrs., 20 gals.; at As. 7 . . . . .	8 12
(b) Mobil oil 1 gal. at Re. 1-8 . . . . .	1 8
(c) Grease, etc. . . . .	1 0
	11 4
<b>Total</b>	<b>11 4</b>

3. *Working of crushers (cane).*

	Rs. A.
Labour required: 8 men at As. 5 . . . . .	2 8 day. 2 8 night.

4. *Working the Centrifugal machineries only during the day.*

	Rs.
One sugarcane . . . . .	30
One helper . . . . .	15
Two men to bring rots from the tanks and feed the pug mill . . . . .	24
	69
<b>Total</b>	<b>69 = 24 per day.</b>



5. To dry bagasi and collect it in the field. 3 men at As. 6=Re. 1-2 per day.
6. To dry sugar in the sun and pack up in bags. 3 men at As. 6=Re. 1-2 per day.

7. To work the Hadi Bels:

	Per month.
One Bel during the day—	
Two Halvais . . . . .	45
One Nikhar . . . . .	15
One Waterman . . . . .	12
Two Furnace Feeding Bagassis . . . . .	24
Two coolies . . . . .	20
	<hr/>
Total	116
	<hr/>
For night and day . . . . .	232
For two bels . . . . .	464
	<hr/>
Two Darogas, one for day and one for night—Rs. 15 each—Rs. 30 (Rs. 464+Rs. 30=Rs. 494, i.e.,	12-8
Fuel for one Bhati 60 mds. daily, at 8 annas per md.	30-0
	<hr/>
Total	66 10

9. Overhead charges.

	Per mensem.
(a) Manager . . . . .	150
(b) Accountant . . . . .	50
(c) Two mistris as Rs. 15 . . . . .	30
(d) Two chowkidars at Rs. 15 . . . . .	30
	<hr/>
	260 = 8 8
	<hr/>
Grand Total	75 2

(i.e., Rs. 75 approximately.

10. Calculations for output.

- (a) 400 maunds local cane purchased at As. 7 per maund=Rs. 175.
- (b) Sugar manufacture at 5 per cent. 20 mds. (local) at Rs. 12 per md.
- (c) 6 per cent. 24 mds. at Re. 1 per md.

44. It is difficult to say whether the two open pan factories closed down on account of competition in factory sugar imported from other provinces.

45. As the Khandsar sugar does not exist in this province the question does not arise.

46. Please see reply to question 41.

47, 48 and 49. Do not arise.

50. Statistics of acreage, production and prices of sugar and gur, etc., are prepared by the Revenue Staff. It is difficult to say what degree of accuracy is being maintained.

51. No.

*Answer to questionnaire for gur/jaggery merchants.*

1. The principal gur and jaggery markets are Peshawar, Charsadda, Mardan and Takht Bhai.
2. There are two kinds of gur with the local trade description of
  - (a) Deshi (from Paunda cane).
  - (b) Farmi (from New Coimbatore cane).
3. The chief areas of supply are Charsadda, Mardan, Peshawar and Bannu. The quantities available for the last seven years from these areas cannot be accurately ascertained. However the production is increasing due to the spread of new varieties.
4. There has been variation in the quality of the Desi gur whenever any disease, e.g., 'red rot' attack the local cane Paunda.
5. The following is a statement of gur prices for the last seven years in Peshawar:

Year.	Per standard maund.	Year.	Per standard maund.
	Rs. A. P.		Rs. A. P.
1930 . . . . .	6 3 1	1934 . . . . .	4 8 7
1931 . . . . .	5 11 0	1935 . . . . .	6 7 10
1932 . . . . .	4 6 2	1936 . . . . .	4 13 7
1933 . . . . .	3 9 10	1937 . . . . .	2 8 0

The present low prices have been attributed to overproduction.

6. The cheapness of sugar has a depressing effect on gur prices.
7. With reference to point (i) the question does not arise as there is no Indian factory gur in competition here. Regarding (ii) the general remarks in reply No. 6 apply. The consumption of sugar is becoming popular and is replacing gur to some extent.
8. Desi gur has good keeping qualities and can keep well for about 6 to 12 months under good storing conditions in a dry climate. The Farmi gur is not reported to have good keeping qualities as compared with the Desi.

(3) *Letter dated the 5th July, 1937, from the Revenue and Divisional Commissioner, North-West Frontier Province.*

**Subject:—MOLASSES CONSUMED BY DISTILLERIES AND OTHER CONCERNS MANUFACTURING RECTIFIED AND DENATURED SPIRIT.**

With reference to your letter No. 303, dated the 18th June, 1937, I have the honour to inform you that there is no Distillery in the North-West Frontier Province nor is rectified or denatured spirit manufactured anywhere in the Province.

### Replies from the Government of Delhi.

(1) *Letter dated the 7th July, 1937, from the Chief Commissioner, Delhi.*

With reference to your letters Nos. 147 and 172, dated the 30th April and the 11th May, 1937, respectively, I have the honour to say that as there is no sugar industry in the Delhi province, I am unable to assist materially with questionnaires and witnesses, or to express opinions on matters such as the treatment of growers by the manufacturers.

2. I enclose statements for the years 1933-37 (up to June last) showing the average monthly prices of gur/jaggery of different qualities.

3. I also enclose replies (with 6 spare copies) to the questionnaires to be answered by local governments.

### Replies to Questionnaire for Local Governments.

1. The area under sugarcane during the last seven years has been as below:—

Name of the year.	Total area under sugarcane.	Area under improved varieties. (estimated).	Approximate under different improved varieties				
			Co. 213.	Co. 205.	Co. 244.	Co. 285.	Co. 290.
1930-31 .	4,584 acres.	15 acres.	..	15	..	..	..
1931-32 .	3,225 do..	25½ do. .	½	25	..	..	..
1932-33 .	4,382 do..	450 do. .  (According to revenue records.)	25	400	13	12	..
1933-34 .	3,504 do..	3,420 acres.	800	1,820	400	400	..
1934-35 .	7,621 do..	4,259 do. .	1,200	800	1,100	1,100	59
1935-36 .	3,411 do..	3,110 do. .	1,600	400	500	500	110
1936-37 .	4,599 do..	3,667 do. .	1,950	500	300	900	15

2. In 1936-37 4,091 acres of sugarcane were irrigated. In the riverain and in low-lying *jhil* land there is some unirrigated cane, but very little.

3. The present irrigation rates are Rs. 11 for flow and Rs. 5-8 for lift. Before 1934 the rates for flow and lift were Rs. 12 and Rs. 6 respectively. Owing to the fall in commodity prices the rates were revised by the Punjab Government.

4. The approximate cost of cultivation is about Rs. 80, Rs. 85 and Rs. 65 per acre on canal, well irrigated and unirrigated lands respectively. There has been no significant variation in the cost of cultivation during the last seven years. The average yield is about 35 and 25 maunds per acre on irrigated and unirrigated land respectively. The figures for sucrose content are unknown.

5. In existing conditions As. 5 to As. 5-6 per maund.

6. In the years 1931-32 and 1935-36 the area under sugarcane was below average owing to (i) scarcity of rainfall and canal supply and (ii) shortage of sound seed, owing to frost.

7. No.

8. The other cash crops ordinarily grown on land suitable for sugarcane are *chari* and cotton. Cotton is a risky crop owing to its susceptibility to damage by the monsoon rain. *Chari* yields about Rs. 40 per acre and the cost of cultivation is small.

9. No direct expenditure has been incurred. Improved varieties have been popularised through the Agricultural Department and *taccavi* was given in 1935-36 when the seed failed.

10. No contribution is received.

11. (i) None.

(ii) See above. Propaganda has been done by the Agricultural Department and by Revenue Officers.

12. No assistance has been received. There are no funds for research.

13. There is no sugar factory in the province.

14. The sugarcane grown in the province at present is used approximately as below:—

- (i) About 5 to 10 per cent. is sold to the sugar factory at Sonapat and crushed there; (The factory usually purchases stripped canes at different railway stations, e.g., Nangloi and Narela);
- (ii) About 20 to 30 per cent. of the cane is purchased in the form of cane juice for the manufacture of jaggery by the dealers; or by owners of open pan factories and khandsaris;
- (iii) About 60 to 65 per cent. of the crop is crushed for manufacture of gur by the cultivators themselves;
- (iv) About 5 to 10 per cent. is eaten as cane or used for the extraction of cane juice as a beverage.

15. The main difficulties in cultivation are:—

- (i) The excessive fragmentation of holdings; and
- (ii) Shortage of irrigation water. There is no sugar factory in the Province.

16. Nothing of importance has yet been done.

17. No.

18 & 19. Do not arise.

20. The average cost of transport of cane by cart is about  $\frac{1}{4}$  anna per maund per mile.

21. Usually the cane growers employ their own carts otherwise they hire the cart at  $\frac{1}{4}$  anna per mile per maund.

22. Does not arise. Communications in the Province are average to good.

23-27. Do not arise.

The following statement shows the average wholesale and retail prices of sugar desi (Indian) in the market of Delhi for the last seven years:—

	Wholesale prices. (per maund of 82½ lbs. Delhi.)			Retail prices (per rupee) Delhi.	
	Rs.	A.	P.	Srs.	Ch.
1930	16	7	9	2	4
1931	16	0	0	2	7
1932	13	12	0	2	14
1933	11	15	3	3	2
1934	11	7	3	3	9
1935	11	9	3	3	4
1936	10	14	6	3	11
1937 (Up to June 15)	9	14	4	3	15

28. There has been no marked variation between wholesale and retail prices.

29. About 200,000 maunds. There are no special possibilities of increasing it.

30. Confectionery is manufactured at Delhi and Delhi-Shahdara.

31. Does not arise.

32. Delhi has a favourable position as a possible industrial centre, but it is doubtful if it will attract subsidiary industries of the kind mentioned in any large numbers.

33. The average yield of gur during the last seven years was estimated as below:—

Year.	Approximate yield. Mds.	Year.	Approximate yield. Mds.
1930-31 . . . . .	96,264	1934-35 . . . . .	160,041
1931-32 . . . . .	67,788	1935-36 . . . . .	95,508
1932-33 . . . . .	92,022	1936-37 . . . . .	128,772
1933-34 . . . . .	73,962		

34. No material other than cane is used.

35. The average wholesale prices of gur in the Delhi market for the last seven years are as follows:—

Year.	Wholesale price per maund of 82½ lbs.	
	Decc.	Lawar.
	Rs. A. P.	Rs. A. P.
1930 . . . . .	6 7 0	7 10 0
1931 . . . . .	4 6 9	5 11 3
1932 . . . . .	3 3 3	3 15 9
1933 . . . . .	2 15 6	4 0 9
1934 . . . . .	3 12 0	6 1 0
1935 . . . . .	4 10 3	5 15 3
1936 . . . . .	3 14 0	4 12 6
1937 (Up to June 15) . . . . .	3 1 9	3 14 9

The variations are mainly due to competition from Indian factory sugar.

36. The estimated total annual consumption of gur in the province since 1930 is as follows:—

Year.	Consumption in maunds.	Year.	Consumption in maunds.
1930 . . . . .	167,687	1934 . . . . .	168,374
1931 . . . . .	112,164	1935 . . . . .	126,108
1932 . . . . .	154,045	1936 . . . . .	165,972
1933 . . . . .	140,528		

37. Gur is generally imported into Delhi from the districts of Meerut, Bulandshahr and Aligarh in the United Provinces, and the mandis of Palwal and Rohtak in the Punjab.

The following statement shows imports of gur into Delhi during the last seven years:—

Year.	Imports in maunds.	Year.	Imports in maunds.
1930 . . . . .	138,229	1934 . . . . .	119,595
1931 . . . . .	90,821	1935 . . . . .	105,635
1932 . . . . .	125,629	1936 . . . . .	137,944
1933 . . . . .	127,009		

38. The export of gur is mainly confined to Rewari and certain Rajputana States.

The following statement shows approximate figures of exports during the last seven years:—

Year.	Exports in maunds of 82½ lbs.	Year.	Exports in maunds of 82½ lbs.
1930 . . . . .	3,422	1934 . . . . .	3,436
1931 . . . . .	2,289	1935 . . . . .	2,574
1932 . . . . .	3,144	1936 . . . . .	3,389
1933 . . . . .	2,868		

39. Yes.

40. Indian factory sugar is probably replacing gur but there are no reliable statistics.

41. None, provincially.

42-43. There are none.

44. The khandsars of Delhi-Shahdara have been closed as a consequence of competition by sugar factories in the neighbouring districts.

45. The khandsari industry might have some future if modernised (cf. activated charcoal process). But broadly speaking Delhi can use all the cane produced in any case.

46. None.

47 & 48. The sugar excise duty of 1936 and the additional duty imposed in 1937 do not seem to have affected the growers very seriously. It is not easy to express an opinion about manufacturers, dealers and consumers.

49. There is no production of sugar or its bye-products locally. The protective duties do not appear to have influenced any industry in Delhi.

50. Statistics for acreage are taken from the Revenue Records. Those for prices are ascertained by local enquiry. Figures for production of gur, etc., are necessarily approximate. The accuracy of the acreage figures and figures for prices is however high.

51. No.

(2) Letter dated the 29th June, 1937, from the Chief Commissioner, Delhi.

With reference to your letter No. 303, dated the 18th June, 1937, I have the honour to inform you that there is no distillery in this province, neither are there any firms manufacturing rectified or denatured spirit.

(3) Letter dated the 9th July, 1937, from the Chief Commissioner, Delhi.

In reply to your letter No. 181, dated the 15th May, 1937, I have the honour to state that the average prevailing rate of interest at which cultivators can borrow money in Delhi, is Rs. 15 per cent. per annum.

(1) Replies to Questionnaire for Local Governments and states furnished by the Government of H. E. H.  
the Nizam of Hyderabad.

1.

Sugarcane acreage.

Districts.	1930-31.	1931-32.	1932-33.	1933-34.	1934-35.	1935-36.	1936-37.	Percentage increase in acreage since 1930-31.
	1339-40 Faali.	1340-41 Faali.	1341-42 Faali.	1342-43 Faali.	1343-44 Faali.	1344-45 Faali.	1345-46 Faali.	
Hyderabad City	..	..	..	..	..	..	..	..
Baghat	..	..	..	..	..	..	52	..
Atraf-i-Balda	133	175	371	235	228	728	1,635	1,130
Warangal	3	3	29	36	96	83	205	6,733
Karimnagar	3	5	3	4	4	33	222	7,300
Adilabad	65	64	76	100	196	195	308	374
Medak	156	171	202	473	2,205	3,907	4,150	2,580
Nizamabad	1,082	905	1,396	2,153	5,058	10,074	10,449	866
Mahbubnagar	89	54	64	83	138	127	594	567
Nalgonda	..	..	3	4	71	84	61	..
<b>TELANGANA</b>	<b>1,532</b>	<b>1,377</b>	<b>2,144</b>	<b>3,088</b>	<b>7,996</b>	<b>15,231</b>	<b>17,676</b>	<b>1,054</b>
Aurangabad	1,380	1,608	1,947	2,222	2,798	2,670	2,884	109
Bir	902	914	3,170	5,015	4,729	4,972	1,300	44
Nanded	317	350	433	560	688	984	982	210
Parbhani	714	1,360	965	1,238	1,129	1,443	1,405	97
Gulbarga	476	372	521	538	1,607	1,333	1,334	176
Osmanabad	6,023	5,982	6,698	7,554	7,050	7,817	5,874	-2
Raichur	2,444	2,667	2,635	2,784	2,474	2,649	3,895	60
Bidar	20,690	20,763	21,699	23,481	22,109	21,406	21,601	4
<b>MARATHWABA</b>	<b>32,946</b>	<b>34,016</b>	<b>38,066</b>	<b>43,392</b>	<b>42,584</b>	<b>43,274</b>	<b>39,275</b>	<b>19</b>
<b>HYDERABAD STATE</b>	<b>34,478</b>	<b>35,395</b>	<b>40,212</b>	<b>46,480</b>	<b>50,580</b>	<b>58,505</b>	<b>57,951</b>	<b>68</b>
<b>ALL INDIA</b>	<b>2,801,000</b>	<b>2,971,000</b>	<b>3,317,000</b>	<b>3,311,000</b>	<b>3,481,000</b>	<b>4,003,000</b>	<b>..</b>	<b>..</b>

686

The local variety of sugarcane alone used to be grown, a thick soft cane of the Pundiya type. Improved varieties have been introduced during the last seven years. Coimbatore No. 213 is being grown extensively. Introduction of Coimbatore No. 290 and P.O.J. 2878 has been started, with a view to replace Coimbatore No. 213, as they have proved better. About 30 per cent. of the total sugarcane area in the Hyderabad State is now occupied by improved varieties, as will be found from the following table:—

*Area (in acres) of sugarcane local and improved in Hyderabad State.*

Year.	IMPROVED VARIETIES					Total.
	Total.	Local.	Co. 213.	Co. 290.	P. O. J.	
1930-31	34,478	34,427	51	...	...	51
1931-32	35,395	34,865	530	...	...	530
1932-33	40,212	38,296	1,916	...	...	1,916
1933-34	46,480	39,906	6,568	3	6	6,577
1934-35	50,580	36,835	13,702	7	36	13,745
1935-36	58,505	40,952	17,108	209	236	17,553

2. Sugarcane can be grown successfully in practically all parts of the Hyderabad State. Extremes of heat and cold are unknown. The annual rainfall ranges from about 28 inches in the south-west corner to about 50 inches in the north-east corner of the State, but sugarcane can be grown in all parts being invariably grown under irrigation. There are three main kinds of soil in the State, viz., red sandy soil, black cotton-soil and laterite. Good crops are being raised on all the three kinds of soil, laterite being the most fertile. In Bidar District, mainly on laterite soil, is raised under wells in small valleys more than one-third of the total acreage of the Dominions. Irrigation is mainly from canals and tanks in Telingana and from wells in Marathwada. Practice in all parts of the State is planting in flat beds, which is giving place to the method of planting in trenches recommended by the Agricultural Department. Sugarcane is being grown according to the new method on considerable areas already.

### 3. SUGARCANE.

*Rates of assessment for the districts chiefly growing cane.*

Maximum in O. S. Rupees.

Serial No.	District.	Under Tank or canal.	Under Government wells.
1.	Medak . . . . .	34 to 40	...
2.	Nizamabad . . . . .	34 to 40	...
3.	Mahbubnagar . . . . .	22½ to 30	...
4.	Nalgonda . . . . .	22½ to 31-3	...
5.	Bidar . . . . .	30	4-8 to 6-12

The latest basis for determining the rate for sugarcane is double the consolidated wet-rate, but in certain districts 1½ times still obtains. Under wells (e.g., in Bidar) the garden-rate has been adopted. There has been no marked change during the last seven years.

4. No systematic enquiry has been carried out into the cost of cultivation of sugarcane in different parts of the State. The following rough estimate



was made by a Deputy Director of Agriculture in 1931 with regard to improved varieties of cane:—

	Rs.
1. Preparatory tillage (ploughing, trenching, hosing, etc.) . . . . .	60
2. Manuring (20 cart-loads of F. Y. M. and 40 Mds. of castor cake) . . . . .	60
3. Fencing . . . . .	5
4. Sowing with cost of seed (40 Mds. of cane at As. 8 per maund) . . . . .	30
5. Irrigation (labour only) . . . . .	10
6. Weeding and hosing . . . . .	15
7. Earthing (twice) . . . . .	30
8. Harvesting . . . . .	33
9. Land assessment (revenue and water tax) . . . . .	45
Total . . . . .	288

All sugarcane in Hyderabad State is grown under irrigation. There has been no appreciable variation in the cost in the last seven years. The yield of cane per acre is estimated to be 750 maunds. The variety Co. 213 has given 19.5 per cent. sucrose in juice, on the average based on experiments at the Agricultural Farms during the last five years.

5. There is no experience for any estimate.

6. Only in the Nizamabad District due to development under the canal—

	Acres.
1930-31 . . . . .	1,082
1936-37 . . . . .	10,449

There has been a fall this year of over sixty per cent. owing to the fall in the price of gur from O. S. Rs. 6 to O. S. Rs. 4-6 per maund of 40 seers.

7. Nil.

8. Following is a list of other important cash crops in the State. Accurate figures of return to the cultivator are not available. A very rough estimate of net profit per acre by the Director of Agriculture is:—

Sl. No.	Crop.	Net pro- fit per acre in rupee.	Sl. No.	Crop.	Net pro- fit per acre in rupee.
		Rs.			Rs.
1.	Cotton	20	7.	Turmeric	70
2.	Linseed	10	8.	Onion	80
3.	Groundnut	20	9.	Garlic	60
4.	Castor	15	10.	Chillies	85
5.	Seasamum	10	11.	Tobacco	35
6.	Sufflower	5			

Of the above turmeric, onion, garlic, chillies and tobacco are grown as alternative crops to sugarcane.

9. It is not possible to give such an estimate. There is no separate staff or budget grant for sugarcane work. Experimental work on sugarcane is done at the Government farms along with other crops and the same staff which does extension work in connection with other crops carries out work in connection with sugarcane also.

10. Nil.

11. (i) Research work has up till now been confined to observations and plot experiments on Government farms and some chemical analysis. The cultivators used to grow a thick soft cane of the Pundiya type, which could not stand without artificial support, was liable to attack by wild animals and required a large number of irrigations for satisfactory growth. Varietal experiments were, therefore, started and are continued on some of the Government farms. Most of these varieties have been obtained from the Imperial Sugarcane Research Station, Coimbatore. As a result, the area under sugarcane has increased very much during the last seven years. Coimbatore No. 213 has spread in almost all districts. As a result of later experiments Coimbatore No. 290 and P.O.J. 2878, which have proved better in quality, are now being extended with a view to replace Co. 213. Experiments are in progress with a large number of other varieties. A planting-time experiment has been carried out with Co. 213, with the object of finding out how far planting and harvesting times could be extended economically. The results indicate that earlier planting is better. A manurial experiment is also in progress. The indications are that a combination of 2,000 lbs. of castor cake and 100 lbs. of ammonium sulphate per acre gives the highest outturn. Chemical analysis of sugarcane juice has been carried out every year in connection with the above experiments. Investigation with regard to the alleged saltiness in the gur produced in some districts has also been taken in hand. The results so far obtained show that the saltish taste is not due to any defect in the sugarcane itself, but it is due to alkalinity in the soil.

(ii) Cane sets are supplied free to cultivators and they are planted in their own fields according to the improved methods which is explained to them—the improved method is the planting of cane in trenches adequate manuring with green manure, castor cake and ammonium sulphate as against planting of cane in flat beds and insufficient manuring with farm yard manure. To give effect to this Demonstration plots are established every year in selected villages and the following table gives details:—

Fasli year.	Variety.	Number of plots.	Total.
1930-31—1340 . . . . .	Co. 213	15	15
1931-32—1341 . . . . .	Co. 213	27	27
1932-33—1342 . . . . .	Co. 213	45	50
	P.O.J. 2878	5	
1933-34—1343 . . . . .	Co. 213	82	118
	290	15	
	P.O.J. 2878	21	
1934-35—1344 . . . . .	Co. 213	73	85
	290	4	
	P.O.J. 2878	8	
1935-36—1345 . . . . .	Co. 213	113	184
	290	43	
	P.O.J. 2878	28	

12. (i) It is proposed to extend the experimental work at the Government farm at Rudrur in the Nizamsagar Canal Area near where a sugar factory is being erected. The Imperial Council of Agricultural Research, has recently sanctioned a lump sum grant of Rs. 5,000 as their contribution towards this work.

(ii) At the invitation of the Hyderabad Government, the Imperial Sugarcane Expert from Coimbatore visited Hyderabad and toured in the Nizamsagar Canal Area, to advise the Government with regard to further work in connection with the introduction of better varieties and the further extension of area under cane under Nizamsagar. His report on the development of sugarcane cultivation in the Nizamsagar Canal Area has been published as Bulletin No. 9 of the Hyderabad Agricultural Department. Beside this, the Agricultural Department has been frequently consulting the Imperial Sugarcane Expert and he has been giving the required advice readily. Most of the large number of improved sugarcane varieties, which are under experiment at the Government farms, have been obtained from the Coimbatore Research Station.

(iii) The Sugar Technologist to the Imperial Council of Agricultural Research visited Hyderabad, at the invitation of the Hyderabad Government, and toured in the Nizamsagar Canal Area to advise with regard to the establishment of a sugar factory. His report on the prospects of a sugar factory in the Nizamsagar Canal Area has been published as Bulletin No. 7 (New series) of the Department of Commerce and Industries. Seven students from Hyderabad are taking training at the Imperial Institute of Sugar Technology.

There are no separate grants for agricultural and technological research in respect of sugarcane.

13. The first sugar factory in the State is under erection now.

14. There is no sugar factory in this State at present, nor are there any regular open pan factories and khandsaris. It is estimated that about 10 per cent. of the produce is used for chewing purposes and for seeds the remaining being turned into gur.

15. The main difficulty of the cultivators is want of capital for production of better crops (for instance manuring) and want of a satisfactory market.

16. Forty Co-operative Credit Societies are working in the Nizamsagar Canal Area, of which the majority of members numbering about 500 are cane-growers. There is demand for more. A sale-and-supply society was organised about two years ago at Nizamabad in order to help cane-growers in the marketing of gur and the supply of seed and manure. It is not functioning properly, but the Registrar of Co-operative Societies hopes that, after the appointment of the Co-operative Sales Officer, it will be able to effect some good for cane-growers.

17-19. Nil.

20. As cultivators generally make gur near the field, there are no data for the cost of transportation of sugarcane by carts.

The cost of transportation of wheat and rice on hired bullock carts in different districts of the Dominions were calculated in connection with the survey of marketing of agricultural produce. The average cost of transportation of wheat to 10 different markets in the Mahrathwara and rice to about half-a-dozen markets in Telingana is given below (details are given in Table No. 1 below):—

*Cost of transportation on hired bullock-carts.*

	MAHRATHWARA WHEAT.		TELANGANA RICE	
	Metalled road.	Cart track.	Metalled road.	Cart track.
B.G. pias per maund per mile .	1.55	2.65	1.35	1.62

It may be presumed that unless there is a very great demand for conveyance, the average cost of transportation of the cane will be the same as for other commodities.

TABLE No. I.

*Cost of Transportation by cart in prices per maund (82 2/7 lbs.) per mile.*

Places.	Wheat.			
	METALLED ROAD.		CART TRACK.	
	O. S.	B. G.	O. S.	B. G.
Hingoli . . . .	2-99	2-56	4-42	3-79
Jalna . . . .	1-52	1-30	2-23	1-91
Bidar . . . .	1-58	1-35	3-3	2-8
Udgir . . . .	1-58	1-35	3-15	2-7
Purli . . . .	2-04	1-75	3-06	2-62
Bid . . . .	2-01	1-72	4-13	3-54
Manwath . . . .	.79	0-68	1-89	1-62
Purna . . . .	2-00	1-71	3-2	2-74
Mominabad . . . .	1-8	1-54	2-89	2-48
Nanded . . . .	1-88	1-61	2-77	2-37
Average . . . .	1-81	1-55	3-09	2-65
	Rice.			
Warangal . . . .	1-21	1-04	1-33	1-16
Mahbubabad . . . .	1-55	1-33	1-8	1-54
Khammam . . . .	1-11	0-95	...	...
Mahbubnagar . . . .	2-22	1-9	...	...
Jangaon . . . .	...	...	1-4	1-2
Sangareddi . . . .	1-88	1-55	...	...
Siddipet . . . .	...	...	1-98	1-7
Mancherial . . . .	...	...	2-92	2-5
Average . . . .	1-58	1-35	1-89	1-62

21. The reply in 20 above covers this question.

22. A branch line from Jankampet to Bodhan has recently been constructed, mainly for the sugar factory, at a cost of B.G. Rs. 5-4½ lakhs. The Company has guaranteed half a lakh annually of gross earnings. No special road system and no tramway system has yet been created.

23. A preliminary survey was made regarding the prospects of a sugar factory, in the Nizamsagar Area.

24. (1) Government has taken shares to the extent of half the capital of the Company floated in June, 1937, i.e., 17½ lakhs and has made advances.

(2) No other sugar factory will be permitted to be established within the Nizamsagar Area without giving the company, the first refusal.

(3) Unoccupied lands will be given on patta, and lands will be leased from pattedars, the good offices of Government being made available; and if necessary lands will be acquired under Land Acquisition Act.

(4) The factory will pay the same water-rates as the ordinary ryot.

25 & 26. Nil.

27. Prices are available for the capital only and for wholesale business.

TABLE No. II.

Monthly average wholesale prices of Java Sugar per munda of 40 seers at Secunderabad and Hyderabad.

Months.	1931.		1932.		1933.		1934.	
	O. S.	B. G.	O. S.	B. G.	O. S.	B. G.	O. S.	B. G.
January . . . . .	12 2 3	10 5 6	15 0 10	13 1 10	14 6 9	12 9 0	13 8 1	11 12 1
February . . . . .	12 11 3	10 12 4	14 15 2	13 0 4	14 7 10	12 7 9	13 9 2	11 13 1
March . . . . .	12 8 10	10 10 8	14 11 1	12 12 2	14 7 0	12 7 8	13 4 3	11 8 9
April . . . . .	12 8 0	10 9 2	14 2 1	12 2 11	14 4 7	12 5 2	13 5 1	11 9 5
May . . . . .	12 15 4	10 14 5	14 7 0	12 4 8	14 4 7	12 5 6	13 10 9	11 14 5
June . . . . .	13 2 8	11 1 1	14 6 9	12 4 11	14 6 2	12 7 7	13 9 2	11 12 3
July . . . . .	13 2 8	11 1 9	14 7 0	12 6 2	14 5 1	12 7 0	13 10 0	11 12 0
August . . . . .	13 4 3	11 3 7	14 7 0	12 6 5	14 2 8	12 4 4	13 10 0	11 12 3
September . . . . .	13 3 0	11 1 4	14 7 7	12 7 8	14 3 8	12 5 6	13 9 0	11 11 2
October <sup>1</sup> . . . . .	14 11 1	12 8 11	14 7 0	12 7 9	14 2 2	12 4 8	13 8 0	11 10 1
November . . . . .	14 14 5	12 13 8	14 11 8	12 11 10	14 2 2	12 4 6	..	..
December . . . . .	14 15 3	13 0 1	14 10 10	12 12 5	13 4 4	11 8 6	13 4 0	11 6 4
Annual average . . . . .	13 5 7	11 5 11	14 9 2	12 9 3	14 3 9	12 5 1	13 8 11	11 11 3

TABLE NO. III.

Monthly average wholesale prices of sugar (Indian white crystal) at Hyderabad per maund of 40 seers.

Months.	1934.		1935.		1936.		1937.	
	O. S.	B. G.	O. S.	B. G.	O. S.	B. G.	O. S.	B. G.
January . . . . .	12 15 4	11 4 6	13 6 0	11 10 5	12 9 0	10 13 6	11 10 0	10 0 8
February . . . . .	13 0 2	11 5 3	13 8 6	11 12 3	12 11 6	10 15 3	10 8 3	9 1 2
March . . . . .	13 0 11	11 5 10	13 3 0	11 6 11	12 5 6	10 10 4	10 6 6	8 15 10
April . . . . .	13 1 9	11 6 6	13 0 0	11 3 7	12 2 6	10 7 10	10 7 6	9 0 8
May . . . . .	13 3 5	11 8 0	13 2 0	11 5 5	12 2 9	10 7 5	10 2 0	8 11 7
June . . . . .	13 2 7	11 6 6	13 2 0	11 4 4	12 5 3	10 9 1	9 14 0	8 7 7
July . . . . .	..	..	13 2 0	11 3 7	11 15 0	10 3 11	..	..
August . . . . .	13 8 0	11 10 6	13 1 6	11 3 9	11 14 3	10 3 4	..	..
September . . . . .	13 5 0	11 7 9	13 3 0	11 5 0	11 9 6	9 15 4	..	..
October . . . . .	13 4 0	11 6 8	14 7 6	12 6 9	11 11 9	10 1 8	..	..
November . . . . .	13 3 6	11 6 7	13 10 6	11 12 2	11 9 9	10 0 5	..	..
December . . . . .	13 1 0	11 5 5	12 10 6	10 14 10	11 7 6	9 14 7	..	..
Annual Average . . . . .	13 4. 4	11 6 8.	13 4 9	11 7 5	12 0 8	10 5 11	10 8 1	9 10 11

TABLE No. IV.

Monthly average wholesale prices of sugar (Indian white) at Hyderabad per maund of 40 seers.

Months.	1934.		1935.		1936.		1937.	
	O. S.	B. G.	O. S.	B. G.	O. S.	B. G.	O. S.	B. G.
January . . . . .	..	..	12 12 0	11 1 8	12 6 0	10 11 1	11 0 0	9 8 1
February . . . . .	..	..	13 8 0	11 11 10	12 9 6	10 13 6	10 8 0	9 0 11
March . . . . .	..	..	13 3 0	11 6 11	12 4 0	10 9 1	..	..
April . . . . .	..	..	12 12 0	11 0 2	11 15 6	10 5 3	..	..
May . . . . .	..	..	13 0 0	11 3 8	11 14 6	10 3 9	9 12 0	8 6 5
June . . . . .	..	..	13 0 0	11 2 8	11 13 9	10 2 7	9 7 0	8 1 7
July . . . . .	..	..	13 0 0	11 1 10	11 11 0	10 0 6	..	..
August . . . . .	..	..	12 15 0	11 1 7	11 8 0	9 13 11	..	..
September . . . . .	..	..	13 0 0	11 2 5	11 5 2	9 11 7	..	..
October . . . . .	..	..	14 4 0	12 3 8	11 5 9	9 12 6	..	..
November . . . . .	..	..	13 8 0	11 10 0	11 3 6	9 11 0	..	..
December . . . . .	..	..	12 8 0	10 12 8	10 15 6	9 7 8	..	..
Annual Average . . . . .	..	..	13 1 10	11 4 11	11 12 0	10 1 10	10 2 9	8 12 3

28. No data.

29. Annual average import of sugar during the last ten years from 1336-1345 F. (October, 1926-27 to 1935-36) was 5,13,290 maunds. Re-export is negligible. The normal consumption of sugar for the 1931 population is 2.92 lbs. per head.

The average per capita (based on estimated population) is given below for the last 10 years:—

Year.	Per capita consumption of sugar in lbs.
1336 F. (October, 1926-27)	2.44
1337 F. (October, 1927-28)	2.80
1338 F. (October, 1928-29)	3.65
1339 F. (October, 1929-30)	3.39
1340 F. (October, 1930-31)	2.98
1341 F. (October, 1931-32)	2.69
1342 F. (October, 1932-33)	2.74
1343 F. (October, 1933-34)	2.67
1344 F. (October, 1934-35)	2.76
1345 F. (October, 1935-36)	2.94

The average per capita consumption reached its maximum in 1928-29. It shows a gradual increase from 1932-33. The average consumption of 2.94 lbs. in 1935-36 is still much lower than the maximum. The following table shows the percentage rise and fall in per capita consumption and its price as compared with the previous year:—

	1931.	1932.	1933.	1934.	1935.	1936.
Per cent. rise or fall in price		+9.17	-2.32	-4.76	+0.20	-9.44
Per cent. rise or fall in consumption		-9.73	+1.86	-2.55	+3.37	+6.52

On the whole it seems that unless there are special factors such as a sudden change in the taste of consumers or the establishment of sugar-using industries, the demand for sugar during the next few years may not increase much above the maximum reached in 1928-29. The relation between the movements of per capita consumption of sugar and its price indicates that the demand for sugar is not very elastic.

It appears from certain figures of halvai shops that on an average the consumption of sugar is higher in Mahratwara, which is also a gur producing tract than in Telingana. The extension of sugarcane cultivation in Telingana may increase the consumption of gur and ultimately that of sugar in that tract.

30. In the city of Hyderabad there are only one or two considerable firms which manufacture jams, biscuits, ices and other sweets on modern lines. There are also sweet manufacturers (generally from Madras) who make special kinds of sweets in their homes and hawk them round. Halvais are distributed all over the Dominions. White factory sugar is used for almost all the sweets.

31. No.



32. There is scope for organised production of the special kinds of sweets referred to in question 30 above. If these sweets are prepared in a standard form and are neatly packed, it is expected that they will command a good market. Preparation of sweets from raw mangoes ("murabba") and other fruits seems to be another industry which stands a good chance of success.

Fruit preservation and canning do not seem to have any prospects at present, as Hyderabad is not a fruit producing area. Custard apple, which grows in large quantity in the State, may be the only fruit which can be preserved and canned but on account of lack of research in that direction it is not a practical proposition at the present moment.

33. Dr. Mann estimated the total production in 1926-27 at 103,000 tons. A statement for the years 1340 to 1346 Fasli (1931-1937) is given below. One-tenth may be deducted for sets and chewing.

TABLE No. V.  
Sugarcane outturn.  
(Gur in tons.)

Districts.	1930-31.	1931-32.	1932-33.	1933-34.	1934-35.	1935-36.	1936-37.
	1840 F.	1341 F.	1342 F.	1843 F.	1344 F.	1345 F.	1346 F.
Hyderabad City	..	..	..	..	..	..	..
Baghat	..	..	..	..	..	..	117
Atraf-e-Balda	134	234	497	323	310	1,214	4,022
Warangal	3	3	29	36	123	78	336
Karimnagar	5	5	5	6	6	48	411
Adilabad	87	52	86	103	238	222	468
Medak	313	344	304	832	4,509	6,984	8,480
Nizamabad	2,178	1,818	2,803	3,424	5,042	14,716	24,463
Mahbubnagar	59	54	64	97	164	155	1,112
Nalgonda	..	..	2	4	86	110	101
TELANGANA	2,805	2,510	3,792	4,825	13,483	23,527	39,490
Aurangbad	2,079	2,423	3,178	2,272	4,024	4,052	5,216
Bir	1,132	1,377	4,776	7,243	7,084	7,513	2,224
Nander	517	571	761	896	1,170	1,375	1,932
Parbhani	986	2,049	1,454	2,126	1,832	2,221	2,773
Gulbarga	478	420	589	703	2,159	1,558	1,440
Osmanabad	6,050	3,262	6,728	6,930	9,663	9,421	7,807
Kaichur	3,068	2,344	3,639	2,343	2,831	3,922	5,660
Bidar	32,328	44,608	50,857	44,352	50,883	45,607	56,961
MARATHWARA	46,638	62,054	71,982	66,865	79,646	75,669	84,013
Hyderabad State	49,443	64,564	75,774	71,690	93,129	99,196	1,23,503
Yield per acre in lbs.	3,228	4,160	4,256	3,506	4,085	3,759	4,774
All India	32,28,000	39,75,000	46,76,000	48,96,000	51,40,000	59,03,000	..

34. Gur/jaggery is not manufactured from any other material excepting sugarcane, in the Hyderabad State.

35. Average prices in Secunderabad and in the important gur producing districts are given in the tables below:—

TABLE No. VI.

Monthly average prices of Gur (Desi) per maund of 40 seers at Secunderabad.

Months.	1933.		1934.		1935.		1936.		1937.	
	O. S.	B. G.	O. S.	B. G.	O. S.	B. G.	O. S.	B. G.	O. S.	B. G.
January . . . . .	5 13 1	5 1 1	..	..	5 3 3	4 8 6	4 4 7	3 11 3	2 6 5	2 1 2
February . . . . .	5 8 2	4 11 11	..	..	5 14 8	5 2 4	3 15 8	3 6 10	2 3 11	1 15 0
March . . . . .	5 1 0	4 6 7	..	..	5 14 4	5 1 9	3 10 9	3 2 8	2 6 5	2 3 11
April . . . . .	..	..	4 12 9	4 2 9	6 3 7	5 6 0	3 7 6	2 15 11	2 13 9	2 7 6
May . . . . .	..	..	5 3 3	4 8 6	6 3 7	5 6 1	3 8 4	3 0 6	2 13 9	2 7 5
June . . . . .	..	..	5 13 1	5 0 8	6 13 5	5 14 0	2 13 9	2 7 3	3 1 0	2 10 0
July . . . . .	4 12 4	4 2 4	5 1 5	4 14 10	6 10 2	5 10 10	2 10 6	2 4 6	3 2 7	2 11 4
August . . . . .	..	..	5 11 5	4 14 11	7 8 10	6 8 10	3 7 6	2 15 8	..	..
September . . . . .	..	..	6 5 3	5 7 4	7 2 4	6 2 1	3 2 7	2 11 6	..	..
October . . . . .	..	..	6 2 0	5 4 5	6 11 9	5 12 6	3 1 0	2 10 3	..	..
November . . . . .	..	..	6 2 0	5 4 7	6 11 9	5 12 9	3 1 0	2 10 4	..	..
December . . . . .	5 0 10	4 6 3	5 4 11	4 9 9	6 3 7	5 6 0	2 9 8	2 4 0	..	..
Annual Average . . . . .	5 4 0	4 8 10	5 10 11	4 14 8	6 7 1	5 9 0	3 5 1	2 13 9	2 11 5	2 5 10

TABLE No. VII.

Monthly average prices of Gur (Ankapalli—Madras Presidency) per maund of 40 seers at Secunderabad.

Months.	1931		1932		1933		1934		1935		1936	
	O. S.	B. G.	O. S.	B. G.	O. S.	B. G.	O. S.	B. G.	O. S.	B. G.	O. S.	B. G.
January .	7 5 7	6 4 2	6 11 9	5 13 11	6 1 11	5 5 3	..	..	..	..	5 14 8	5 1 9
February .	7 9 8	6 7 2	6 5 3	5 8 2	5 14 8	5 1 7	..	..	..	..	5 9 9	4 13 3
March .	7 3 11	6 2 6	6 10 2	5 12 3	5 4 11	4 9 5	..	..	6 15 10	6 0 11	5 8 2	4 6 5
April .	6 11 9	5 11 1	6 15 0	5 15 2	5 0 0	4 5 0	5 8 2	4 7 1	7 8 10	6 8 4	6 2 0	5 4 7
May .	6 7 8	5 7 2	7 5 7	6 4 1	5 8 2	4 12 2	6 2 0	5 5 4	7 12 1	6 11 2	6 2 0	5 4 4
June .	6 6 10	5 6 7	7 12 1	6 9 11	5 10 7	4 14 7	7 10 5	6 10 1	8 2 7	7 0 2	5 8 2	4 11 7
July .	6 5 3	5 5 5	7 15 4	6 13 5	5 13 1	5 0 10	7 2 4	6 3 2	7 12 1	6 10 1	5 11 5	4 14 8
August .	7 3 11	6 2 0	7 14 6	6 12 8	5 14 8	5 2 0	7 5 7	6 5 6	8 2 7	7 0 0	5 15 6	5 2 0
September .	7 5 7	6 2 10	8 1 0	6 15 2	6 1 2	5 4 3	8 9 2	7 6 4	7 10 5	6 9 0	6 2 0	5 4 3
October .	6 11 9	5 11 7	8 2 8	7 1 0	6 8 6	4 12 11	8 2 8	7 0 7	7 3 11	6 3 6	5 11 5	4 14 9
November .	6 10 2	5 11 7	7 13 9	6 12 9	6 5 3	5 7 11	8 1 0	6 15 0	7 5 7	6 5 3	5 9 9	4 13 7
December .	6 15 0	6 0 6	8 2 8	7 1 9	..	..	..	..	6 11 9	5 13 1	5 8 2	4 12 3
Annual Average .	6 14 9	5 14 1	7 8 6	6 7 10	5 13 3	4 15 8	7 5 2	6 4 8	7 8 7	6 7 9	5 12 7	4 15 3

TABLE NO. VIII,

Average prices per maund of various kinds of Gur in important Gur producing districts during the last seven years.

Year.	NIZAMABAD.			BIDAR.		OSMANABAD.		RAICHUR.		
	I Grade.	II Grade.	III Grade.	I Grade.	II Grade.	I Grade.	II Grade.	I Grade.	II Grade.	III Grade.
	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.
1931 . . . . .	6 7 0	4 11 0	4 4 0	6 7 0	5 11 0	11 3 0	7 15 0	4 2 0	3 12 0	3 7 0
1932 . . . . .	5 13 0	5 3 0	5 0 0	6 5 0	5 10 0	8 13 0	7 0 0	4 7 0	4 2 0	3 12 0
1933 . . . . .	5 11 0	4 14 0	4 3 0	4 11 0	3 10 0	7 0 0	5 13 0	4 7 0	4 2 0	3 12 0
1934 . . . . .	4 4 0	3 13 0	3 7 0	5 0 0	3 13 0	8 13 0	5 5 0	6 8 0	6 3 0	5 13 0
1935 . . . . .	6 15 0	6 11 0	6 7 0	5 10 0	4 9 0	9 11 0	7 0 0	4 7 0	4 2 0	3 12 0
1936 . . . . .	4 10 0	4 7 0	3 3 0	3 9 0	2 14 0	7 0 0	3 15 0	3 12 0	3 7 0	3 1 0
1937 . . . . .	2 15 0	2 4 0	1 11 0	3 4 0	2 8 0	5 5 0	2 15 0	3 1 0	2 9 0	2 7 0

The rise in prices in 1934-35 was the result of earthquake in Bihar followed by frost in North India and Gujerat. There is no evidence to show that the fall in the prices of gur in the State is due to competition from Indian factory sugar. A note by the Marketing Officer is below.

*Note by the Marketing Officer.*

The monthly average prices of Ankapalli and "deshi" gur are given in Tables Nos. VI and VII above. The annual average price of these two qualities of gur and that of "Bidri" gur are as follows:—

*Average price of "gur" at Hyderabad.*

	Ankapalli.		Deshi.		Bidri.	
	Rs.	A. P.	Rs.	A. P.	Rs.	A. P.
1931—O. S.	6	14 9	...		6	13 0
B. G.	5	14 1	...		5	12 8
1932—O. S.	7	8 8	...		6	9 1
B. G.	6	7 10	...		5	10 8
1933—O. S.	5	13 3	5	4 0	4	14 11
B. G.	4	15 3	4	8 10	4	4 5
1934—O. S.	7	5 2	5	10 11	5	13 3
B. G.	6	4 8	4	14 8	5	0 10
1935—O. S.	7	8 7	6	7 1	6	1 2
B. G.	6	7 3	5	9 0	5	4 3
1936—O. S.	5	12 7	3	5 1	3	8 3
B. G.	4	15 3	2	13 9	3	0 5

It may be noted that whenever there is a rise in the price of gur "deshi" has risen less, and whenever there is a fall, it has fallen more, than Ankapalli. The price of Ankapalli, in 1935, was 29 per cent. higher than in 1933, but the "deshi" shows a rise of only 22 per cent. in the same period. In 1936, Ankapalli fell by 23 per cent. and "deshi" by 48 per cent. as compared with 1935.

The margin between the two qualities of gur was as follows:—

1933.	1934.	1935.	1936.
Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.
0 9 3	1 10 3	1 1 6	2 7 6

The increase in the margin from annas 9 in 1933 to about Rs. 2-8 in 1936 is attributed mainly to the lower quality of Nizamabad "gur".

(i) The table below shows the area, outturn and available quantity of gur and the rise and fall in its price. The area under sugarcane shows a continuous upward trend since 1931-32 and only a slight decrease in 1936-37. Though the price of gur fell heavily in 1933, it regained the loss in the two following years, and the area under cane increased without any check. The fall in the price of gur in 1935-36 had an immediate effect on the area under sugarcane.

TABLE No. IX.

Years.		Area in acres (of sugar-cane).	+	Outturn of Gur in Mds.	+	Available quantity of Gur in Mds.	+	Price of Gur in O. S.	+	Import of sugar in Mds.	+	Price of Sugar in Mds.	+
Fasli.	A. D.												
1340 .	1930-1931	34,478	..	1,211,360	..	1,845,545	..	4 14 9	..	523,423	..	13 5 7	..
1341 .	1931-1932	35,393	+ 0-02	1,581,827	+30-58	2,229,434	+20-80	7 8 8	+ 8-95	477,903	- 8-70	14 9 2	+ 9-17
1342 .	1932-1933	40,212	+13-6	1,856,472	+17-36	2,465,565	+10-59	5 13 3	-22-72	494,922	+ 3-56	14 3 9	- 2-32
1343 .	1933-1934	46,480	+15-50	1,756,404	- 5-39	2,170,815	-11-95	7 5 2	+25-65	487,026	- 1-59	13 8 11	- 4-76
1344 .	1934-1935	50,580	+ 8-80	2,281,656	+29-91	2,536,338	+16-84	7 8 7	+ 2-92	511,176	+ 4-96	*13 4 4 *13 4 9	+ 0-20
1345 .	1935-1936	58,505	+13-08	2,430,289	+ 6-51	2,709,181	+ 6-82	5 12 7	-23-22	552,819	8-15	*12 0 8	- 9-44
1346 .	1936-1937	57,951	..	3,025,829	+24-50	..	..	4 15 4	..	..	..	*10 8 1	..

\* Indian Crystal (Sugar).

(ii) The outturn of gur shows fluctuations from year to year and it is reflected in the available quantity of gur given in column 6 of the Table IX. (Available quantity, *i.e.*, production *plus* net import.)

If the movements in the prices of gur were examined by themselves without reference to other relevant factors, *e.g.*, price of sugar or general index number of prices, it will be seen that the prices, apparently, respond to the available supply in three years, *i.e.*, 1932-33, 1933-34 and 1935-36.

In 1932-33 and 1935-36 an increase in the supply is accompanied by a fall in prices and in 1933-34 a decrease in supply shows the reverse movement in prices. But in 1931-32 and 1934-35, the increase in supply is accompanied by a rise in price.

In two years out of four in which the supply increased, the prices show an upward trend instead of the reverse. The remarkable factor is that these two years are those in which the available supply increased the most, *i.e.*, by 20 per cent. and 16 per cent. as compared with the previous year and production by 30 per cent. and 29 per cent. It may also be noted that in the other two years in which the increase in supply was accompanied by a fall in the price, the rate of increase in the supply was less, *i.e.*, 10 per cent. in 1932-33 and 6 per cent. in 1935-36 and that of production 17 per cent. and 6 per cent. respectively.

There is a curious relation in the increase in supply and the prices. When the rate of increase in supply is high, the prices show an upward trend and when the rate of increase slackens, the prices fall very precipitately,

Rate of increase in supply and prices as compared with previous years are given below :—

Year.	Rate of increase in supply.		Price.
	Per cent.		Per cent.
1931-32 . . . . .	+20		+8
1932-33 . . . . .	+10		-22
1934-35 . . . . .	+16		+2
1935-36 . . . . .	+6		-23

From the figures quoted above it may, reasonably, be argued that when the supply increased very heavily as in 1931-32 and 1934-35 the whole of the supply might not have been dumped on the market. A large quantity of gur might have been carried in stock to the following year in the expectation of higher prices. Though the rate of increase in the supply of gur slackened in the other two years, *i.e.*, 1932-33 and 1935-36, the actual supply, augmented by the stock from the previous year, must have been very large. This increased supply, dumped on the market, resulted in a precipitate fall in prices. Two years accumulated supply seems to precipitate a heavy fall in prices. This statement cannot, however, be tested by facts as the figures for stock are not available.

The foregoing may provide an explanation for the precipitancy of the fall in price in alternate years in the period under discussion, but in absence of a reliable data in regard to stock, no satisfactory explanation can be given for the fact that in two out of five years an increase in the supply of gur was accompanied by a rise in its price.

The movements in the relevant factors, *e.g.*, the supply of gur and its price, the price of sugar and the general index number of prices are such that it is very difficult to establish any precise relation between any two factors.

The Tariff Board in their report on sugar in 1931 had come to the conclusion "that the consumption of gur is fairly constant and its price depends in the main on production and consequently on the area under cane and on climatic conditions during the year" (page 88).



For long periods, this relation may hold good, but for the year to year movement of production and prices, the production does not seem to be constantly or directly related to the price. It has been shown above that the highest increases in production are accompanied not by fall but by a rise in price. The carry-over of gur from year to year may count a good deal in movement of its prices.

(iii) Please see answer to question 39.

36.

TABLE No. X.

Statement showing the area and outturn, etc., of gur and impart of sugar.

Years.	Area in acres.	GUR.		SUGAR.	
		Outturn in	Import in	Export in	Import in
		Tons.	Mds.	Mds.	Mds.
1340—1930-31	34,478	40,443	637,326	3,141	523,425
1341—1931-32	35,393	55,564	662,206	4,599	477,903
1342—1932-33	40,212	66,774	618,057	8,964	494,922
1343—1933-34	46,480	62,690	427,668	13,257	487,026
1344—1934-35	50,580	83,129	290,436	35,754	511,176
1345—1935-36	58,505	89,195	306,606	27,714	552,819

The net available quantity and per capita consumption of gur is given below:—

Year.	Net available.	Per capita consumption
	Mds.	Lbs.
1340 F. (October, 1930-31)	1,845,545	10.52
1341 F. (October, 1931-32)	2,229,434	12.54
1342 F. (October, 1932-33)	2,465,565	13.68
1343 F. (October, 1933-34)	2,170,815	11.89
1344 F. (October, 1934-35)	2,536,338	13.71
1345 F. (October, 1935-36)	2,709,181	14.46

The normal consumption for the six years is 12.53 lbs. per head. If the year 1930-31 is excluded when the consumption is very low, the average is 13.06 lbs.

The average consumption given above does not take into account the carry-over of gur from year to year. For long period trends the carry-over may reasonably be assumed to be a constant factor but it cannot be ignored in calculating the annual consumption. Lack of data about stock makes the variations in consumption unreal and no definite reasons can be assigned for them. It may however be safely concluded that with the increase in production, the average consumption is also going up.

37 & 38. A statement showing the quantity of gur/jaggery and sugar imported into and exported from this State by rail during the last three years is given below. Further a statement by the Customs Department is given for the last seven years which includes both rail and road.

Gur/jaggery is imported into the State from Ankapalli (Madras Presidency), Baramati (Poona), samalkot (East Godavari), Belapur and Kopargaon (Ahmednagar District), Shahjahanpur and Bareilly (U. P.) and Tolhar (Sind). The gur produced in these Dominions is not exported in any appreciable quantity to British India.

TABLE No. XI.

*Imports into Hyderabad State (in maunds).*

Serial No.	Imported from	1933-34.		1934-35.		1935-36.	
		Refined and unrefined.	Gur, rab, molasses, jaggery, etc.	Refined and unrefined.	Gur, rab, molasses, jaggery, etc.	Refined and unrefined.	Gur, rab, molasses, jaggery, etc.
1	Assam . .	..	..	..	..	..	..
2	Bengal . .	..	..	..	..	..	..
3	Bihar and Orissa	285	4,243	2,443	2,383	18	..
4	U. P. of Agra and Oudh.	33,591	4,785	16,072	6,327	13,000	2,902
5	Punjab . .	899	1,765	..	1	..	..
6	Sind and British Baluchistan.	..	..	..	..	..	..
7	C. P. and Berar	903	87	832	184	557	173
8	Bombay . .	64,273	125,898	81,407	61,990	123,178	61,980
9	Madras . .	96,370	232,734	97,349	187,400	98,478	150,513
10	Rajputana . .	..	..	..	..	..	..
11	Central India . .	18	..	378	..	..	..
12	Mysore . .	14,111	10,429	20,266	7,376	64,836	8,380
13	Kashmir . .	..	..	..	..	..	..
14	Calcutta . .	18	..	..	..	..	..
15	Bombay Port . .	171,851	139	173,180	17	148,362	3
16	Karachi . .	8	..	..	..	..	..
17	Madras Ports . .	50,373	10,132	50,799	379	43,857	431
	Total . .	432,900	390,218	442,721	266,057	490,286	224,382

TABLE No. XII.

*Exports from Hyderabad State (in maunds).*

Serial No.	Exported to	APRIL 1933 TO MARCH 1934.		1934-35.		1935-36.	
		Sugar, refined and unrefined.	Gur, rab, molasses, jaggery, etc.	Sugar, refined and unrefined.	Gur, rab, molasses, jaggery, etc.	Sugar, refined and unrefined.	Gur, rab, molasses, jaggery, etc.
1	Assam . . .	..	..	..	..	..	..
2	Bengal . . .	..	..	..	..	..	..
3	Bihar and Orissa	..	..	..	..	2	..
4	U. P. of Agra and Oudh	1	..	..	..	..	..
5	Punjab . . .	57	..	..	..	59	..
6	Sind and British Baluchistan.	..	..	..	..	..	..
7	C. P. and Berar	1	61	..	10,242	2	1,074
8	Bombay . . .	47	1,434	16	9,520	10	3,639
9	Madras . . .	24	284	199	559	1,446	1,231
10	Rajputana . .	..	..	..	..	..	..
11	Central India .	..	..	..	654	..	..
12	Mysore . . .	..	2	..	..	22	4
13	Kashmir . . .	..	..	..	..	..	..
14	Calcutta . . .	..	..	..	..	..	..
15	Bombay Port . .	..	60	..	429	..	2,013
16	Karachi . . .	..	..	..	..	..	..
17	Madras Port . .	..	2	..	..	..	54
	Total . . .	136	1,843	215	21,404	1,541	8,015

TABLE No. XIII.

Statement of Import and Export, Quantity and Value of Sugar and Gur for Hyderabad State from 1339 F. to 1345 F. (1929-30 to 1935-36).

Serial No.	Articles.	Years.	IMPORTS.		EXPORTS.	
			Value in O. S. Rs.	Quantity in maunds.	Value in O. S. Rs.	Quantity in maunds.
1	Sugar . . .	1929-30	6,985,000	..	..	..
		1339 F.				
	Gur . . .	"	4,108,000	..	45,000	..
2	Sugar . . .	1930-31	5,988,758	523,425	319	8
		1340 F.				
	Gur . . .	"	4,240,846	637,326	19,576	1,047
3	Sugar . . .	1931-32	5,517,991	477,903	377	32
		1341 F.				
	Gur . . .	"	4,348,038	652,206	30,668	4,598
4	Sugar . . .	1932-33	5,591,436	494,924	99	9
		1342 F.				
	Gur . . .	"	4,120,384	618,057	57,941	..
5	Sugar . . .	1933-34	5,756,731	367,026	..	..
		1343 F.				
	Gur . . .	"	2,851,151	427,670	88,316	13,257
6	Sugar . . .	1934-35	5,979,000	511,176	..	..
		1344 F.				
	Gur . . .	"	1,765,360	290,436	238,316	35,754
7	Sugar . . .	1935-36	6,439,082	552,818	787	74
		1345 F.				
	Gur . . .	"	1,533,082	306,607	167,813	27,715

Source.—Trade Review, Hyderabad, received from Customs Office.

39. The following table shows the percentage rise or fall in the prices of sugar and of gur as compared with the previous year:—

	1931.	1932.	1933.	1934.	1935.	1936.
Sugar	—	+9.17	-1.32	-4.76	+0.20	-9.44
Gur	—	+8.95	-22.72	+25.65	+2.92	-23.22

Except in 1934, the movements in the price of gur are in the same direction as those of sugar. But the sudden fall in the supply of gur in 1934 seems to have had an effect on its price which went up in spite of a fall in the price of sugar. Moreover the precipitate fall in the price of gur in the years 1933 and 1935 are out of all proportion to the fall in the price of sugar, and may be due to accumulated supply of gur from the previous year.

In respect of quantity, the available supply of sugar is only 23 per cent. of gur. Per capita consumption of gur is four times that of sugar and its prices is about half of the price of sugar. The class of people which consumes gur either by habit or by economic necessity is very large. It may, therefore, be presumed that there is no "substantial correspondence between the variations in the prices of sugar and of gur".

40. At present the evidence does not show replacement.

41. No research work towards improvement in the methods of manufacture of gur/jaggery has yet been undertaken. Some 8,000 odd improved bullock-power iron sugarcane crushers are in use in large numbers in place of the local wooden crushers, and the improved McGlashan's furnace has also been introduced. A total of 108 power crushing plants have also been introduced.

42-44. Nil.

45. There is no experience in Hyderabad.

46. Nil.

47 & 48. Duty not yet collected. No data for effect of British Indian duty.

49. Nothing has come to the knowledge of this Government.

50. The Village Accountant reports to the Tehsildar the survey number of the area under sugarcane. The Girdawar (Revenue Inspector) and the Tehsildar verify the report by inspection. The area, therefore, is regarded as accurate; but accuracy cannot be claimed for the figures of production. It is only an estimate based on experience of the primary reporter.

The wholesale price of gur is ascertained from the wholesale dealers in the markets every fortnight and registered and there is no reason to doubt the accuracy of the figures supplied.

51. Nil.

(2) Replies to Questionnaire for Local Governments, furnished by the  
H. H. the Maharaja of Mysore.

Year.	Acres.
1. 1929-30	33,186
1930-31	37,734
1931-32	36,076
1932-33	42,093
1933-34	42,282
1934-35	45,525
1935-36	50,554

The improved varieties are H. M. 320, H. M. 544 and H. M. 602.

H. M. 320	about	30,000	acres.
" 544	"	6,000	"
" 602	"	1,000	"

2. Sugarcane area of the State might be classified into three regions:—

- (a) The Maidan tract comprising Bangalore, Kolar and Tumkur and parts of Mysore, Simoga and Chitaldrug Districts with its large number of tanks and irrigation wells under tanks. With a rain fall of about 30 inches cane is irrigated by tank water supplemented in summer by well irrigation in the early stages of the cane where necessary.
- (b) The Irwin Canal Tract with its system of extensive river channel and Block System of Irrigation and rotation of crops—cane, paddy, dry. Rainfall in the tract is about 30 inches.
- (c) The Malnad area with over 100 inches of rainfall. The sugarcane crop is an irrigated one throughout the state.

3. The irrigation rates vary from Rs. 4 to Rs. 10 per acre on an average. The average of Rs. 10 per acre in the Mandya area is obtained from Rs. 15 for sugarcane, Rs. 10 for paddy and Rs. 5 for irrigated dry crop. The rates are determined with reference to the nature of water supply. They are higher for assured supply from river channels. The water rates are sometimes included in wet assessment and sometimes separate.

4. The following estimates of cost of cultivation have been arrived at by the Industries and Commerce Department after making local enquiries in the several places mentioned below:—

Name of place.	Kind of irrigation.	Total cost per acre.
		Rs.
1 Hassan . . . . .	Tank and Canal . . . . .	218
2 Channarayapatna . . . . .	„ . . . . .	174
3 Kunigal . . . . .	Tank . . . . .	264
4 Manchenahalli. (Kolar District.) . . . . .	Tank and well . . . . .	257
5 Tiptur . . . . .	Tank . . . . .	127
6 Simoga . . . . .	Canal . . . . .	233
7 Sagar . . . . .	Mainly rain-fed . . . . .	
8 Anandapur . . . . .	Tank . . . . .	
9 Shiralkoppa . . . . .	Mainly rain-fed . . . . .	253
10 Bhadravathi . . . . .	Canal . . . . .	

*N.B.*—These figures are not very accurate and include the cost of making faggery.

Details for the total cost are given in the appended statement.

The enclosed statements furnish the cost of cultivation of sugarcane in the Mandya area by an average ryot, the cost on the Company's Farms as also data as to cost collected by the Department of Agriculture at Bannur and Sabbanahalli. Estimates of what it will cost to raise and cultivate an acre of cane in the Shimoga area as furnished by Mr. N. Rama Rao, Retired Director of Industries and Commerce in Mysore and as to what it will cost in the neighbourhood of Bangalore as furnished by Mr. Urugahalli Krishna Iyengar are also shown in separate statements.

There has been no variation in the cost of cultivation during the last 7 years. The yield per acre varies from 15 to 30 tons. The average yield may be taken at 20 tons per acre. The sucrose content is on an average 13 to 17 per cent.

5. The minimum price has been fixed by Government at Rs. 10 per ton in the Irwin Canal area for the present.

6. There has been a marked increase in the area under sugarcane in the Irwin Canal Tract due to the abundant supply of water and the Establishment of a Sugar Factory at Mandya. In the last 7 years the area under sugarcane in this tract increased by about 12,000 acres. In other areas, sugarcane cultivation is not very profitable on account of low prices of jaggery.

7. No.

8. The other cash crops are groundnut, tobacco, cotton, chillies cardamoms, coffee, areca and castor. These are mostly grown in unirrigated areas and as such, cannot be said to form an alternative to sugarcane.

9. Information is being collected and will be furnished later.

10. No contribution is being received from the Government of India. Mysore levies an Excise duty in sugar equal to that prevailing in British India. The receipts from this source were

Year.	Amount.
1933-34 . . . . .	...
1934-35 . . . . .	87,332
1935-36 . . . . .	5,11,715
1936-37 . . . . .	6,02,000

(revised estimate).

This revenue is not utilised for any specific purpose but is merged in the general revenue of the State.

11. (i) and (ii) Research work on sugarcane comprises—

- (a) production of improved varieties,
- (b) Improvement in cultivation,
- (c) Manurial experiments,
- (d) Control of diseases and insect pests.

Varietal trials comprise:—

- (i) Collection and testing of Indian canes mostly Coimbatore varieties.
- (ii) Collection and testing of World canes,
- (iii) Production of Mysore seedling canes,
- (iv) The application of X-ray to induce bud mutations.

Numbers (i) and (ii) are found unsuitable for the table land conditions of Mysore. Number (iii)—H. M. 320 is one of the best. It is practically the single variety in the Irwin Canal area which supplies sugarcane to the Mysore Sugar Company. It has spread practically to all the sugarcane areas of the State. There are many other popular varieties which are either already being grown on an increasing scale or are being tested in various parts of the State. H. M. 608 is probably the World's richest cane with a high sucrose content of about 28 per cent. It takes more than 14 months to fully ripen, but is ready for milling even when 9 or 10 months old. One of Mysore seedlings H.M. 87—is among the standard cane recommended by the Bombay Department of Agriculture to their ryots. It has not come up to our standard in Mysore. Other canes like 544, 320 and 87 have spread in several parts of the Bombay Presidency.

Of the improvement effected in cane cultivation, the most important is the popularisation of the Iron Plough and Disc Harrow. The Iron Plough is in fairly general use in the State now. The costliness of the Disc Harrow accounts for its limited use in the State. Many bullock-driven cane crushing

mills have been tested. A very efficient mill has been designed and manufactured by an enterprising local gentleman and is very popular. The correct spacing both in the row and between rows (3 feet) has been tested and found out. The narrow spacing between rows has almost been given up by the ryots. Various methods of planting such as pit planting, shallow planting which were in vogue have definitely given place to planting and deep trenches and subsequent earthing up as in Java.

Oil-cakes and artificial manures are being largely used now on cane as the direct result of the Department's research and demonstration.

The spread of Mosaic Disease in cane is being successfully controlled by rigorous selection of planting material. Breeding work has resulted in the production of several promising Mosaic-resistant seedlings of high quality and tonnage. These are being multiplied for further steps.

Of the insect pests, the sugarcane Borer is the most destructive. It is now being effectively held under check with the help of a simple cultivation device (earthing up in early stages) and biological control by parasitising the eggs of the borer moth by a parasite (*Trichogramma*).

12. (i) A grant of Rs. 21,000 has been sanctioned by the Imperial Council of Agricultural Research for a scheme of breeding thick canes in Mysore, the grant being spread over for a period of 5 years ending 31st January, 1938. In this period it is estimated that the Mysore Government's share of expenditure on this scheme will be about Rs. 35,000.

(ii) The best of Coimbatore seedlings are being got for trial here every year. They flower very early and the yield is low. The quality of many of them as regards sucrose content is, however, very high.

(iii) None.

More funds are required both for agricultural and technological researches.

13. A Factory at Mandya grows on its farms H.M. 320—the cane recommended by the Department of Agriculture. It has also adopted the improved methods of cultivation recommended by the Department. By giving crop advances to ryots it has enabled them to adopt improved methods of cultivation in the Irwin Canal Tract.

14. The total acreage under sugarcane in the State during the year 1935-36 was 50,554:—

(a) Of this it is estimated that 9,100 acres supplied cane to the Sugar Factory at Mandya.

(b) There are no open pan factories and Khandsaries in the State. There are only three producers who are manufacturing sugar on a very small scale with sugar centrifugals. The acreage under cane utilised for this purpose may not exceed 50 per year.

(c) The bulk of the acreage is utilised for supplying cane for manufacturing jaggery. It is estimated that about 35,000 acres are utilised for this purpose.

(d) the remaining acreage of 6,404 is utilised for supplying cane for shewing and seed purposes. The estimated corresponding figures for the year 1936-37 are—

(i) 13,000 acres of cane for supplying the Sugar Factory,

(ii) 51 acres for centrifugals,

(iii) 32,750 acres for manufacturing jaggery,

(iv) 6,800 acres for chewing and seed purposes.

Total acreage—52,601.

15. The sugarcane crop in the Irwin Canal area takes 14 to 16 months to mature, while the Block System of irrigation which prevails in this area contemplates this crop remaining on the field for 12 months only. The ryot is thus precluded from raising the paddy crop in the second year. This seems to be the main difficulty of cane-growers in this area.



16. Co-operative Credit Societies are helping cane-growers in the rural areas with funds to some extent. There are no cane growing and cane supplying societies in the State.

17. Yes, the minimum price is fixed at Rs. 10 per ton under the Mysore Sugar Industries Safe-guarding Regulation IV of 1934. The questions considered in fixing the minimum price of cane are—

- (1) what is the price realised by the sale of sugar, and what proportion of it may be considered as an adequate payment for cane?
- (2) What is the actual cost of cultivation and whether at the price obtained for cane there is a reasonable return to the ryot for his labour and expense, and
- (3) whether the price which the cane supplier obtains from the factory compares favourably with what he gets if he converts his cane into jaggery.

As the price has been fixed only recently it takes some time to see if it is working satisfactorily.

18. There is only one Factory in the State, and so there is no local competition.

19. The proposal does not seem to be quite practicable.

20. It is understood that the cost is about  $1\frac{1}{2}$  to  $1\frac{1}{4}$  pies per maund per mile in the Mandya area.

21. Normally the cane-growers employ their own carts but when they hire the carts the hire ranges from 3 to 4 annas per ton per mile.

22. Road and rail facilities are fairly adequate in the State. Government is giving financial assistance to improve and develop feeder roads. Special concessions in the matter of railway freight have been given to the cane-growers who have also been provided with loading centres on the rail road.

23. The Director of Industries and Commerce in Mysore is a Member of the Board of Directors of the Company.

24. Government have subscribed 60 per cent. of the share capital and 60 per cent. of the debentures issued by the Company. Lands have been leased to the Company for growing sugarcane for a period of 10 years. The other facilities provided for the Company are in regard to water supply, electric power and lands required for the establishment of the factory on the same lines as facilities granted to other industrial concerns in the State.

25. None.

26. Yes.

27 & 28. The following statement furnishes information regarding the wholesale prices in Bangalore since 1929. It is the principal sugar market in the State:—

Year.	Refined or crystallised.	Index No.	Unrefined sugar.	Index No.
	Rs. A. P.		Rs. A. P.	
1929-30	11 1 6	100	10 11 3	100
1930-31	10 10 3	96.4	10 5 9	97.6
1931-32	10 2 0	93.6	10 10 0	99.4
1932-33	10 10 6	96.4	10 11 0	99.99
1933-34	11 5 6	102.8	10 12 0	100.06
1934-35	10 1 0	93.2	9 6 0	87.7
1935-36	10 2 6	93.6	9 14 0	92.4

The following statements furnish further details regarding the monthly variations in the wholesale prices of sugar refined and unrefined in Bangalore since 1929-30 expressed in terms of pies per pound.

*Wholesale prices of refined sugar in terms of pies per pound.*

Month.	1929-30	1930-31	1931-32	1932-33	1933-34	1934-35	1935-36	1936-37
April .	28	26	25	30	27	25	27	25
May .	27	26	25	28	27	26	26	25
June .	26	26	26	28	28	25	26	24
July .	27	26	26	28	28	25	27	26
August .	27	26	26	28	27	26	26	25
September	27	26	26	28	27	26	27	24
October .	27	25	26	28	27	25	28	21
November	27	25	29	30	27	25	27	23
December	26	24	31	29	27	25	27	24
January .	25	24	30	27	27	25	27	23
February	25	25	30	27	26	26	26	22
March .	26	26	30	27	25	26	26	23

*Wholesale prices of unrefined sugar in terms of pies per pound.*

Month.	1929-30	1930-31	1931-32	1932-33	1933-34	1934-35	1935-36	1936-37
April .	26	25	26	29	27	25	25	24
May .	26	25	25	27	26	25	25	24
June .	25	25	25	27	25	23	25	24
July .	26	26	25	27	26	27	26	24
August .	26	26	25	27	25	25	26	24
September	26	26	25	27	25	25	25	23
October .	26	25	25	27	25	25	27	19
November	25	24	28	29	25	25	26	23
December	25	24	30	31	25	25	25	22
January .	25	23	29	28	25	24	25	21
February	25	23	29	27	26	27	25	21
March .	25	25	29	27	28	25	25	21

*Average retail prices of sugar (refined and unrefined) in terms of pice per pound.*

Month.	1929	1930	1931	1932	1933	1934	1935	1936	1937
January . . .	25	27	24	31	30	28	26	27	24
February . . .	25	26	..	31	30	28	29	27	25
March . . .	25	27	27	31	29	28	28	27	24
April . . .	25	27	27	31	29	27	27	27	23
May . . .	25	27	27	28	30	27	27	27	22
June . . .	27	27	27	28	30	26	27	27	..
July . . .	27	27	27	29	30	26	28	27	..
August . . .	27	27	27	29	29	27	29	26	..
September . . .	27	27	27	29	28	27	27	26	..
October . . .	27	26	26	29	28	27	30	25	..
November . . .	..	26	29	30	29	26	27	25	..
December .. .	27	26	31	31	29	26	27	25	...

The relationship between the wholesale and retail prices of sugar in Bangalore since the year 1929-30 is illustrated in the accompanying chart.

29. The present consumption of refined and crystallised sugar in the State is about 6,500 tons per year. There is also a consumption of about 25,000 tons of jaggery in the State. With the steady advance in the standard of living a good deal of the jaggery consumption is bound to be replaced by white sugar.

30. There are two factories engaged in the manufacture of peppermints, sweets, etc., in Bangalore. Other than this there are a large number of indigenous sweet-meat sellers both in the urban and rural areas in the State who prepare several kinds of sweet-meats. Crystal sugar and brown sugar are used for this purpose.

31. As there is only one Factory now in the State the questions of zoning and fixation of quota do not arise. By Regulation IV of 1934, Government have reserved the right to license new factories in the State.

32. Several varieties of fruits are grown in considerable quantities and are being exported from the State, such as mangoes, apples, pine-apples, citrus fruits, etc. But as the price is generally high there seems to be but limited scope for starting an industry for preservation and canning of fruits.

33. The following figures show the estimated production of jaggery in the State since 1929-30. These figures have been arrived at on the basis of figures furnished by the Revenue Department in the Season and Crop Report and after making necessary allowance for cane utilised by the Sugar Factory, and for chewing and seed purposes.

Year.	Jaggery produced in Railway Maunds.
1930-31	856,144
1931-32	775,255
1932-33	932,625
1933-34	894,003
1934-35	821,073
1935-36	993,485
1936-37	955,216 (forecast)

34. A very small quantity of jaggery is made from Bagani Palm (*Caryota urens*) in the Malnad.

35. The appended statement furnishes the average annual wholesale prices of jaggery in different areas in the State. It is seen therefrom that prices of jaggery in the several areas in the State were on a high level during 1929, and have since then more or less continuously declined during the succeeding years up to 1937 excepting 1934 and 1935 when the prices showed an upward tendency. The variations in prices of jaggery seem to be mainly due to a general fall in the level of prices of all agricultural commodities which occurred after 1929-30. During the year 1934-35, the prices of jaggery showed an upward trend on account of the fact that production was low owing to unfavourable seasonal conditions and also due to the fact that there was a good demand from outside the State for what was produced here. Of the several places mentioned in the above statement Bangalore is entirely a consuming and distributing Centre and it gets its supplies of jaggery mostly from Manchenahalli, Goribidnur and Chikballapur in the State and from Udampalpet, Coimbatore, Ambore, Hindupur, etc., places in the Madras Presidency. Hence the prices in the Bangalore Market are generally higher than the prices in the other places. Of the other places, Manchenahalli is mainly a producing and assembling centre, Chikballapur and Goribidnur are both producing, assembling as well as distributing centres and Tiptur and Shimoga are mainly trade or assembling and distributing centres. The jaggery produced in the Manchenahalli, Goribidnur and Chikballapur areas is generally in the form of lumps or small balls and in the other areas it both in the form of lumps and flat or square pieces. From the point of view of quality the Manchenahalli area jaggery and generally the jaggery produced in the maidan areas of the State are said to be better than the jaggery produced in the Malnad parts of the State.

36. The appended statement furnishes information regarding the annual consumption of jaggery in the State during the last 7 years. It is seen from the statement that the annual consumption of jaggery in the State has varied from 538,102 railway maunds or 19,767 tons to 791,712 railway maunds or 29,083 tons during the last 7 years. On the basis of the above figures, the average annual consumption of jaggery in the State is estimated at 669,971 railway maunds or 24,611 tons. The above figures have been arrived at mainly on the basis of production and imports and exports by rail. In the absence of road-borne trade statistics it is difficult to give an exact estimate of the consumption of jaggery in the State. It may, however, be stated that consumption of jaggery has not decreased in the State though the consumption of sugar is also on a high level. This seems to be due to three facts namely the increase in the population since the last Census, the low prices of jaggery and the special type of demand for jaggery which cannot be met by sugar.

37. Mysore State is an exporting unit so far as trade in jaggery is concerned. Very small quantities of jaggery are, however, imported into the State every year mostly to Bangalore. The statement appended gives details of import since 1923-29. It is seen from that statement that the

Madras Presidency is the most important source of supply. The important places from which jaggery is imported are Udamalpet, Coimbatore, Ambur and Hindupur.

38. The statement appended furnishes information regarding the annual export of jaggery during the last seven years. The important areas to which jaggery is exported from the State are the Districts of Kurnool, Anantapur and Bellary, Cuddappa and South Canara in the Madras Presidency. The Hyderabad State and the Districts of North Canara, Dharwar and Belgaum in the Bombay Presidency and Coorg, Cochin and Goa.

39. The statement appended shows the prices of sugar and jaggery in Bangalore, during the last seven years. It is seen therefore that there is no definite relationship between the prices of sugar and jaggery. This is due to the fact that the uses to which jaggery is put are different from those of sugar and the demand for jaggery cannot be met by sugar to that extent.

40. Consumption of sugar in the preparation of beverages such as coffee, tea, etc., has been going up replacing jaggery. The upper classes also use sugar more and more where jaggery was being used before but such replacement of jaggery by sugar is to a very limited extent since many Indian dishes with their peculiar taste and flavour can be prepared only by using jaggery.

41. Research on improved methods of gur making was one of the earliest taken up by the Mysore Agricultural Department. The improvements are—

- (a) filtering the cane juice after extraction preliminary to boiling,
- (b) removal of scum and
- (c) lining the cane juice to neutral reaction.

These processes help to produce clean and light coloured jaggery with keeping qualities.

- (d) improvement of the furnace to manufacture jaggery with the aid of bagasse and trash alone.

42. There are no open pan factories at Khandsaries engaged in the manufacture of sugar in the State. Three producers have maintained sugar centrifugals. Information is not available regarding the total output of sugar.

43 & 44. Information is not available.

45. Since there is no Khandsari sugar industry in the State no opinion can be offered in this connection.

46. A considerable amount of laboratory work on the preparation of white sugar by the open pan system was done in the years 1904 to 1907 and the results of this work were tested on a commercial scale in 1911 and subsequently. It was found that the recovery of white sugar was never higher than 8.8 per cent. whereas test boilings of jaggery at the same time gave about 20.5 per cent. recovery on the weight of juice. Subsequent trials were of the same nature. It was therefore felt that not much advantage accrued by pursuing this method. The advantage if any at all, has been progressively dwindling, particularly in view of the rapid growth of factory manufacture of white sugar.

47. The levy of sugar excise duty in 1934 does not seem to have adversely affected the consumer. This is borne out by the fact that the price of sugar during the years subsequent to the levy of excise duty is much lower than in the period prior to the levy of this duty. For details of prices please see statement appended. This means that the consumer is not paying anything more on account of the levy of excise duty. The dealer also does not appear to have been adversely affected except perhaps as the result of speculation during the time when the question of this levy was being considered by Government. The cane-grower has suffered to a slight extent as a result of this levy.

The following figures show how the burden of the excise duty is distributed between the cane-grower and the manufacturer in the Mandya area (see statement appended).

It is seen from these figures that the burden of excise duty has mainly been borne by the manufacturers though a small portion of it seems to have been transferred to the cane-growers in the beginning, i.e., 1935-36. The effect of the additional excise duty imposed in February, 1937, is disadvantageous to the manufacturer for the present.

48. Though soon after the levy of protective duties there was a rise in the price of sugar, subsequently the prices fell to lower levels than those prior to the levy of these duties. (Please see statement). Therefore the consumer has not suffered on this account.

49. No.

50. The statistics of acreage and production of sugarcane are based on information collected from the Village Officials periodically. The figures of yield are estimated by reference to the standard rates fixed for the crops. The figures compiled cannot be said to be altogether accurate. The prices of sugar, jaggery, etc., in Bangalore are periodically collected after local enquiry in the market by a responsible official of the Department of Industries and Commerce. The statistics of prices, cost of cultivation, etc., in the different areas in the State given in this note were collected by officials of the Industries and Commerce Department, the Agricultural Department and the Sugar Factory after local enquiry. The statistics of imports and exports by rail of sugar, jaggery, etc., along with the imports and exports of several other commodities are compiled, analysed and published by the Department of Industries and Commerce in Mysore on the basis of information furnished by the Madras and Southern Mahratta and Mysore Railways. These statistics are fairly accurate.

Statement showing the cost of cultivation of sugarcane per acre in different areas.

Serial No.	Details of cultivation.	Hassan area.	Channarayana area.	Kunigal area.	Manchenahalli area.	Tiptur area.	Simoga, sugar, Shikaripur, Anandapur area.	Bhadravari area.
		Rs. a.	Rs. a.	Rs. a.	Rs. a.	Rs. a.	Rs. a.	Rs.
1	Digging or ploughing.	15 0	22 0	22 8	11 8	9 0	4 8	5
2	Cost of manure and manuring.	20 0	30 0	50 0	23 0	23 0	10 0	35
3	Cost of setts and planting.	21 0	7 8	22 0	34 0	10 8	27 0	15
4	Weeding and earthing up.	5 0	5 0	8 0	10 12	5 0	16 0	10
5	Wrapping . . .	10 0	..	12 0	20 8	..	15 0	8
6	Cost of artificial manure and manuring.	50 0	10 0	29 8	32 0	..	..	..
7	Irrigation and watchin .	10 0	25 0	20 0	50 0	20 0	36 0	30
8	Harvesting, milling and jaggery boiling.	87 0	75 0	100 0	75 0	60 0	125 0	150
	Total cost	218 8	174 8	264 0	256 12	127 8	233 8	253

*Cost of cultivation of cane on Mr. Urugahalli Krishna Iyengar's Estate.*

Particulars.	Cost per acre.
	Rs. A.
(1) Land preparation . . . . .	5 12
(2) Planting . . . . .	4 8
(3) Seeds . . . . .	...
(4) Manure . . . . .	82 4
(5) Cultivation . . . . .	7 8
(6) Irrigation . . . . .	30 0
(7) Cutting . . . . .	...
(8) Sundries . . . . .	...
(9) Transport . . . . .	...
<b>Total</b> . . . . .	<b>130 0</b>

*Cost of cultivation on Mr. Alkere Venkatachar's Lands.*

	Rs.
(1) Preparatory cultivation . . . . .	14
(2) Seed and Sowing . . . . .	52
(3) Manures and manuring . . . . .	44
(4) Irrigation . . . . .	8
(5) After cultivation . . . . .	10
(6) Drainage . . . . .	4
(7) Harvesting . . . . .	17
(8) Transport . . . . .	34
<b>Total</b> . . . . .	<b>183</b>

## ESTIMATE I.

*Santekadur and round about Shimoga.*

Cost of cultivation of 2 acres with sugarcane. (The figures do not include the wages of the peasant himself, but provide for the extra labour necessary).

	Rs.
Fencing . . . . .	24
Manure . . . . .	24
Seed . . . . .	40
Planting . . . . .	4
Harrowing . . . . .	20
Wrapping . . . . .	10
Weeding . . . . .	5
Cutting, cleaning and bundling . . . . .	20
<b>Total</b> . . . . .	<b>147</b>
<b>Add—Kandayam</b> . . . . .	<b>10</b>
<b>Total</b> . . . . .	<b>157</b>
<b>Say</b> . . . . .	<b>160</b>
<b>Deduct—Receipts from tope and setts (seed)</b> . . . . .	<b>30</b>
<b>Total</b> . . . . .	<b>130</b>

The above estimate is for preparing sugarcane for sale as cane: If it is to be milled and made into jaggery omit last item "cutting, cleaning and bundling, Rs. 20" and substitute "Harvesting, milling boiling Rs. 70."

The estimated production is Rs. 250 maunds (one maund is equal to 25 lbs.) of jaggery. On the basis of 10 of cane to 1 of jaggery, this means an estimated yield of nearly 28 tons or 14 tons per acre.

Cost per ton 130/28 or about Rs. 4-10 per ton.

(Sd.) N. RAMA-RAO.

*Statement of cost of cultivation of sugarcane per acre as estimated by the Cane Superintendent.*

	Rs.
1. Preparatory Cultivation:	
Ploughing	
Furrowing	
Levelling, etc.	8
2. Setts—10,000 per acre	23
3. Manures:	
2½ bags Amm. Sul.	
¼ bag conc. super	
6 bags of oil cake	58
4. Irrigation:	
Wages	13
5. Weeding	5
6. Earthing up	4
7. Harvesting (as 12 per ton)	13
8. Transporting	31
9. Interest on principal	8
Total	173

This cost of Rs. 173 per acre towards cultivation charges is exclusive of Land Revenue, etc., due to Government.

*Statement of cost of cultivation of sugarcane per acre, as estimated by the Farm Superintendent.*

S. L. No.	Particulars.	Rs.	Rs.
1.	Preparatory cultivation—including fallow ploughing with Tractor and bullocks	32	
2.	Planting	5	
3.	Interculture	13	
4.	Manuring	4	
5.	Earthing up	4	
6.	Irrigation	17	
7.	Seeds	35	
8.	Manures	70	
9.	Green manure	12	
10.	Bullock work (for after cultivation)	7	
11.	Harvesting	30	
12.	Transport	45	
	Total direct cost	244	274



*Statement of cost of cultivation of sugarcane per acre, as estimated by the Farm Superintendent—contd.*

S. L. No.	Particulars.	Rs.	Rs.
13.	Farm supervision . . . . .	16	
14.	General wages, including watch and ward . . . . .	8	
15.	Maintenance of drains, roads, etc. . . . .	4	
16.	Other charges, including implement, spares, sundry stores, etc. . . . .	6	
17.	General supervision of farms . . . . .	8	
18.	Depreciation . . . . .	10	
19.	Lease on lands (for 18 months) . . . . .	44	
	Total in direct charges . . . . .	...	96
	Total cost . . . . .	...	370

*Cost of production per acre of sugarcane crop worked out on the basis of 1934-35 accounts of Bannur Centre.*

Particulars	Rs.	A.	P.
1. Preparatory . . . . .	32	0	0
2. Planting . . . . .	4	8	0
3. Interculture . . . . .	43	0	0
4. Harvesting . . . . .	28	0	0
5. Jaggery boiling . . . . .	82	12	0
6. Seed . . . . .	19	4	0
7. Manure . . . . .	54	8	0
8. Rent . . . . .	...		
9. Land Revenue and Cesses . . . . .	10	8	0
Grand Total . . . . .	274	8	0

Gross income . . . . . 350 0 0

Yield of Jaggery—290 maunds.

Cost of bullock labour—As. 12 pies 3 per day.

Total area cultivated—10 acres.

*Cost of production and income per acre of sugarcane crop, worked out on the basis of 1934-35 account—Subbanahalli Centre.*

Particulars.	Average cost per acre.		
	Rs.	A.	P.
1. Preparatory . . . . .	22	6	3
2. Planting . . . . .	1	15	10
3. Interculture . . . . .	21	5	3
4. Harvesting . . . . .	11	6	3
5. Jaggery Boiling . . . . .	27	2	8
6. Seed . . . . .	37	2	3
7. Manure . . . . .	10	3	7
8. Rent . . . . .	...		
9. Land Revenue and Cesses . . . . .	6	2	5
Grand Total . . . . .	163	0	6

Yield of Jaggery, 87 maunds . . . . .

Cost of bullock labour per day . . . . . 0 9 10

Total area cultivated, 3.03 acres . . . . .

*Cost of cultivation on Company's Banasvadi Farm.*

Particulars.	Cost per acre.	
	Rs.	A. P.
1. Land preparation . . . . .	15	5 8
2. Planting . . . . .	4	0 0
3. Seeds . . . . .	53	4 0
4. Manure . . . . .	66	9 6
5. Cultivation . . . . .	19	8 9
6. Irrigation . . . . .	15	6 2
7. Cutting . . . . .	30	0 0
8. Sundries . . . . .	27	0 7
Total . . . . .	231	2 8
9. Transport . . . . .	30	0 0
10. Land assessment including water rate . . . . .	43	8 0
11. Fodder and upkeep of cattle . . . . .	19	8 1
12. Farm supervision . . . . .	18	6 0
13. General Supervision of Farms . . . . .	7	8 0
14. Depreciation of Farm Assets . . . . .	14	3 5
Grand Total . . . . .	364	4 2

*Wholesale prices of jaggery in different areas in the Mysore State from 1921 to 1937.*

(Rate per Railway maund—82-2/7 lbs.)

Year.	Bangalore.	Tiptur.	Shimoga.	Chickballapur.	Goribidnur.	Kanchehalli.
	Rs. a.	Rs. a.	Rs. a.	Rs. a.	Rs. a.	Rs. a.
1929 . . . . .	10 14	..	..	8 1	..	7 9
1930 . . . . .	6 14	7 8	..	5 2	6 1	4 11
1931 . . . . .	4 8	4 6	..	4 7	4 1	4 15
1932 . . . . .	4 13	3 8	4 12	4 7	3 8	4 4
1933 . . . . .	4 1	3 5	4 12	4 13	3 5	3 14
1934 . . . . .	5 4	3 11	5 8	7 0	6 13	4 7
1935 . . . . .	5 5	3 5	5 2	5 5	4 15	4 13
1936 . . . . .	3 9	2 6	5 14	4 7	4 7	3 11
1937 . . . . .	3 7	..	3 18	3 5	3 5	..
(up to the end of April).	..	..	..	..	..	..

*Statement showing the consumption of jaggery in the Mysore State.*

(Quantities are expressed in Railway maunds of 82-2/7 lbs. each).

Year.	Production.	Import by rail.	Total supplies.	Export by rail.	Net supplies available for consumption on the state.
	Rs.	Rs.	Rs.	Rs.	Rs.
1930-31 . . . .	856,144	44,506	900,650	138,442	762,208
1931-32 . . . .	775,255	9,054	784,309	246,207	538,120
1932-33 . . . .	932,625	31,896	964,521	199,292	765,229
1933-34 . . . .	894,903	34,050	928,953	137,241	791,712
1934-35 . . . .	821,073	26,431	847,504	190,924	656,580
1935-36 . . . .	993,485	26,308	1,019,793	239,245	780,548
1936-37 . . . .	955,216	13,753	968,969	288,636	680,333

NOTE.—Statistics of Road Borne Trade are not available for recent years. They are available only for 9 months—September, 1929 to March, 1931. The approximate quantities imported into and exported from the State by road, every year, on the basis of these statistics amount to 10,987 Railway Maunds and 51,689 Railway Maunds respectively. If these figures are also taken into account, the average annual consumption of jaggery in the State works out to 669,971 Railway Maunds or 24,611 tons.

*Statement showing the total quantities and values of jaggery imported into the Mysore State by rail under five main blocks during the past seven years.*

Year.	Madras Presidency (Excluding Sea Port).	Bombay Presidency (Excluding Bombay Sea Port).	Madras port.	Bombay port.	Other blocks.	Total Raly. Mds.	Value in Rs.
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
1929-30	47,555	21,694	5,245	823	2,072	77,389	7,87,762
1930-31	30,205	9,131	5,170	..	..	44,506	2,86,159
1931-32	8,622	358	74	..	..	9,054	40,194
1932-33	19,669	6,406	5,821	..	..	31,896	1,58,052
1933-34	21,312	12,734	2	..	2	34,050	1,31,850
1934-35	19,999	6,014	417	1	..	26,431	1,45,546
1935-36	24,949	1,346	9	..	4	26,308	1,35,769
1936-37	9,724	4,026	..	..	3	13,753	..

Statement showing the total quantities and values of jaggery exported from the Mysore State by rail under five main blocks, during the past seven years.

Year.	Madras Presidency (Excluding Madras Ports).	Bombay Presidency (Excluding Bombay Ports).	Madras Ports.	Bombay Ports.	Other blocks.	Total Rs. Mads.	Value in Rs.
	Rs.	Rs.	Rs.		Rs.	Rs.	Rs.
1929-30	55,681	20,437	1,224	..	8,483	85,825	7,77,589
1930-31	71,107	43,072	2,595	..	21,668	1,38,442	8,68,354
1931-32	1,14,598	1,00,733	7,402	..	23,474	2,46,207	10,39,712
1932-33	83,929	1,00,223	2,906	..	12,234	1,99,292	8,93,676
1933-34	85,232	31,369	3,350	..	17,090	1,37,241	5,17,292
1934-35	92,307	80,427	2,753	..	15,437	1,90,924	9,44,003
1935-36	1,03,201	1,24,974	1,323	..	9,747	2,39,245	12,33,519
1936-37	1,96,409	85,035	1,345	..	5,847	2,88,636	..

Average annual prices of sugar and jaggery in Bangalore since 1929-30 (price per Railway maund).

Years.	Refined sugar.	Percentage change as compared with the previous year.	Unrefined sugar.	Percentage change as compared with the previous year.	Jaggery.	Percentage change as compared with the previous year.	General Index number of prices.	Percentage change as compared with the previous year.
	Rs. a.		Rs. a.		Rs. a.			
1929-30	11 2	..	10 11	-	10 0	..	149	..
1930-31	10 10	-4.5	10 6	-2.9	6 6	-36.3	126	-15.4
1931-32	10 2	-4.7	10 10	2.4	4 4	-33.3	108	-14.3
1932-33	10 11	5.6	10 11	0.6	4 14	14.7	107	-0.9
1933-34	11 6	6.4	10 12	0.6	3 13	-21.8	95	-11.2
1934-35	10 1	11.5	9 6	-12.8	5 10	47.5	102	7.4
1935-36	10 3	1.2	9 14	5.3	5 2	-8.8	106	3.9
1936-37	..	..	..	..	3 5	-35.4	107	0.9

## Statement showing the burden of excise duty.

Year.	Average price of cane per ton.	Percentage change as compared with the previous year.	Price of Mandya Fy. sugar per ton.	Percentage change as compared with previous year.	Percentage proportion of excise duty to the price of sugar.
	Rs.		Rs.		
1933-34	12-00	..	257	..	..
1934-35	12-0	-0-7	253	-2-0	10-0
1935-36	11-05	-8-0	244	-4-0	11-0
1936-37 (Up to Feb.)	10-75	-3-0	215	-11-0	12-0
March 1937	10-75	-3-0	207	-15-0	20-0

(3) Letter dated the 26th October, 1937, from the Government of His Highness the Maharaja of Mysore, Local Self Government Department, Bangalore.

With reference to your letter No. 303, dated 18th June, 1937, regarding distilleries, I am directed to forward herewith a statement furnishing the particulars required.

Statement showing the consumption of molasses by distilleries and other concerns manufacturing rectified and denatured spirit (in Mysore State) for each of the last three years.

Particulars.	1934-35.	1935-36.	1936-37.
A.—(1) The number of Distilleries	One.	One.	One.
(2) Total quantity of molasses consumed and the sources of their supply.	1,485 tons.	3,801 tons.	3,982 tons.
	(Molasses is supplied by the Mysore Sugar Company, Limited, Mandya).		
(3) The price paid for the molasses	Rs. 7 per ton of molasses.		
B.—(1) The number of concerns manufacturing rectified and denatured spirit other than distilleries.	None.	None.	None.
(2) Total quantity of molasses consumed and the source of their supply.	..	..	..
(3) The price paid for molasses	..	..	..

(4) Answers to questionnaires furnished by the Government of H. H. the Nawab of Bhopal, Robkan Khas Department, Bhopal.

(ANSWERS TO QUESTIONNAIRE FOR LOCAL GOVERNMENT).

1. Figures are not available. Co. 221, Co. 281, S. 48, P.O.J. 36, Manjav. Recently P.O.J. 2878 has been introduced. Figures of approximate acreage are not available.

2. The cane-growing area falls on the border line of Malwa. There is very little difference in the climatic conditions, methods of cultivation, etc. 99 per cent. of the crop is irrigated. Major portion of cane is grown in Sehore, Ichhawar, Ashta, Jawar, Doraha and Shampur Tehsils.

3. Information not available.

4. Sehore—Rs. 120 per acre, Ichhawar—Rs. 120 per acre, Ashta—Rs. 125 per acre, Jawar—Rs. 130 per acre, Doraha—Rs. 125 per acre, Shampur—Rs. 120 per acre.

Unirrigated cane is negligible. No cost figures are, therefore, given. There has been a good deal of variation in the cost of cultivation during the last seven years, owing to downward trend of commodity, prices and availability of cheap labour. Average yield of sugarcane is 20 tons per acre and the average sucrose content 13.62 per cent. on cane.

5. Four and a half to five annas per standard maund.

6. There has been considerable increase in area. The causes for increase in the area are:—

(1) Introduction of improved varieties.

(2) Fall in the price of cotton and cereals.

(i) Had no effect. (ii) Had very little effect. (iii) Had considerable effect, because the profit per acre from wheat, cotton, etc., was considerably less than that from sugarcane when converted into gur. (iv) Had considerable effect, because the price of cotton was lower than that of gur in terms of yield per acre.

7. Not in Bhopal. No.

8. Cotton, wheat, gram, juar, rice and oil seeds. None of them forms an alternative under the prevailing conditions.

9. Figures not available.

10. Nil.

11. (i) Varietal and manurial trials have been carried out recently on forty improved and exotic varieties of sugarcane. A scheme for disease control has been submitted to the Government.

(ii) The tested varieties have been distributed to cultivators, improved methods of cultivation have been demonstrated, and the use of natural and artificial manures has been brought home to cultivators by carrying out manurial tests on cultivators' own fields.

12. (i) None.

(ii) A little.

(iii) A little. No.

13. There are no sugar factories in the State. Cultivators have co-operated to a considerable extent.

14. (a) & (b) Nil.

(c) 75 per cent.

(d) 25 per cent.

15. Non-existence of a sugar factory, inefficient and defective system of irrigation, lack of manure and better seed and above all the slump in the price of gur.

16. Information is not available.

17. Price of cane is fixed, namely, 4 annas per standard maund for crop and 3½ annas for routine. No such or any Act is in force at present but steps are being taken to enforce necessary legislation on the subject.

18 & 19. We have no Sugar Factory at present.

20. About 2 pies per maund per mile.

21. Cane-growers use their own carts.

22. Yes. None.

23. There were no Sugar Factories in the State.
- 24, 25 & 26. The question does not arise.
27. Figures are not available.
28. There were no unreasonable variations between the wholesale and retail prices during the last seven years.
29. The estimated consumption of white crystal sugar is about 50,000 maunds a year. Except the normal increase in consumption we do not see any possibilities of consumption going up to any great extent.
30. Except Halwais and a few bakeries we have no manufactories of confectionery in Bhopal.
31. We have no Sugar Industry in the vicinity, and as such we cannot answer this question. A sugar factory is under construction and is expected to commence crushing from December, 1937.
32. In the absence of a sugar factory, this problem has not been investigated.
33. The requisite data is not available.
34. Gur is only produced from cane in this State.
35. The requisite data is not available. The cause in deterioration in prices was due to over-production of gur and the import of gur from outside—
- (i) Increase of sugarcane area has naturally brought about a downward trend in prices
  - (ii) Frost has to a certain extent affected the prices.
  - (iii) Had a little effect.
- 36 & 37. Requisite data is not available.
38. No gur is exported from Bhopal.
39. None.
40. Sugar is not replacing gur in the Bhopal markets.
41. In place of single pan furnace, a multiple furnace has been devised. Old stone iron mills have been replaced by more efficient bullock driven iron mills. Methods of dealing with a much larger quantity of juice than was possible with single pan furnace have been introduced. Clarification of juice by the use of indigenous chemicals and other articles has resulted in the production of superior quality gur.
42. The estimated number of gur factories is 600. Data as regards out-turn of sugar, gur and molasses is not available.
- 43 & 44. We have no open pan sugar factories.
45. The establishment of a large number of modern factories has affected the Khandsari Industry to a considerable extent. In our opinion, the Khandsari Industry has a place in Indian Economics for some years to come. Research work in this line should, therefore, be pursued and methods of eliminating waste devised.
46. A good deal of research work has been done to determine the striking point with a view to control the size of grain and to obtain maximum possible yield. A large number of temperature readings were taken to determine these points and it was found that as much as 15 to 20 per cent. higher recovery could be obtained by this simple means. The method of storing rab in tin containers instead of earthen pots resulted in the yield of better quality sugar and economy in expenditure.
- Work on gauges for centrifugal machines also gave higher out-turn. Rapid boiling of molasses and use of replaceable pans gave a high yield of second sugar.
47. In the absence of a sugar factory, we are unable to gauge the position.

48. The protective duties have not affected the consumption of sugar in any way.

49. None.

50. Careful statistics have not been maintained in this State and as such we cannot vouch for the accuracy of the figures. They are, however, correct to the extent of 75 per cent.

51. We have no comments to make.

#### ANSWERS TO GENERAL QUESTIONNAIRE.

##### *Production of Sugar.*

###### Introductory.

1. Our sugar is under construction and is expected to commence crushing from December, 1937.

2. None.

3. We have nothing to report at this stage.

4. Double sulphitation.

5-8. We have nothing to report.

9. (i) Yes.

(ii) Yes. We have no suggestions to offer.

##### *Raw materials.*

10. No.

11. (a) Nil.

(b) Information not available.

(c) Co. 221, Co. 281, S. 48, Manjav, P.O.J. 36 and recently P.O.J. 2878.

(d) Three systems are in vogue—(1) Bare Fallow, (2) Green Fallow, (3) Kharik.

The rotation is:—

First year—Sugarcane plant crop.

Second year—Ratoon crops.

Third year—Sannu (*Crotalaria Juncea*) grown for fibre or seed during the rains, and the *Mansur* (*Ervum Lens*) during the rabi season.

Fourth year—Ditto.

Fifth year—Rice during the rains and then Tiura (*Lathyrus Sativus*) or Masur (*Ervum Lens*) during the rabi season.

Sixth year—Sanai (*Crotalaria Juncea*s) for green manuring during the rains followed by sugarcane during the rabi season.

##### *Manuring.*

(e) Manuring. Mostly stable manure is used but artificials are also coming in vogue.

Variety.	Yield per acre. Sucrose.	
	Tons.	Per cent.
Co. 221 . . . . .	20	13.5
Co. 281 x . . . . .	20	13.7
S. 48 . . . . .	20	14.00
Manjav . . . . .	22	13.5
P.O.J. 36 A . . . . .	23	13.8
III-A		2 z



## (f) Statement of Income and Expenditure per acre.

Ploughing with C. T. Plough . . . . .	Twice.
Expenses . . . . .	Rs. 14.
Ploughing and Cross ploughing with disc plough after the advent of rains.	Twice.
Expenses . . . . .	Rs. 5.
Patela . . . . .	Four times.
Expenses . . . . .	Rs. 1-8.
Bakkhar . . . . .	Four times.
Expenses . . . . .	Rs. 3.
Preparing Trenches . . . . .	Rs. 3-12.
Farm Yard Manure . . . . .	150 maunds.
Expenses . . . . .	Rs. 7-8.
Artificials . . . . .	Rs. 7-8.
Cane seed . . . . .	2,000 canes.
Price . . . . .	Rs. 20.
Sowing Expenses . . . . .	Rs. 2-4.
Harvesting Expenses . . . . .	Rs. 3-12.
Irrigations . . . . .	Nine.
Expenses . . . . .	Rs. 27 to Rs. 29-4.
Hoeing and weeding . . . . .	Seven.
Expenses . . . . .	Rs. 15.
Earthing up . . . . .	Twice.
Expenses . . . . .	Rs. 6.
Tying up of canes . . . . .	Rs. 1-14.
Watching . . . . .	One man for ten months at Rs. 2 per month, per acre.
Expenses . . . . .	Rs. 20.
Fencing . . . . .	Nil.
Expenses . . . . .	Nil.
Supervision per acre . . . . .	} Per acre Rs. 10.
Expenses . . . . .	
Expenses of making Barha . . . . .	Rs. 2.
Land rent . . . . .	Nil.
Expenses . . . . .	Rs. 10.
Cartage from 20 miles, per cart, per maund, in cultivator's cart.	As. 1-3 per maund.
Cartage from 10 miles in cultivator's cart.	$\frac{1}{2}$ annas per maund.
Yield per acre . . . . .	Agriculture Dept. 27 tons—735 Std. Mds. Cultivators 20 tons—544 Std. Mds.
Expenses per maund . . . . .	3-49 annas.
Cultivator's price of cane in his village.	3 to 3 $\frac{1}{2}$ annas per Md.
Cultivator's price of cane in his village 20 miles away in his own cart.	4 $\frac{1}{2}$ to 5 annas per Md.
Cultivator's price of cane in his village 10 miles away in his own cart.	3 $\frac{1}{2}$ to 4 annas per Md.

Cultivators in these parts carry their produce 20 miles in their own carts if they get even 2 annas per maund higher rate for their produce.

NOTE 1.—The expenses of irrigation per acre cannot be regarded as an absolute figure. They will depend upon the depth of the well and the type of appliance used for lifting water.

NOTE 2.—Expenses of making Burha will depend upon the level of the land and the distance to which water is carried.

NOTE 3.—Expenses of fencing will depend upon the type of fencing material used, but Rs. 5 per acre may be regarded as an average figure for thorn fencing.

NOTE 4.—The figures given in this statement are those of Agricultural Department. The yield on cultivator's land will be approximately 20 tons per acre and the expenses about Rs. 120 per acre. Such expenses as supervision charges, ploughing with C. T. plough, use of Patela and use of artificial manure are not incurred by a cultivator.

NOTE 5.—Expenses on growing thick canes will be Rs. 10 to Rs. 20 more per acre than those incurred on medium canes.

12. (a) One acre.

(b) One acre. Recently seven acres more have been put under cane at Sehore for distribution purposes, and a larger area is to be planted in the next season. Imported seed has also been distributed to several cultivators from whom it will be purchased and distributed to a still larger number.

13. Different Coimbatore varieties have been tested in regard to their earliness and late maturity, as for example:—

- (1) Co. 295 medium ripening draught resisting,
- (2) Co. 299 early ripening.
- (3) Co. 300 early ripening.
- (4) Co. 313 early ripening.
- (5) Co. 312 medium ripening, heavy yielder.
- (6) Co. 331 and Co. 341 late ripening.

It has also been established that the best procedure in cane cultivation is to grow green manure first, as for example, *Sanai* (*Crotalaria Juncea*), plough it in when six weeks old, and supplement it with stable manure and artificials to obtain the best yield. The minimum quantity of Nitrogen required per acre comes to 80 lbs.

14. (a) The quantity has increased.

(b) The quality has improved.

15. In recent years due to unusual weather conditions, cane crops have been often seriously damaged by frost but Bhopal does not get spells of frost very often. Insect-pests are conspicuous by their absence, except *Chilo simplex* and certain stem borers, but the damage done by these borers is overcome by cane crops during rains and healthy crops are usually obtained after rains even when the field is attacked by borers. The loss under present conditions is not more than 10 per cent. but with the increase in area under cane our problems are likely to multiply.

16. Yes.

Variety.	Yield per acre. Sucrose.	
	Tons.	Per cent.
Co. 221 . . . . .	20	13.5
Co. 281 . . . . .	20	13.7
S. 48 . . . . .	20	14.0
Manjav . . . . .	22	13.5
P.O.J. 86 . . . . .	23	13.3

17. We have nothing to report at this stage.
18. (a) No. The area has increased in recent years.
- (b) There has been considerable increase in area. The causes for increase in the area are:—
- (1) Introduction of improved varieties.
  - (2) Fall in the price of cotton and cereals.
- (i) Had no effect. (ii) Had very little effect. (iii) Had considerable effect because the profit per acre from wheat, cotton, etc., was considerably less than that from sugarcane when converted into gur. (iv) Had considerable effect because the price of cotton was lower than that of gur in terms of yield per acre.
19. No. In our area there is very great scope for development and we do not consider any restriction necessary.

Variety.	Yield per acre. Sucrose.	
	Tons.	Per cent.
Co. 221 . . . . .	20	13.5
Co. 281 . . . . .	20	13.7
S. 48 . . . . .	20	14.00
Manjav . . . . .	22	13.5
P.O.J. 36 . . . . .	23	13.8

21. Lack of water supply because the irrigation is mainly from wells. The lack of a central factory, but one is being established now. Establishment of Lorry Service to cart the cane from distant areas will help the cultivators putting down larger area under cane.

22. (a) I agree with Tariff Board's view except where the project is financed by Government and necessary legal safe-guards are provided to prevent any hardship coming to cultivators.

(b) The problem had not arisen with us. A system of zones can be worked satisfactorily if a sliding scale of prices is fixed for sugarcane to prevent factory owners from taking undue advantage of cultivators who, in the case of zoning system, are left at the mercy of factory owner.

23. Our Government will be pleased to give all possible assistance to cultivators when we find the need of introducing zone system. We are already going ahead with road development programme to help the cultivators to bring their products to the factory.

24. We have nothing to suggest.

25. We have nothing to report at this stage.

26. Carts. Twelve maunds. Very great extent. Rubber-tyre cart carries 22 maunds of cane as opposed to 12 maunds carried by ordinary country cart.

27. Yes. Good.

28. This problem will be studied as soon as the factory is established in Bhopal.

29-34. We have nothing to report.

35. We have no tramways.

36 This question does not arise in our case.

37-45. We have nothing to report.

46. No.

47-49. We have nothing to suggest.

50. Four months. Yes.

51. We have nothing to report at this stage.

52. Work has been commenced only recently.

*Labour.*

- 53-56. We have nothing to report.
57. This problem will be studied when our sugar factory, namely, Bhopal State Sugar Industries, is established.
58. The question does not arise in our case.
59. This problem will be studied when the sugar factory is established.
- 60-87. We have nothing to report.
88. They keep sugar in bags in store rooms. The polarization goes down by two degrees and moisture content is increased when the weather is wet.
89. Yes, because the imported sugar is usually refined sugar. Slight.
90. It depends on the class of consumer. People with esthetic taste prefer Indian sugar while those who lack this taste prefer refined sugar.
91. No. It is not as highly refined as Java sugar.
- 92-94. We have no suggestions to offer.
95. Yes. Polarization.
- 96-111. We have no suggestions to offer.

*Questionnaire for sugar refineries.*

We have no sugar refineries in Bhopal and as such we are unable to answer these questions.

*Questionnaire for the manufacture of Sugar by Open Pan System and Khandsari.*

We have no khandsari sugar or open pan system in Bhopal. Our process will be double sulphitation.

*Question for gur/jaggery merchants.*

The requisite information is not available. We have a factory under erection and have just started collecting useful information affecting this industry.

- (5) *Letter dated the 7th July, 1937, from the Robkari Khas Department, Government of H. H. the Nawab of Bhopal, Bhopal.*

With reference to your letter No. 303, dated the 18th June, 1937, addressed to the Secretary, Revenue Department, Government of Bhopal, I have the honour to inform you that there is only one Distillery in the State and that Mhowa is the only base from which country spirit is distilled. No molasses are used. There are no concerns manufacturing rectified or denatured spirit other than distilleries in the State.

- (6) *Letter dated the 4th July, 1937, from the Secretary, Tariff Board, to the Robkari Khas Department, Government of H. H. the Nawab of Bhopal, Bhopal.*

I am directed to acknowledge receipt of your letter, dated 26th June, 1937, with thanks enclosing the reply to the general questionnaire and to enquire the size of the proposed factory at Bhopal.

- (7) *Letter dated the 3rd August, 1937, from the Robkari Khas Department, Government of H. H. the Nawab of Bhopal, Bhopal.*

In reply to your letter dated the 4th July, 1937, I have the honour to inform you that the Bhopal State Sugar Factory, under erection, will crush 750 tons (2,240 lbs.) of cane per day of 22 hours and will produce direct consumption white sugar by the double sulphitation process.

(8) Letter dated the 21st June, 1937, from the Hon'ble Revenue and Finance Minister, Rampur State, Rampur.

With reference to your No. 171, dated the 11th May, 1937, enclosing copies of questionnaire, I have the honour to inform you with regard to Nos. 2, 3 and 4 are as follows:—

2. There are no gur refineries in State.
3. The number of manufacturers of sugar by the open pan system and the number of khandsaris is small. These men keep entirely inadequate records. It is not possible to collect any really reliable information from any particular manufacturer, and I doubt whether general information based on the opinion of local officers would be of great value. One fact is quite certain, however, that is, that in regard to question 11, the opening of two sugar factories in the State has resulted in closing over 500 open pan factories since 1930-31. The replies to the questionnaire are submitted separately with six copies for what they are worth.
4. There is no appreciable trade in gur except for local consumption and the figures supplied are in this case even less reliable. The replies to the questionnaire are submitted separately with six copies for what they are worth.

REPLIES TO THE QUESTIONNAIRE FOR MANUFACTURERS OF SUGAR BY THE OPEN PAN SYSTEM AND KHANDSARIES.

1. Sugar is generally manufactured from rab. The juice is boiled into rab and then converted into a low grade white sugar, usually by centrifugal machines operated by mechanical power. Indigenous method of converting rab into white sugar also survive.

2. Sugar makers buy juice crushed by cane-growers by small bullock-power crushers. There is no intermediary.

3. The approximate average prices for one standard maund of juice/rab during the last 7 years are as follows:—

	1930-31.	1931-32.	1932-33.	1933-34.	1934-35.	1935-36.	1936-37
	Rs. A.	Rs. A.	Rs. A.	Rs. A.	Rs. A.	Rs. A.	Rs. A.
Juice . . . . .	0 6	0 5	0 5	0 4	0 4	0 3	0 3
Rab . . . . .	6 8	6 0	6 0	5 0	4 8	4 0	3 4

The Khandsaries do not purchase cane.

4. It will be seen that prices of juice and rab have steadily deteriorated. Opinions differ as to the reason. The price of juice is settled in July or August when the Khandsaries enter into contracts with the growers. This price is governed by the anticipated price of khandsari sugar in the subsequent winter. The prices obtainable for cane supplied to vacuum pan factories are, on the whole, more attractive to cane-growers than the prices obtainable from Khandsaries. Had these prices effected the price of juice, one would have expected a rise rather than a fall in the latter. The truth appears to be that those Khandsaries who have so far survived competition with factory sugar, have been enabled to do so by steadily reducing the price of their sugar. This has only been possible by the steady reduction in the price paid for juice. And this in turn has only been made possible by the enormous increase in the production of cane due in its turn to propaganda and to the presence of demand from factories.

5. (i) Average extraction of juice is from 60 to 67 maunds from 100 maunds of cane.

(ii) Out of 100 maunds of juice, about 18 maunds of rab are extracted.

(iii) Out of 100 maunds of rab, about 40 maunds of sugar are extracted.

The above figures are estimates only.

6. Three qualities of sugar are manufactured.
7. No reliable figure has been ascertained.
8. Sugar is exported from Rampur to Bareilly, Shahadra, Agra, Chandausi, and Moradabad.
9. Reliable figures for the last 7 years are not available. In 1936-37 retail prices were as follows:—
  - (a) First class—Rs. 8 per maund.
  - (b) Second Class—Rs. 7 per maund.
  - (c) Third class—Rs. 6 per maund.
10. Khandsari sugar still appears to enjoy a certain preference over factory sugar among orthodox Hindus owing to certain misapprehensions as to the materials used in the manufacture of factory sugar.
11. It is estimated that over 550 open pan factories have been closed down in the last 7 years owing to competition with the vacuum pan factories.
12. Indian factory sugar is to a certain limited extent replacing Khandsari sugar. But this depends purely on the relative prices of the two sugars. The local consumer will always buy in the cheapest market.
13. The sugar excise duty of 1934 and the addition imposed in 1937 has not effected Khandsaries in the State as their establishments do not fall under the definition of "factory" laid down in the Sugar Excise Duty Act.
14. The main problem with which the open pan factories are faced, is competition with vacuum pan factories' sugar. The Khandsaries although able to obtain their raw materials at very low rates representing to the grower a lower return than he can obtain by sale of cane to vacuum pan factories, are unable to compete with factory sugar owing to the relatively low yield of sugar obtainable by the open pan process. The resulting sugar is also of lower quality than the factory sugar, and the preference previously enjoyed by Khandsari sugar among orthodox Hindus, is rapidly dying out. It would appear that in due course the Khandsari system will die out entirely as it is wasteful. Certain advantages to the cultivators due to the presence of the bel in the village are equally obtainable to him, if he manufactures gur for which there is and is likely to be a large market.

#### REPLIES TO THE QUESTIONNAIRE FOR GUR/JAGGERY MERCHANTS.

1. The local gur/jaggery merchants deal only in local market. There is little export trade except, perhaps, to the markets in the Tarai.
2. Three different kinds of gur are marketed—
  - (1) Gur with whitish yellow colour and fairly good grain.
  - (2) Gur with yellow colour and some grain.
  - (3) Brownish gur with no grain.
3. No reliable information is available.
4. There has been little variation in the quality of gur in recent years.
5. The prices of gur in the last 7 years are said to be as follows:—

Years.	Seers a rupee.	Years.	Seers a rupee.
1930-31 . . . . .	6	1934-35 . . . . .	10
1931-32 . . . . .	7	1935-36 . . . . .	12
1932-33 . . . . .	8	1936-37 . . . . .	15
1933-34 . . . . .	8		

Again opinions vary as to the causes of the fall. The most acceptable opinion appears to be over-production due to the increased cane area.

6. No reliable opinion can be given.

7. No reliable reply can be given.

8. Gur will keep in good condition for one year. Some qualities keep better than others.

(9) *Letter dated the 6th July, 1937, from the Hon'ble Revenue and Finance Minister, Rampur State, Rampur.*

I have the honour to enclose herewith the replies to the questionnaire for Local Government in six copies.

#### REPLIES TO THE QUESTIONNAIRE FOR LOCAL GOVERNMENT.

1. The area under sugarcane in the State during the last seven years was:—

Years.	Acres.	Years.	Acres.
1930-31 . . . .	15,186	1934-35 . . . .	26,351
1931-32 . . . .	16,259	1935-36 . . . .	37,053
1932-33 . . . .	19,440	1936-37 . . . .	50,101
1933-34 . . . .	20,790		

The improved varieties of sugarcane which are grown in the State are Co. 213, 290, 331, 393, 421, etc. The approximate acreage under Co. 213 was 60 per cent., under Co. 290 and 331 was 20 per cent., under Co. 393 and 421 negligible and under Desi canes (Agrol and Chin, etc.) 20 per cent.

2. The State may be divided roughly into three areas:—

(a) In the extreme north tarai conditions prevail and cane, if grown, requires little irrigation.

(b) In the centre, conditions are typical of this part of Rohilkhand where rainfall is in the neighbourhood of 40 to 45 inches per annum. The soil is generally good loam which retains moisture for a long period and irrigation is only necessary in periods of drought.

(c) In the area south of the Ramganga where rainfall is considerably less, the soil is much lighter and irrigation generally essential for good crops. The majority of the sugarcane is grown in the central area which is close to the sugar factories. Separate figures for irrigated and unirrigated sugarcane are not available.

3. The prevailing irrigation rates in the State vary from Rs. 2-4-6 to Rs. 6-6-9 per acre, according to the quantity of water available and the intensity of demand in different areas of the State. The rates before 1932-33 were from Rs. 1-10-8 to Rs. 4. In the year 1932-33 they were enhanced to from Rs. 3 to Rs. 8 and in 1934-35 were reduced to from Rs. 2-6-4 to Rs. 6-6-9 per acre.

4. The cost of cultivation of cane to the cultivators is roughly estimated at a maximum of Rs. 60 per acre (irrigated). Average yield per acre is 300 maunds. Average sucrose content is 14 per cent. and recovery of sugar is 10.7 per cent.

5. A fair price for sugarcane to the growers would be As. 4-6, which would leave a small margin, after paying for cartage at an average rate of one anna per maund.

6. The steady increase in the area under sugarcane is due to the recent construction of 2 sugar factories in the State. Price factors have not yet

entered in, but as sufficient cane is now grown within easy reach of the factories to meet their requirements, the area is likely to be more susceptible in future to price variations.

7. There was no over-production of sugarcane in the season 1936-37.

8. Other cash crops in the State are cotton, chillies, oil-seeds. They are not extensively grown. Rent is paid mainly from the proceeds of wheat, maize and rice crops.

9. Exact figures are not available.

10. Rampur State does not receive any contribution out of sugar excise. Sugar factories which are in the State pay excise duty on the exported sugar. Substantial funds arising out of the excise duty have been sanctioned by the Rampur Government on the advice of the Development Board towards development of Agriculture, Industry and communications in particular, and in addition to other grants the Government have sanctioned a sum of Rs. 50,000 for the construction of tube-wells close to Rampur in order to assist in the improvement of sugarcane cultivation.

11. (i) No research work has been undertaken in regard to sugarcane and the control of disease.

(ii) In 1936 a Department of Agriculture was established and has since devoted its energies primarily to developing sugarcane cultivation.

12. (i) No assistance.

(ii) No assistance.

(iii) No assistance.

13. The factory distributed improved varieties of seed to cultivators free of charge. The cost was met from the Development Fund mentioned in question 10, otherwise the factories have done nothing practical to assist the improvement of cane cultivation methods.

14. Of the sugarcane grown in the State—

(a) Not less than 65 per cent. is crushed in sugar factories.

(b) Approximately 27 per cent. is utilised in open pan factories, and

(c) Khandsars and turned into gur.

(d) Approximately 8 per cent. is used for chewing purposes and for seed.

15. The main difficulties of cane-growers in the cultivation of cane are—

(1) ignorance of proper methods of cane cultivation,

(2) poverty, which prevents them from applying adequate quantities of manure or supplying irrigation,

(3) lack of facilities for irrigation,

(4) shortage of plough-cattle, also due to poverty.

The natural tendency is to grow far too many ratoons, as many as 4 to 5 ratoons not being uncommon. The main difficulty in the delivery of cane to the factory is the element of delay. This will not be eliminated until factories organise their supplies on a contract basis and follow a rigid time table which will ultimately become known to the tenants.

16. There is no Co-operative Department in the State. There is only one *Co-operative Sugarcane marketing and rent paying Society* which has worked successfully for one season.

17. Minimum prices for sugarcane in the State are fixed under the Sugarcane Act XV of 1934. The prices fixed follow those announced by the United Provinces Government. The system has worked fairly satisfactorily although factories tend to look on the minimum price also as the maximum. Moreover there is no incentive to the grower to grow early cane or late maturing cane or to grow a cane with a better sucrose content.



18. The price paid by the factories for cane is definitely influenced by the competition of other factories. In 1935-36 there was a shortage of cane in the Meerut District and the prices in the Rampur State were pushed up in a few cases to as high as As. 8 per maund at the end of the season. In 1936-37 owing to the glut of cane in the east of the United Provinces, the United Provinces permitted a reduction from the minimum price and the factories reduced their prices, accordingly even though there was little excess of cane in Rampur.

19. It will only be feasible to introduce a system of bonus payments when factories contract direct with the grower for the supply of cane. Once this principle is established, there should be little difficulty in introducing such a system.

20. Owing to the poverty of the tenantry in general and to the shortage of cattle in the State, the average cost of transport of cane by carts is not less than one pie per maund per mile and may be as high as 3 pies per maund per mile over short distances.

21. Cane-growers employ their own carts when available; otherwise they hire from other tenants. The average cost of hiring is as in the answer to question 20.

22. Rail, road and tramway facilities for transport of cane in the State are adequate. The State has subsidised the factories in developing a feeder Light Railway.

23. The State Industries Department has been recently established and has so far given no assistance to sugar factories.

24. The total amount of State capital invested in the Raza and in the Bulund factories is more than Rs. 5,00,000. Concessions to the sugar factories include provision of site free of rent, exemption from local taxation for a period of years and an undertaking not to permit any other sugar factory to be established for a period of 20 years.

25. There are no Co-operative sugar factories in the State.

26. The conditions of labour in the factories are fairly satisfactory.

27. Figures not available.

28. No figures available.

29. The approximate normal consumption of sugar per annum in the State is about 20,000 maunds. The possibility of increasing the consumption is not very great, although it may rise slightly if the price of factory sugar is favourably compared with the price of Khandsari sugar.

30. No detailed information available.

31. No such position exists in the State, although the State would be interested in the development of a zone system in the United Provinces and would be prepared to respect zones of other factories provided that a zone be accorded to the State factories and respected by British India Factories.

32. There appears to be scope for starting subsidiary industries such as manufactures of sweets and syrups, fruit preservation and canning, etc., in the State.

33. The approximate production of gur from sugarcane during the last seven years was:—

Year.	Mds.	Year.	Mds.
1930-31	137,674	1934-35	81,320
1931-32	127,311	1935-36	79,245
1932-33	119,467	1936-37	14,000
1933-34	103,900		

34. Gur in our State is produced only from cane.

35. The prices of gur for the last seven years are:—

Year.	Seers a rupee.	Year.	Seers a rupee.
1930-31	6	1934-35	10
1931-32	7	1935-36	12
1932-33	8	1936-37	15
1933-34	8		

36. No reliable information is available as to the reason for the fall in price.

37. Not ascertainable. There is little import.

38. During the last seven years gur was exported from the State to Bareilly and Chandusi, etc.

39-40. Not ascertainable.

41. No research work has been undertaken towards improvement in the methods of manufacture of gur.

42. Open pan factories and Khandsars in the State are 116 and the gur manufactories are 593. Approximate out-turn of sugar, gur and molasses are 34,850, 71,669 and 56,673 maunds respectively.

43. The cost of manufacture of sugar in open pan factories and khandsars is estimated at from Rs. 6 to Rs. 9 a maund.

44. Approximately 559 open pan factories and khandsars have been closed during the last seven years.

45. As far as the State is concerned, the construction of two sugar factories during the last 4 years has resulted in the restriction of the open pan system, to outlying tracts from which the factories are inaccessible. In my opinion there is no future for the khandsari industry nor only because by the open pan process the yield of sugar is low and the product inferior; but also because the khandsari generally obtains a stranglehold on the tenant by a system of advances, which greatly reduces the actual return to the tenant. The khandsari system should be allowed to die a natural death and the manufacture of gur encouraged and improved as an outlet for surplus cane.

46. No research work has been undertaken in the State to improve the open pan system and the manufacture of rab.

47. (a) The sugar excise duty of 1934 has not effected the cane-grower, but the additional duty imposed in 1937 has been partly passed on to the grower by the deductions permitted by the United Provinces Government from the minimum price.

(b) The local manufacturers were able easily to pay excise duty of 1934 and should also be able, when the price of sugar settles down, without serious financial difficulty to pay the additional duty imposed in 1937.

(c) & (d) No information is available.

48 & 49. No information is available.

50. The statistics included in these replies except those relating to acreage, are collected by enquiries from State officials. Acreage figures may be taken as accurate but in other figures, the margin of error may be considerable.

(10) Letter dated the 5th August, 1937, from the Special Officer of Industries; Rampur State, Rampur.

With reference to your No. 303, dated the 18th June, 1937, I have the honour to send herewith a statement showing the number of distilleries, total quantity and price of molasses. There are no concerns other than distilleries manufacturing rectified and denatured spirit in the State.

Statement showing the number of Distilleries, total quantity and price of molasses, etc.

No.	Year.	No. of Distilleries.	Quantity of molasses consumed.	Sources of supply.	Price paid for molasses.	Remarks.
			Mds.		Rs. A.	
1	1934-35 . .	1	1,847	Purchased from different places.	1,385 4	
2	1935-36 . .	1	1,698	Do.	1,273 8	
3	1936-37 . . .	1	1,797	Do.	1,347 12	

(11) Letter dated the 16th September, 1937, from the Assistant Resident in Kashmir, Kashmir Residency Department, Srinagar.

Copy of note prepared by Inspector of Customs and Excise, Kashmir Province, containing replies to the questionnaire for gur/jaggery merchants, so far as Kashmir Province is concerned, is enclosed herewith for information and favour of necessary action. Kashmir Government intimate that replies to other questionnaire are awaited from certain officer and will be forwarded as soon as they are received and that information about Jammu Province could not be collected within so short a period.

1. Jaggery is not being imported but gur only is imported. The principal gur marketing centres are Peshawar, Amritsar, Rawalpindi, Muzaffarnagar and Meerut.

2. There are two kinds of gur, Peshawari gur used for eating purposes and rab used in the manufacturing of tobacco, etc.

3. The chief centres have been given in (1) above. Figures are not available by centres and it will take at least one month if such figures are supplied as each and every entry shall have to be seen. The figures of imports made in this Province are given in the enclosed statement.

4. The quantity of Peshawar gur has deteriorated and cannot be stocked for long. It is possibly due to seed used in that district or Soda-Bicarb which is used in manufacture.

5. The figures of various kinds of gur from 1987 to 1991 range between Rs. 13 and Rs. 11.

The prices during the period between 1991-1993 ranged between Rs. 11 and Rs. 8 per month. They now range between Rs. 8 to Rs. 4½. The following represents the variation in prices pertaining to inferior gur which is mostly used in the manufacturing of smoking tobacco.

Year.	Per month.		
	Rs.	Rs.	A.
1987-91 . . . . .	9	7	0
1991-93 . . . . .	7	5	0
1993-93 . . . . .	5	3	12

6. The rise and fall in the prices of gur and sugar go side by side.  
 7. Sugar is replacing gur to a limited extent.  
 8. Gur should remain in good condition for one year but the present qualities obtaining in the market do not stand for so long.

(Sd.) Lachmi Narain Channa,  
*Inspector Customs and Excise,*  
*Kashmir Province, Srinagar.*

*Statement showing the quantity and value figures of gur for the last seven years.*

Year.	Gur.	
	Quantity.	Value.
	Mds.	Rs.
1986-87 . . . . .	19,775	1,79,886
1987-88 . . . . .	22,510	2,14,877
1988-89 . . . . .	25,804	2,28,657
1989-90 . . . . .	22,423	1,49,324
1990-91 . . . . .	20,831	1,54,018
1991-92 . . . . .	17,319	87,560
1992-93 . . . . .	26,666	1,40,654

(Sd.) Lachmi Narain.  
*Inspector Customs and Excise, Kashmir.*

(12) *Letter dated the 25th November, 1937, from the Assistant to the Resident in Kashmir, Srinagar.*

In continuation of express letter from this Residency, dated the 16th September, 1937, I am directed to inform you that the Kashmir Government have intimated that the questionnaire refers almost wholly to sugar producers in British India and that they are not therefore concerned with any question either directly or indirectly as there is no sugar factory in the State.

(13) *Letter dated the 30th July, 1937, from the Minister of the Baroda State, Baroda, to the Resident for Baroda, Baroda.*

With reference to your endorsement No. 12063, dated the 22nd May, 1937, I have the honour to enclose a note containing the views of His Highness' Government on the various points raised in the questionnaire for local Governments.

2. The Baroda Government do not wish to offer remarks as regards the remaining questionnaires which are mainly intended for replies by private individuals. The forms received with your endorsement No. 13111, dated the 3rd June, 1937, are enclosed duly filled in by the Manager of the Gandevi Sugar factory.

No. 19094 of 1937.

Dated Baroda, the 5th August, 1937.

Copy with enclosures forwarded to the Secretary Tariff Board, Ootacamund for information with reference to his letter, dated the 11th May, 1937.

## REPLIES TO QUESTIONNAIRE FROM THE TARIFF BOARD.

## 1. The area under sugarcane is given below:—

	Acres.	Year.	Acres.
1930-31 . . . .	1,848	1934-35 . . . .	2,278
1931-32 . . . .	2,247	1935-36 . . . .	3,429
1932-33 . . . .	2,660	1936-37 . . . .	3,900
1933-34 . . . .	2,432		

Co. 213 is common in the Baroda district where cane is comparatively a recent introduction, and one which is not likely to be maintained. P.O.J. 2728 is the variety which is finding the largest amount of favour in the main cane growing areas of Kathiawar. Departmental attention to cane has been very recent and we are more in a position of demonstrating the value of new varieties than in the possession of any considerable acreages.

2. All cane is irrigated, all but about 200 acres from wells. The two main cane tracts are Navsari, where the climate is comparatively moist and rainfall high and Kathiawar where we have a climate which is like that of the Deccan and the rainfall is relatively low. Tillage and manuring are on the whole well looked after. There is a general tendency to plant too closely. In Navsari, a good deal of the cane is planted whole, in Kathiawar it is usually in sets. Kathiawar also includes the practice of growing a catch crop of fodder in between lines of cane in the early stages of cultivation. Almost all the cane is sown in flat beds. Irrigation is given in small quantities and frequently. On account of water shortage in wells, specially in Baroda where the recent spread of cane has been excessive there is a tendency to stint water supply.

3. Irrigation rates are on the bigha (1,089 Bighas: 640 acres) basis where they apply approximately Rs. 34 per acre.

4. The cost of cultivation of cane varies between Rs. 250 to Rs. 300 in Navsari and Rs. 325 to Rs. 350 in Amreli (Kathiawar). There has been some tendency recently to reduce the cost of cultivation by reducing the amount of manuring applied. The average yields are in the neighbourhood of about 650 to 700 maunds per acre.

5. As. 5-6.

6. The cane area in Amreli has rather more than doubled in the last 7 years, that in Navsari has increased about 20 per cent., in Baroda there has been a very big jump from the neighbourhood of about 80 acres up to 1934-35 to 600 acres in 1936-37. In the last case the cause has undoubtedly been climatic. The area which has recently taken to cane is essentially our tobacco area and tobacco has most frequently been hit by frost prior to change over mentioned above. It is almost certain to decline. The increase in Amreli may be attributed primarily to prices being unobtainable for alternative cash crop though to some extent prices ruling for gur 2 to 3 years ago in Kathiawar may have had some influence.

7. Only in the Baroda district. No restriction is necessary because the marked increase in acreage is due to temporary causes.

8. In the Navsari tracts the alternative crops are vegetables like onions and bringals, to some extent ginger and in other areas cotton and paddy. The net return under the first would be about Rs. 60 under cotton and paddy about Rs. 30 each. In the Baroda district, as mentioned, the alternative crop is tobacco. The profit is Rs. 150 provided if undamaged by frost. It is difficult to suggest alternative crops in as far as Kathiawar is concerned.

9. Covering the establishment of the small farm for cane and demonstration of better types, methods, of growth and extraction approximately Rs. 28,000 in five years.

10. Nil.

11. (i) Hitherto nil. Have recently started sugarcane testing station.

(ii) This is all being done by process of small demonstration plots comparing new varieties and new methods with the old and it has only come into existence during the last year or two.

12. (i) A small grant over a period of 5 years beginning from December 1936 of Rs. 11,300 is sanctioned by the I. C. A. R. for the testing of sugarcane for Gujerat.

(ii) Suitable varieties obtained for testing. Could be increased with advantage.

(iii) No aid is received from the Imperial Institute of Sugar Technology.

13. There is only one factory and that too an old one. Considerable new machinery had to be installed. It has not been working sufficiently long to enable it to pay attention to the improvement of sugarcane varieties and their cultivation, in the district.

14. (a) 285,899 maunds.

(b) Practically speaking *nil*.

(c) 80 to 75 per cent.

(d) 15 to 20 per cent.

15. Scarcely arises as the factory only operated for a small portion of the last season. The chief difficulty to the cane-grower is probably the matter of water.

16. No action has been taken. However, efforts are being made by the Co-operative Department, the District Co-operative Bank and the District Agricultural Improvement Committee to form such a society.

17. No.

18. No competition.

19. Hardly arises at present but will probably have to be considered if the factory is going to keep running full crushing season.

20. Hardly arises. Half an anna per mile.

21. Where there has been carting, the cultivators generally employ their own carts and as they hire bullocks for crushing, these are used to do carting work, costing about As. 12-0 a pair per day.

22. In so far as the one factory is concerned, probably adequate.

23. As enumerated below.

24. (1) Capital is not provided by Government.

(2) Exemption from the levy of Municipal octroi and toll is granted in exchange for a lump sum payment.

(3) If the factory owner undertakes cane-growing he will be allowed to take water either from the river or Government well at reduced rates.

25. *Nil*.

26. Yes.

27. The wholesale and retail prices of sugar per maund during the last seven years in the city of Baroda area as under:—

Year.	Wholesale price per 40 lbs.		Retail price per 40 lbs.
	1	2	3
	Rs. A.		Rs. A.
1930	4	12	5 2
1931	5	2	5 6
1932	6	6	6 12
1933	6	2	6 8
1934	5	10	5 14
1935	5	2	5 8
1936	4	6	4 10

28. The variations are shown above. The reasons for these fluctuations are to be found in the protection given to the Industry and subsequent rise in internal production and therefore internal competition.

29. This subject has not received as yet the attention of the Assistant Marketing Officers as this does not appear among the crops under survey. Some tentative inquiries made show that the consumption of sugar *per capita* in 1935-36 was estimated at lbs. 55.90 per annum in Baroda City.

30. There are none in the State.

31. Nil.

32. Experimental canning of fruits and syrups are just being undertaken by the Department of Agriculture. On the whole there may be some small opportunities in this direction for the use of sugar.

33. This was allowing for use in chewing, about 55,000 maunds in 1930-31 and at the present day about 110,000 maunds.

34. Nothing.

35. The prices of jaggery in the earlier years ranged from about Rs. 6 to Rs. 8 a maund. At the present time range between Rs. 3 to Rs. 4 the change is primarily due to increasing acreage all over India and the incoming of gur from other areas.

36. The total consumption of gur/jaggery in the State was as under.

Year.	Consumption in B Mds.	Year.	Consumption in B Mds.
1929-30 . . .	410,919	1933-34 . . .	583,855
1930-31 . . .	450,683	1934-35 . . .	593,990
1931-32 . . .	571,603	1935-36 . . .	644,789
1932-33 . . .	559,327		

37. The United Provinces and the Deccan.

38. Most of our Jaggery in the Navsari district goes in the Bombay Presidency while there is a good deal of export of gur from Amreli district of Baroda State, in Kathiawar into other Kathiawar States. It is probable that this demand keeps the cane industry going in Amreli district.

39. Probably yes, as the fall in prices of sugar has affected the price of gur.

40. Exact data are not available.

41. Nil.

42. Practically nil. One or two demonstrations of the Hadi process have been carried out.

43-45. Does not arise.

46. Nil.

47. After the sugar industry protection came into existence the sugar factory at Gandevi was taken up by a new industrialist who started it working. As he took over the factories in 1935 he could not obtain advantage of the favourable prices as other factories in British India. A large scale production by the factory would have stimulated cane growing. The dealers and consumers have been affected in the same manner as in British India and more particularly owing to the fluctuations in rates as shown in item No. 27 above.

48. Included in the above. Reference is invited to prices mentioned in item No. 27 above.

49. No.

50. Statistics of acreage are secured by direct report received from the Vahivatdars of each taluka. The gur statistics are based on 10 per cent. of the estimated yields of cane. The actual yields of either the gur or

cane are somewhat of the nature of guess work. There has been, as far as is known, no exact crop cuttings of cane or exact gur boiling of such cut cane.

51. Nil.

(14) *Letter dated the 26th July, 1937, from the Government of Baroda, Baroda.*

Please refer to your letter No. 303, dated the 18th June, 1937.

In the State there are two distilleries and one concern manufacturing spirit. Mahura flowers are used by them for the manufacture of spirit.

(15) *Letter dated the 29th August, 1937, from the Tariff Board to the Hon'ble the Resident, Central India States, Gwalior.*

I am directed to refer to the Government of India, Department of Commerce, Resolution No. 127-T(1)/37 of the 27th March, 1937, referring to the Tariff Board the question of the extent of protection that should be enjoyed by the Indian Sugar Industry during the period from 31st March, 1938 to 31st March, 1939. In that connection the Tariff Board issued certain questionnaires and I am to enclose two copies of the general questionnaire and the questionnaire for the Local Government. It has been brought to the notice of the Board that in Jaora State there is a sugar factory and the conditions under which Indian or foreign sugar can be imported into the State or exported from it are somewhat different from those in British India. I am to request that any information available regarding Jaora State on the points raised in the questionnaires may kindly be furnished to me at 1, Council House Street, Calcutta, by the 20th September, 1937.

(16) *Letter dated the 18th September, 1937, from the Secretary to the Resident for Central India, Indore.*

I am directed to refer to your letter dated the 29th August, 1937.

2. The sugar factory in the Jaora State was opened in November, 1934. The area under cane cultivation was then 1,620 bighas of which about 700 bighas lay within an average radius of seven miles from the factory premises and the remaining area at a distance varying from 20 to 50 miles. The total production of cane was estimated at 53,900 maunds after allowing for loss due to insect pests, failure of wells and other causes. In order to keep the factory working for 100 days the quantity of sugarcane required was estimated at 700,000 maunds and it was proposed to import 161,000 maunds at considerable extra expense from neighbouring territories. The cost of sugar was estimated at Rs. 9-8-9 per maund. All sugar produced at the factory in the State is subjected to excise duty at British Indian rates.

3. There is hardly time to supplement the above information by enquiry from Jaora before the 20th September but supplementary enquiries will gladly be made now if the Board so desire.

4. A large sugar factory is now being erected at Sehore in the Bhopal State and it is understood that it is hoped to start production there early in 1938.

(17) *Letter dated the 22nd September, 1937, from the Tariff Board, to the Secretary to the Resident, Central India States, Indore.*

With reference to the last sentence of paragraph 2 of your letter dated the 13th September, 1937, I am to enquire whether any import or export duty is levied on Indian or foreign sugar entering or leaving the Jaora State and, if so, the amount of the duty.



(18) Letter dated the 15th January, 1938, from the Secretary to the Resident for Central India, Indore.

With reference to your letter dated the 22nd September, 1937 [Not printed], I am directed to forward herewith a copy of letter No. 2015, dated the 2nd January, 1938, from the Chief Minister and Vice-President, State Council, Jaora, with its enclosure.

*Extracts from letter No. 2015, dated the 28th December, 1937/2nd January, 1938, from the Chief Minister and Vice-President, State Council, Jaora, to the Political Agent in Malwa, Indore.*

The Jaora Durbar levy duty on foreign sugar entering the State territory at the rate of Re. 1 per maund. The sugar manufactured at the sugar factory, Jaora, is charged at As. 8 per maund when it leaves the factory premises for this State territory. The amount of the import duty for the year 1936-37 was Rs. 6,256-3. An excise duty of Rs. 2 per cwt. is also imposed by the Darbar on all sugar manufactured and exported from the Sugar Factory, Jaora, to British India. The Durbar have recently notified that all sugar leaving the factory premises, whether imported within the State territory or exported to other foreign parts, would be subject to an excise duty at the rate of Rs. 2 per cwt.

(19) Letter dated the 1st July, 1937, from Dewan Phaltan State, Phaltan.

I have the honour to enclose herewith the replies to the questionnaire for the Local Governments, with six spare copies. The views of the Phaltan Durbar on some of the points before the Board also accompany herewith.

2. As for the general questionnaire to be replied by Sugar Factories, the Phaltan Sugar Works, Limited, which owns the Sugar Factory in this State, has stated that along with other sugar factories in the Deccan, it purposes jointly to represent matters to the Tariff Board through a joint representative and that therefore it does not propose to send its replies to that questionnaire.

3. There are no open pan factories or khandsaris or gur refineries in the State and hence the questionnaire relating to them have not been answered.

4. Replies to questionnaire for gur merchants accompany herewith.

REPLIES OF THE PHALTAN DURBAR TO THE QUESTIONNAIRE FOR THE LOCAL GOVERNMENTS, ISSUED BY THE TARIFF BOARD.

1. The approximate area under sugarcane in this State during the last seven years was as under:—

	Gunthas.		Gunthas.
1930-31 . . . . .	323 20	1934-35 . . . . .	1,985 0
1931-32 . . . . .	416 20	1935-36 . . . . .	3,290 20
1932-33 . . . . .	829 0	1936-37 . . . . .	3,541 0
1933-34 . . . . .	1,021 0		

The improved varieties of sugarcane grown in this State with their approximate acreage are as under:—

	E. K. 28.	P. O. J. 2878, 2883.
1934-35 . . . . .	1,123 0	282 0
1935-36 . . . . .	1,038 10	107 0
1936-37 . . . . .	744 10	408 23

	H. M.	C. O. 360, 413, 418.	
1934-35 . . . . .	25 20	...	...
1935-36 . . . . .	...	...	...
1936-37 . . . . .	...	53 25	...
	C. O. 290.	E. K. O. O.	Pundya.
1934-35 . . . . .	362 0	16 30	30 30
1935-36 . . . . .	739 10	16 30	7 0
1936-37 . . . . .	1,078 9	3 3	12 30

2. The climatic conditions and the methods of cultivation of sugarcane do not vary in the different parts of the State.

Almost all cane in the State is grown in the Canal area and is irrigated by the Canal.

3. The irrigation rates are, Rs. 3, Rs. 5 and Rs. 7 per acre for Kharif, Rabi and hot weather season respectively. The Sugar Factory is charged Rs. 45 as water rate and Rs. 15 as drainage deposit per acre of cane per annum. The drainage deposit was recovered from the sugar factory once only.

Ordinary irrigators growing cane in the factory area are charged Rs. 60 per acre of cane per annum.

Outside the factory area, block system prevails and irrigators are charged Rs. 60 per annum for a block of 3 or 4 acres out of which there can be only one acre of cane. For other crops in the remaining area of the block no water rates are charged.

4. The cost of cane cultivation per acre is practically the same in all parts of the State.

There is very little cane cultivation under well irrigation. Almost all cane is grown under Canal Irrigation. The cost per acre is approximately Rs. 392-8.

From 1930 to 1935 the cost of cane cultivation per acre did not vary much. But within the last two years it has increased by about Rs. 30 per acre on account of increase in the price of oil cake.

The average yield per acre is 35 to 40 tons under ordinarily prevailing methods of cultivation for an expenditure of Rs. 392-8.

The average sucrose contents is 11 per cent.

5. So far as this State is concerned, the price of cane per ton as between the cane-growers and the Phaltan Sugar Works, Ltd., has been fixed at 1½ times the price of one maund of sugar of the first quality, as a result of the agreement between the cane-growers and the Company. The Durbar therefore considers this as a fair price.

6. There has been a marked increase in sugarcane cultivation in the area allotted to the sugar factory of the Phaltan Sugar Works, Ltd., during the past three years. The only cause of this increase is the establishment of the sugar factory. The increase is not due to (i), (ii), (iii) or (iv). The sugar factory has its own cane plantation and it has been increasing for the last three years.

7. There was no over-production of sugarcane in this State in the year 1936-37.

8. Cotton is the only other cash crop in this State; but it does not form an alternative of equal value to sugarcane.

The price of a good cotton crop per acre on an average within the last five years has been Rs. 80 to Rs. 100.

9. About three lakhs of rupees has been spent in extending cane cultivation. It is assumed that on an average Rs. 30 per acre has been spent in making land fit for cane cultivation.

10. The question applies to British India Provinces only and does not arise in the case of an Indian State.

11. (i) No research work has been undertaken by the State in regard to sugarcane and control of disease but the Sugarcane Research Scheme for the Deccan established at Padegaon which is financed by the Government of Bombay and by the Imperial Council of Agricultural Research in India has maintained a research farm at Padegaon in this State for the benefit of cane-growers in the Deccan.

(ii) Cane-growers in the State are closely watching the improved methods of cane-growing adopted by the Phaltan Sugar Works, Ltd., in the matter of introduction of suitable varieties of cane, use of manures, etc., during the last four years and it seems that they have much profited by their observation.

12. (i-iii) No assistance has been so far received; it may be found possible in future to establish contact between these institutions and the Agricultural Department of the State.

The State is not in a position to undertake research work—agricultural and technological.

13. The State Agricultural Department does not do any cane-growing for experimental purposes and so this question does not arise.

14. (a) Sugarcane grown in about 2,000 to 2,100 acres is crushed in the sugar factory.

(b) No cane is crushed in open pan factory, etc.

(c) Sugarcane in about 980 acres is turned into gur.

(d) About 20 acres of cane is used for chewing purposes and 350 acres of cane for seed.

15. The sugar factory in this State has got its own cane plantation almost sufficient for its requirements and so it does not purchase much cane from cane cultivators. Therefore, the question of growing cane and delivering it to the sugar factory is not of material importance in this State.

16. The Co-operative Department advances loans (through Co-operative Societies) to cane-growers. There are 49 Agricultural Co-operative Credit Societies in the State.

The cane-growers are not organized. There are no cane-growing and cane supplying societies in the State.

17. The price of sugarcane has been fixed by an agreement between the cane-growers and the Phaltan Sugar Works, Ltd., brought about by the Durbar.

The Sugarcane Act XV of 1934 has not been made applicable to the State.

The price of sugarcane per ton is  $1\frac{1}{4}$  times the price of 1 maund of sugar of the 1st quality obtained by the Phaltan Sugar Works, Ltd., so that assuming the price of 1 maund of sugar is Rs. 7-8, the price of one ton of sugarcane would be Rs. 10, i.e., Rs. 7-8 plus Rs. 2-8.

18. Competition among various sugar factories does not affect the price of sugarcane in this State as the Phaltan Sugar Works, Ltd., is the only sugar Company operating in the State. As the other sugar Companies in British India are a considerable distance away from the above factory the question of competition among the sugar factories does not arise.

19. In view of the reply given to question 17, this question does not arise in this State. The sugar factory in this State has its own cane plantation on a very large scale and so the Company does not desire to purchase a large quantity of cane from cane-growers. Under these circumstances the system of bonuses would not be feasible here.

20. The sugar company in this State has got a trolley line of its own for transport of cane, etc.; and so the cane has only to be transported from the field up to the trolley line or the factory gates as would be more

convenient to the cane-growers. The cost of transport of one maund of cane per mile by carts is about three pies.

21. Cane-growers generally employ their own carts. If carts have to be hired, the average rate per day is Re. 1 to Rs. 1-4 and the daily round mileage done by these carts is about 12; but the effective mileage is 6 only.

22. Tramway facilities in the State for transport of cane are adequate. There are feeder roads but more of them are required and they are under contemplation.

The trolley line is owned by the Company and the feeder roads belong to the State.

23. The Durbar have given some concessions to the Sugar Company (the Phaltan Sugar Works, Ltd.). Some of them are:—Total exemption from Income-tax for ten years and then a special flat rate of only one anna in a rupee, procuring land for the Company for its own cane plantation at a cheap rent, procuring sugarcane for the Company at a reasonable rate, permission to demolish survey marks, etc., of lands, construction of some feeder roads by the Durbar in the factory area, exemption from non-agricultural assessment for non-agricultural use of land and exemption from export and import duties.

24. No separate reply is necessary to this question in view of the reply to the question 23.

25. There are no Co-operative Sugar Factories in the State.

26. Yes. The conditions of labour in the sugar factory in the State are satisfactory.

27. The following were the prices of sugar, wholesale and retail at Phaltan during the last seven years.

	Wholesale	Retail
	per maund.	Per maund.
	Rs. A. P.	Rs. A. P.
1930-31 . . . . .	10 14 6	11 4 9
1931-32 . . . . .	9 11 3	10 1 6
1932-33 . . . . .	9 11 3	10 1 6
1933-34 . . . . .	10 1 9	10 8 0
1934-35 . . . . .	9 11 3	10 1 6
1935-36 . . . . .	8 14 3	9 4 6
1936-37 . . . . .	7 5 6	7 11 9

28. There is no considerable variation between the wholesale and retail prices.

29. The normal consumption of sugar per head in this State is about 7 lbs. a year. As the price of sugar is going down there is a possibility of the consumption being increased.

The consumption of sugar is bound to increase in the course of time.

30. Indian sweetmeats such as pedhas, barphi are the only sorts of confectionery in this State and sugar is used in its preparation. In the making of some inferior confectionery, sometimes gur is used.

31. (i) There is scope for another sugar factory in the eastern part of the State. Even if it comes into existence probably there would be no necessity of introducing the zone system.

(ii) No.

(iii) (a) & (b) Yes.

32. There is no immediate possibility of starting a subsidiary industry of the kinds referred to in the question.

33. The production of gur from sugarcane within the last seven years has been as under:—

	Mds.		Mds.
1930-31 . . . . .	25,700	1934-35 . . . . .	83,600
1931-32 . . . . .	34,636	1935-36 . . . . .	83,600
1932-33 . . . . .	68,250	1936-37 . . . . .	83,600
1933-34 . . . . .	83,600		

34. Gur is not produced from any other material in this State except from cane.

35. The following are the prices of various kinds of gur per maund during the last seven years:—

	Superior Quality.		Inferior Quality.	
	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.
1930-31 . . . . .	5 8 6	to 4 6 0	4 12 0	to 3 9 0
1931-32 . . . . .	4 12 0	to 3 15 3	3 15 3	to 3 9 0
1932-33 . . . . .	3 2 6	to 2 12 3	2 6 0	to 2 6 0
1933-34 . . . . .	3 9 0	to 5 2 3	4 6 0	to 2 12 3
1934-35 . . . . .	5 15 0	to 3 2 6	5 2 3	to 2 6 0
1935-36 . . . . .	3 9 0	to 2 12 3	3 2 6	to 2 6 0
1936-37 . . . . .	3 2 6	to 2 6 0	2 6 0	to 1 9 3

The fall in the price of jaggery is mainly due to the general slump in prices of all agricultural produce and slightly due to the competition of Indian factory sugar.

36. These figures are not available. The *per capita* consumption of gur in this State is not less than the average *per capita* consumption for the whole of India.

37. The net import of gur into the State is not large as it is produced in sufficient quantities here.

38. Gur is exported to the Satara, Poona and Sholapur Districts from this State.

The approximate figures of export for the last seven years are as under:—

	Mds.		Mds.
1930-31 . . . . .	7,471	1934-35 . . . . .	65,371
1931-32 . . . . .	16,447	1935-36 . . . . .	61,725
1932-33 . . . . .	49,921	1936-37 . . . . .	61,725
1933-34 . . . . .	65,371		

39. There is no vital relation between the price of gur and Indian factory sugar; these two vary independently of each other as there is a specific demand for gur for certain purposes.

40. The Indian factory sugar is not replacing gur in this State to an appreciable extent. The consumption of both is increasing.

41. Multiple furnaces and power crushers have been the important improvements in the methods of gur making, introduced during recent years.

42. There are no open pan factories and Khandasaries in this State.

43. In view of the reply to question 42, this does not arise.

44 & 45. Does not arise.

46. In view of the reply to question 42, this question does not arise.

47. (a) The Sugar Excise Duty of 1934 and of 1937 has affected the cane growers inasmuch as the sugar factories offer smaller prices for cane.

- (b) The profits of the manufacturer have lessened to a certain extent.  
 (c) The dealer is not in any way affected.  
 (d) The consumer has not been adversely affected.
48. In spite of the protective duty, the consumer has not got to pay a higher price for sugar. On the contrary, the price of sugar to the consumer is lower than what it was before the introduction of the tariff duty.
49. No, as there are no such industries.
50. These statistics as regards acreage and production are prepared by the Revenue and Agricultural Department of the State and they are fairly correct. The prices of sugar and gur are obtained from merchants and dealers and the information cannot be said to be far from accurate.

REFPLIES TO QUESTIONNAIRE FOR GUR/JAGGERY MERCHANTS COMPILED FROM THE INFORMATION OBTAINED FROM THESE MERCHANTS.

1. Phaltan town is the only marketing centre in which the gur merchants deal.
2. Two kinds of gur are marketed—  
 (i) Superior quality yellowish colour.  
 (ii) Inferior quality blackish colour.
3. The chief centres for obtaining supply of gur are the villages in the Northern and Eastern part of the Phaltan State and the quantity obtained in recent years is as under:—

	Mds.		Mds.
1930-31 . . . . .	16,020		1934-35 . . . . . 30,232
1931-32 . . . . .	21,096		1935-36 . . . . . 39,245
1932-33 . . . . .	23,261		1936-37 . . . . . 38,193
1933-34 . . . . .	20,658		

The increase in the supply is due to increased acreage under sugarcane for gur making.

4. No.
5. The following are the prices of various kinds of gur per maund during the last seven years:—

	Superior Quality.				Inferior Quality.			
	Rs.	A.	P.	Rs. A. P.	Rs.	A.	P.	Rs. A. P.
1930-31 . . . . .	5	8	6	to 4 6 0	4	12	0	to 3 9 0
1931-32 . . . . .	4	12	0	to 3 15 3	3	15	3	to 3 9 0
1932-33 . . . . .	3	2	6	to 2 12 3	2	6	0	to 2 6 0
1933-34 . . . . .	3	9	0	to 5 2 3	4	6	0	to 2 12 3
1934-35 . . . . .	5	15	0	to 3 2 6	5	2	3	to 2 6 0
1935-36 . . . . .	3	9	0	to 2 12 3	3	2	6	to 2 6 0
1936-37 . . . . .	3	2	6	to 2 6 0	2	6	0	to 1 9 3

The fall in the price of jaggery is mainly due to the general slump in prices of all agricultural produce and slightly due to the competition of Indian factory sugar.

6. There is no vital relation between the prices of gur and sugar. They vary independently.
7. There is no competition between gur and Indian factory sugar or Khandasari sugar in this State. Sugar is not replacing gur in our market.
8. Good quality gur will keep well for about six months. Inferior quality gur will keep its quality for two or three months.

*Views of the Phalton Durbar, on some of the points raised in the questionnaire for the Local Governments, issued by the Tariff Board.*

47. The effect of Sugar Excise Duty of 1934 and the additional duty imposed in 1937 is in the opinion of the Durbar as follows:—

(a) So far as this State is concerned, no considerable class of independent cane-growers supplying sugarcane to the sugar factory exists here. The sugar factory in this State and the sugar factories of Maharashtra generally have their own sugarcane estates, and they grow their own cane. The Phalton Sugar Works, Ltd., purchases some sugarcane to supplement its own produce, under a system of rate-fixation described in answer to Question No. 5.

The effect of Excise Duty on sugar should have been, if at all, to increase the price of sugar and consequently of sugarcane supplied to sugar factories, as by legislation in Northern India it is made to depend on prices of sugar. But as a matter of fact, in spite of the excise duty, the price of sugar has been going down and consequently of the sugarcane. This fall in the price of sugar is mainly due to the rapid expansion of the sugar industry in the country and the internal competition among sugar manufacturers and as a result of these factors, it is thought that even if there had been no excise duty, the fall in sugar prices would have been even more marked; and consequently the cane-grower would have realized lower prices than at present for cane. Thus the excise duty has tended to help the cane-grower to realize higher prices than he could have, without the excise duty. It need not be added that regard being had to the present prices of gur it is wholly uneconomic to turn sugarcane into gur.

(b) On account of internal competition among manufacturers, the rapidly expanding production and consequently declining prices of Indian sugar, the burden of excise duty tends to be shifted to the manufacturer. The present price of 1st grade Cawnpore sugar is unexpectedly low (Rs. 6-2 per maund on 26th June, 1937) when compared with the fair selling price at the end of the period of protection, as calculated by the Tariff Board; that price is Rs. 7-12-9 per maund after deducting As. 6-9 for the value of molasses and did not of course allow for the excise duty. To what extent, therefore, the excise duty cuts into the normal rate of dividend, the provision for depreciation and other overhead charges is a matter for the Tariff Board to investigate.

(c) The dealer is not affected one way or the other.

(d) The consumer has not been adversely affected. He is getting sugar at a cheap price as a result of the keen competition.

48. The protective duty has brought about such a rapid expansion of the Indian Sugar Industry that the burden on the consumer has been neither prolonged nor heavy. Since the adoption of protective duties, the price of Indian sugar reached, only for a while, the limit placed by the Tariff Board, viz., the landed price of Java sugar plus the basic protective duty and surcharge. They have generally been even on a lower level than the fair selling price of Rs. 9-5-9 per maund, worked out by the Tariff Board, for the first part of the period of protection. These prices also compare favourably with the pre-war prices and it may be now safely assumed that India is for all time insured against prices of the order of Rs. 20 per maund and above, that had to be paid for some years. For a country of a continental size and population like India, to depend for her sugar on the produce of a small island was a precarious position and it is a distinct national gain that it has been ended. It goes without saying that every

endeavour must be made and steadily continued to increase the efficiency of cane production and sugar manufacture so as to bring the price of Indian sugar as near as possible to sugar prices in the world's open markets. It may be said, however, that on the whole the Indian consumer had to make only a reasonable and moderate sacrifice for establishing an industry of such great national importance.

*The views of the Phaltan Durbar on some questions of general interest to the Sugar Industry.*

**Protection.**—The rate of the protective duty for the period between 1938 and 1946, is the most important question before the present Tariff Board. The Durbar's view in this matter is that the scheme of protection as recommended by the previous Tariff Board should be adhered to, and a basic protective duty of Rs. 6-4 per cwt. with such addition by way of a deferred duty as may be found necessary, should be maintained. There is no case for increasing the present measure of protection. The manufacturers must increase their efficiency and thus try to adjust themselves to a lower level of protection in course of time. Similarly a duty of less than Rs. 6-4 per cwt. would be premature as the total cost of sugar production cannot be safely held to have gone down by more than a rupee per cwt.

**Research.**—The Durbar wishes to emphasize the paramount importance of Research in respect of methods of cane-growing as well as of the process of sugar manufacture. The Padegaon Research Scheme for the Deccan ought to be extended in scope. Profitable utilization of molasses is another urgent problem of Indian sugar industry, and it ought to be tackled with every resource at command in order to strengthen the position of the industry. In fact, Research, resulting in the better outturn of crop and sugar and greater economy in productive operations, the utilization of bye-products, is the one hope of Indian sugar industry in the long run. India has to overcome certain disadvantages of natural environments *vis-a-vis* other sugar producing countries, and properly directed research alone will enable her to do so. The great work of Coimbatore Research Station conclusively demonstrates the value of research work.

(20) *Letter dated the 1st July, 1937, from the Dewan Phaltan State, Phaltan.*

**Subject:**—INFORMATION ABOUT MOLASSES IN THE PHALTAN STATE.

With reference to your letter No. 303, dated the 18th June, 1937, I have the honour to state as under:—

- A. (1) There are no distilleries in this State.  
 (2) Molasses are not put to any use and hence no question of paying any price arises.

At present they are waste product.

- (3) The question does not arise.

B. (1) There are no concerns manufacturing rectified or denatured spirit.

- (2) & (3) Questions do not arise.

(21) *Letter dated the 11th January, 1938, from the Foreign and Political Department, Bikaner State, Bikaner.*

**PROTECTION TO THE INDIAN SUGAR INDUSTRY.**

With reference to your letter No. 171, dated the 11th May, 1937, received through the Secretary to the Honourable the Resident for Rajputana under cover of his letter No. 542-P./37, dated the 2nd August, 1937, I am directed to forward herewith a statement giving replies to the points set out in the questionnaire meant for the Local Governments. The delay in sending the statement is regretted.



## QUESTIONNAIRE FOR LOCAL GOVERNMENTS.

## Re SUGARCANE AND SUGAR FACTORIES.

## Reply by Bikaner Government.

1. The statement below will show the area under sugarcane in the Bikaner State during the last 6 years (in Bighas). (Bigha =  $\frac{1}{4}$  acre):—

Name of Fasal.	Anupgarh.		Remaining four Tehsils.		Whole Gang Canal Colony.	
	Area matured.	Total area sown.	Area matured.	Total area sown.	Area matured.	Total area sown.
Kharif 1931 .	685 4	820 18	6,885 11	8,050 4	7,570 15	8,871 2
„ 1932 .	716 8	1,158 11	4,567 12	9,537 7	5,284 0	10,696 18
„ 1933 .	824 4	1,053 6	4,649 7	5,260 9	5,473 11	6,313 15
„ 1934 .	760 3	1,202 17	5,401 2	6,843 4	6,161 5	8,046 1
„ 1935 .	936 14	1,386 1	8,093 1	9,850 11	9,029 15	11,236 12
„ 1936 .	1,586 8	2,115 10	10,890 2	13,016 0	12,476 10	15,131 10

Some of the improved Coimbatore varieties of cane—Co. 223, Co. 285, Co. 213, Co. 290, are grown in the Colony, but there is no record to show the acreage under each.

2. In the Gang Canal Colony, there are two typical kinds of soil; one sandy loam comprising the Tehsils of Sri Ganganagar, Sri Karanpur, Raisinghnagar and Padampur, and the other heavy soil in the bed of the old river Ghaggar.

Climatic conditions and the methods of cultivation are same throughout the colony.

*Climate.*—Extremes of dry climate in both summer and winter with dust or sand storms from April to middle of July.

*Method of cultivation.*—The common Punjab practice of putting cane sets behind the plough in a broad and somewhat deep furrow, followed by a sohaga, is the usual method used in this Colony.

All the cane crop is irrigated as it is not possible to grow cane under unirrigated conditions on account of scanty rainfall.

3. Irrigation rate for sugar cane:—

	Water rate.	Crop rate.	Total.	
	Rs. A.	Rs. A.	Rs. A.	
1928 . . . . .	6 0	3 0	9 0	per bigha = $\frac{1}{4}$ Acre.
From Rabi 1934 . . . . .	5 8	2 12	8 4	Ditto.

The rates were fixed at half net asset system.

The rates were reduced in 1934 for 4 years due to low prices.

4. The approximate cost of cultivation of cane to the cultivator in the irrigated area is about As. 2-9 per maund of cane.

There has practically been little variation in the cost during the last seven years, except that in 1930, it must have been slightly more than the figure given above. The average yield of cane is about 500 maunds per acre, and the average sucrose content is about 6 per cent.

5. In Binkaner State the price of sugarcane has been fixed at As. 6 at the factory if the rate of sugar is Rs. 10 per maund.

6. No variation. In 1937 cane cultivation is less because price of gur was much below the average.

7. No.

8. The other cash crops in this colony besides sugarcane are cotton, toria or other oilseeds. Every one of these crops has its own place and none can be a substitute for the other. There is a limit to the cultivation of cane as it requires a lot of manure and irrigation. Similarly other crops have their own limitations. Cotton for example, on account of its picking expenses, cannot be grown on a large scale. Toria is susceptible to cold, which crop when affected is greatly reduced in yield. Gram too is affected somewhat badly by thunder storms and hails in March.

Estimate of return per acre (gross income) for these crops is given below:—

	Rs.
Sugarcane . . . . .	150
Wheat . . . . .	50
Toria . . . . .	35
Cotton . . . . .	30
Gram . . . . .	20

9. No.

10. None.

11. Small growth variety trials have been conducted during the past 7 years on several improved varieties of sugarcane, besides some agronomic tests.

The following Coimbatore or other varieties (where it is so stated) have or are still under trial at the Experimental Farm:—

1. 205.	12. 313.	23. 301.
2. 210.	13. 331.	24. 302.
3. 213.	14. 355.	25. 303.
4. 223.	15. 432.	26. 312.
5. 244.	16. 434.	27. 413.
6. 285.	17. 412.	28. 421.
7. 290.	18. 416.	29. 353.
8. 281.	19. 419.	30. 356.
9. 237.	20. 408.	31. 357.
10. 243.	21. 433.	32. Shahjahanpur 48.
11. 214.	22. 421.	33. E.K. 28.

These trials have been conducted, with compost only and with Ammonium Sulphate with compost, in different doses.

The varieties which have been more successful are—

Co. 213.  
Co. 285.  
Co. 290.

Co. 244.  
Co. 223.

Co. 313 is another promising variety under trial.

The improved Java method of growing cane in trenches to be later turned into ridges, was tried here for the first two years, but was not found to compare favourably with the local practice of growing cane on flat, on account of the scanty rainfall and loose sandy nature of the soil, which buried the young sprouting cane setts grown in trenches, every time it was irrigated.

12. Except that a few canes of the required cane varieties were obtained once or twice from the Coimbatore Sugarcane Research Station, no other assistance was taken from any of the three Institutions.

13. It is hoped that the factory will start work in January, 1938.

14. The factory has not yet started work and so far leaving 20 per cent. for chewing and seed purposes gur is being made out of the balance of cane grown. The figures will be available after the factory has started its work.

15. The factory will start next year.

16. None.

17. Yes. The bases are the price of sugar in the local market. It is yet to be seen how this system will work.

18. There is no competition here.

19. The factory has not started work and this question can be answered only after some experience is gained.

20. 2 to 3 annas per maund.

21. The cane-growers have their own carts; but if there is none with any body he pays from 2 to 3 annas per maund variable according to distance.

22. Yes. There are no tramway facilities but facilities of a ramified railway system and roads do exist.

23. Not yet.

24 & 25. None.

26. The factory is in construction. Condition of labour is satisfactory.

27. The statement showing the wholesale and retail prices of sugar in the important markets for the last seven years is given below:—

	1931.	1932.	1933.	1934.	1935.	1936.	1937.
	Rs. A.	Rs. A.	Rs. A.	Rs. A.	Rs. A.	Rs. A.	Rs. A.
Wholesale prices per Maund.	14 8	14 8	14 0	12 8	12 0	11 8	11 4
Retail prices per Maund.	15 0	15 0	14 8	13 0	12 8	12 0	11 12

28. Not much.

29. 125,000 maunds approximately. After the sugar factory has started operation it is hoped that the consumption will increase by nearly 50 per cent.

30. Sweets.

31. There is only open pan sugar factory.  
 32. The factory has not yet started its work, therefore, it is not possible for the present to answer the query.  
 33. 100 maunds of sugarcane will give about 10 maunds of gur.  
 34. None.  
 35. The statement is given below :—

	1931.	1932.	1933.	1934.	1935.	1936.	1937.
	Rs. A.	Rs. A.	Rs. A.	Rs. A.	Rs. A.	Rs. A.	Rs. A.
Wholesale prices per Maund—							
(1) Gur . . .	5 0	4 12	5 8	4 12	4 0	3 11	3 0
(2) Jaggery (Shakar).	4 12	5 4	6 4	5 4	4 8	4 0	3 12

Variation is due to the fluctuating rates due to depression of trade.

36. The average consumption of gur/jaggery for the last seven years is 372,000 maunds.

37. Gur/jaggery is imported from Meerut and Hissar. The import figures of 7 years are given below :—

	Mds.		Mds.
1930-31 . . .	146,940	1934-35 . . .	104,467
1931-32 . . .	128,138	1935-36 . . .	119,619
1932-33 . . .	96,470	1936-37 . . .	96,107
1933-34 . . .	108,151		

38. Noneexported as cost of production is high.  
 39 & 40. Cannot say yet *on account of absence of data.*  
 41. No research work has so far been undertaken as the Colony is only in its infant stage yet.  
 42. There is one open pan factory and the outturn is about 2,000 maunds.  
 43. No information available.  
 44. No such competition.  
 45. Cannot answer as actual working has not yet started.  
 46. None.  
 47-49. As regards (a) and (b) of question 47, i.e., the cane-grower and the manufacture of sugar, the question cannot be answered till the vacuum pan factory starts working.  
 As regards (c) and (d) regarding the dealer in sugar and consumer of sugar and sugar products—they are affected by the levy of excise duty because they use sugar on which this extra duty has been paid and therefore in some cases there has been shrinkage in the normal expansion of consumption expected as a result of improvement in the standard of life of the people.  
 50. Through district agency.  
 51. No.

(22) Letter dated 21st July, 1937, from the Foreign Minister to His Highness the Maharaja of Kapurthala, Kapurthala.

With reference to your letter No. 171, dated the 11th May, 1937, I have the honour to forward herewith the answers to the following set of questionnaire and forms duly completed:—

1. Questionnaire for sugar/gur refineries.
2. Questionnaire for manufacturers of sugar by open pan system and khandsaris.
3. Questionnaire for gur/jaggery merchants.
4. Questionnaire for Local Governments.

I may add that replies to the questionnaire for gur refineries could not be furnished as there does not exist such a refinery in the State.

*Answers to questionnaire for manufacturers of sugar by the open pan system and khandsaris.*

**NOTE.**—There is no open pan factory in the Kapurthala State no one such factory was started near Kapurthala proper years ago under the management of a limited company floated locally. The factory did not prosper because it could not compete with the big factory at Phagwara. It was closed down after a year and the company was brought under liquidation.

Sometimes khandsari sugar was manufactured in large quantities in Tahsil Phagwara, Kapurthala State by the time-honoured method of Khandsars. Since the opening of vacuum pan factories in the United Provinces and especially the big vacuum pan factory at Phagwara, this indigenous industry has lost ground so much so that very few khandsars are seen in the whole Tahsil. Therefore whatever figures and facts are secured with great difficulty are given below:—

1. Khandsari sugar is manufactured from "rab" which is obtained from growers.

*Process of manufacture.*—"Rab" is put into big earthen vessel called "mattis". The vessel is then kept at some place without moving or shaking for 2-3 months. When it is found that sugar has separated from molasses in the form of crystals, the contents are poured on to a "pucca" tank prepared for the purpose after sifting through its top of thatched roof which is covered by a thick coat of river weed called "Jala". The molasses filters through the "Jala" and the roof while sugar is left on the roof, rubbed with hands and feet and kept in the sun for drying. This is finished product of khandsari sugar.

2. Rab is obtained directly from the cane-growers. The grower prepares rab in the presence of buyer who is sugar manufacturer. The price is fixed beforehand in terms of gur which can be obtained from a certain quantity of juice.

3. The average prices of "rab" purchased from the cane-grower by the khandsari sugar manufacturer (Rabia) are given below in a statement:—

Year.	1930-31.	1931-32.	1932-33.	1933-34.	1934-35.	1935-36.	1936-37.
	Rs. A.	Rs. A.	Rs. A.	Rs. A.	Rs. A.	Rs. A.	Rs. A.
Price in Rs. per Md. of Rab.	5 8	5 0	5 0	4 8	3 12	3 0	2 4

4. (a) There is insignificant quantity of khandsari sugar manufactured in the State, therefore, there is no comparison between price of "rab"

purchased by the Rabia and the price obtained for cane supplied to vacuum pan factory at Phagwara. The latter does not affect the former in any way now.

(b) The same as for (a).

5. The data required is as follows:—

(i) Juice is 52 per cent. of the cane.

(ii) Rab is 25 per cent. of juice.

(iii) Sugar is 50-60 per cent. of rab.

6. Two qualities of sugar manufactured (i) white khandsari sugar, (ii) redish white sugar called "Talauncha".

The output for last seven years is given below in maunds:—

Year.	1930-31.	1931-32.	1932-33.	1933-34.	1934-35.	1935-36.	1936-37.
	mds.	mds.	mds.	mds.	mds.	mds.	mds.
White Khandsari sugar.	1,000	600	400	200	100	60	40
Red Khandsari sugar (Talauncha).	500	200	100	100	50	30	15

7. The cost of manufacture of khandsari sugar has been Re. 1 to Rs. 1-8 for the last 7 years besides the price of "rab" given in the answer to Question No. 3 of this questionnaire.

8. Sometimes it was sent to Gujranwala, Gujrat, Sialkot, Multan and other districts of the Punjab. Now whatever is produced is consumed locally.

9. The prices obtained for the classes of sugar manufactured in the State are given below:—

Year.	1930-31.	1931-32.	1932-33.	1933-34.	1934-35.	1935-36.	1936-37.
	Rs. A.	Rs. A.	Rs. A.	Rs. A.	Rs. A.	Rs. A.	Rs. A.
White Khandsari sugar.	11 2	10 8	10 4	9 12	9 10	8 0	7 0
Red Khandsari sugar (Talauncha).	9 0	8 8	8 6	7 0	6 8	6 0	6 0

10. Gur is mostly used by the villagers. Khandsari sugar was preferred to "gur" for certain occasions. Now the case is quite different. Indian factory sugar is mostly used. However there is a class of conservative Hindus who persist in the use of khandsari sugar due to its alleged purity on religious grounds.

11. Indian factory sugar has almost taken the place of khandsari sugar which is now used to the extent of 2 per cent. only of the total consumption of white sugar.

12. There is now no open pan factory in the State and very few khandsars left as is shown in the answer to Question No. 6 of this questionnaire. This is only due to competition with factory sugar.

13. No effect is noticeable of (i) Sugar Exeise Duty of 1934, (ii) additional Duty of 1937, on khandsari sugar.

14. Khandsars cannot compete with Indian sugar factory as long as the price of sugar is so low because the cost of manufacture by the indigenous method is greater and the recovery is less. If the price of sugar be raised, there is a chance of the revival of the indigenous industry.

*Information supplied by the "gur" merchants at Sultanpur, Kapurthala State regarding the questionnaire for "gur" |Jaggery merchants.*

1. The principal "gur" marketing centre is at Sultanpur Lodi in the State:

2. The different kinds of "gur" marketed at Sultanpur market are "Bheli", "shakkar", "Tikki" and "Chaqu".

3. They get the supply of "gur" from different villages of the Tahsil Sultanpur, Kapurthala State and "Chaqu" gur from Muzaffarnagar in the United Provinces.

The quantities obtained during the last 7 years are as given below:—

	'Gur' local. Mds.	Chaqu. Mds.
(1) 1930-31 . . . . .	3,000	150
(2) 1931-32 . . . . .	4,000	130
(3) 1932-33 . . . . .	3,000	140
(4) 1933-34 . . . . .	2,500	125
(5) 1934-35 . . . . .	3,000	110
(6) 1935-36 . . . . .	3,000	100
(7) 1936-37 . . . . .	2,500	40

The variations in the quantities of "gur" marketed during the last seven years are due to—

- (a) the demand of gur outside.
- (b) the climatic conditions, and
- (c) acreage under cane.

4. In 1933-34 the quality of "gur" was bad due to attack of pyrilla. Generally the variation in the quality of "gur" takes place from year to year and is due to—

- (a) the crop being damaged by flood,
- (b) too much frosting, and
- (c) attack of insects and rats.

5. The prices of various kinds of "gur" per maund for the last 7 years are given in the statement below:—

Year.	Bheli. Rs. A.	Shakkar. Rs. A.	Tikki. Rs. A.	Chaqu. Rs. A.
1930-31 . . . . .	5 11	6 1	5 13	6 11
1931-32 . . . . .	3 13	4 3	4 3	3 15
1932-33 . . . . .	3 10	4 0	3 12	4 10
1933-34 . . . . .	2 14	3 4	3 0	3 14
1934-35 . . . . .	4 7	4 13	3 9	6 7
1935-36 . . . . .	4 0	4 6	4 2	5 0
1936-37 . . . . .	2 7	2 13	2 9	3 7

The variations in the prices of "gur" are due to—

(a) The demand of "gur" in the markets outside the State territory.

(b) Heavy or poor crop in the "Illaqa", and

(c) Good or bad quality of "gur" made during the season.

6. Comparison of sugar and "gur" prices showing their relation during the last seven years as given below:—

Year.	Wholesale price of sugar per md. at Sultanpur.	Wholesale price of 'Gur' (Bheli) per md. at Sultanpur.
	Rs. a.	Rs. a.
1930-31 . . . . .	10 10	5 11
1931-32 . . . . .	12 0	3 13
1932-33 . . . . .	10 5	3 10
1933-34 . . . . .	10 0	2 14
1934-35 . . . . .	8 0	4 7
1935-36 . . . . .	9 0	4 0
1936-37 . . . . .	7 0	2 7

7. Indian factory sugar is taking the place of "gur" (Shakkar) even in villages. Those villagers who used "Shakkar" or khandsari sugar on the occasion of marriages or other ceremonies have discarded it partially. The cheapness of white sugar is responsible for its popularity amongst the masses. White sugar is neat and clean, while khandsari sugar being not so white looks unclean, and hence people dislike it. Only 2 per cent. of total consumption of sugar used is khandsari sugar.

Yes, factory sugar is by and by replacing gur and khandsari sugar.

8. Gur remains in good condition for a year generally. If it is stored properly it can be kept in good condition longer. Chaqu and Shakkar can be kept longer as compared with "Tikki" and "Bheli". The keeping quality of "Gur" depends a great deal on the variety of cane, method of its manufacture and climatic conditions also.

*Information supplied by the "gur" merchants at Kapurthala regarding the questionnaire for gur/jaggery merchants.*

1. Gur market at Kapurthala, capital of the State.

2 & 3. The same as for Sultanpur market.

The quantities obtained during the last seven years are as given below:—

	'Gur' local.	'Chaqu.'
	Mds.	Mds.
(i) 1930-31 . . . . .	9,000	300
(ii) 1931-32 . . . . .	9,800	250
(iii) 1932-33 . . . . .	9,600	200
(iv) 1933-34 . . . . .	8,000	250
(v) 1934-35 . . . . .	9,000	200
(vi) 1935-36 . . . . .	10,000	200
(vii) 1936-37 . . . . .	9,000	200

The causes of variations in the quantities of "gur" are the same as given for Sultanpur market.

4. The reasons of variation in the quality of "gur" in the recent years have been the the same as for Sultanpur market.



5. The prices of various kinds of gur for the last 7 years are given in the statement below:—

Year.	Bheli	Shakkar	Tikki	Chaqu
	per md.	per md.	per md.	per md.
	Rs. A.	Rs. A.	Rs. A.	Rs. A.
1930-31	5 8	5 14	5 10	6 8
1931-32	4 0	4 6	4 2	5 0
1932-33	4 0	4 6	4 2	5 0
1933-34	2 12	3 2	2 14	3 12
1934-35	4 0	4 6	4 2	5 0
1935-36	3 12	4 2	3 14	4 12
1936-37	2 8	2 14	2 10	3 8

The variations in the prices of "gur" are due to the same causes as given for Sultanpur market.

6. Comparison of sugar and "gur" prices showing their relation during the last seven years is shown in the form of a statement below:—

Year.	Wholesale price	Price of 'Gur'
	of sugar per md. at Kapurthala.	(Bheli) per md. at Kapurthala.
	Rs. A.	Rs. A.
1930-31	10 10	5 8
1931-32	12 0	4 0
1932-33	10 4	4 0
1933-34	10 0	2 12
1934-35	8 0	4 0
1935-36	8 15	3 12
1936-37	7 0	2 8

7. The answer to this question is the same as for Sultanpur market.

8. The same as for Sultanpur market.

*Information supplied by the "gur" merchants at Phagwara regarding the questionnaire for gur/jaggery marchants.*

1. Gur market at Phagwara, Tehsil headquarters in the State.

2 & 3. The same as for Sultanpur market.

The quantities obtained during the last seven years are as given below:—

Year.	'Gur' local.	'Chaqu'.
	Mds.	Mds.
1930-31	50,000	800
1931-32	55,000	350
1932-33	60,000	200
1933-34	40,000	500
1934-35	70,000	150
1935-36	75,000	150
1936-37	80,000	150

The causes of variations in the quantities of gur are the same as given for Sultanpur market.

4. The reasons of variation in the quality of "gur" have been the same as given for Sultanpur market.

5. The prices of various kinds of "gur" for the last 7 years are given in the statement below:—

Year.	Bheli	Shakkar	Tikki	Chaqu
	per md.	per md.	per md.	per md.
	Rs. A.	Rs. A.	Rs. A.	Rs. A.
1930-31 . . . . .	5 14	6 2	6 0	6 14
1931-32 . . . . .	4 0	4 6	4 2	5 0
1932-33 . . . . .	3 15	4 6	4 1	4 15
1933-34 . . . . .	3 0	3 6	3 2	4 0
1934-35 . . . . .	4 12	5 2	4 14	5 12
1935-36 . . . . .	4 8	4 14	4 10	5 8
1936-37 . . . . .	2 12	3 2	2 14	3 12

The variations in the prices of "gur" are due to the causes as given for Sultanpur market.

After the Great War the price of "gur" has fallen along with the prices of other commodities.

6. Comparison of sugar and "gur" prices showing their relation during the last seven years is given in the form of a statement below:—

Year.	Wholesale price of	Price of (Bhel')
	sugar per md. at Phagwara.	'Gur' per md. at Phagwara.
	Rs. A. P.	Rs. A.
1930-31 . . . . .	10 8 0	5 14
1931-32 . . . . .	11 13 0	4 0
1932-33 . . . . .	10 1 0	3 15
1933-34 . . . . .	9 15 0	3 0
1934-35 . . . . .	7 14 0	4 12
1935-36 . . . . .	8 13 6	4 8
1936-37 . . . . .	7 0 0	2 12

7. The answer to this question is the same as for Sultanpur market.

8. The same as for Sultanpur market.

*Information regarding the questionnaire for Local Government.*

1. The answer to this question is given below in the form of a statement. The improved varieties grown in the State are those of coimbatore introduced by the Department of Agriculture. The most popular are Co. 285, Co. 312, Co. 313 and Co. 331 of which Co. 285 is extensively grown. The area under sugarcane is given in acres:—

Year.	Local.			Improved varieties of cane.			Irrigated.	Unirrigated.	Total.	Remarks.	
	Irrigated.	Unirrigated.	Total.	Irrigated.	Unirrigated.	Total.					
1930-31 . . . . .	7,123	301	7,424	942	2,630	3,579	8,065	2,931	10,996	(a) In 1932-33 heavy frost set in during winter and damaged the crop. Therefore there was decrease in area under sugarcane for 1933-34 as the seed was not available.	
1931-32 . . . . .	8,865	108	8,973	3,113	1,046	4,159	11,978	1,154	13,132		
1932-33 . . . . .	9,871	194	10,065	2,812	2,124	4,936	12,683	2,318	15,001		
1933-34 . . . . .	8,404	188	8,592	3,901	641	4,542	12,305	829	13,134		(b) There was scarcity of rainfall during 1934-35. This affected the sowing in 1935-36.
1934-35 . . . . .	8,078	1,348	9,426	3,961	1,074	5,035	12,039	2,422	14,461		
1935-36 . . . . .	7,881	785	8,666	4,900	617	5,517	12,781	1,402	14,183		
1936-37 . . . . .	7,442	753	8,195	6,587	303	6,890	14,029	1,056	15,085		

2. There are three tracts of land in the State distinguishable from one another in respect of differences in structure of soil, climatic conditions and situation. The sugarcane crop (irrigated and unirrigated) in tracts is given below in a statement.

This area is given in acres:—

Cane crop in 1936-37.	(a)		(b)
	Bet area.		Dona area
	Irrigated.	Unirrigated.	Irrigated.
Tehsil Sultanpur . . . . .	3,293	116	452
Tehsil Bholath . . . . .	1,678	500	422
Tehsil Kapurthala . . . . .	2,086	221	1,688
<b>Total</b> . . . . .	<b>7,057</b>	<b>837</b>	<b>2,562</b>

	(c)		Total.
	Phagwara Tract.		
	Irrigated.	Unirrigated.	
Tehsil Phagwara . . . . .	4,370	23	4,393
Tehsil Bhunga . . . . .	60	176	236
<b>Total</b> . . . . .	<b>4,430</b>	<b>199</b>	<b>4,629</b>

3. There is no canal or tube-well system in the State.

Therefore the question of irrigation rates does not arise.

4. The costs of cultivation of cane per acre to the cultivator in different areas is as under:—

	Rs.
(a) Bet area—	
(i) Irrigated . . . . .	90
(ii) Unirrigated . . . . .	71
(b) Dona area—	
(i) Irrigated . . . . .	95
(c) Phagwara area—	
(i) Irrigated . . . . .	96
(ii) Unirrigated . . . . .	71

The cost of cultivation was greater in 1934-35 due to the scarcity of rainfall. The average yield per acre of stripped cane is 350 maunds on an average and the average sucrose content is 10 per cent. (8-12 per cent.) on cane.

5. The fair price of sugarcane to the growers under the present conditions must be not less than annas five per maund of stripped cane.

6. The area under sugarcane has considerably increased in recent years. It has been gradually extended from year to year due to the demand of cane by the factory at Phagwara and price of "gur". These factors together with the fact that no other crop favourably competes with sugarcane under the circumstances have been the causes of this extension, other limiting factors such as climatic conditions, etc., having been eliminated by artificial means.

7. There has been no over-production in the State so far and the factory has played an important part in bringing about increased cultivation. The area under sugarcane in the State may go down in the coming years, if there is no rise in its rates.

8. The other cash crops grown in the State are cotton, tobacco, chillies and melons—

	Rs.
(a) Cotton . . . . .	80
(b) Tobacco in rotation with chillies . . . . .	90
(c) Melons in rotation with chillies or maize . . . . .	85

With the exception of cotton the cultivation of such crops is restricted because they have a limited market necessitating a limited cultivation. Even in cotton the margin of profit is very low. In fact they do not compete with sugarcane at present, and hence no crop pays as much as sugarcane.

9. A number of experiments were conducted on the State farms to select suitable ones out of Coimbatore varieties of canes. The propaganda work was organised for the introduction of the desired improved varieties of canes. The State had to spend something like 12,000 rupees on this work alone.

10. The State receives no contribution from the Government of India. It levies an excise duty on sugar manufactured in the factory at Phagwara.

11. (i) Various experiments have been conducted in selecting heavy yielding varieties of Coimbatore canes that are most suited to the soil and climatic conditions here. The methods of controlling insect pests of sugarcane such as sugarcane fly and borers are recommended by actual demonstration of the precautionary and remedial measures in villages.

(ii) Agricultural Associations were formed at different places in the State with responsible and intelligent members from almost every village to serve as intermediaries between the Agricultural Department and the cultivators. It is the duty of the members to grow improved varieties of cane and adopt farm methods in cultivating them. This has proved a great success. An extensive propaganda through printed leaflets and the laying out of demonstration plots of improved cane at some central places have also proved of great help in introducing Coimbatore canes in the villages in so short a time. Ammonium Sulphate as artificial fertilizer after having been tested on the farm as compared to nitrate of soda as more useful to the growth and vitality of plants in general is being recommended for application to the crop. The Imperial Chemical Industries, Limited, have been brought round to start a shop at Kapurthala for the sale of manure. Now it is getting popular with the cane-grower.

12. No assistance has ever been sought or received from outside except that different varieties of Coimbatore canes are obtained from the adjoining Agricultural stations for experimentation on the State Agricultural farms before being finally taken up and distributed among the ryot. Funds for the work described above are adequate.

13. The Jagatjit Sugar Mills Co., Ltd., Phagwara, have distributed Rs. 10,303-8-9 so far as loan to the cane-growers of the State for the purchase of seed, etc. This is a liberal help from the factory and has stimulated the progress of development of the cane.

14. The estimated disposal of the crop 1936-37 is—

- (a) crushed in sugar factories—4,000 acres,
- (b) utilised by khandsaris—Negligible,
- (c) turned into gur—9,000 acres nearly,
- (d) used for chewing purposes for fodder and for seed—2,000 acres.

15. (a) The level of water in wells has gone down and there are wells which have almost dried up. This causes great difficulty in the cultivation of cane where soil and climatic conditions are suitable for it. At some places, the cost of irrigation alone swells up to half the total cost of cultivation of cane.

(b) At this stage there is no arrangement for co-operation marketing of cane by the cultivators or systematic arrangement of supply to the factory. Efforts are being by the Administration to remove these difficulties.

16. There are no co-operative sale societies and no cane-growers associations. Such organisations are being contemplated to be started in the near future.

17. The Sugarcane Act XV of 1934 has not been adopted in the State.

18. There is no other factory within the State or outside within a radius of 100 miles. Hence there is no competition as regards the price of cane, etc.

19. This is useful in bringing about improvement in the quality of cane, and increasing the grinding period of the factory by growing early, medium and late varieties of cane systematically if the supply is regulated accordingly.

20 & 21. The cane-growers usually employ their own carts, for transport of cane. Therefore the question of cost of hiring does not arise.

22. There is no tramway. There are two railway lines running through the length and breadth of the State for the transport of cane from economic distance of transportation. The State has spent about one lakh of rupees towards the development of feeder roads and bridges in the interests of the sugar factory at Phagwara. The State is further contemplating the construction of feeder roads and bridges for the transport of cane.

23. None.

24. The assistance rendered to the Jagatjit Sugar Mills Co., Ltd., Phagwara, in the form of concessions by the order of His Highness the Maharaja Sahib Bahadur, dated the 9th February, 1933, is as follows:—

(i) A free grant of valuable piece of land for the mill.

(ii) Free import of machinery, building material, mills stores, etc.

(iii) Free export of manufactures of the Company.

(iv) No Income-tax will be charged for the first 5 years and after this period a flat rate will be assessed.

(v) No mills to be established within 25 miles radius of the present mill at Phagwara.

25. None.

26. The conditions of labour in the factory are satisfactory.

27. The wholesale and retail prices for the last seven years in the different markets of the State are given below in the form of a statement. The prices are given in rupees per maund:—

Year.	Kapurthala.		Phagwara.		Sultanpur.	
	Wholesale.	Retail.	Wholesale.	Retail.	Wholesale	Retail.
	Rs. A. P.	Rs. A.	Rs. A.	Rs. A.	Rs. A.	Rs. A.
1930-31	10 10 0	10 12	10 15	11 2	10 10	10 12
1931-32	11 15 0	12 2	10 7	10 12	10 0	10 7
1932-33	10 5 0	10 7	10 4	10 7	10 5	10 7
1933-34	10 0 0	10 4	9 11	10 0	10 0	10 4
1934-35	9 1 0	9 7	9 0	9 5	9 2	9 6
1935-36	8 1 6	8 4	7 12	8 0	8 0	8 3
1936-37	7 1 0	7 2	7 0	7 3	7 0	7 2

28. The answer to the Question No. 27 shows sometimes a difference of more than As. 2 (which is negligible) between the wholesale and retail prices. This depends upon the demand and middle man's profits.

29. The normal consumption of white sugar in the State may be taken as 30,000 maunds. The consumption is increasing steadily year by year

due to the facts that white sugar is getting cheaper, the taste for it is developing and the standard of living of the peasant and labour classes is being raised by the irresistible forces by which the society in general is being effected.

30. There are 75 small manufactories of Indian confectionery in the 4 Municipal towns of the State. The material used is white sugar.

31. There is only one factory in the State. The area under care cultivation has gone up and there is room for starting another factory in another district of the State.

32. There is no possibility of starting any subsidiary industry in the near future.

33. The estimate of production of "gur" from sugarcane for the last seven years is given below:—

Years.	1930-31.	1931-32.	1932-33.	1933-34.	1934-35.	1935-36.	1936-37.
Gur production in mds.	170,000	180,000	200,000	180,000	190,000	200,000	235,120 nearly.

34. There is no other material but sugarcane from which gur is prepared in the State.

35. The answer to this question has already been supplied in answer No. 5 of the information supplied by the gur/jaggery merchants regarding the questionnaire for gur/jaggery merchants.

The causes of variations are also the same as given by them.

Besides the price of gur has fallen due to its increased production.

36. An estimate of the total annual consumption of gur in the State since 1930 is given as under:—

Year.	1930-31.	1931-32.	1932-33.	1933-34.	1934-35.	1935-36.	1936-37.
Total annual Consumption of Gur in mds.	150,000	160,000	160,000	140,000	140,000	130,000	125,000 up till now.

The variation in consumption is due to good many causes. The chief reason is that people are becoming more and more sugar-minded. Cheap sugar is one of the causes of its increased consumption.

37. Gur is imported in the State territory from Muzaffarnagar (United Provinces). The approximate figures of imports during the last seven years are given below:—

Year.	1930-31.	1931-32.	1932-33.	1933-34.	1934-35.	1935-36.	1936-37.
Imports in mds.	1,300	800	600	900	500	500	400

38. Gur is exported from the State territory to Amritsar, Ferozepore, Kangra Districts of the Punjab.

The approximate figures of exports from the State during the last seven years are as under:—

Year.	1930-31.	1931-32.	1932-33.	1933-34.	1934-35.	1935-36.	1936-37.
Exports in mds.	20,000	25,000	30,000	20,000	30,000	30,000	Nearly 20,000 mds. has been exported so far.

39. The relation between the prices of gur and Indian factory sugar is shown in the answer to question No. 6 of Questionnaire for gur merchants. Please refer to that.

40. Indian factory sugar is taking the place of gur slowly. The consumption of Indian factory sugar has increased by 15 per cent. thereby replacing gur during the last seven years.

41. The improvement in the methods of manufacture of gur has been undertaken by the Department of Agriculture in the form of introducing improved furnace for boiling juice and the improved way of clarifying juice by means of carbon process.

42. There is no open pan factory now in the State. There was one three years back. It could not compete with the vacuum pan factory at Phagwara in the purchase of cane and the recovery of sugar and was closed down. There are a few khandsars now. Their outturn of sugar for the last seven years is given below:—

Year.	1930-31.	1931-32.	1932-33.	1933-34.	1934-35.	1935-36.	1936-37.
Outturn in mds. of Khandsari sugar.	1,500	800	500	300	150	90	55

43. The cost of manufacture of one maund of khandsari sugar has been Re. 1 to Rs. 1-8.

44. This can be judged from the answer to question No. 42 above. This indigenous industry has now dwindled down to insignificance. Next year probably there will be no manufacture of khandsari sugar at all.

45. It is quite obvious from facts and figures given above that the sugar factory at Phagwara has been the cause of the failure of the only open pan factory in the State and also of khandsars. There is no hope of its revival unless conditions change entirely.

46. The work of instructing people to manufacture "rab" is going on.

47. (a) The sugar excise duty of 1934 and the additional duty of 1937 have affected the cane-grower adversely. They have lowered the price of cane. The cane was selling at As. 3-6 per maund in (1936-37) as against As. 4-6 in (1935-36).

(b) Instead of raising the price of sugar as was expected they have lowered it. The manufacturer has suffered much due to the imposition of these duties.



(c) The trade in sugar has slackened and the dealer gets less profit out of this.

(d) The consumer is in an advantageous position. He gets sugar cheaper.

48. It was expected that after the imposition of the protective duties there will be less import of foreign sugar and consequently the price of sugar will rise. The consumer will be the loser. But contrary has been the case.

49. There is no industry worthy of note other than the State distillery controlled by the Kapurthala Government which depends on the supply of gur or molasses, which could be affected by the protective duties. This is advantageous for distillation as gur is obtained at cheaper rates.

50. There are different sources from which the data regarding acreage, production, and prices has been collected. The acreage has been calculated from the revenue records. The production has been calculated from the averages of production per acre of different areas in the State after actual inquiry and the survey of those areas. The prices of sugar and gur, etc., have been obtained from the account books (Behis) of "Ahratias" (Agents) in different markets of the State. The information is fairly accurate and can be relied upon for the purpose for which it has been collected.

51. The sugar industry in India is passing through a stage at which any unsympathetic measures adopted will kill it in its infancy and create a serious agrarian situation. The position cannot be explained at full length here. A few points are given below which may be taken into consideration before solving this complicated problem:—

- (1) There are large stocks of sugar lying unsold.
- (2) There is a cut-throat competition between the manufacturers and there is no effort on their part to come to certain mutual agreement between themselves or with the sugar merchants to raise the price of sugar.
- (3) The quantity of surplus sugar in stock has not been properly determined nor have any measures been calculated to dispose off this stock, by consumption inside the country or by export outside.
- (4) The depreciation in the price of sugar has been brought about the fall in the price of sugarcane to a certain extent and with the additional excise duty on sugar recently imposed in 1937 has still further made the situation worse for the cultivators. This should be avoided in future.
- (5) Sugarcane is no doubt a profitable crop under the present agricultural conditions and any restriction on the area under cane will not be desirable as this will adjust itself according to the future agricultural conditions.
- (6) The fall in the price of manufactured sugar will in turn hit the cultivator hard.
- (7) In conclusion it is considered desirable that extra excise duty recently imposed requires modification in the interests of sugar industry and cane-growers in the country regardless of the protective duty on foreign sugar imported into India especially when sugar industry is in its infancy stages.

(23) Letter dated the 13th July, 1937, from the Foreign Minister to His Highness the Maharaja of Kapurthala, Kapurthala.

With reference to your letter No. 303, dated the 18th June, 1937, I have the honour to say as follows:—

A. (1) There is one distillery in this State.

(2) & (3) Gur is used by the distillery instead of molasses for the manufacture of country liquor.

B. (1) to (3) There is no concern here manufacturing rectified or denatured spirit, hence molasses are not consumed.

(24) *Replies to Questionnaire for Local Governments furnished by the Prime-Minister, Kolhapur State, Kolhapur.*

1. The area under sugarcane—

	Acres.
1930-31 . . . . .	21,817
1931-32 . . . . .	18,149
1932-33 . . . . .	...
1933-34 . . . . .	68,339
1934-35 . . . . .	23,044
1935-36 . . . . .	...
1936-37 . . . . .	...

Varieties of cane grown—

	Acres
E.K. 28 . . . . .	500
Co. 290 . . . . .	250
P.O.J. 2878 . . . . .	200
H.M. 89 . . . . .	100

2. The area under cane in Kolhapur State can be classified under three heads, viz.:—

- (1) The area in Konkan tract where rainfall is above 60".
- (2) The area round about Kolhapur with a radius of 10 miles, where the rainfall is about 40".
- (3) The area in the Desh tract where the rainfall is below 30".

The crop on the whole is irrigated.

3. There is no canal in Kolhapur State. The pumping plants are installed on the banks of rivers for irrigating the cane crop. The pumping charges amount from Rs. 60 to Rs. 75 per acre.

4. The costs of cultivation of cane amount to Rs. 300 on an average.

5. Rs. 12 per ton of cane delivered on the field.

6 & 7. No.

8. Ground-nut, tobacco, cotton and turmeric are the cash crops. But they hardly form an alternative to sugarcane. Only in Desh tract turmeric forms an alternative to sugarcane to some extent.

9 to 10. Nil.

11. (i) Nil.

(ii) The Agricultural Department distributes sets of improved varieties free to the cane-growers.

12. (i-iii) Nil.

13. The Kolhapur sugar factory owns 1,000 acres of cane which consists of improved varieties. The cane is planted by 3½ ft. method.

14. (a) 1,800 to 2,000 acres.

(b) Nil.

(c) 18,000 acres.

(d) 200 acres.

15. No sufficient finance. Cane-growers are financed by middle-men who do not permit them to sell their cane to the factory. Besides in the absence of good roads carting the cane costs much to the farmer who is handicapped in taking his cane to the factory.

16. Nil.

17 & 18. No.

19. It will encourage the cane-grower.

20. As. 2½ to As. 3 per ton per mile.

21. No. The hiring charges come to Rs. 1-12 per day.

22. Yes. No assistance has been given for developing feeder roads, etc.

23. No industry Department here.

24. No particular assistance has been given.

25. Nil.

26. No.

27. Statistics not available.

28. No.

29. 130,000 cwts. per year.

30. Nil.

31. (i) & (ii) No.

(iii) (A) & (B) No.

32. Nil.

33. 102,400,000 lbs.

34 & 36. No other material but sugarcane statistics not available.

37. Gul is not imported in Kolhapur State.

38. Gujarat, Khandesh, Nizam State and Dharwar.

39. No.

40. Gul is hardly replaced by sugar.

41 & 42. (a) & (b) Nil.

43 & 44. No.

45. No khandsari industry here and so nothing can be said.

46. Nil.

47. (a) The cane-grower gets less price for his cane.

(b) He makes up the loss by paying less to the cane-grower and by raising the price of sugar.

(c) He increases the price and so he is not affected.

(d) The consumer has to pay a bit more price for sugar.

48. So far there is no effect.

49. No.

50. Statistics regarding acreage are worked out by village Kamgar who does not know its importance and so no correct figures are worked out.

Figures of gul production are not recorded.

Figures of sugar production are collected correctly by the officer who collects excise duty.

Prices of sugar and gul are collected by asking the merchants dealing in these stuffs. They are also far from correct.

51. No.

---

(25) *Answers to the Questionnaire for gur/jaggery merchants, furnished by the Prime Minister, Kolhapur State, Kolhapur.*

1. The chief jaggery marketing centres are Bombay, Gujarat, Kachha, Karnatak, Khandesh and Bardha.

2. There are four kinds, viz. (1) yellow sweet, (2) red and hard, (3) green, (4) black and soft.

3. Chiefly the supply is obtained from Kolhapur State and villages up to 40 miles from Kolhapur Territory. The total arrivals of carts in the market have been recorded and hence no quotations of arrivals from each centre can be given. The total arrivals during last seven years, i.e., from 1930 to 1936 are standard maunds:—745,488, 709,848, 753,048, 782,496, 702,630, 628,884, 612,738, respectively.

4. There is no mentionable variation in recent years.

5. The prices have been recorded since last two years. In 1936 the rate was from Rs. 9 to Rs. 3 per standard maund and in the year 1935 it was from Rs. 10 to Rs. 3.

6. The prices of jaggery and sugar are in no way related to each other.

7. There is no competition between jaggery and sugar. When the price of jaggery goes down people find it beneficial to sell their canes to the sugar factory. Sugar is not replacing jaggery in this market.

8. Normally for 12 months jaggery remains in good condition. The keeping quality is a hard one.

(26) *Letter dated the 20th July, 1937, from the Dewan of Travancore, Trivandrum.*

With reference to your letter No. 303, dated the 18th June, 1937, regarding molasses consumed by distilleries and other concerns, I have the honour to furnish below the information required therein.

A. (1) There are 3 distilleries in the State, one at Nagercoil, one at Vycome and the third at Devicolam. Of these, molasses is consumed only by the Negercoil Distillery. Coconut toddy alone is used in the Vycome Distillery and jaggery alone is used in the Devicolam Distillery.

(2) & (3) The total quantity of molasses consumed during each of the past 3 years and the price paid for the same are shown below:—

Year.	Quantity consumed candies.	Rate per candy of 500 lbs.	
		Rs. a.	Rs.
1934 . . . . .	204	3 8	714
1935 . . . . .	} 252	8 0	2,016
		12	42
1936 . . . . .	24	6 8	156

The source of supply of molasses was the Travancore Sugars, Ltd., Thuckalay.

B. There is no concern in this State other than distilleries manufacturing rectified or denatured spirit.

(27) *Extract from the letter dated the 7th August, 1937, from the Chief Secretary to the Government of H. H. the Maharaja of Travancore, Trivandrum.*

I have the honour to inform you that all that this Government desires in the matter is that the present rate of protection on cane sugar should be continued and that palmyra sugar also should be protected.

- (18) Letter No. 40-T. (3)/37, dated the 23rd November, 1937, from the Government of India, Department of Commerce, forwarding representation submitted by the Taikoo Sugar Refining Co., Ltd., from G. Corley-Smith, Esq., M.B.E., Assistant Secretary to the Government of India, to Messrs. Butterfield and Swire, General Agents, the Taikoo Sugar Refining Co., Ltd., Hong Kong.

**Subject:—INDIAN CUSTOMS IMPORT DUTY ON REFINED SUGAR.**

I am directed to acknowledge the receipt of your letter, dated the 19th October, 1937, on the above subject, and to say that it has been passed on to the Indian Tariff Board.

No. 40-T. (3)/37.

Copy, with the letter referred to above, in original, forwarded to the Secretary to the Tariff Board, 1, Council House Street, Calcutta.

*Letter from the Taikoo Sugar Refining Co., Ltd., Hong Kong, to the Secretary to the Government of India, Department of Commerce, New Delhi, dated the 19th October, 1937.*

**INDIAN CUSTOMS IMPORT DUTY ON REFINED SUGAR.**

Our Distributors in Calcutta, Messrs. Blackwood, Bryson & Co., Ltd., 2, Mango Lane, Calcutta, report that recently they have received enquiries from the Customs Authorities regarding the sources of origin of Raw Sugars used by us in the manufacture of the various grades of refined sugar which we export to India. We have supplied all the relevant information to them and to our Travelling Representatives. This has been given by them to the Customs Authorities, who have informed them that the enquiries originated from the Government of India and may possibly be required by the Tariff Commission recently appointed by the Government of India.

We therefore have the honour to address ourselves to you directly.

In certain Colonial territories, notably so far as we are concerned on account of their geographical adjacency, the Federated Malay States, preferential tariff treatment is accorded to sugars of which 25 per cent. of the value is the result of work done or materials produced within the British Empire. Our refined sugars comply with this qualification, both on account of their manufacture by a British Company in a British Colony and because a proportion of the raw sugar from which they are refined is Empire grown. Our supplies of raw sugar which are grown within the Empire are usually drawn from Mauritius or Barbados and those which are not grown within the Empire from Java, Cuba or Peru.

For approximately forty years we have maintained regular trading connections with various parts of India, but we recognise the fact that to a very large extent India now produces her own sugar requirements and that a modern sugar industry has been developed. It would not be reasonable for us to ask for assistance against that industry nor do we desire to encroach upon it or to interfere with it in any way. India does, however, import certain types of sugar which are not produced within her own borders and for which there is a separate demand. It is just those types of sugar which we have supplied and continue to supply and they consist of—

- (1) High grade household and table sugars packed in convenient sized proprietary packings under our name "TAIKOO".
- (2) High grade crystal sugars and sugar candy.
- (3) Certain soft and moist white sugars consumed principally in the Bombay Presidency.

There is much competition from foreign sugars, principally from Japan and also from the Continent of Europe, and if India would accord preferential tariff treatment on similar lines to the F. M. S. it would in no way hurt her own industry but would be of benefit to other parts of the Empire.

If we are correct in our assumption that the present Tariff Commission is investigating the subject of imports of sugar in their relation to the Indian industry, we have the honour to request you to bring the facts set forth in this letter to the notice of that body.

- (19) *Demi-official letter R. Dis. No. 76-C. Exc./37, dated the 20th September, 1937, from the Central Board of Revenue, enclosing copies of correspondence with the Indian Sugar Mills Association, regarding export of sugar outside India.*

**SUGAR—EXPORTS FROM BRITISH INDIA—REFUND OF DUTY—PROCEDURE REGARDING.**

With reference to our conversation on the above subject, I enclose a copy each of the following papers for your information:—

- (1) Letter No. L./9/2067, dated the 12th July, 1937, from the Indian Sugar Mills Association;
- (2) Finance Department (Central Revenues) Notification No. 14—Central Excises, dated the 18th September, 1937 (not printed).
- (3) Board's letter R. Dis. No. 76-C. Exc./37, dated the 20th September, 1937, to the Indian Sugar Mills Association.

*Copy of letter No. L./9/2067, dated the 12th July, 1937, from the Secretary, Indian Sugar Mills Association, 135, Canning Street, Calcutta, to the Secretary, Central Board of Revenue, Simla.*

**Re EXPORT OF SUGAR OUTSIDE INDIA.**

I am directed by the Committee of the Indian Sugar Mills' Association to refer to the Press Communiqué, dated the 3rd May, 1937, issued by the Government of India, Finance Department, Central Revenues, in connection with the export of sugar to Burma. The communiqué stated that sugar so exported may claim exemption from the payment of excise duty in India and that if excise duty has already been paid prior to export a refund of the same was also admissible, on production of satisfactory evidence that the sugar has been so exported and that the excise duty has been paid on it. They have also stated in the communiqué that enquiries as to the details of the evidence required and the procedures to be followed should be addressed to the Collector of the District where the factory from which the sugar was purchased and which paid the excise duty is situated.

It has, however, been brought to the notice of the Committee that there is a diverse opinion amongst the Collectors in different districts as to the evidence required and the procedure to be followed for exemption from or refund of excise duty. The decision as to what would constitute satisfactory evidence having been left to the discretion of the local authorities each of whom may have his own individual ideas, there is naturally a divergence of opinion as to what this proof should consist of. The factories are thus being put to a considerable difficulty and uncertainty as regards the exact procedure to be followed and the evidence required both for exemption and refund. This diversity of orders and the consequent uncertainty have created considerable confusion and are proving a handicap in the way of the export of sugar to Burma. The Committee therefore

consider it of urgent importance that the Government should review the matter immediately and lay down a definite ruling not only with regard to the procedure to be followed both for refund and for exemption but also in regard to the exact documents required as evidence of export. The Committee also suggest that the type of forms, etc., required in this connection should also be prescribed by the Government of India.

The Committee trust that in view of the importance of the matter the Government of India will no longer delay the issue of the necessary and complete instructions on this subject.

---

*Letter dated the 20th September, 1937, from the Central Board of Revenue, to the Indian Sugar Mills' Association, Calcutta.*

SUGAR—EXPORTES TO BURMA.

In continuation of my letter C. No. 76-C. Exc./37, dated the 9th September, 1937, I am directed to enclose a copy of the Finance Department (Central Revenues) Notification No. 14-Central Excises, dated the 18th September, 1937, for information. It will be observed that it has been provided in the rules that the refund to the exporter may also be made by the Collector of Customs at the port of export on production of clear documentary evidence that the sugar was liable to excise duty under the Sugar (Excise Duty) Act, 1934, and at what rate.

**CHECKED**  
**2003-04**