COST OF PRODUCTION OF FOOD-GRAINS
IN
GUJARAT

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T KRISHI PEDASH BHAV-TAPAS SAMITI
EE FOR INVESTIGATING THE COST OF PRODUCTION OF
AGRICULTURAL PRODUCE IN GUJARAT)
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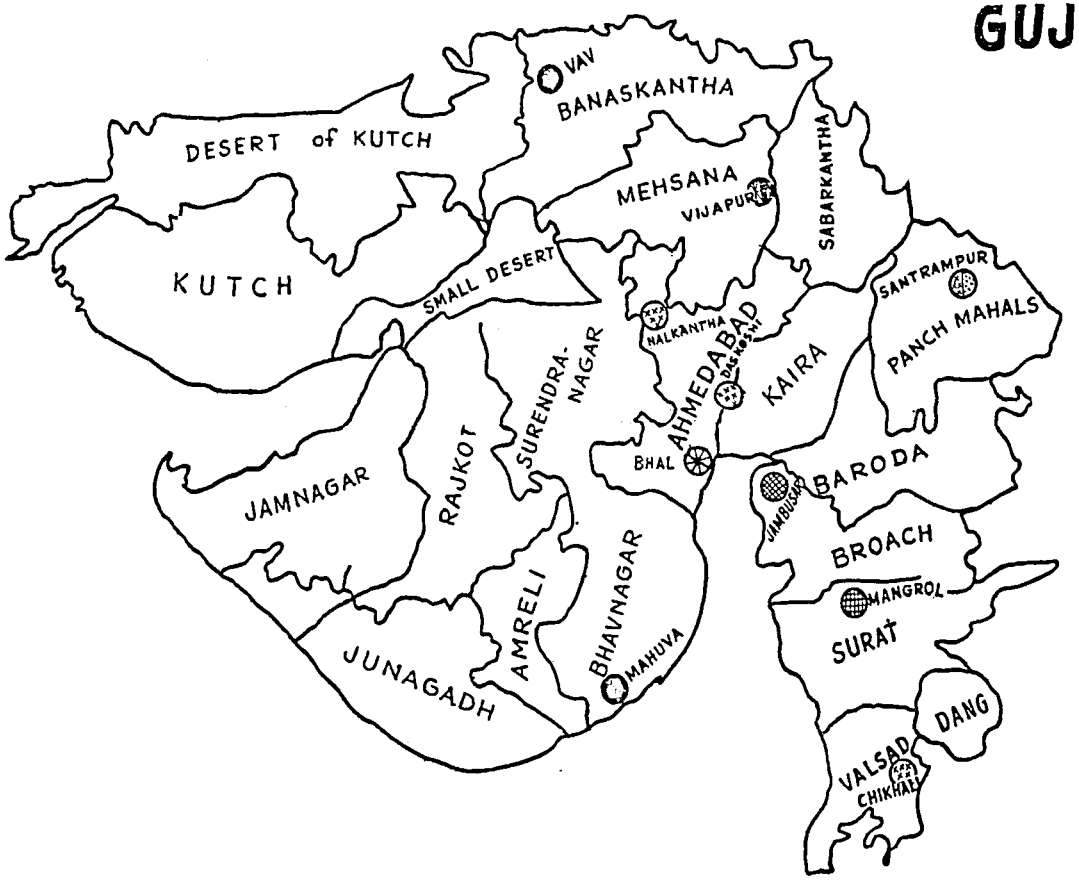
REGIONS OF SURVEY FOR INVESTIGATING COST OF PRODUCTION IN GUJARAT STATE



	REGION	CORP
⊛	NALKANTHA	Paddy
⊛	DASKOSHI	Paddy
⊛	SANTRAMPUR	Paddy & Maize
⊛	CHIKHALI	Paddy
⊛	BHAL	Wheat (dry)
⊛	VIJAPUR	Wheat (irrigated) & Bajri
⊛	MAHUVA	Bajri
○	VAV	Bajri
⊛	MANGROL	Jowar (kharif)
⊛	JAMBUSAR	Jowar (rabi)

FOREWORD

For some reason or other, Governments in India have never sought to determine prices of agricultural commodities with reference to their cost of production. The attempt has always been to determine them with reference to what they ought to be, if they are not to upset some other objective, be it the cost of living index, or the price of cotton textile goods, or the export market, etc.For the first time recently, a statement was made by a responsible spokesman on behalf of the Government of India that farmers would be given "incentive and remunerative prices for the foodgrains they produce This is a belated recognition of the obvious fact that even farmers plans are influenced by the prices they are likely to get for their produce. Even then no authoritative indication has yet been given of how these "incentive and remunerative prices" are to be arrived at. Somehow or other, there is a shying away from any attempt at basing them on the cost of growing the various crops. Undoubtedly conditions vary greatly in different regions of the country: there is no reason, however, why different prices for producers should not be fixed for different regions based on the actual cost of production in each of the regions.

Certain definite principles for determining the cost of production of industrial products have already been evolved and are well recognised. When, therefore, it is proposed to fix minimum or maximum prices for these products, they can be related to their cost of production, which can be determined scientifically. It is indeed surprising that for agriculture which is the main industry of this country, no such principles, however, have yet been evolved. Therefore, whenever there is a proposal to fix the minimum or maximum prices of agricultural products, ad hoc or tentative decisions have necessarily to be taken.

I welcome this effort on the part of the Bhal-Nalkantha Prayogik Sangh to determine the cost of production of foodgrains in the State of Gujarat. It is sought to base these costs on realistic estimates of cost made by a large number of farmers representing all strata of the farming community in various tracts of the State. What is significant is that this

fairly large-scale inquiry, sponsored and conductd by voluntary organisations of farmers, has been able to maintain a commendable degree of objectivity. the conclusions in regard to the cost of production arrived at by the Samiti are as a result worthy of careful consideration by planners and administrators. There has been a marked tendency among planners generally,—and economists as well as ordinary citizens have allowed themselves to be carried away by it—, to hold that the agricultural prices should be kept depressed, that the terms of trade should be adverse for agriculture, and that unless this is done, all manner of unfortunate consequences would ensue both for industrial sector as well as for the economy of the country generally This policy has been consistently pursued for the last 15 years, and, curiously enough, it has been pursued in the hope that it would result in increased production. Time has now come to review our entire price policy in so far as it affects agriculture, and to realise that only by giving generous "incentive and remunerative prices" to the farmers, can agricultural production be increased to any appreciable extent.

It is quite possible that the findings of this study may not be found readily acceptable as they stand. To my mind, what matters is that such an attempt should have been made at all, and whether one accepts the results or not, it is to be hoped that this first large-scale inquiry into the costs of production of foodgrains in a State will stimulate further studies and compel the acceptance of the obvious principle that prices of agricultural products, as of industrial products, ought to be related to thir costs of producton and must not be divorced therefrom, as has been the case hitherto.

Vallabh Vidyanagar
25-12-1964

H. M. Patel

Cost of Production of Food-Grains in Gujarat

CHAPTER I

Introduction

Since the Day of Independence the Government of India has been striving hard for the all round development of the country through a series of five year plans for industrial, economic and agricultural development. Out of the first three plans greater stress has been laid on industrial development in the 2nd and 3rd plans and not so much on agricultural production. It is now realised that food production is the central point around which industrial development can be gainfully planned. Food is the first and primary necessity to keep up the morale of the population. A predominantly agricultural country such as India should concentrate its efforts primarily for self-sufficiency in food. Food production should, therefore, receive predominance in the five year plans to come.

Food production could be increased mainly in two ways: (1) by bringing more area under food crops, and (2) by increasing the productivity of land. In a densely populated country such as India, the possibility of bringing more area under food crops is limited, and hence the other method of increasing productivity is the only sure way of increasing food production. Productivity could be increased by various means, such as increasing irrigation, providing sufficient manures at reasonable rates, stopping soil erosion and conserving moisture by bunding and other means, using improved seed, preventing loss due to pests and diseases, protecting crops from stray cattle, wild animals and birds, imparting scientific knowledge to farmers and by offering remunerative and incentive prices for the food crops raised. Of all the factors useful in increasing food production, the most effective is the price factor.

Naturally the cultivator is induced to raise those crops which give him the highest returns with the least trouble. As non-food crops give him higher returns than those received from food crops, he is naturally inclined

to put the *best* lands under non-food crops and give them priority in manuring, irrigation, plant- protection measures etc. The food crops are generally grown on less fertile lands and time and resources left over after attending the non-food crops are devoted to them. No wonder the productivity of food crops could not keep pace with the total production as will be seen from Table 1 of food production in India.

Table 1 — Food Production in India
(INDEX 1949-50=100)

Year	Production in million tonnes.	Index for production.	Index for productivity.
(1)	(2)	(3)	(4
1949-50	54.00	100.00	100.00
1950-51	—	90.50	92.40
1951-52	51.18	91.10	93.00
1952-53	58.27	101.10	98.00
1953-54	68.72	119.10	108.10
1954-55	66.96	115.00	105.20
1955-56	65.79	115.30	103.00
1956-57	68.75	120.80	107.40
1957-58	62.02	109.20	98.60
1958-59	77.10	130.60	113.00
1959-60	76.70	127.90	110.00
1960-61	81.00	135.60	118.40
1961-62	81.00	137.50	117.10
1962-63	78.50*	130.40	-
1963-64	79.40*	134.90	-

* Provisional [Source—'Agricultural Situation' annual number August 1964 for columns (2) and (3). For column (4) 'Economic Times' dated 29th July 1963.]

It will be seen from the figures of production in tonnes in column (2) that the production has gone up on the whole till 1960-61, but since then it has gone down.

So ar as productivity, i. e. production per acre is concerned, it will be seen from column (4) that it had not increased much. It is the producfivity and not production which shows real progress in agriculture.

As a result of experience gained during the operation of the first three five year plans it realised that unless food production is put on the self-sufficiency basis, industrial development could not be advanced on sound lines. In spite of help under P. L. 480, the import of food grains tells heavily on our economic resources and creates, exchange difficulties in the imports of capital goods required for industrial development. Not only this, a shortage of food causes a steep rise in the prices of food grains, which consequently is responsible for demoralising public spirit. The heavy strain on our financial resources by importing food grains will be realised from the fact that from the Day of Independence till to-day we have been obliged to import over $5\frac{1}{2}$ crore tonnes of food-grains costing about Rs. 2150 crores to the exchequer, as will be seen from Table 2.

Table 2 — Imports of food-grains

(In thousand tonnes)

Year	Rice	Wheat	Other grains	Total	Value of imported grains in crores of Rupees
(1)	(2)	(3)	(4)	(5)	(6)
1947	762	928	964	2654	80
1948	867	1311	963	2841	83
1949	767	2200	739	3706	106
1950	353	1407	465	2125	70
1951	761	3063	976	4800	217
1952	734	2551	641	3926	209
1953	178	1711	146	2035	86
1954	635	200	8	843	47
1955	269	442	–	711	33
1956	330	1113	–	1443	56
1957	748	2898	–	3646	162
1958	397	2716	111	3224	121
1959	295	3553	20	3868	141
1960	699	4386	52	5137	193
1961	384	3092	19	3495	130
1962	390	3250	–	3640	141
1963	483	4073	–	4556	–
1964 (for first 6 months)	418	2148	–	2566	–

The severe plight of our food resources has been an eye-opener to the Government, which has now realised the imoprtance of giving remunerative prices to our cultivators to enable them to produce food-grains. It may be mentioned here that giving of remunerative prices for food grains would not be a sufficient encouragement to the cultivators to go in for food production, in preference to the production of non-food crops as production of food-grains entail more labour in harvesting, threshing and preparing for the market and marketing than is the case with non-food crops such as cotton. Prices of food grains should not only be remunerative, but they should also be sufficiently high to give the cultivator an incentive to go in for food production in preference to the production of non-food crops.

For prices of food grains to be remunerative, it is necessary that the price per unit of the product should be fixed on the basis of cost of production plus reasonable profit. They would not be, however, incentive prices. for, prices to be incentive, they should be higher in parity with those of non-food crops, and also in parity with prices of consumers' goods required by the cultivator.

In order to fix such prices for the food-grains produced by the cultivator, there should be some basis on which the prices could be considered and such a basis, at the first sight, appears to be a general survey of the cost of production carried out in a variety of soils, on diffrent units of holdings and changing seasons.

The market prices obtained by the cultivators for their crops could not be called economic prices as the cultivators are obliged to accept whatever the traders offer, since they have no capacity to hold on to their goods for better prices after the harvesting season when the prices generally rise. Therefore, they receive distress-prices and not economic-prices at the harvest time.

As against this, in industries it is generally, the producer who fixes the prices of commodities produced by him, taking into consideration all the factors of production plus profit considered reasonable by him, and the consumer is obliged to pay that price. It will thus be seen that the cultivators have to suffer both ways. They can not fix the prices of their produce and are obliged to accept distress-prices offered by trade, while as consumers they are required to pay the prices dictated by the industial producers.

It is a welcome sign that our administrators have now realised the situation and feel that results of studies and surveys so far carried out could not help our cause and hence fresh surveys and studies are necessary to solve this ticklish problem of fixing remunerative and incentive prices

to encourage the producers to increase production of foodgrains, as seen from the speech of the former Union Minitser of Agriculture, Dr. Ram Subhag Singh in the Lok Sabha on 24-3-64. He said that a proposal for conducting farm management studies to obtain information on the cost of production of principal commodities was under consideration.

The I. C. A. R. is doing some good work in this connection particularly for crops such as cotton and jute. The Agro-Economic Research Centre, Vallabh Vidyanagar has also conducted a study of economics of cotton cultivation in Sabarkantha district of Gujarat. The Institute of Agricultural Researsch Statistics has carried out studies in Gujarat for estimating the cost of production of cotton and the rotational crops of groundnut and jowar for three years from 1960-61 to 1962-63. It is hoped that the figures of cost of production of jowar will become available when this report is published. Beyond this, no data are being collected for food crops grown in Gujarat. Some studies in economics of farm management were carried out in the past in the then Bombay State, but so far as Gujarat State is concerned practically no crop or district is covered in those studies.

Under the circumstances, the Bhal-Nalkantna Prayogic Sangh, which is a voluntary body working under the inspiration of Shri Muni Santbalji, decided to find out, by means of a rapid survey, the cost of production of the main cereal crops grown in Gujarat. On 25-9-64 it appointed a committee called 'Gujarat Krishi Pedash Bhav-Tapas Samiti' (Committee for investigating the cost of production of agricultural produce in Gujarat) The members of this committee are :—

1. Shri Shivabhai J. Patel, M. Ag., President.
2. Shri Navalbhai Shah, B. Sc. (Tech.), Member.
3. Shri Ambubhai Shah, Secretary.

The object of this committee is to find out the cost of production of the major food crops in Gujarat viz., paddy, wheat, bajri, jowar and maize taking 'the practice of agriculture as a business' and to suggest ways and means for arriving at remunerative and incentive prices for food-grains.

Recent pronouncements of the Govrnment of India to give remunerative prices and also to give incentives to the agriculturists to step up agricultural production are good policy statements, but they do not go as far as the recommendations made by the Krishnamachari Committee on agricultural prices. The recommendations of this committee were :-

When nacessary data become available, the prices should cover the cost of production on representative holdings including the payment of fair wages to agricultural labourers and leave the producer an income sufficient

to maintain himself and his family at a standard of life equivalent to that enjoyed by other comprable classes of the population" (Report of the Agricultural Prices Sub-committee, quoted from the Strategy of Agricultural Development by Dr. S. R. Sen, 1962, p. 191).

These recommendations ought to have been implemented long back, for, without their implementation it is impossible to usher in the type of socialism that we so dearly cherish. It is hoped that even now the Government takes an early decision to implement these recommendations.

It is common sense that no farmer can be expected to put in his best unless he gets a remunerative price that has been worked out for his produce after taking into consideratation the economic cost of prodution. It is hoped that the data of cost of production collected by our Samiti will enable the Agricultural Prcies Commission to arrive at a Standard formula to correlate prices with economic cost of production and to decide on a long-range policy for fixing remunerative and incentive prices of food-grains vis-a-vis the trend of prices of consumers' goods and the prices of material required by the cultivator for production of food-grains. Unless this long range policy is decided once for all, the farmer naturally will not be induced to produce more food-grains. The prices of food-grains received by the cultivators have not so far kept pace with the prices of other commodities as discussed in the next chapter.

CHAPTER II

General Trend of Prices

It will be interesting and useful to study the trend of prices of (i) all commodities and (ii) agricultural commodities as compared to those of cereals. They are given in Table 3 from the Reserve Bank of India Bulletin October 1964.

Table 3 — Index numbers of wholesale prices (1952-53=100)

Average of months/ average of weeks ending saturday	All commodities	Agricultural commodities	Cereals
1	2	3	4
weights	1000	461	192
1951-52*	118	118.8	102
1955-56	92.5	88.0	76
1956-57	105.3	104.5	96
1957-58	108.4	107.4	101
1958-59	112.9	114.0	107
1959-60	117.1	116.5	104
1960-61	124.9	123.8	104
1961-62	125.1	122.8	102
1962-63	127.9	123.3	106
1963-24	135.3	130.7	116
April 1964	139.8	137.1	122
May ,,	143.0	140.6	127
June ,,	146.7	147.9	133
July ,,	150.4	152.5	137
August ,,	155.4	160.2	144
September,,	158.8	164.4	150

※ Derived series.

A glance at the data given in the above table reveals that so far as cereals are concerned, the prices have not kept pace with the prices of other commodities. The trend of prices of food-grains has remained very low till 1962-63 and that they made some head-way in 1963-64 and subsequent months. But even then the rise in the price of food-grains remains low in comparisison to the prices of all commodities and also of all agricultural commodities.

As a matter of fact it was expected that the Planning Commission would recommend that the Government maintain parity of prices all along. In the absence of such a policy, the farmers who are producing cereals have faced adverse circumstances in selling at low distress-rates and buying their daily needs such as cloth, shoes, kerosene, salt, machinery, timber, cement, corrugated sheets and fuel at highest rates.

As pointed out by Dr. B. N. Ganguli in his presidential address of 1963 before the Indian Society of Agricultural Economics, the fact is that India has been following to a certain degree the policy of agricultural protection in the revese, and hence the present situation of shortage of food. As quoted by him from the Haberler Report on "Trends in International Trade" (G. A. T. T. Geneva, October 1958) : "The price of wheat and so the reward offered to domestic wheat producers has been controlled at so low a price that even the imports of the U. S. wheat provided under special surplus disposal arrangements have had to be subsidised in the Indian market to bring the price down to the low level earned by the domestic producers."

It is now high time that Govenment of India carries out its present policy decisions of giving remunerative prices and also giving incentives to the cultivators to produce more whole-heartedly.

CHAPTER III

Plan of Survey

Methodology :

The cost of production of the food-grains in this study was collected by the survey method. It is argued by some that the cost accounting method is superior to the survey method. We do recognise the importance of the cost accounting method. It is, however, a very costly method and requires a number of years to know the cost. At present, 3 years are generally taken to arrive at the results. As the vagaries of seasons are great in our country, to our way of thinking, a short period of 3 years may or may not reflect the correct situation, whereas the survey methhod is found to be expeditous for the purpose in view. It also has advantage of the life long experience of the cutivators of the various seasonal condition. The question of methodology is engaging the attention of research workers. Some comparisions have been made between the survey method and the cost accounting method in "Studies in Economics of Farm Management in Bombay" in the report for 1956-57 by Shri P. N. Driver, Professor of Agricultural Economics and Principal of the College of Agriculture, Poona and his collegue Dr. D K. Desai, they throw much light on methdodology. While drawing conclusions regarding methodology they say, "It can be concluded, therefore, that the survey method can be reliably used in place of the cost accounting method where many details ars not required."

So far as (1) cost of cultivation per acre, (2) human labour in days per acre, (3) bullock labour in days per acre, and (4) gross income per acre per earner, the important factors of crop production are concorned, differences between these items when tested statistically by a simple 't'* test were not significant. We have, therefore, relied upon the survey method. To our mind, the working out of the cost of farm production is not a simple queston of methodology. The age--long experience of the cultivators also needs to be taken into

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't' * test means the difference between the means of two sets of data compared by formula $\frac{\bar{x}-\bar{y}}{S(\bar{x}-\bar{y})} \times (n_1 + n_2 - 2)^{\frac{1}{2}}$ where obsevations satisfy certian specific statistical conditons.

account in working out such costs. Our Samiti had, therefore, decided to adopt the survey method so that the age-long experience of the cultivators is reflected. Keeping this factor in view, we prepared a survey form which included all the details necssary for our purpose. The investgators who were entrusted with this survey work were given practical training at Sarvodaya Ashram, Gundi and at Lok Bharti, Sanosara by agricultural scientists.

The procedure that we have followed in selecting the localities, crops and cultivators for our survey work is described in the following pages.

Selection of Localities : We have selected for our survey work the zones in which the acreage of the crop under study was either high or concentrated. A reference to the Hand Book of Basic Statistics, Gujarat State, 1962 and our personal experience lead us to select the districts as shown in table 4.

Table 4 – Districts selected for the Survey

S. No.	Crop	Districts
1.	Paddy	1. Ahmedabad 2. Kaira
		3. Panchmahals 4. Valsad
2.	Wheat	1. Ahmedabad 2. Mehsana
3.	Bajri	1. Bhavnagar 2. Mehsana
		3. Banaskantha
4.	Jowar	1. Surat 2. Broach
5.	Maize	1. Panchmahals.

After selecting the above mentioned districts, we further selected the region or taluka where the concentration of area under a particular crop was high so that we can select the same for our survey work. We had thus located the regions or talukas for our study as shown in Table 5.

Table 5 – Region or Talukas selected for Survey Work

S. No.	Crop	Region or Taluka
1.	Paddy	1. Nalkantha area of Sanand and Dholka Talukas of Ahmedabad District.
		2. Daskosi area of Matar, Mahemdabad and Daskroi talukas of Kaira and Ahmedabad Districts.
		3. Santrampur Taluka of Panchmahals District.
		4. Chikhali Taluka of Valsad District.
2.	Wheat	1. Bhal area of Dholka and Dhandhuka Talukas of Ahmedabad District.
		2. Vijapur Taluka of Mehsana District.

3.	Bajari	1. Mahuva Taluka of Bhavnagar District.
		2. Vijapur Taluka of Mehsana District.
		3. Vav Taluka of Banaskantha District.
4.	Jowar	1. Mangrol Taluka of Surat District.
		2. Jambusar Taluka of Broach District.
5.	Maize	1. Santrampur Taluka of Panchmahal District.

After selecting the above mentioned regions and talukas, we selected villages at randum in each area.

Selection of farms:- After going through the above preliminaries we contacted farmers in each village for getting the necessary information. The number of villages and farmers contacted in different regions have been given in Table 6. The selection of the farmers was based on the experience of intellegent farmers who could give us reliable information of their life-long experience of crop production.

Table 6 -Number of villages and farmers contacted in different regions for different crops

Crop	Region or Taluka	No. of villages	No. of farmers
Paddy	Nalkantha	6	60
	Daskosi	15	81
	Santrampur	21	95
	Chikhli	10	87
Wheat	Bhal	6	56
	Vijapur	15	82
Bajri	Mahuva	10	100
	Vijapur	13	126
	Vav	12	97
Jowar	Mangrol	11	100
	Jambusar	10	102
Maize	Santrampur	27	86
		156	1072

Items included in the cost of production:— We have taken the following items of expenditure and income into account in our survey.

Expenditure

1. **Human Labour**— This was obtained on acre basis as the farmers are mostly conversant with the general norms. The rates of wages have been calculated on the prevailing wages in cash plus items given in kind such as tea, bidis and food.

2. **Bullock labour** — This was also calculated on per acre basis. Expenses on a pair of bullock per day were calculated as under:—

Expenses	**Money value during the year in Rs.**
(1) Concentrates	
(2) Fodder	
(3) Inrerest at 7½% for six months on the above two itms.	
(4) Miscellaneous expenses:—	
(a) Looking after feeding, cleaning byre etc.	
(b) Depreciation charges on bullock value from 15% to 25% according to the crop and localities.	
(c) Accidental death or injury @ 10%	
(d) Interest on the value of bullocks @ 3¾%	
(e) Depreciation of the byre from 10% to 20% according to the condition.	
(f) Repairs to the byre (actuals)	
(g) Interst on the investment in byre @ 7½%	
Total of item (1) to (4) Rs.	

Income from Bullocks

(1) Farm Yard Menure	
(2) Hire charges if any	
Total income Rs.	

Cost per day :- Total expenditure minus income divided by
No. of working days during the year.

3. Irrigation charges : 1. Accruing from the use of canal water.
2. Tube-well water.
3. Oil engine, and
4. Electric pump.

4. Seeds
5. Manures
6. Pesticides
7. Godown charges
8. Commission charges for sales
9. Implement charges :- computing the valuatoin of different types of farm implements to a period of one year and then adding interest 7½% to that amount. Subsequently dividing this amount by the acreage under cultivation including double cropping.
10. Land improvement charges - spread over a period of 15 years.

Total of items 1 to 10.

11. Supervision and management charges on items 1. to 10. @ 20% Rs-
12. Interest @ 6% on the market value of land
13. Govt. dues like assessment etc.

Grand total of items 1. to 13. Rs.
Less income of by-products Rs.
Net expenditure on crop Rs.
Production of the main crop in Kilos
Cost of production per Quintal Rs.

Net expenditure X 100 divided by
Yield of main crop in Kilos

So far as the accounting in our survey work is concerned it differs from official surveys, mainly in the following respects :-

1. Date of expenditure and income are based on survey method relying mostly on the farmers' ' normal ' estimates of inputs and outputs.

2. The rate of interest is calculated @ 7½%, except in the case of land where it has been calculated @ 6%, as the farmers members do not get loans at lesser interest than this. In the official survey, however, an interest rate of 3% to 4% is calculated on the basis of interest rates chargeable on safe long-term investment such as Govt. securities etc.

3. We have included supervision and managerial charges to cover incidental costs like the following :-

(a) Procurement of labour

(b) Supervision of labour

(c) Preparing food, tea etc. for labourers

(d) Purchase of feeds and fodder for bullocks

(e) Attenting to the sickness of bullocks

(f) Purchase of implements and attending to their repairs

(g) Arranging for irrigation

(h) Purchase of seeds, manures and pesticides

(i) Arranging for godown facilities

(j) Contacting commission agents for sales

(k) Going to pay Govt. dues

(l) Getting records from talati to secure loan from cooperative societies, tagavi etc.

(m) Repaying loan

(n) General supervision and care of the business

So far as official surveys are concerned, we find therein an item of miscellaneous expenditure, but it does not cover these miscellaneous duties and hence this item is included under supervision and managerial charges.

CHAPTER IV

Economy of cropping

Holdings:- The range of variation of holdings and their average sizes covered by our study are given in Table 7. The maximum number of cultivators who possess the type of holding in the districts of the respective localities is also given in the same table to know the type of cultivators whom we have contacted for our survey.

Table 7 – **Details regarding holdings**

Region	District	Survey samples Range of variation in acres	Averge in acres	Govt. records Modal holdings in acres
		For Rice		
Nalkantha	Ahmedabad	9 to 55	35.6	1 to 5
Daskoshi	Ahmedabad & Kaira	3 to 33	11.9	1 to 5
Santrampur	Panchmahals	1 to 49	8.8	1 to 5
Chikhli	(formerly Surat,) Valsad	1 to 29	8.2	1 to 5
		For Wheat		
Bhal	Ahmedabad	I7 to 55	44.5	1 to 5
Vijapur	Mehsana	5 to 39	11.6	1 to 5
		For Bajri		
Mahuva	Bhavnagar	3 to 99	26.2	25 to 56
Vijapur	Mehsana	3 to 45	12.4	1 to 5
Vav	Banaskantha	9 to 89	35.5	1 to 5
		For Jowar		
Mangrol	urat	1 to 69	20.7	1 to 5
Jambusar	Broach	9 to 89	26.2	1 to 5
		For Maize		
Santrampur	Panchmahals	1 to 31	7.0	1 to 5

The range of variation in the holdings under any one survey is no doubt high but the average for region of all the holdings under survey is much higher than the modal size of holding in the respective districts.

The average cost of cultivation, production of the main crop and value of its by-products per acre and the cost of production per quintal in different regions have been found as given in Table 8 for the crops under investigation.

Table 8 – Cost of cultivation, income from the main crop and its by-products per acre and cost of production per Quintal

Crop	Region or Taluka	Average cost of production per acre	Average income per acre from by-products	Average net cost per acre	Average yield of the main product per acre	Average cost of production of the main product per Quintal
		Rs	Rs.	Rs.	Kilos	Rs.
Paddy	1. Nalkantha	541	38	503	822	61.2
	2. Daskosi	780	42	738	1240	59.5
	3. Santrampur	301	53	248	414	59.9
	4. Chikhli	401	23	378	683	55.3
Wheat	1. Bhal (Dry-crop)	188	18	170	163	104.3
	2. Vijapur (Irrigated crop)	848	37	811	913	88.8
Bajri	1. Mahuva	458	68	390	460	84.8
	2. Vijapur	392	80	312	408	76.95
	3. Vav	112	24	88	176	50.0
Jowar	1. Mangrol (Kharif)	186	24	162	333	48.6
	2. Jambusar (Rabi)	269	46	223	303	73.6
Maize	1. Santrampur	242	29	213	369	57.7

The costs of production per Quintal are actual business costs. Taking them as basis, remunerative and incentive prices will have to be derived. The present market prices do not cover even this business cost of production. Under the circumstances, it is no wonder that the production of food crops does not keep pace with our needs.

The average whole-sale prices during the year 1962 for some of the districts of Gujarat have been given in the 'Hand-Book of Basic Statistics of Gujarat State, 1962' and they are compared in Table 9 with the costs of production.

Table 9 – Wholesale market prices per Quintal in 1962 in comparision with costs of production

District	Crop	Quality	Whole-sale market prices Rs.	Production prices Rs.
Ahmedabad	Paddy	Fine	*66.5	—
		Medium	*49.7	61.2; 59.5
		Coarse	*37.3	—
Surat	Paddy	Medium	*46.7	55.3
		coarse	*35.7	—
Ahmedabad	Wheat	Medium	59.6	104.3
		Coarse	39.1	—
Mehsana	Wheat	Medium	54.1	88.8
		Coarse	49.7	—
Bhavnagar	Bajri		54.5	84.8
Mehsana	,,		37.5	76.5
Surat	Jowar		47.7	48.6
Broach	,,		44.6	73.6

* Reducing the prices of rice into paddy at 62½ per cent.

It will be seen from above that the wholesale market prices have remained very low in 1962 except in the case of jowar in Surat District and for fine varity of rice in Ahmedabad District. The ad-hoc prices announced recently by the Govt. of Gujarat for paddy are low. It has fixed the price of Rs. 54 to 55 per Quintal for Jirasal Paddy (medium quality rice), Rs. 48 to 49 per Quintal for Basmati paddy (medium quality rice) and

Rs. 59 to 60 for Kamod paddy (a cented variety which could be classified as fine rice). The cost of production of Kamod may appear lower than wholesale price, but as a matter of fact this variety yields only 2/3 of the medium variety and, therefore, its cost of production would come to about Rs. 90 or so per Quintal. It can thus be seen from the above data that the prices fixed by the Govt. of Gujarat are in no way remunerative. The price fixed for Kamod only slightly approximates its cost of production.

It is possible that some people may feel that the average yields reported to us by the farmers might be low. But in fact it is not so as will be seen from the district yield figures of different crops derived from the "Hand Book of Basic Statistics of Gujarat State, 1962" with the figures arrived at by us. They are given in Table 10.

Table 10—Average yields per acre in kilos as per Govt. records and as reported during the survey

Crop	District	As per Govt. records Average of 5 years 1956-57 to 1960-61 yield per acre for whole district (in kilos)	Region or taluka of the respective district	As per survey yields per acre (in kilos)
Paddy	Ahmedabad	346	Nalkantha	822
	Kaira	294	Daskoshi & Matar-Mahemdabad	1240
	Panchmahals	215	Santrampur	414
	Surat & Valsad (combined)	425	Chikhli	683
wheat	Ahmedabad	143	Bhal	163
	Mehsana	339	Vijapur	913
Bajri	Bhavnagar	153	Mahuva	460
	Mehsana	143	Vijapur	408
	Banaskantha	83	Vav	176
Jowar	Surat	261	Mangrol	333
	Broach	187	Jambusar	303
Maize	Panchmahals	370	Santrampur	369

It will be seen that the yield figures given by the farmers are much higher than those reported in offical records.

Analysis of various inputs per acre constituting total cost:-

We now give below in Tables 11 to 15 itemwise cost of cultivation per acre for paddy, wheat, bajri, jowar and maize respectively.

Table 11. Itemwise cost of cultivation for paddy per acre

Item	Actual physical quantity				Money value			
	Nal kantha.	Das-koshi.	Sant-rampur.	Chikh-li.	Nal-kan-tha.	Das koshi.	Sant-ram-pur.	Chi-khli.
1. Human labour (in man days)	65.9	84.0	71.7		84.0	93.3	235.7	76.3 90.0
2. Bullock pair labour (in bullock pair-days)	9.5	10.6	15.4		6.7	97.7	158.6	41.4 53.7
3. Irrigation					38.8	29.8		
4. Seeds					18.4	3.0	20.9	20.8
5. Manures					121.5	100.3	50.2	87.1
6. pesticides					0.8	1.2	–	0.3
7. Godown charges					0.5	5.8	0.6	0.1
8. Commission charges for sales					3.0	0.3		
9. Implements					8.8	24.9	18.1 88.1	15.9
10. Land improvement					1.8	2.2	1.8	1.4
Total					384.6	561.8	209.3	269.3
11. Supervision & Managerial charges @ 20% on above					76.9	112.4	41.9	539.5 53.7
12. Interest on land @ 6%					71.2	99.8	47.6	75.7
13. Land revenue & other cesses					8.3	6.4	1.8	2.0
Total expenditure					541.0	780.4	300.6	400.7

The total expenditure per acre, ranged as under from farmer to farmer in the four zones under study :

	Range of variation in Rs.
1. Nalkantha	310 to 950
2. Daskoshi	670 to 1030
3. Santrampur	150 to 570
4. Chikhli	150 to 930

Table 12 – Itemwise cost of cultivation for wheat

Item	Actual physical quantity Bhal (dry crop) Days	Vijapur (Irrigated crop) Days	Money value Bhal (Dry crop) Rs.	Vijapur (Irrigated crop) Rs.
1. Human labour	14·7	73·2	38·2	202·9
2. Bullock pair labour	5.3	11.9	55.0	97·6
3. Irrigation			21·0	200.5
4. Seeds			21·4	47.1
5. Manures			8.2	88.4
6. Pasticides			–	1.0
7. Godown charges			1.3	0.5
8. Commission charges for sales			1.0	–
9. Impements			9.1	18.3
10. Land implovement			2.4	–
Total			136·6	656.3
11. Supervision & managerial charges @ 2o% on above			25·5	131.3
12. Interest on land			23·0	56·40
13. Land revenue & other cesses			2.6	4.3
Total expenditure			187.7	848.3

Being an irrigated tract, the interest is arrived at after distributing it over two crops by halving.

The total expenditure ranged as under from farmer to farmer in the two zones :

	Range of variation in Rs.
1. Bhal (Dry zone)	90 to 290
2. Vijapur (Irrigated zone)	570 to 1230

Table 13 – Itemwise cost of cultivation for Bajri

Item	Actual Physical quantity Mahuva Days	Vijapur Days	Vav Days	Money value Mahuva Rs.	Vijapur Rs.	Vav Rs.
1. Human labour	39.2	49.1	18.8	91.4	120·2	37.6
2. Bullok pair labour	13.1	9.0	5.7	61.7	57.5	33.1

3. Irrigation	–	–	–
4. Seeds	2.7	2.5	2.5
5. Manures	148.6	86.3	4-8
6. Pesticides	–	–	–
7. Godown charges	0.5	0.4	0.5
8. Commission charges for sales	–	–	–
9. Implements	15.2	17.0	6.8
10. Land improvement	1.4	0.9	–
Total	321.5	284.2	85.3
11. Supervision & managerial charges @ 20 % on above	64.3	57.0	17.0
12. Interest on land @ 6%	68.9	46.60※	3.9
13. Land revenue & other cesses	3.3	3.9	1.5
Total expenditure	458.0	392.3	111.7

※ Being an irrigated tract, the interest is arrived at after distributing it over two crops by halving.

The total variation ranged as under from farmer to farmer in the three zones under study:

	Renge of veriation in Rs.
1. Mahuva	150 to 850
2. Vijapur	190-210 to 830-790
3. Vav	70 to 170

Table 14 – Itemwise cost of cultivation for Jowar

Item	Actual Physical quantity		Money value	
	Mangrol (Kharif crop) Days	Jambusar (Rabi crop) Days	Mangrol (Kharif crop) Rs.	Jambusar (Rabi crop) Rs.
1. Human labour	27.7	26.4	51.4	65.5
2. Bullock pair labour	7.7	9.6	35.0	57.1
3. Irrigation				–
4. Seeds			2.5	2.7
5. Manures			17.3	29.6
6. Pesticides			—	0,3
7. Godown charges			—	0 9

8.	Commission charges for sales	—	—
9.	Implements	9.6	13.1
10.	Land improvement	1.1	—
	Total	116.9	169.2
11.	Supervision & Managerial Charges @ 20% on above	23.4	33.8
12.	Interest on land @ 6%	41.5	59.0
13.	Land revenue & other cesses	4.3	7.2
	Total expenditure	186.1	269.2

The total expenditure ranged as under from farmer to farmer in the two zones under study :-

	Range of variation in Rs.
1. Mangrol (Kharif)	110 to 310
2. Jambusar (Rabi)	130 to 610

Table 15 :- Itemwise cost of cultivation for Maize

Item	Actual physical quantity Santrampur Days	Money value Santrampur Rs.
1. Human labour	67.1	81.6
2. Bullock pair labour	10.9	36.3
3. Irrigation		-
4. Seeds		7.3
5. Manures		36.2
6. Pesticides		-
7. Godown charges		0.8
8. Commission charges for sales		-
9. Implemements		14.1
10. Land improvement		1.8
Total		178.1
11. Supervision & Managerial charges @ 20% on above		35.6
12. Interest on land @ 6%		26.6
13. Land revenue & other cesses		1.6
Total expenditure		241.9

The total expenditure ranged ~~as under~~ from farmer to farmer, from Rs. 150 to 370 in this zone.

Some people may feel that the variatons in costs and income for crops under study are high.

> In this connection, Merile K. Bennett says that, "Farm costs of production whether money, costs or quantitaive costs, vary widely from farm to farm and area to area in the same year, and from year to year in the same farm or in the same areas. It is erroneous to suppose either that farms in a homgeneous area incur uniform or nearly uniform costs or that the low cost producers of one year remain low cost producers in the next year. Variety, not unifomity is characteristic of farm costs of production, Subsequently, average costs are not to be accepred as representative, and concl usions drawn from comparision of average costs are usually questionable. There is reason to believe, though conclusive proof does not exist that both differences and changes in cost are due quite as largely to uncontrollable natural causes-weather, diseases and pests, affecting costs through yield, as to causes controllable through good manegement (Merile K. Bennett -Farm Cost Studies in the United States).

Our findings are fully subsintiated by Mr. Bennett. We are of the view that some of these high variations are controllable by adopting technological methods and through good management. The Govt. should see how it can impart technologicol knowledg to the farmers and can create good management abilities amongst them.

Fair wages and Prodction costs

So far as human wages are concerned, we find that a labourer receives daily wages, including tea, bidi, food etc. given in kind as given in Table 16 below.

Table 16 – All told wages per day in different regions for different crops

Region	Daily Wages Rs. P.	Crop
Nalkantha	1.42	Paddy
Daskoshi	2.81	,,
Santrampur	1.06	,,
Chikhli	1.08	,,

Bhal	2.60	Wheat
Vijapur	2.77	,,
Mahuva	2.33	Bajari
Vijapur	2.45	,,
Vav	2.00	,,
Mangrol	1.86	Jowar
Jambusar	2.48	,,
Santrampur	1.22	Maize

A farmer's family consists of over 6 members out of whom about 2 1/2 members are earners. To maintain a family of 6 persons, the average montnly income should be about Rs. 200/- per month. If a labourer is to get Rs. 3/- per day and is to work for 26 days in a month, his monthly income would be Rs. 78/- and, therefore, his family-income Rs. 195/- per month.

As a matter of fact the agricultural labourer never gets work throughout the year and, therefore his income would be much less than this. Sant Vinobaji has recommended a daily wage of Rs. 3/- and we think it quite reasonable from a humanitarian point of view and the present high cost of living, as more than half the earning would be required for food alone. This will no doubt iucrease the cost of production per Quintal immediately, but in the long run it would also lead to efficiency in working and thereby reduction in inputs for labour days per acre. The Krishnamachari committee has recommended fair wages to the labourers, and so far as agriculture is concerned no steps have been taken as yet to implement this recommendation. It is hoped that the Agricultural Prices Commission will go into this problem of daily wages to labourers also to do full justice to one of the important contributors in agricultural production.

CHPTER V

General Food Situation

The cost of production of food-grains on business lines, resulting from the survey carried out by the Samiti is substantiated by the economic principal of supply and demand vis-a-vis the food crisis through which the couutry is passing. The food shortage, keenly felt by the country as a result of variegated causes, the lower production and supply than the normal requisites of food, defective distribution of available supplies, the uneconomic situation created by stoppage of free movement even in different parts of our own country by creating zones, mal-practices followed by various agencies, and inefficient and defective administrative handling of the situation are some of the causes.

The creation of food zones by the states producing marketable surpluses has deprived the country of the normal market conditons. It has resulted in people within the zones obtaining food grains so cheaply as to enable them to feed the same to their cattle, while outside the zones, the states are forced to beg for the same to save their people from starvation. A critical situation was created in Kerala when the fixed quantity of rice was not supplied by the State concerned. To overcome the crisis that had arisen in that state hectic efforts were made to move rice there at considerable costs which could have been saved if the normal movement of rice had not been placed under controls. From such incidents it could be seen that it is not only the low production that creates difficulties but defective administration is also responsible for heightening the food crisis.

It is observed that there is a very wide variation in the prices of food-grains within the zone and at a short distance outside it. It means that factors other then economic factors are responsible for precipitating the situation. But from the long range view, it could be said that the lower production of food-grains and imports lower then our requirements are the main causes for the food crisis.

In an article entiled 'A plan for improvement of nutrition of India's population, Panse, Amble and. Abraham have shown the quantities that are available and that are needed per capita as given in Table 17.

Table 17 — per capita quantities of major food crops available and needed to meet minimum nutrition target

Item	Quantity per day (grammes)	
	Available	Needed
Cereals	375	403
Pulses and Nuts	65	104
Starchy roots	30	46
Sugar	45	50
Fruits & Vegetables	80	137
Meat	4	7
Fish	7	17
Eggs	1	2
Milk and Milk products	118	201
Fats and Oils	11	18

Computing the requirements of cereals and pulses on the basis of the standard given above, as per derived population figures and also making provision of 12 1/2% for purposes other than food such as seed, animal feed, wastage and manufacture of non-food products, our annual requirements for the year 1963-64 come to 97.3 tonnes, whereas our prodution was actually 79.4 tonnes as will be seen from the Table 18 given below:—

Table 18 — Food requirement and production

Year	Population in ~~Millions~~ Crores	Production in Million tonnes	Foodgrains needed in million tonnes
1963-64	46.0*	79.4	97.3
1965-66	49.2 †	-	104.1 †

* Derived †Indian Journal of Agricultural Economics Vol. XIV No. 2 of April-June 1964

The gross requirement, including cattle feed etc. during 1963-64 being 97.3 tonnes the deficit comes to 17.9 million tonnes. To meet a part of this deficit the Govt. had imported 5 million tonnes of food-grains, still leaving a deficit of 12.9 million tonnes. This fact of deficit is bourne out by Dr. P. V. Sukhatme, Director of statistics, F. A. O. in his statement* that one in every four in India is underfed and two in every four are malnourished. It is revealed, therefore, that the present food crisis is mainly due to low production.

* The Economic Times, dated 10-4-63.

On the basis of the 1963-64 figures, the gap between supply and demand could be bridged by increasing production by 25% on the 1963-64 production. But the gap will be still wide in 1965-66 with the increase in population to 49.2 crores, for which the food requirement comes to 104.1 million tonnes.

In our survey, good farmers have been found to produce yields per acre several times higher than those produced by ordinary farmers. This indicates the potentiality of possible development and, therefore, every effort needs to be made in that direction. If all farmers, big and small are enthused for higher production, there is every possibility that our country can easily be self sufficient in a short time.

CHAPTER VI

Summary and Recommendations

Summary

The production of food-grains in India has been stagnant during the last three years while its needs are increasing due to the increase in population by about 12 million souls every year. In spite of heavy imports of food-grains, of over 5 million tonnes last year costing about two hundred crores of rupees, there was a gap of 13 million tonnes to meet with the minimum nutrition target of our people in that year.

The index of our production was about 135 in 1963-64, while our productivity per acre had increased no more than 18% in the year 1960-61 and was much lower in the previous years. It is the productivity, i. e. yield per acre which shows real progress in agriculture. Our slow increase per acre can be traced to a variety of causes, but the principal one seems to be the distress prices received by the cultivators for their cereal crops. So far as Gujarat State is concerned no scientific attemps have been made to know the cost of production per acre for any of its cereal crops. Under the circumstances, the Bhal-Nalkantha Prayogic Sangh appointed one committee on 25-9-64 to get the necessary information, taking the practice of agriculture as a business. The methodology followed for this work is fully discussed in chapter III. The committee has collected information for the cost of production for the main cereal crops of Gujarat viz. (1) paddy, (2) wheat (3) bajari (4) jowar, and (5 maize, contacting 1072 experienced farmers in 156 villages of different regions where the concentration of these crops was greatest. The cost of cultivation per acre and production per Quintal in different regions for the crops under consideration have been given in Table 8 of Chapter 4. However, so far as the cost of productlon per Quintal is concerned in different regions, the information is reproduced below in Table 19.

Table 19 – Cost of production for the main cereal crops in different regions

Crop	District	Location	Cost of production per Quintal in Rs.
Paddy	1. Ahmedabad	Nalkantha	61·2
	2. Ahmedabad & Kaira	Daskoshi	59.5
	3. Panchmahals	Santrampur	59.9
	4. Valsad	Chikhli	55.3
Wheat (Dry)	1. Ahmedabad	Bhal	104.3
Wheat (Irrigation)	2. Mehsana	Vijapur	88.8
Bajri	1· Bhavnagar	Mahuva	84 8
	2· Mehsana	Vijapur	76.5
	3. Banaskantha	Vav	50.0
Jowar (Kharif)	1. Surat	Mangrol	48.6
(Rabi (Unirrigated)	2. Broach	Jambusar	73.6
Maize	Panchmahals	Santrampur	57.7

The ad-hoc prices that are being fixed by the Government are comparatively lower than the production costs.

Recommendations

We recommend to the Government the following steps for the prosperity of our agriculture and all those connected with it.

1. Remunerative and incentive prices, on the basis of cost of production on representative holdings of cultivators with average efficiency, taking the practice of agriculture as a business, should be first worked out and then those prices should be given to the producers.

2. The prices of food-grains should be higher in parity with non-food crops to induce farmers to pay special attention to the production of food-grains.

3. The prices of industrial products should be kept lower in parity with those of agricultural products till the farmer becomes prosperous enough to plough in his returns back into agriculture.

4. The efficiency of farm labourers needs to be increased by giving them fair wages and improved types of implements.

5. The prices to be fixed by the Government should be on a sliding scale so that the prices of food-grains will rise or fall with the rise and fall of consumer goods needed by the farmers.

6. The recommendations of the Krishnamachari Committee, with all the implications implied therein, need to be implemented without any further delay, as they do justice both to the farmers and farm labour.

7. A rate of interest of 3 to 4 per cent is calculated in official surveys on the basis of interest rates chargeable on safe long-term investment, such as Government Securities etc. The rates of interest have gone considerably higher now and therefore, it is recommended, that realities be taken into account in such surveys.

8. So far as Gujarat State is concerned, its food-grain requirements, in 1963-64 were 3.93 million tonnes, while its production was only 2.48 million tonnes. This deficit of 1.5 million tonnes can be corrected, if a multi-sided effort is made to raise production per acre not only in favourable areas but also in backward areas and among backward farmers. If this item is not given due importance, not only the population but even the industries will face difficulties. It is, therefore, recommended that the Gujarat Government overhaul its machinary to raise productivity to higher levels.

9. If it is intended to keep the prices of food-grains down in the interest of consumers, the following steps can be taken:

(a) Large-scale subsidies for soil improvement, irrigation, manures, pesticides, improved seeds, implements and other agricultural machinery and also for consumer goods such as cloth, fuel, kerosene, shoes, timber, cement, corrugated sheets etc. will have to be given to the farmers. The actual cost of production under those circumstances can then be taken into account in the interest of consumers.

(b) Steps to curtail the wide differences between the wholesale and retail prices of food-grains will also have to be taken.

(c) Steps to impart technological knowledge to the farmers and to create good management abilities amongst them are over due and shall also have to be taken.

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Shivabhai J. Patel
Navalbhai Shah
Ambubhai Shah

25-12-'64

Gujarat Krishi Pedash Bhav-Tapas Samiti

APPENDIX I

Salient features for each region and the factors which are influencing the economy of crop grown there are given below:

PADDY AREAS

1. Nalkantha Tract of Ahmedabad District:- The area is flat, soils are saline and ill-drained. There are a number of small tanks which serve the purpose of supply of water to the paddy crop. In recent years, some of these tanks are filled by the Fatewadi canal, assuring the water supply.

In this area 'Dans,' an animal pest which is about four times bigger than the house fly, is higly troublesome during the monsoon. It sucks the blood of animals as well as of human beings. Mosquitoes also breed in large numbers in this area during this season. Under the circumtances the farmers are required to mainain farily costly cattle byres, to protect fully their animals particularly at night. There also exists in this area a scarcity of drinking water, particularly in summer months duringwhich people dig pits in ponds and nalas to secure percolated water for drinking.

The animals are costly in this tract and are looked after very delegently both in feeding as well as for protection from the animal pest. Thus maintenance of bullocks becoms a costly affair. The diversified farming and big holding in this area, therefore, results in a higher degree of use of bullocks and hence the working days per pair of bullocks come to over two hundred days on an average, which is higher than in the case of many other zones.

The Bhal tract was once under the sea and therefore, the soils and sub-soils are generally salinel As a result, there are practically no trees in this area and hence the name Bhal i. e. as flat as the forehead.

The cattle dung is used for fuel as there is no other source for fuel. This fact coupled with the large holding make the availability of farm yard manure scarce and, therefore, its market value remains high. As a result the total cost of maintenance of bullocks is high. Yet the cost of a pair of bullocks per day comes lower due to more utilisation of bullocks.

2. Daskoshi area of Ahmedabad & Kaira District :

It comprises of parts of Matar and Mehmedabad talukas of Kaira District and Daskroi Taluka of Ahmedabad District. Practically ricc is the only crop of this tract. It is irrigated by th khari and Hathmati cannals and recently also by the Meshvo canal. During Monsoon the villages get surrounded by water. Inspite of these difficulties, living conditions of this tract are not so bad as in Nalkantha.

As there is no diversified farming in this area practically no other crop than paddy is grown hence the holdings are small and people do not spend so much for the feeding of bullocks as in the Nalkantha tract. The working days per pair of bullocks are near about one hundred in this tract and hence the expense per acre for bullock labour is high.

The working season is very limited in this area and as agricultural operations are to be finished within a short period, people are required to import labour and arrange for their housing and feeding as the local labour is scarce. The labour, therefore, is costly in this tract.

The seed rate in this area is very very low. Possibly it may be lowest in the world as a single seedling is transplanted, as against three to four in other tracts.

A number of cultivators allow "SAMA" (an inferior millet) to grow as weed in their fields, to overcome the shortage of organic manure. Later on they plough in this weed and allow it to rot for green manuring. Sub sequently fields are puddled making them suitable for transplanting operations. The transplating is done by a single seeding which tiller profusely. Gene rally a late maturing high yelding Jriasa Jivasal is grown in this traet.

The farmers are required to keep hand tools in large numbers to hasten up the agricutural operations. Most of these hand tools are required to be replaced every year. Due to this and also the holding being small, the implement charges are relatively higher than in other zones.

The market value of land is high as irrigation facilities are available and the chances for the success of crop are fair.

3. Santrampur Taluka of Panchmahals :

The terrain is highly undulated and, therefore, soil erosion is common. Paddy is taken in low-lying fields while the maize crop is taken in fields of the higher strata.

The farmers generally employ their own family labour except under special circumstances.

The bullocks of the tract are poor as the conditions of the peoples are very poor. These baekward ~~Bhil~~ cultvators are not in a position to feed them well, and hence the expenses for feeding bullocks are lower in this region than in the other regions.

The yield per acre is rather low as the crop is mostly rainfed. It is drilled and not transplanted. Practically there are no irrigation facilities. The rain fall is also not certain. The variety grown is also coarse.

4. Chikhli Taluka of Valsad :

The terrain though undulating is much superior to Santarampur from the point of soil and climatic ~~consicion~~ condition. The yield is, therefore, more than in the Santrampur area.

The condition of people is poor. They maintain poor quality bullocks and are not able to feed them properly. The maintenence charges for a pair of bullacks are therefore low.

Wheat Areas

1. Bhal Tract of Ahmedabad District :—

The terrain is flat with very low gradient resulting in the flooding of fields in the monsoon. The soils being very saline and stiky, the fields become unpassable during rains.

Another factor of great importance to be noted in respect of the cultivation practices of the tract is that, if timely operation is not done, due to one reason or another when the soil comes into Varap (workable condition) the lands become, dry and hard, making it impossible for the cultivator to carry out any operation and ultimately he has to lose the crop altogether.

The cultivatiors sow Kalyan cotton in the beginning of the monsoon, and if the field gets saturated due to subsequent rains, the cotton crop rots and it is grubbed up after which a dry wheat crop is taken in its place.

Conditions for the maintenance of bullocks as well as their protection from animal pest are more or less similar to those of Nalkantha.

Good pairs of bullock are maintainted by the farmers as the holding are large and sowing is to be completed in a very short period, inconformity within the seasonal condition.

The yield of wheat is rather low as the crop depends mainly on natural precepetation and manuring is not much feasible, as dung is used mostly for fuel.

2. Vijapur taluka of Mehsana District :- It is a thickly populated tract of fertile sandy loam i. e. alluvial soils. The holdings are small and the cultivation is intensive The crop is irrigated by lift and tubewells. Due to these reasons the labour required is more and is also costly.

The market value of land is very high as it is an inrigated tract.

Bajari Areas

1. Mahuva Taluka of Bhavnagar District : The soils are of medium fertility but cultivators manure them heavily, therefore, they get good yields.

The labour charges are also high as the cultivators resort to well irrigation either by lifts or pumps to a certain extent.

The market vaule of land is rather high due to the competitive cash crop of groundnut.

2. Vijapur Taluka of Mehsana District : The conditions are the samc as described under the wheat crop.

3, Vav Taluka of Banaskantha District :- This is a very higly backward tract where the culivation is poor and rainfall is inadequate. Manuring is generally not done in this tract and operations like weeding etc. are not attended to as found in tracts mentioned above. The quality of land being poor its valuation is low under these circumstances the cost of production is lower then in the other traets, but at the same time the production is also very poor. It may be noted here that as a result of low production and still lower cost of production, cost per Quintal is the lowest in this zone.

Jowar Areas

1. Mangrol Taluka of Surat District :— The soils are medium black and rather poor in fertility due to scarcity of organic manures though the rainfall is adequate.

2. Jambusar Taluka of Broach District :- The soils are black and retentive of moisture, and hence suitable for rabi cropping.

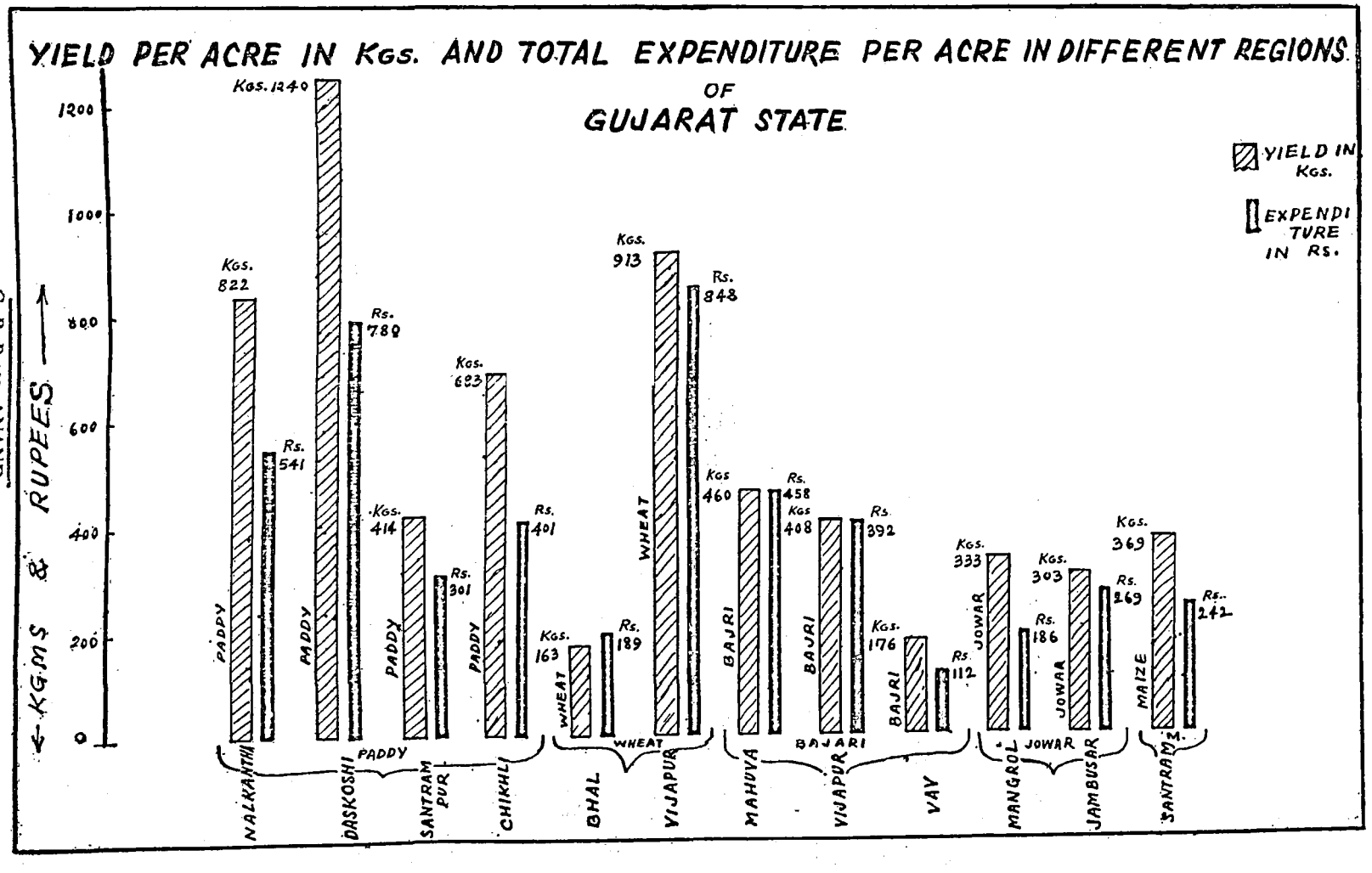
The human and bullock labour utilised is more as agricutural operations are to be carried out in the monsoon to preserve moisture and remove weeds till the rabi sowings. i. e. September —October.

Because of good manuring, fertile soils and efficiency of farming the yield is more here than in Mangrol Taluka.

Maize area

1. Santrampur Taluka of Panchmahals :— This is the main staple food crop of the tract and therefore, people spend more labour after it for weeding and harrowing.

CONSTITUENTS OF COST OF PRODUCTION in PERCENTAGES



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