

**STORAGE OF AGRICULTURAL PRODUCE  
A CASE STUDY IN MAHARASHTRA**

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CHAPTER IINTRODUCTIONStatement of the Problem

During the last two decades many developments have taken place in markets and marketing conditions for agricultural produce in our country due to the enforcement of legislative measures for administration of regulated markets, introduction of the new technology of farming (i.e., the use of high yielding varieties of crops, chemical fertilizers, irrigation water, pesticides and improved implements etc.), growth of credit institutions, agricultural extension and education programmes and policy of the Government regarding procurement etc. Consequently, there have been changes in cropping pattern, form of marketing and period of storage. The location and nature of agricultural marketing facilities including storage have been and will continue to be affected by these developments.

A number of studies were conducted during this period on various topics relating to these developments including efficiency of agricultural marketing both in respect of food crops and non-food crops. Most of the studies on agricultural marketing some of which are mentioned in bibliography, focussed on pricing efficiency in wholesale markets at the primary, secondary and terminal levels.<sup>1</sup> The authors of some of these

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<sup>1</sup> Jasdanwala and Holmes have dealt with efficiency at the village level also.



studies had examined the relationship between seasonal price movement and cost of storage with a view to finding out the returns to storage.

The overall efficiency in marketing not only depends on pricing efficiency but also on technological efficiency, which means performing the physical marketing functions with minimum of cost and economic waste. Crop storage is one of the most important requirements in the closely inter-related sequence of post-harvest production, processing, transport and marketing. However, there are relatively little published data on the type, cost and pattern of location of storage facilities for agricultural produce in India.

#### Review

At the beginning of the Second Five Year Plan (1956) Professor M. L. Dantwala in his note<sup>1</sup> on the development of warehousing emphasized the importance of regular studies in economics of marketing, storage and particularly in regard to their impact on prices. "Now that an ambitious programme of storage and warehousing is about to be launched the study of economics of storage should receive increased attention. There is often a tendency to take certain trends in the economic system for granted, so that no need is felt to gather empirical evidence in proof of these beliefs. One such belief is about the behaviour of seasonal price movements. Many economists and administrators take it as axiomatic that the prices would be

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1 M. L. Dantwala, "Development of Warehousing," Indian Journal of Agricultural Economics, Vol. XI, No. 4, October-December 1956, pp. 50-51.

low immediately after the harvests and high towards the end of the season - apart from the difference arising out of the cost of storage, credit, insurance etc. Seasonal movements of prices of some major agricultural crops during the last ten years in India do not however provide even corroborating evidence for such a belief. If so, holding over the sale of produce may not necessarily help the farmers to realize better prices."

With a view to throwing more light on the problems of marketing of agricultural commodities and to providing a guide to purposeful analytical research, a seminar was organized by the Indian Society of Agricultural Economics. After reviewing the recent developments of institutional arrangements in the field of agricultural marketing in terms of their impact on (a) marketing structure and (b) marketing functions, the rapporteurs observed that on account of several developments such as the introduction of warehousing facilities, the development of co-operative marketing, and the development of commercialization in agriculture, the whole market structure appeared to be more integrated now than hitherto. Since this has taken place, common beliefs that (1) harvest prices are invariably the lowest in the season and that (2) village price was lower than the mandi parity price need careful empirical testing.<sup>1</sup>

The implied logic behind one of the widely held beliefs concerning agriculture in less developed countries about large

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<sup>1</sup> S. M. Shah and V. S. Vyas, Marketing of Agricultural Commodities, Bombay: ISAE, Seminar Series V, 1965, p. 22.

seasonal price fluctuations is that the farmers, because of acute poverty and driven by rapacious moneylenders demanding repayment, are forced to sell their produce immediately after harvest. This heavy influx forces the immediate post-harvest prices to a very low level. Prices then recover gradually and rise as the next harvest approaches. The middleman profits greatly by this seasonal price rise at the expense of the farmers. Some earlier studies<sup>1</sup> cited by Professor John Mellor seem to contradict this stereotype behaviour and they indicate that taking the average of several years the seasonal price rise corresponds roughly with the cost of storage.

Some of the authors of the studies<sup>2</sup> on marketing

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1 John W. Mellor. The Economics of Agricultural Development. New York : Cornell University Press, 1966.

2 (i) Leon Hirsh. Marketing in Underdeveloped Economy: The North Indian Sugar Industry. New Jersey: Prentice Hall, 1961.

(ii) A. P. Kulkarni. The Behaviour of Prices of Groundnut Pods in Some Regulated Markets in Maharashtra, Unpublished Ph.D. Dissertation, Poona University, 1962.

(iii) Walter C. Neale, "Kuruli Market : A Report on the Economic Geography of Marketing in Northern Punjab," Economic Development and Cultural Change, Vol.13, 1964-65, June 1965.

(iv) Z.Y. Jasdanwala. Marketing Efficiency in Indian Agriculture. Bombay : Allied Publishers, 1966.

(v) Ralph W. Crommings (Jr.) Pricing Efficiency in the Indian Wheat Market. Delhi : Impex India, 1967.

(vi) Uma J. Lele. Efficiency of Jowar Marketing : A Study of Regulated Markets in Western India. Unpublished Ph.D. Thesis, Cornell University, 1965 (also published in Developing Rural India as "Traders of Sholapur", John Mellor etc. Ithaca, N.Y.: Cornell University, 1968.)

(vii) Also Uma J. Lele: (a) "Market Integration: Sorghum Prices in Western India," Journal of Farm Economics, Vol.49.1, Part 1, February 1967; (b) "Working of Grain Markets in Selected States of India 1955-56 to 1964-65," Occasional Paper No.12, Department of Agriculture, Cornell University, December 1968 and (c) Foodgrain Marketing in India: Private Performance and Public Policy. Ithaca, N.Y.: Cornell University, 1971.

conducted so far, who had also examined the relationship between seasonal price movements and costs of storage have concluded that generally the seasonal and regional price differences were not greater than the storage and transport costs respectively. In the words of Uma J. Lele the finding of the latest study by Holmes corroborates those of the previous studies. It emphasizes that the markets operate efficiently within the confines in which they perform. An improvement in the operational efficiency of the system calls for improvements in the market institutions and the physical infrastructure on which the existing system depends.<sup>1</sup>

A mention may be made here of the detailed studies made by both Cummings and Lele regarding the relationship between the seasonal price variation and costs of storage with a view to finding out the returns to professional storage. Cummings concludes that seasonal price fluctuations while exceeding storage costs in some months did not consistently exceed storage costs and price differences between markets were less than transportation costs on the average.<sup>2</sup> Lele observed that these price movements when considered in relation to costs of storing grain from harvest until the off-seasonal peak suggested that storage is not always profitable because the

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1 Uma J. Lele, Review of the Book "Market Structure, Conduct and Foodgrain Pricing Efficiency : A Case Study," by A. S. Holmes, IJAE, April-June 1972.

2 Ralph W. Cummings (Jr.). Op. cit., p. 107.

off-seasonal price-rise does not always cover storage costs. Heavy losses in some years are balanced by gains in others. Lele has pointed out that Malcom Purvis and Louis Herrman in their studies have come to the similar conclusions.<sup>1</sup>

The findings regarding profitability of storage mentioned in the foregoing paras remind us of the old example cited by Professor Dantwala long back. "An investigation of the possibilities of gain from wheat storage by Oklohoma farmers in the period of 1921-22 to 1938-39 did not suggest that farmers ordinarily should get into storage operations. When total storage and handling charges of one per cent per bushel per month were calculated as the cost to the producer, the storage was found to be unprofitable for one month June to July in 13 out of 18 years; for three months from June to September in 11 out of 18 years; for 9 months in 13 years and for a full year in 14 of the 18 years."<sup>2</sup>

In the studies conducted so far returns to storage (either professional or by farmers) have been calculated by comparing the price rise with estimated costs of storage (at times including marketing charges) and taking into account either main constituents of costs or more items. The nature of price data used for the purpose is also different. The limitations of data restrict the scope of the study of this

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1 Uma J. Lele. Developing Rural India, op.cit., p. 280.

2 M. L. Dantwala. Op.cit., p. 51.

type. However, the limited knowledge in this very important area motivates us to undertake the present study.

The reports on marketing of several commodities published by the Government of India, State Governments and also the survey reports by Indian Central Cotton and Oilseeds Committees, Indian Society of Agricultural Economics, Reserve Bank of India, National Council of Applied Economic Research etc. contain a descriptive account and valuable data on the different aspects of production and marketing applicable to a region or the country as a whole and in common to the commodities. As already pointed out earlier in this chapter the comprehensive studies on marketing by the scholars had concentrated on the pricing efficiency only. Some other studies in this field which are mentioned in the bibliography deal with different aspects such as marketing margins, charges, storage methods, losses, costs etc. separately or in conjunction with one another in different contexts and with specific objectives in view and with emphasis on a particular commodity and region.

Earlier reports and studies point out to the weak holding capacity of the cultivator, his indebtedness, immediate sales after harvest at a low price by him, predominant village sales through merchants, unfair marketing practices, defective methods of storage and inadequate transport facilities etc. Some of the latest studies suggest that this situation is changing gradually on account of many developments that have taken place in markets and marketing conditions. In spite of

handicaps the cultivators do withhold their produce for varying periods (short or long) with a view to getting a better price.<sup>1</sup> They avail of credit from co-operatives. They are price conscious and try to obtain market information. The storage facilities utilized by them though not most scientific are relatively effective and satisfactory.<sup>2</sup> The difficulties about transport have eased considerably. Their tendency now is to sell the produce in regulated market and not in the village. The different agencies in the primary market perform the very useful function of carrying over stocks over the season and balancing the supply with relatively uniform consumption demand over the season.<sup>3</sup> The storage facilities at the village and primary market levels have already increased considerably on account of a number of godowns and warehouses built by societies and warehousing corporations. But there were reports of under-utilization of these facilities and their use mainly by traders and millers.<sup>4</sup>

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1 Z. Y. Jasadanwala, Op. cit., p. 124.

2 Ibid.

3 L.S. Venkatramanan and M.A. Muralidharan, "Seasonal Price Movements, Market Arrivals, and Returns to Storage in Wheat Markets," IJAE, April-June 1972, Bombay.

4 (i) Reserve Bank of India, "Development of Co-operative Marketing: A Survey Report". Bombay: R.B.I., 1968, p. 224.

(ii) U.S. Agency for International Development. Study of the Market for Fertilizers. New Delhi: September 1963, p. 194.

(iii) V.A.N.I.C.M. Co-operative Information Bulletin, Vol.2, No.2, July 1967, Poona, pp. 14-15.

(iv) Government of India, Directorate of Marketing and Inspection, Agricultural Marketing Journal, October 1967, pp.17-21.

(v) E. B. Brahmkar. The Problems of Warehousing Agricultural Products with special reference to Warehousing Corporations in India, Unpublished Ph.D. Thesis, University of Poona, p. 292 and pp. 394-97.

The study of the storage as one of the most important physical marketing functions and its efficiency assumes a great importance in the context of ever changing needs and situations. The importance of this activity is now fully realized as our agriculture is rapidly moving from subsistence economy to a market economy due to the new technology of farming and provision of other facilities. But much needs to be done to prevent a great deal of waste of the increased production. The estimate of 6.6 per cent loss every year in storage for marketed foodgrains alone is a pointer of the magnitude.<sup>1</sup>

There have been no attempts so far simultaneously to examine on one hand the methods, periods and costs of storage and on the other to study the pattern of arrivals, prices and returns to storage so as to find out the inter- and intra-relationship, if any, between them and probe behind it so as know the reasons for the particular behaviour.

### Objectives

With this background in view, the present comprehensive study is a modest attempt in this regard with its main objectives mentioned below. It studies the pattern, type and cost of storage at the farm, village and primary (assembling) market levels. The study describes the pattern of location of storage facilities with a view to bringing to light the existing

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1 S. V. Pingle, "Foodgrain Storage : The Need and Achievement," Agricultural Situation in India, August 1969, p. 407.



inadequacies and inefficiencies. Further, the study examines the relationship between seasonal price movement and costs of storage in order to estimate the profitability of storage.

#### Nature and Method of Study

For the purpose of our study the data was collected through a survey and case studies. At the level of villages our analysis is based on the data obtained from cultivators of four villages in Pachora and Baramati tahsils. These villages were selected in such a way as to permit what we hope is the maximum achievement of our research objectives within the practical limits. A schedule (Appendix A) was framed for collecting data from cultivators and the field investigation was completed after pre-testing of the schedule.

At the primary market level our analysis is based on data obtained from the different agencies possessing the 9 godowns selected for our study. For the collection of data from them regarding location, type and size of godowns, lotwise deposits and withdrawals during the year and costs etc., the case study approach has been followed in respect of each unit.

The information regarding arrivals and prices and facilities available in the market yard proper was collected during visits to the Market Committees.

The seasonality in arrivals is determined by expressing the monthly arrivals as percentage of annual totals. The overall seasonal pattern is obtained by averaging percentage shares of arrivals for a given month over all the ten years.

The seasonal index of prices is prepared on the basis of the method followed by Simon Kuznets.<sup>1</sup> The procedure adopted is discussed in detail at the appropriate place in Chapter V, Section II.

Throughout our approach to the study has been not only to collect the data, analyse it and identify the problems but also to probe behind the emerging trends or behaviour and provide an explanation for them, wherever possible.

#### Period of Study

The period of reference for the survey of cultivators in the villages and the storage godowns was for the year ending 31st of August 1972. The seasonality of market arrivals and prices was examined for the period over 10 years from 1962-63 to 1971-72 in respect of cotton and groundnut at Pachora and gur at Baramati.

#### Sources of Data

The basic source material used in this study comprised of data regarding methods and costs of storage, monthly arrivals of cotton, groundnut and gur, weekly wholesale prices of these commodities, information in respect of location of storage godowns in market towns and villages in two tahsils, facilities on the market yards and communications. The data regarding physical features, climate, rainfall, cropping

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<sup>1</sup> Simon Kuznets. Seasonal Variations in Industry and Trade. New York: National Bureau of Economic Research, 1933, p. 27.

pattern and cultivation practices in two tahsils was also obtained for our study. While the data from cultivators was obtained via interview and in respect of storage godowns through case studies, other information was collected from official records of the Agricultural Produce Market Committees, Tahsil Offices, Panchayat Samitis, Deputy Engineers (Roads), Zilla Parishads, Taluka Co-operative Supervising Unions, Co-operative Marketing Societies, Deputy Engineers (Irrigation), Irrigation and Power Department, Maharashtra State Warehousing Corporation, Banks, Village Talathis and Gram Panchayats and from the District Census Hand Books and District Statistical Abstracts and Socio-Economic Reviews.

#### Plan of Study

The whole analysis in this study is divided into six chapters. The present introductory chapter giving objectives and nature and method of study is followed by Chapter II which gives (i) the details regarding selection of commodities and areas and in respect of field investigation procedure and (ii) the physical features, land utilization and cropping pattern in the districts of Jalgaon and Poona in general and in the tahsils of Pachora and Baramati and the four villages selected for our study in particular, and cultivation practices of the commodities cotton, groundnut and gur (sugar-cane) selected for our study. This description of area and commodities gives us an essential background information for the study. Chapter III consists of two sections. In Section I

is analysed the pattern, type and cost of storage at the farm, village and market levels in Pachora tahsil and in Section II that of the Baramati tahsil. Chapter IV describes the pattern of location of storage godowns and brings out the inadequacies and inefficiencies. In three different sections of Chapter V is examined the seasonality of arrivals and prices and returns to storage are worked out on the basis of costs discussed in Chapter III. The last Chapter VI gives summary and conclusions. A select bibliography is appended at the end.

CHAPTER IISELECTION AND DESCRIPTION OF THE AREA AND COMMODITIESChoice of Commodities, Markets, Villages,  
Godowns and Cultivators

The important food crops grown in Maharashtra are jowar, bajra, wheat and rice. All these commodities except bajra are procured by the State Government as a levy<sup>1</sup> directly from cultivators and through millers and are stored through its agencies for distribution. The disposal of these commodities by the producers consisted of many items such as retail sales, consumption, wages, service charges (Baluta), rent, seeds and levy etc! about which usually they were hesitant to give a precise account.

For the purpose of our study we selected the important non-food crops viz. cotton,<sup>2</sup> groundnut and gur (from sugarcane) produced and marketed by the cultivators in Maharashtra. As compared to foodgrains very small quantities of these commodities are consumed and used for other purposes by the producers.

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1 Foodgrain levies, as applied in India, are State regulations requiring producers or middlemen to sell a portion of their production or marketings to the Government at fixed prices. The proportion may range upto 100 per cent (monopoly procurement). Presently the levy is graded; the percent levied increasing with production or marketings. Rice (Paddy) and Jowar levies are in effect in Maharashtra from 1964 and wheat levy since 1973.

2 At the end of our survey period i.e. in August 1972 Government has started monopoly procurement of cotton also.

We hoped to get more reliable information about the production and disposal of these commodities from them. It also provided an opportunity to study the various methods of storage on account of their different nature. Most of the produce is sold by them as these cash crops fetch a good income. These commodities enter the wholesale trade channel in large quantities and are stored by the cultivators and traders, co-operative societies, processing concerns etc. for varying periods. Hence we have selected these commodities for our study. Further, we have purposively selected for our survey the tahsils of Pachora in Jalgaon district (formerly known as East Khandesh) for cotton and groundnut and Baramati in Poona district for gur in view of the concentration of production and marketing of these commodities there. Both these tahsils have primary regulated markets.

We selected two villages each from these tahsils for our survey of cultivators. The selected villages are distinctively different from one another from the locational point of view. One of the two villages is a roadside and big village with a facility of a godown and another one is a small village in interior without having the facility of a godown. The selection of villages was purposive and done in consultation with the authorities of regulated markets and other agencies performing different services in marketing of these commodities. The villages in Pachora tahsil are such that there is concentration of production of both cotton and groundnut. The

information compiled by the tahsil office in the form T-20 regarding the acreage under cotton and groundnut in all villages of the tahsil during the year 1971-72 also helped us to make a proper selection of the villages. In Baramati tahsil only in one-third number of villages sugarcane is grown as the facility of canal water is available to them. In this area there are two co-operative sugar factories one at Malegaon and another at Someshwarnagar of which many cultivators in this area are members. Therefore, sugarcane is not converted into gur in all the villages and by all the cultivators growing it. Hence, two villages where gur is produced in large quantities by a number of cultivators, were selected in the same manner. The information compiled in the form T-20 regarding acreage of sugarcane in all the villages of tahsil and also the information available in the office of Panchayat Samiti regarding the tax collected from the villages during the year 1971-72 on account of production of gur helped us to arrive at the proper choice of the villages for our survey.

In Pachora tahsil the villages of Vadgaon-Ambe and Nipane were selected for our study. The lists of cultivating households were prepared from the village records (Form Nos. 8A; 7, 7A and 12) showing the acreage under different crops sown by them during the year 1971-72. These lists were further classified into households who have grown only cotton, only groundnut and both cotton and groundnut. In village Vadgaon-Ambe there were 64 cultivators who have grown both cotton and

groundnut. The names of these cultivators were arranged in an ascending order of their cropped area under these crops. Out of the list of 40 cultivators whose area under these crops ranged from 0.75 hectare to 5.0 hectares, every alternate cultivator was selected for our study. All the 24 cultivators who have grown cotton and groundnut in more than 5.0 hectares were selected for the study. Thus the total number of cultivators selected from the village Vadgaon-Ambe was 44. In Nipane village there were 50 cultivators who have grown cotton and groundnut from 0.75 hectare to 8.82 hectares. From this village out of 20 cultivators whose holding under these crops ranged from 0.75 hectare to 2.0 hectares every alternate cultivator was chosen for our survey. All the 30 cultivators who have grown cotton and groundnut in more than 2.0 hectares were selected for the study. In all 40 cultivators were selected from Nipane village.

From Baramati tahsil Hol and Korhale Khurd villages were selected for the study. A list of cultivators who have converted sugarcane into gur during the year 1971-72 was prepared for each village on the basis of the information available in village records (Form Nos. 8A; 7, 7A and 12) regarding acreage under sugarcane during the previous year and the tax register of the Village Panchayat showing the amount of tax paid by them. In Hol village there were 38 cultivators growing sugarcane and the sugarcane converted into gur by them during the year ranged from 0.20 hectare to 13.90 hectares.



In Korhale Khurd village there were 28 cultivators who had grown sugarcane and the sugarcane crushed by them for preparing gur ranged from 0.20 hectare to 1 hectare. All the 38 and 28 cultivators from Hol and Korhale Khurd villages respectively were selected for our study.

Data for this study were obtained via personal interviews with cultivators. Questions were framed to elicit information relying heavily on the experiences of others with regard to wording and format. As far as possible the interview was conducted in the house of cultivator in private and typically lasted for 3 hours. The general purpose of the study was made known and this helped to make it possible to maintain privacy in the interview situation. As the stay in villages lasted for several days and there were occasions for informal meetings, it was not as difficult to establish rapport. As the information regarding size of land holding, net cropped area, irrigated area and the area under different crops during the year 1971-72 in respect of the respondents selected for survey was obtained from the village records and kept ready before interview, it has been possible to cross-check the data on these points collected from the cultivators via interview.

For the purpose of knowing the pattern, type and cost of storage at the primary market level we were required to undertake a survey of storage godowns at both the places viz. Pachora and Baramati. The byelaws of Agricultural Produce Market Committees provide for maintaining a register of storage

godowns in the area of markets and collecting registration fee from the owners of these godowns every year. However, it was seen that this rule was not implemented strictly by the Committees at both these places. While at Baramati a small list of godowns was available, at Pachora no such list was maintained at all. However, from the lists of 'A' class traders available with the market committees at both the places, efforts were made to obtain the information regarding the number of godowns and their location from the traders themselves. During our preliminary survey of godowns, it was revealed that most of the traders purchased commodities outright and there were very few who had undertaken to store the produce and particularly cotton, groundnut and gur on behalf of the cultivators and made them advances. Similar was the case with the co-operative marketing societies who either owned or hired a number of godowns but made use of hardly one or two out of them for storing the produce of the cultivators (members and non-members) who postponed their sales and preferred to wait for some time with a view to getting better price and availed the credit facility offered by the societies.

Thus we studied nine godowns belonging to the different agencies viz. Maharashtra State Warehousing Corporation (5), Co-operative Marketing Societies (2), and Private Traders (2).

At both these places there were godowns of the Government which were mainly used for the purpose of transit storage of the produce procured from the cultivators under

the monopoly procurement scheme and for the storage of commodities for distribution through Fair Price Shops. These godowns were not included in our study.

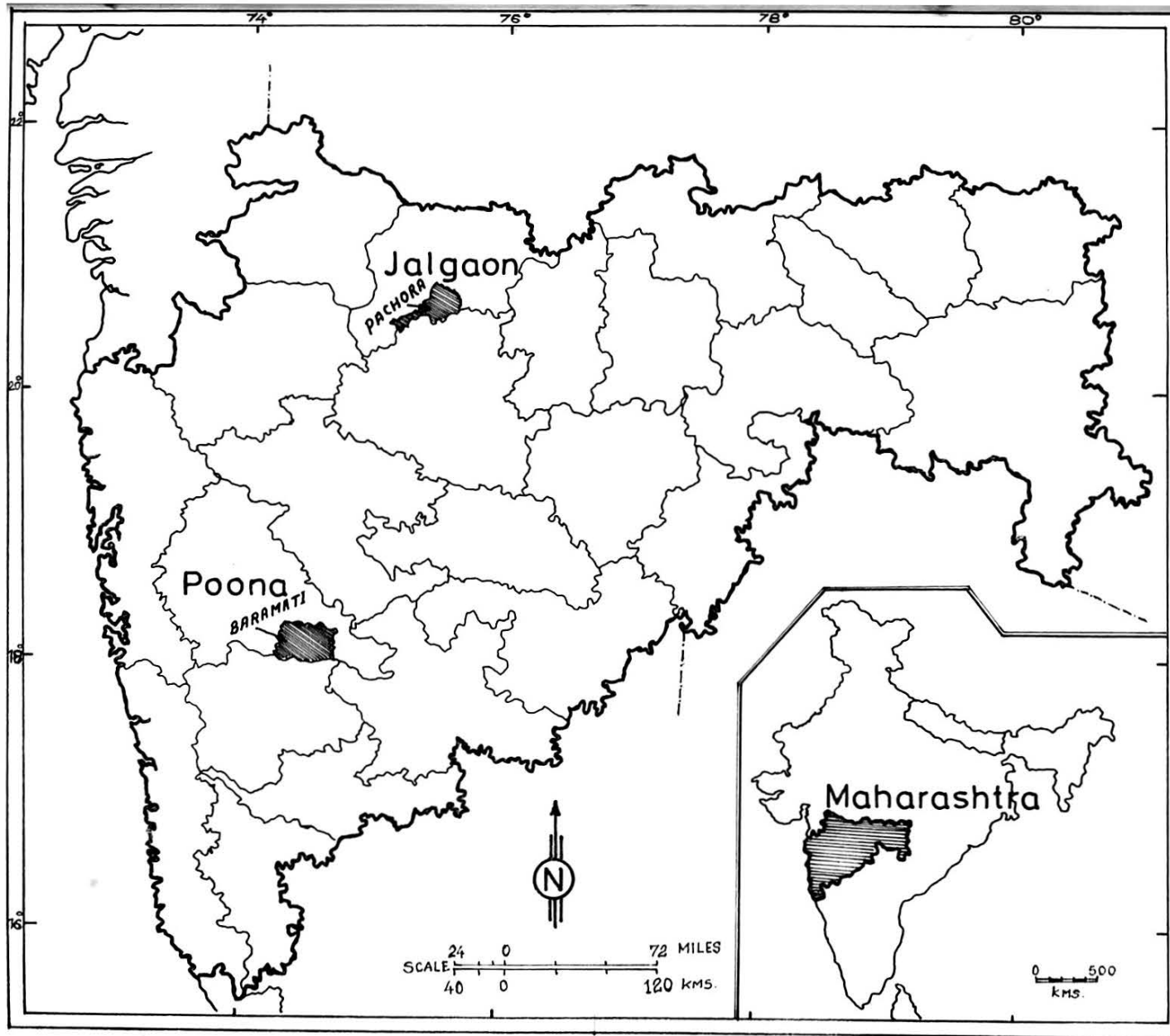
Area and Outturn of Crops in Districts and Tahsils and Arrivals in Regulated Markets

We next present the statistical information in the Tables 2.1 to 2.24 appended to this chapter on the basis of which it has been possible for us to select properly the areas (districts and tahsils in Maharashtra<sup>1</sup> Map 2.1, p.21) where there is a concentration of production and marketing of the commodities cotton, groundnut and gur (sugarcane) for the purpose of our study: (1) The Tables 2.1 to 2.10 show the area and outturn of these crops districtwise for the years 1962-63 to 1971-72. (2) The Tables 2.11 to 2.24 give area under cotton and groundnut tahsilwise in Jalgaon district and area under sugarcane tahsilwise in Ahmednagar, Poona, Satara, Sangli, Sholapur and Kolhapur districts for the period of five years from 1966-67 to 1970-71 and arrivals of these commodities in all regulated markets (districtwise and marketwise) for a period of five years from 1967-68 to 1971-72.

It will be seen from the data presented in these Tables that the Jalgaon district has large area under cotton and

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1 Please see Appendix 'B' "Note on Maharashtra State" which deals with the general physical setting, climate, rainfall and crops in the State of Maharashtra. Then with a view to knowing the importance of the commodities cotton, groundnut and gur (product of sugarcane) we have studied the land utilization, area and outturn of different crops in the State as compared to India, and cropping pattern and irrigation facilities in the State.



MAP NO 2-1: SITUATION OF PACHORA AND BARAMATI TAHSILS IN MAHARASHTRA STATE

compared to most other cotton growing districts has large area under groundnut. Within the district itself Pachora and Bhadgaon tahsils have the largest area under cotton and fairly large area under groundnut. The area of Bhadgaon tahsil is included in the area of operation of the primary regulated market at Pachora. It will be seen that both the commodities cotton and groundnut arrive in Pachora market in equally large quantities compared to any other primary market in the district.

The districts of Ahmednagar, Poona, Satara, Sangli, Sholapur and Kolhapur are the major areas producing sugarcane. In all these districts except Poona, the production of sugarcane is spread over in many tahsils. In Poona district the production (75 per cent of the total area) is concentrated in two tahsils of Baramati (45 per cent) and Indapur (30 per cent), the area under sugarcane in other tahsils being very small below 8 per cent in any single tahsil. Most of the area is irrigated by the Nira Left Bank Canal water. A number of co-operative sugar factories have been functioning in all these districts and the sugarcane produced is sold to them by the cultivator members. This is the reason why the arrivals of gur in many of the primary markets in these districts are small even though the area under sugarcane is fairly large. Despite the coming up of the sugar factories, there have remained some areas as traditional strongholds producing gur in large quantities. Baramati is one of them where there is a concentration of both the production and marketing. The gur produced in this and adjoining area is sold in two markets

vis. at Baramati and Nira. The arrivals of gur at Kolhapur, Poona, Ahmednagar and other district places are heavy as these markets happen to be secondary or terminal markets, where gur sold by cultivators in primary markets is brought by the traders for resale.

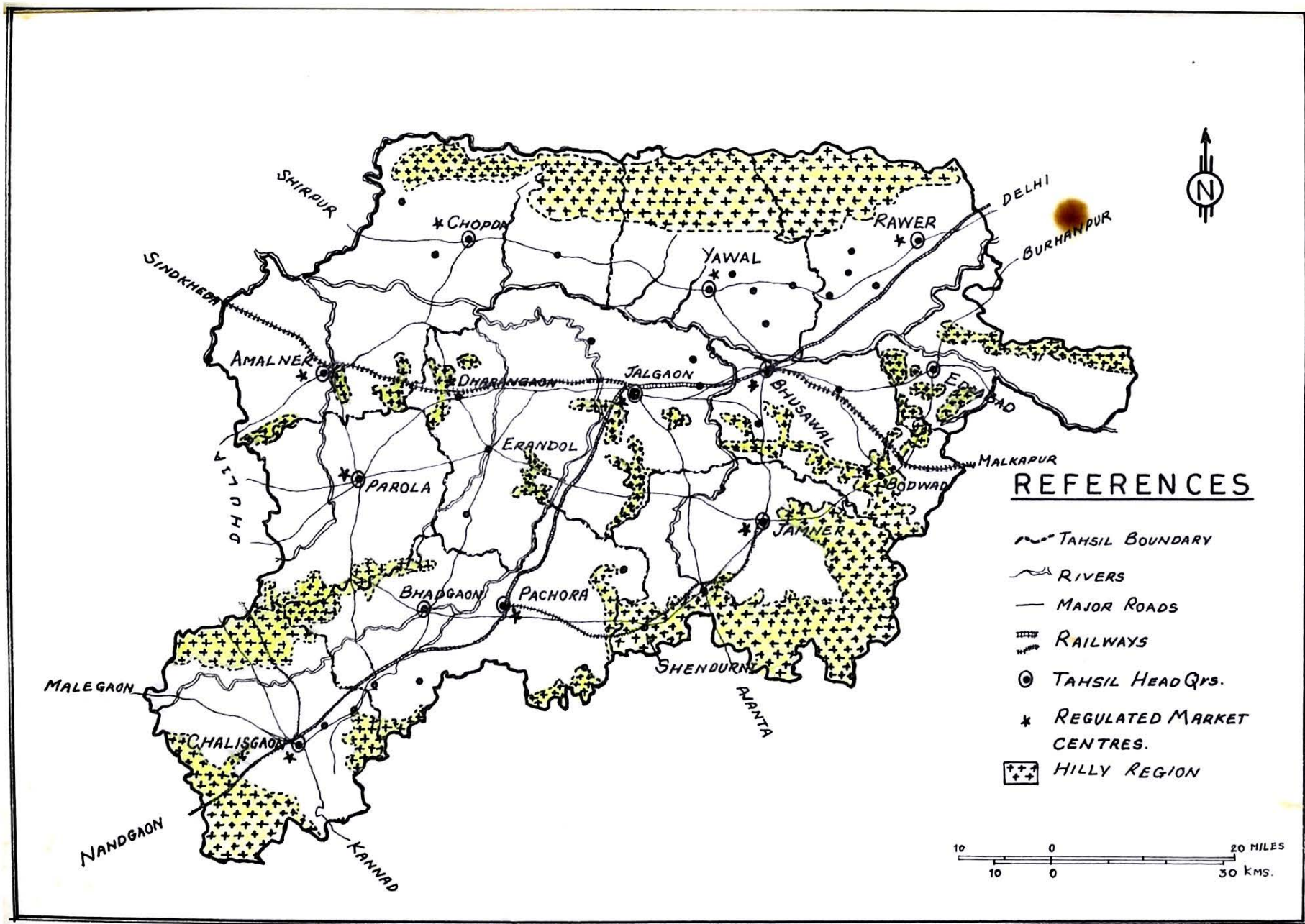
As our intention has been to study the methods and costs of storage at the primary market level, our choice necessarily fell on Pachora market for cotton and groundnut and Baramati for gur (Map 2.1).

Physical Features, Climate, Rainfall  
and Crops in Areas Selected (Districts,  
Tahsils and Villages) for Study

We now proceed to examine these features in brief in respect of the area (Districts of Jalgaon and Poona and tahsils of Pachora and Baramati) which we have selected for our study.

Jalgaon District

Jalgaon district in the Upper Tapi river basin is a distinct topographical unit (Map 2.2). The physiography of the district is made up of high hill ranges in the north, alluvial plains of Tapi river and its tributaries in the centre and low hill ranges to the south of Tapi. Throughout the central part river Tapi flows in east-westerly direction forming a strip of alluvial lands on both the sides. Girna is the most important tributary which flows from south-west but at the confluence of the Tapi flowing east-west for a stretch of 32 kms. The climate of the district is generally



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dry except in monsoon season. As the district is situated far away from the sea coast, there occur large variations in the temperatures of day and night. December and May are the coldest and hottest months respectively. The mean-maximum, mean-minimum and mean temperatures recorded in 1971 at Jalgaon were 34.6, 19.5 and 27.1 centigrade respectively. The annual rainfall during the year 1971 was 477.4 mms. as against the normal rainfall of 787 mms. About 87 per cent of the rainfall is received during monsoon period (middle of June to end of September). The rainfall is the highest in July. It is not uniform in all tahsils. The central parts of Jalgaon, Bhusaval, Pachora and Amalner receive more rain than other tahsils. The district can be divided in three types of soil viz. (1) Black alluvial soil, (2) Medium black (reddish brown) soil of plains and (3) coarse (sandy) soil of hilly tracts. Most of the area of the district comes under rainfed kharif crops viz. cotton, jowar, bajra, groundnut, black gram and other pulses. The important crops in rabi season are wheat and gram. Besides, in the area where irrigation facility is available, banana and sugarcane plantations are grown.

#### Pachora Tahsil

Pachora is one of the 13 tahsils in southern part of the district. Pachora town the headquarters of tahsil is 48 kms. to the south of Jalgaon. It is connected by both rail and road. There are 121 villages in the tahsil. The total population of the tahsil is 149,422 as per 1971 Census.



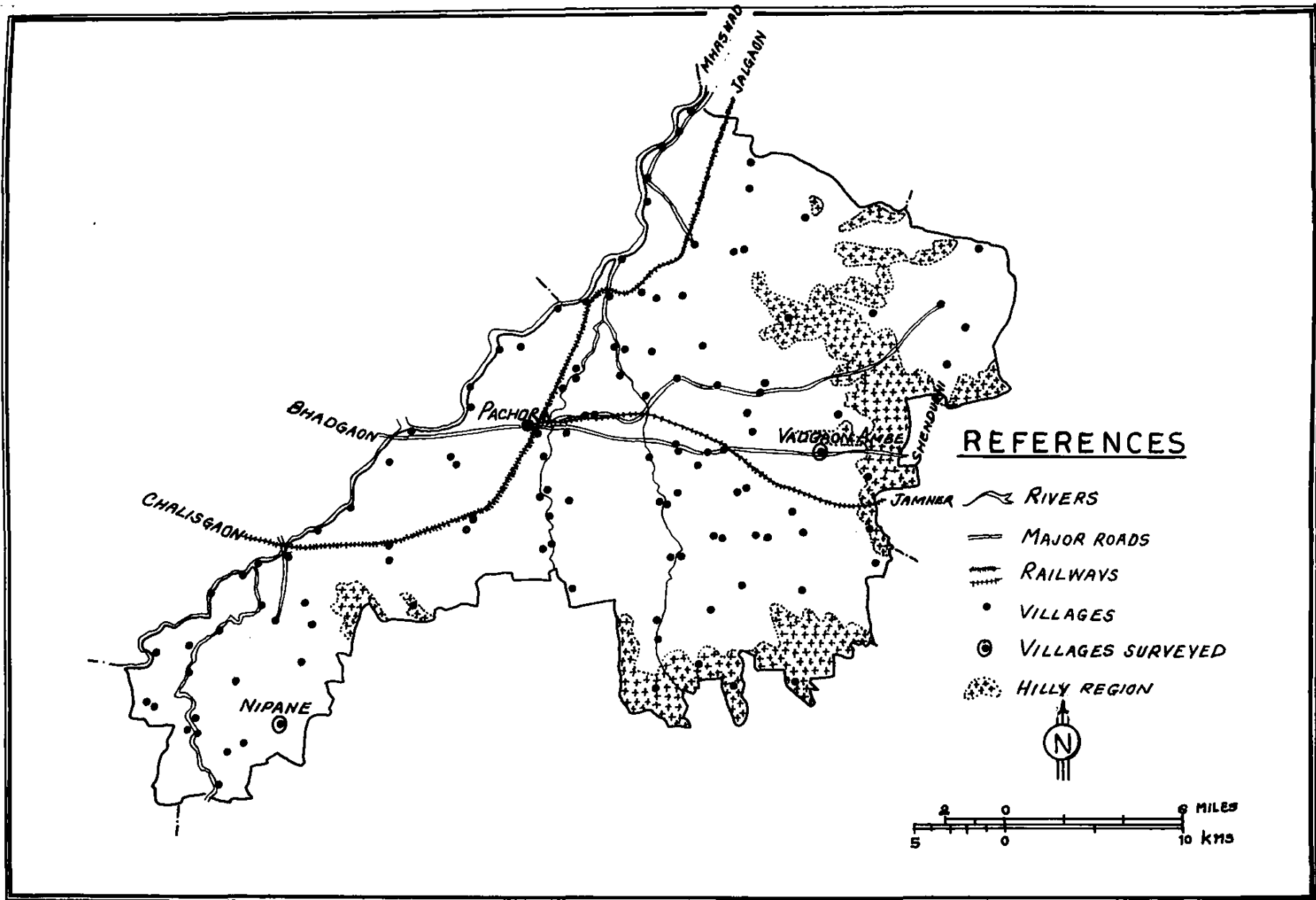
Pachora is at the altitude of 256.0 metres. The average annual rainfall is 793.3 mms. and temperature ranges from Maximum  $47.1^{\circ}$  to minimum  $13.3^{\circ}$  centigrade. The soil is medium black. The important crops grown are jowar, bajra, black gram, cotton and groundnut.

### Villages

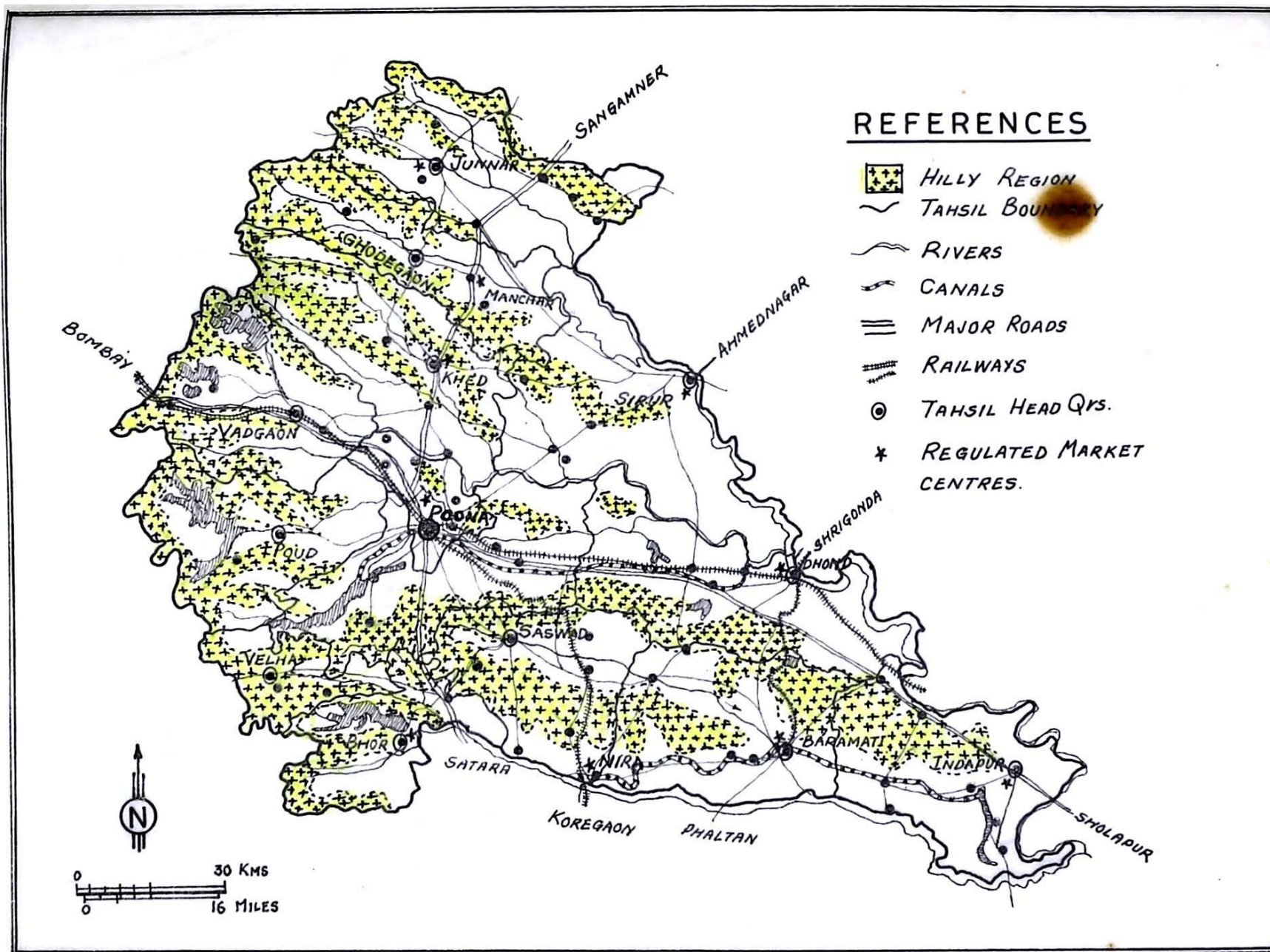
Village Vadgaon-Ambe is 15 kms. to the east of Pachora connected by a pakka road (Map 2.3). Its population is 2354 (1971 Census). The another village selected for our study is Nipane, 29 kms. to the south-west of Pachora, with a population of 771. While Vadgaon-Ambe is on the roadside and a big village having a godown of co-operative society there, the village Nipane is a small village in the interior without godown facility.

### Poona District

Poona district lies in the basin of rivers Nira and Bhima (Map 2.4). The district is divided in three natural regions viz. (1) Western hilly tract, (2) Mawal and (3) Deccan plateau. The western side is covered by Sahyadri mountain range. This tract with plenty of ups and downs has hardly any level ground. To the east of this tract are small hills with flat valleys cut into them by flowing rivers. This part is more level than the western hilly tract. This middle portion is called Mawal. A large part of the land to the east of Poona is flat land and is famous as the Deccan Plateau. There is a heavy rainfall in Sahyadri hills. The plateau



MAP NO.2.3: PACHORA TAHSIL: SITUATION OF VILLAGES SURVEYED



MAP NO.2-4: POONA DISTRICT: PHYSICAL FEATURES.

slopes towards the east. Most of the rivers therefore flow eastwards. Rivers Kukdi, Ghod and Bhima from the northern part of the district flow towards south-east and Indrayani, Mula, Mutha and Nira from the southern part flow due east. The district receives rain from June to October. The eastern part gets a few erratic showers from north-east monsoon. The rainfall is the highest during the month of July. The western region gets heavy rainfall upto 4500 mms. The central part receives moderate rain upto 750 mms. The eastern part gets uncertain and scanty rainfall upto 500 mms. The climate on the hills in the western part is cold. The central part of the district around Poona is neither too high above the sea level nor very close to it. Hence the climate there is very good neither too hot nor too cold. In the eastern part i.e. on the plains it is hot and dry. The mean-maximum, mean-minimum and mean temperatures recorded during the year 1971 at Poona were 31.4, 16.9 and 24.2° centigrade respectively. The annual rainfall during this year at Poona was 484.2 mms. as against the normal rainfall of 661 mms. The soil of the district is inferior in the western region than in the eastern region. It belongs broadly to three classes viz. (1) Black, (2) Red and (3) Brown. In some places one class of soil blends with another in varying proportion and in turn it is modified by sand, gravel, lime salts and other ingredients. Rice, jowar, bajra, potato, cotton and groundnut are the main kharif rainfed crops. In the rabi season wheat, jowar and

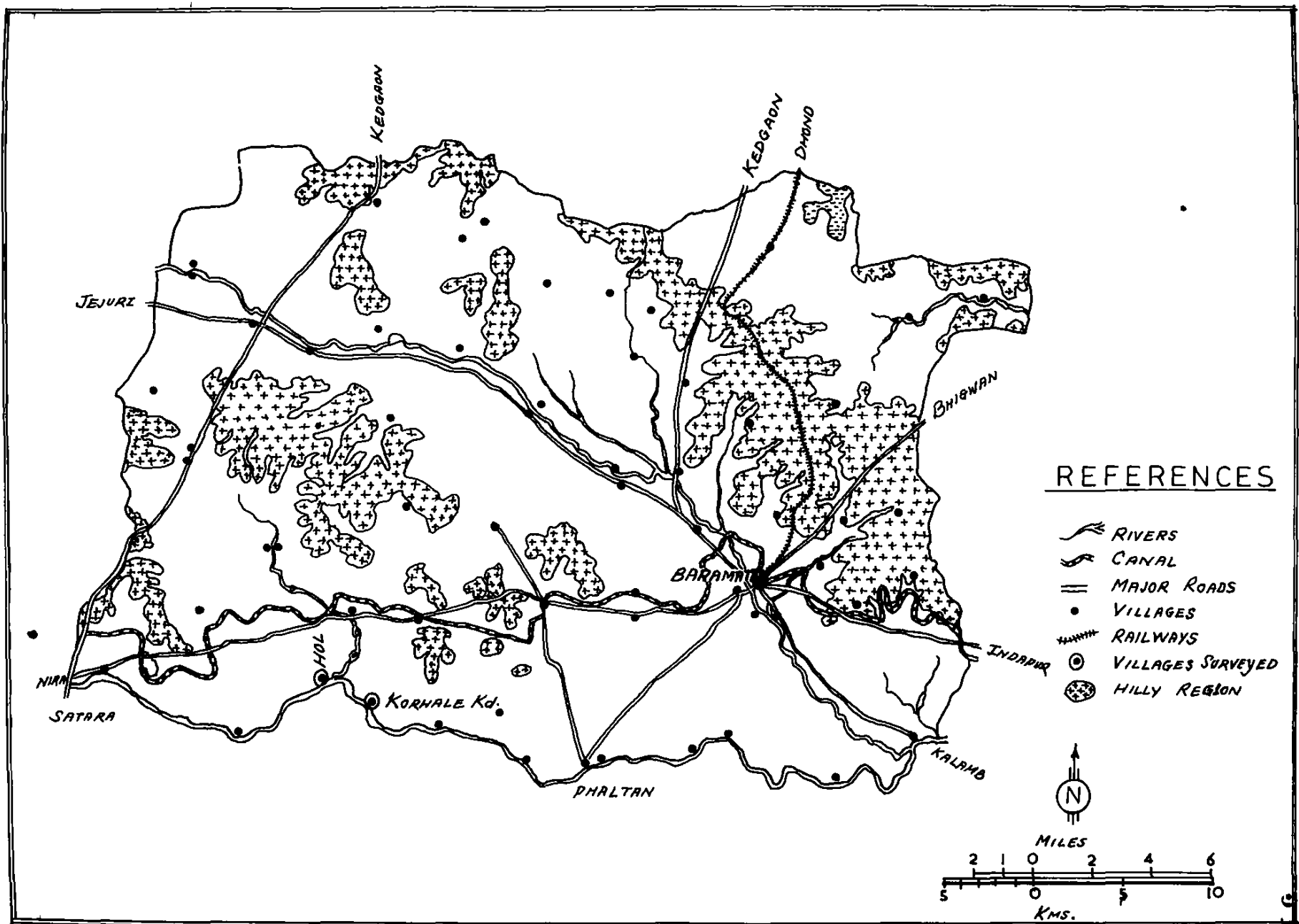
gram are grown. Sugarcane is the main cash crop of the district grown on irrigated water from canals and wells.

### Baramati Tahsil

Baramati is one of the 14 tahsils in the eastern part of the district. Baramati town the headquarters of the tahsil is 116 kms. to the south-west of Poona. It is connected by both rail and road to Poona. There are 63 villages in the tahsil. The total population of the tahsil as per 1971 Census is 227,707. Baramati is at the altitude of 551.0 metres. The average annual rainfall there is 465.4 mm. The maximum temperature stands at  $32.4^{\circ}$  and minimum  $19.1^{\circ}$  centigrade. The black rich soil in this tahsil with excellent irrigation facilities is ideally suited for growing sugarcane. The main crops grown in this tahsil are jowar, bajra, wheat, gram, cotton, safflower, groundnut, sugarcane and grapes.

### Villages

Hol village is to the south-west of Baramati at a distance of 34 kms. and is connected by a pakka (tar) road (Map 2.5). It has a population of 5493 as per 1971 Census. The other village selected for our study is Korhale Khurd 25 kms. to the south-west of Baramati. It has a population of 1698. While Hol is a big village on the roadside with 2 godowns of co-operative societies there, the other village Korhale Khurd is a small village in the interior without



MAP NO,2.5: BARAMATI TAHSIL: SITUATION OF VILLAGES SURVEYED

godown facility.<sup>1</sup>

Land Utilization, Irrigation Facilities  
and Cropping Pattern in Areas (Tahsils  
and Villages) for Study

With a view to reviewing the pattern of land utilization, irrigation facilities and cropping pattern in the areas selected for our study, we present in the Tables 2.25 to 2.35 appended to this chapter the following data: Land utilization, area irrigated by sources, area irrigated cropwise and cropping patterns in Jalgaon district and Pachora tahsil and Poona district and Baramati tahsil for a period of 3 years 1969-70, 1970-71 and 1971-72, and land utilisation and area under different crops during the year 1971-72 in the 4 villages of Vadgaon-Ambe, Nipane (Jalgaon District) and Hol, Korhale Khurd (Poona District).

Pachora Tahsil

The net area sown in Pachora Tahsil (on an average for 3 years 1969-70, 1970-71 and 1971-72) was 76.89 per cent of the total geographical area. This was slightly higher than the district average of 68.24 per cent. The net irrigated area in the tahsil amounted to only 5.4 per cent of the total

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<sup>1</sup> The information regarding physical features, climate, rainfall and crops etc. is collected from the following sources: (1) District Statistical Abstracts and Socio-Economic Reviews of Jalgaon and Poona District 1971-72, published in 1973; (2) District Census Handbooks of Jalgaon and Poona Districts (1971 Census), published in 1973 and 1974 respectively; (3) "Handbook of Basic Statistics, Maharashtra State 1972", Bureau of Economics and Statistics, Government of Maharashtra, Bombay, September 1973.

area under cultivation. The main source of irrigation is wells and 96.68 per cent of the area irrigated was under this source and 3.32 per cent under canals. Out of the total irrigated area the area under wheat, banana, rice and chillies was 30.24, 24.71, 12.90 and 5.79 respectively on an average for the three years. The principal crops of this tahsil are jowar, bajra, black-gram, cotton, groundnut, wheat and banana. Cotton and groundnut, the important cash crops of the tahsil, are entirely rainfed crops. On an average thrity-three per cent of the gross cropped area in the tahsil was under non-food crops group—mostly cotton and groundnut. The pattern of crops grown in the two villages of Vadgaon-Ambe and Nipane of Pachora Tahsil is similar one.

#### Baramati Tahsil

The net area sown (69 per cent) in Baramati Tahsil on an average for the last three years (1969-70, 1970-71 and 1971-72) was slightly higher than in Poona District (65 per cent). The net irrigated area in Baramati tahsil was 36 per cent on an average for the last three years of the total area under cultivation. The main source of irrigation is canal water—50.63 per cent of the area irrigated was under canals, 43.00 per cent under wells, 1.96 per cent under tanks and 5.05 per cent under other sources of irrigation. Out of the total irrigated area the area under jowar, sugarcane and wheat was 33.01, 17.84, and 9.41 per cent respectively on an average for the last three years. The major cash crop of the tahsil viz.



sugarcane was entirely grown on irrigation water. The main crops of the tahsil are jowar, sugarcane, wheat, bajra and cotton. Ninety per cent of the gross cropped area of the tahsil was under food crops. Sugarcane was the major cash crop from this group. The pattern of crops grown in the two villages of Hol and Korhale Khurd was similar one.

#### Methods of Cultivation of Commodities Selected for Study

The methods of cultivation<sup>1</sup> of cotton, groundnut and sugarcane in the areas of our study are discussed briefly in the following paragraphs:

Cotton : Cotton is essentially a tropical crop. It grows well in hot climate and rich soil. It requires moderate rainfall. The area of Jalgaon District (Khandesh) comes under the cotton zone known as Central Arboreum Region. The deep rich soil with good water-holding capacity in this district is considered suitable for cultivation of cotton. In this tract cotton is grown mostly under rainfed conditions. The variety

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1 The material is mainly collected from the following sources:

i) N. S. Randhava. Agriculture and Animal Husbandry in India. New Delhi: ICAR, 1958.

ii) Central Cotton Committee. Report on the Marketing of Cotton in India. Bombay : The Committee, 1961.

iii) Government of India. Report on the Marketing of Groundnut in India. New Delhi: Directorate of Marketing and Inspection, Ministry of Food and Agriculture, 1953.

iv) Government of Bombay, Sugarcane Cultivation in Bombay State, 1957.

of cotton grown in this area is "Virnar" and its improved strains. It is sown in the kharif season during the months of June-July and harvested between September and January. Harvesting of cotton i.e. picking of cotton from bolls on the plants is carried out exclusively by human labour. Usually the entire operations are completed in 2 to 5 pickings at the interval of 16 to 25 days. The bolls on all plants in a farm do not mature at the same time and even the bolls on the same plant open at different times. Also cotton deteriorates if left open on the plant and, if the picking is delayed, the fibre loses lustre and gloss, and acquires a dull shade, this reduces its price in the market. Hence cotton is picked a number of times to prevent quality deterioration and consequent low price.

Groundnut : This crop can be grown in a variety of soil and from tropical to sub-tropical climatic conditions. For this crop the soil need not be rich. Water too is required in small quantities. This crop gets ready in a period of about four months. It is mainly a kharif crop grown in rainfed area. The variety of groundnut in Jalgaon District (Khandesh) is known as Peanuts. The crop is sown in the months of June-July and harvested between September and October.

Sugarcane : In most of the area under this perennial crop in Poona District, it is grown on canal water. The rich black soil in Baramati Tahsil is quite suitable for cultivation of this crop. The variety of sugarcane grown in this area is

called "CO 419". It is a heavy yielding thickish variety, fairly good in tillering and sucrose content. It grows in all kinds of soil and responds admirably to intensive cultivation and manuring. This variety is used for gur making on a large scale in view of its high yield. Gur of a fair quality, light brown in colour, hard, crystalline and sweet to taste can be made from this variety of sugarcane. Taking advantage of the phenomenon of flowering in sugarcane and taking into account the prevailing climatic conditions as also the season of stem borer infestation, three well marked planting seasons have been established in this area. The crop planted during the three different seasons i.e. June-July, October-November, and January-February are known as Adsali, Pre-seasonal and Suru respectively. An Adsali crop remains in the field for 18 months, Pre-seasonal one for 15 months and a Suru one for 12 months. The crop which is harvested after a period of one year is also called "Eksali". In order to get the best quality of gur, cane should be harvested when it is fully ripe or mature. The period of attaining ripeness or maturity varies with the rainfall, climate of the region and also variety of sugarcane. The period required is 10 to 12 months for cane planted in January and 16 to 18 months for "Adsali". The harvesting season of sugarcane in this area starts in October-November and lasts till the end of March.

#### Summary and Conclusions

(1) Firstly, we gave the details regarding the selection of commodities, markets, villages, godowns and cultivators.

We also described in detail the procedure adopted for field investigation.

(2) Secondly, we presented the data regarding area and outturn of the crops cotton, groundnut and sugarcane in different districts and tahsils, and the arrivals of the commodities cotton, groundnut and gur in different regulated markets, so as to enable us to select the areas where there is a concentration of production and marketing for the purpose of our study.

(3) Next, we described the physical features, climate, rainfall and crops in the areas (i) Poona District and Baramati Tahsil, (ii) Jalgaon District and Pachora Tahsil selected for our study.

(4) Further, we reviewed the land utilization, irrigation facilities and cropping pattern in respect of the areas (districts, tahsils and villages) selected for study on the basis of the data.

(5) Lastly, we discussed the methods of cultivation of the crops cotton, groundnut and sugarcane, which provide an essential background for our analysis in the following chapters.

The detailed discussion in this chapter based on the data regarding physical features, climate, rainfall, land utilization, area and outturn of crops, irrigation facilities, cropping patterns, arrivals of commodities in regulated

markets etc. justifies our selection of the commodities cotton, groundnut and gur and areas Pachora and Baramati Tahsils for the purpose of our study.

In the next chapter we proceed to examine the methods and costs of storage on the basis of our field survey.

**Table 2.1 : Area and Outturn of Cotton, Groundnut and Sugarcane in the Districts of Maharashtra State during the Year 1962-63 (Area in '000 Hectares and Outturn in '000 Metric Tonnes)**

Sr. No.	Name of the District	Cotton		Groundnut		Sugarcane	
		Area	Out-turn (Lint)	Area	Out-turn	Area	Out-turn (Gur)
1.	Bombay	-	-	-	-	-	-
2.	Thana	-	-	-	-	-	-
3.	Kolaba	-	-	-	-	-	-
4.	Ratnagiri	-	-	-	-	-	-
5.	Nasik	17	4	71	61	8	2
6.	Dhulia	84	12	137	83	2	8
7.	Jalgaon	263	40	112	70	1	5
8.	Ahmednagar	44	9	32	25	31	349
9.	Poona	7	2	26	35	12	104
10.	Satara	3	1	64	81	9	60
11.	Sangli	6	1	82	78	10	66
12.	Sholapur	11	3	87	52	10	78
13.	Kolhapur	2	-	58	65	28	215
14.	Aurangabad	196	13	67	29	9	30
15.	Parbhani	238	17	34	17	3	12
16.	Bhir	57	5	71	62	1	5
17.	Nanded	194	16	30	16	2	8
18.	Osmanabad	53	5	146	77	5	20
19.	Buldhana	255	21	37	12	1	3
20.	Akola	319	24	39	15	-	1
21.	Amravati	345	24	23	14	-	-
22.	Yeotmal	311	21	21	11	-	1
23.	Wardha	154	7	1	-	-	-
24.	Nagpur	74	4	7	5	-	-
25.	Bhandara	-	-	-	-	1	2
26.	Chanda	27	1	-	-	-	1
<b>Total Maharashtra</b>		<b>2660</b>	<b>229</b>	<b>1145</b>	<b>807</b>	<b>135</b>	<b>1020</b>

Source : Handbook of Basic Statistics of Maharashtra State.

**Table 2.2 : Area and Outturn of Cotton, Groundnut and Sugarcane in the Districts of Maharashtra State during the Year 1963-64 (Area in '000 Hectares and Outturn in '000 Metric Tonnes)**

Sr. No.	Name of the District	Cotton		Groundnut		Sugarcane	
		Area	Outturn (Lint)	Area	Outturn	Area	Outturn (Gur)
1.	Bombay	-	-	-	-	-	-
2.	Thana	-	-	-	-	-	-
3.	Kolaba	-	-	-	-	-	-
4.	Ratnagiri	-	-	1	1	-	-
5.	Nasik	22	5	69	41	8	63
6.	Dhulia	103	13	127	92	2	8
7.	Jalgaon	287	35	102	54	1	5
8.	Ahmednagar	65	10	36	25	31	344
9.	Poona	7	2	26	22	13	126
10.	Satara	4	1	67	87	10	64
11.	Sangli	5	1	90	74	9	63
12.	Sholapur	14	3	88	60	10	93
13.	Kolhapur	1	-	60	68	30	239
14.	Aurangabad	200	15	65	19	9	36
15.	Parbhani	240	14	30	14	2	8
16.	Bhir	61	5	69	56	1	7
17.	Nanded	190	12	29	18	2	10
18.	Osmanabad	55	4	148	99	6	27
19.	Buldhana	263	24	34	9	1	4
20.	Akola	329	26	41	12	-	-
21.	Amravati	354	36	23	15	-	-
22.	Yectmal	328	32	21	10	-	-
23.	Wardha	170	12	1	1	-	-
24.	Nagpur	76	6	9	4	-	-
25.	Bhandara	-	-	-	-	1	2
26.	Chanda	29	2	-	-	-	-
Total Maharashtra		2803	258	1136	781	137	1101

Source : Handbook of Basic Statistics of Maharashtra State.

**Table 2.3 : Area and Outturn of Cotton, Groundnut and Sugarcane in the Districts of Maharashtra State during the Year 1964-65 (Area in '000 Hectares and Outturn in '000 Metric Tonnes)**

Sr. No.	Name of the District	Cotton		Groundnut		Sugarcane	
		Area	Out-turn (Lint)	Area	Out-turn	Area	Out-turn (Cnr)
1.	Bombay	-	-	-	-	-	-
2.	Thana	-	-	-	-	-	-
3.	Kolaba	-	-	-	-	-	-
4.	Ratnagiri	-	-	1	1	-	1
5.	Nasik	22	3	65	47	10	64
6.	Dhulia	103	8	130	113	3	7
7.	Jalgaon	290	28	84	59	1	5
8.	Ahmednagar	41	5	31	20	35	388
9.	Poona	7	1	30	25	14	114
10.	Satara	4	1	69	83	10	70
11.	Sangli	4	1	94	61	11	81
12.	Sholapur	11	2	85	51	12	89
13.	Kolhapur	1	-	60	57	36	283
14.	Aurangabad	210	20	64	33	10	40
15.	Parbhani	242	14	28	18	2	8
16.	Bhir	68	33	77	61	2	8
17.	Nanded	191	7	31	26	2	9
18.	Osmanabad	48	2	149	114	6	27
19.	Buldhana	270	20	31	19	1	4
20.	Akola	335	25	34	18	-	1
21.	Amravati	357	42	24	15	-	-
22.	Yeotmal	337	24	21	10	-	1
23.	Wardha	173	9	2	1	-	-
24.	Nagpur	74	7	12	7	-	-
25.	Bhandara	-	-	1	-	1	1
26.	Chanda	28	2	-	-	-	1
<b>Total Maharashtra</b>		<b>2824</b>	<b>225</b>	<b>1122</b>	<b>840</b>	<b>159</b>	<b>1207</b>

**Source :** Handbook of Basic Statistics of Maharashtra State.



**Table 2.4 : Area and Outturn of Cotton, Groundnut and Sugarcane in the Districts of Maharashtra State during the Year 1965-66 (Area in '000 Hectares and Outturn in '000 Metric Tonnes)**

Sr. No.	Name of the District	Cotton		Groundnut		Sugarcane	
		Area	Out-turn (Lint)	Area	Out-turn	Area	Out-turn (Gur)
1.	Bombay	-	-	-	-	-	-
2.	Thana	-	-	-	-	-	-
3.	Kolaba	-	-	-	-	-	-
4.	Ratnagiri	-	-	-	-	-	2
5.	Nasik	8	1	63	28	10	64
6.	Dhulia	71	5	112	43	3	16
7.	Jalgaon	299	10	72	10	2	11
8.	Ahmednagar	33	5	35	11	35	238
9.	Poona	6	1	26	9	15	83
10.	Satara	4	1	59	30	10	39
11.	Sangli	4	-	97	50	13	97
12.	Sholapur	7	1	89	31	14	82
13.	Kolhapur	1	-	59	55	38	267
14.	Aurangabad	142	5	47	9	6	40
15.	Parbhani	245	18	30	14	2	15
16.	Bhir	63	4	69	31	2	16
17.	Nanded	185	15	31	14	3	13
18.	Osmanabad	41	2	147	66	5	45
19.	Buldhana	260	10	31	4	2	9
20.	Akola	347	20	25	9	1	4
21.	Amravati	344	32	23	15	-	1
22.	Yeotmal	330	31	20	14	1	3
23.	Wardha	160	13	2	1	-	1
24.	Nagpur	83	6	16	7	-	1
25.	Bhandara	-	-	1	-	1	4
26.	Chanda	31	2	-	-	-	2
<b>Total Maharashtra</b>		<b>2663</b>	<b>181</b>	<b>1053</b>	<b>450</b>	<b>161</b>	<b>1054</b>

Source : Handbook of Basic Statistics of Maharashtra State.

**Table 2.5 : Area and Outturn of Cotton, Groundnut and Sugarcane in the Districts of Maharashtra State during the Year 1966-67 (Area in '000 Hectares and Outturn in '000 Metric tonnes)**

Sr. No.	Name of the District	Cotton		Groundnut		Sugarcane	
		Area	Out-turn (Lint)	Area	Out-turn	Area	Out-turn (Gur)
1.	Bombay	-	-	-	-	-	-
2.	Thana	-	-	-	-	-	-
3.	Kolaba	-	-	-	-	-	-
4.	Ratnagiri	-	-	-	-	-	2
5.	Nasik	9	1	59	27	8	54
6.	Dhulia	73	5	122	43	2	11
7.	Jalgaon	295	27	84	20	1	7
8.	Ahmednagar	29	5	34	16	35	254
9.	Poona	7	3	24	18	14	85
10.	Satara	3	1	62	68	10	44
11.	Sangli	4	2	94	62	13	120
12.	Sholapur	11	2	85	47	14	189
13.	Kolhapur	-	-	55	51	38	285
14.	Aurangabad	153	10	64	13	9	52
15.	Parbhani	233	15	37	11	2	10
16.	Bhir	58	3	60	15	2	12
17.	Nanded	182	14	34	9	4	21
18.	Osmanabad	62	3	130	45	6	49
19.	Buldhana	246	17	18	4	1	6
20.	Akola	330	21	29	5	-	2
21.	Amravati	311	26	26	7	-	1
22.	Ycotmal	321	19	19	4	1	2
23.	Wardha	172	13	5	1	-	1
24.	Nagpur	81	5	18	4	-	-
25.	Bhandara	-	-	1	-	1	3
26.	Chanda	29	2	-	-	-	1
<b>Total Maharashtra</b>		<b>2611</b>	<b>194</b>	<b>1050</b>	<b>470</b>	<b>161</b>	<b>1114</b>

**Source :** Handbook of Basic Statistics of Maharashtra State.

**Table 2.6 : Area and Outturn of Cotton, Groundnut and Sugarcane in the Districts of Maharashtra State during the Year 1967-68 (Area in '000 Hectares and Outturn in '000 Metric Tonnes)**

Sr. No.	Name of the District	Cotton		Groundnut		Sugarcane	
		Area	Out-turn (Lint)	Area	Out-turn	Area	Out-turn (Our)
1.	Bombay	-	-	-	-	-	-
2.	Thana	-	-	-	-	-	-
3.	Kolaba	-	-	-	-	-	-
4.	Ratnagiri	-	-	1	1	-	2
5.	Nasik	13	3	69	38	8	50
6.	Dhulia	85	7	123	72	2	14
7.	Jalgaon	279	26	79	75	1	6
8.	Ahmednagar	34	7	36	16	35	244
9.	Poona	10	1	27	14	14	95
10.	Satara	5	1	73	51	11	71
11.	Sangli	6	1	95	58	14	96
12.	Sholapur	10	3	73	40	14	110
13.	Kolhapur	1	-	60	60	39	335
14.	Aurangabad	170	12	74	28	9	51
15.	Parbhani	248	20	27	11	2	10
16.	Bhir	74	5	60	17	3	18
17.	Nanded	194	18	29	21	4	30
18.	Osmanabad	77	5	125	56	6	42
19.	Buldhana	259	20	18	10	2	7
20.	Akola	334	23	31	15	-	2
21.	Amravati	366	40	25	14	-	1
22.	Yeatmal	336	30	21	12	-	2
23.	Wardha	180	13	4	2	-	1
24.	Nagpur	85	6	18	10	-	-
25.	Bhandara	-	-	1	4	1	3
26.	Chanda	30	2	-	-	-	1
<b>Total Maharashtra</b>		<b>2794</b>	<b>244</b>	<b>1066</b>	<b>619</b>	<b>165</b>	<b>1189</b>

**Source :** Handbook of Basic Statistics of Maharashtra State.

**Table 2.7 : Area and Outturn of Cotton, Groundnut and Sugarcane in the Districts of Maharashtra State during the Year 1968-69 (Area in '000 Hectares and Outturn in '000 Metric Tonnes)**

Sr. No.	Name of the District	Cotton		Groundnut		Sugarcane	
		Area	Out-turn (Lint)	Area	Out-turn	Area	Out-turn (Gur)
1.	Bombay	-	-	-	-	-	-
2.	Thana	-	-	-	-	-	-
3.	Kolaba	-	-	-	-	-	-
4.	Ratnagiri	-	-	-	-	-	4
5.	Nasik	10	1	47	30	13	123
6.	Dhulia	71	7	112	59	4	31
7.	Jalgaon	235	27	61	32	1	7
8.	Ahmednagar	25	3	24	13	47	306
9.	Poona	7	2	26	27	17	130
10.	Satara	6	2	66	89	13	84
11.	Sangli	2	-	90	46	19	116
12.	Sholapur	10	2	83	50	13	94
13.	Kolhapur	1	-	54	56	41	360
14.	Aurangabad	203	17	42	16	11	73
15.	Parbhani	264	20	9	8	3	23
16.	Bhir	40	4	42	30	2	20
17.	Nanded	212	23	31	22	5	40
18.	Osmanabad	48	5	130	94	8	69
19.	Buldhana	245	22	17	10	2	12
20.	Akola	331	24	23	18	1	4
21.	Amravati	369	36	24	20	-	1
22.	Yeotmal	341	30	27	22	-	3
23.	Wardha	178	11	7	5	-	1
24.	Nagpur	84	8	13	8	-	1
25.	Bhandara	-	-	1	1	1	5
26.	Chanda	34	3	-	-	-	2
Total Maharashtra		2716	246	928	658	201	1508

Source : Handbook of Basic Statistics of Maharashtra State.

**Table 2.8 : Area and Outturn of Cotton, Groundnut and Sugarcane in the Districts of Maharashtra State during the Year 1969-70 (Area in '000 Hectares and Outturn in '000 Metric Tonnes)**

Sr. No.	Name of the District	Cotton		Groundnut		Sugarcane	
		Area	Out-turn (Lint)	Area	Out-turn	Area	Out-turn (Gur)
1.	Bombay	-	-	-	-	-	-
2.	Thana	-	-	-	-	-	1
3.	Kolaba	-	-	-	-	-	-
4.	Ratnagiri	-	-	-	-	1	3
5.	Nasik	9	1	44	22	15	160
6.	Dhulia	75	7	100	63	4	32
7.	Jalgaon	263	20	57	39	2	16
8.	Ahmednagar	25	2	25	12	52	415
9.	Poona	6	1	18	15	18	106
10.	Satara	6	2	63	63	14	88
11.	Sangli	2	-	87	45	22	116
12.	Sholapur	11	2	76	37	14	92
13.	Kolhapur	-	-	57	56	43	327
14.	Aurangabad	201	18	35	14	12	83
15.	Parbhani	280	19	11	8	3	21
16.	Bhir	53	4	46	30	3	20
17.	Nanded	210	13	30	21	5	35
18.	Osmanabad	47	4	121	82	10	68
19.	Buldhana	260	24	19	9	2	15
20.	Akola	342	22	23	15	1	6
21.	Amravati	365	28	27	17	-	1
22.	Yeotmal	349	28	32	22	1	4
23.	Wardha	179	11	7	5	-	1
24.	Nagpur	84	8	14	8	-	1
25.	Bhandara	-	-	1	1	1	5
26.	Chanda	36	4	-	-	-	2
<b>Total Maharashtra</b>		<b>2805</b>	<b>218</b>	<b>899</b>	<b>584</b>	<b>222</b>	<b>1617</b>

**Source :** Handbook of Basic Statistics of Maharashtra State.

**Table 2.9 : Area and Outturn of Cotton, Groundnut and Sugarcane in the Districts of Maharashtra State during the Year 1970-71 (Area in '000 Hectares and Outturn in '000 Metric Tonnes)**

Sr. No.	Name of the District	Cotton		Groundnut		Sugarcane	
		Area	Out-turn (Lint)	Area	Out-turn	Area	Out-turn (Gur)
1.	Bombay	-	-	-	-	-	-
2.	Thana	-	-	-	-	-	-
3.	Kolaba	-	-	-	-	-	-
4.	Katnagiri	-	-	-	-	-	3
5.	Nasik	11	1	42	35	14	142
6.	Dhulia	72	4	110	81	3	27
7.	Jalgaon	243	11	63	43	1	11
8.	Ahmednagar	29	3	27	15	52	412
9.	Poona	5	1	27	28	13	105
10.	Satara	7	2	65	59	15	94
11.	Sangli	4	1	78	43	20	103
12.	Sholapur	14	2	78	45	14	118
13.	Kolhapur	1	-	57	48	40	366
14.	Aurangabad	199	5	31	13	9	51
15.	Parbhani	275	7	11	6	3	21
16.	Bhir	52	1	43	27	2	17
17.	Nanded	204	5	27	17	5	32
18.	Osmanabad	40	-	126	67	8	62
19.	Buldhana	265	8	19	10	2	12
20.	Akola	344	7	26	13	1	4
21.	Amravati	368	6	32	17	-	1
22.	Yeotmal	355	12	34	17	1	3
23.	Wardha	176	4	8	4	-	1
24.	Nagpur	93	4	14	7	-	1
25.	Bhandara	-	-	1	1	1	4
26.	Chanda	36	2	-	-	-	2
Total Maharashtra		2792	85	921	598	205	1588

Source : Handbook of Basic Statistics of Maharashtra State.

**Table 2.10 : Area and Outturn of Cotton, Groundnut and Sugarcane in the Districts of Maharashtra State during the Year 1971-72 (Area in '000 Hectares and Outturn in '000 Metric Tonnes)**

Sr. No.	Name of the District	Cotton		Groundnut		Sugarcane	
		Area	Out-turn (Lint)	Area	Out-turn	Area	Out-turn (Gur)
1.	Bombay	-	-	-	-	-	-
2.	Thana	-	-	-	-	-	-
3.	Kolaba	-	-	-	-	-	-
4.	Ratnagiri	-	-	-	-	-	3
5.	Nasik	7	1	34	21	13	108
6.	Dhulia	72	6	110	49	3	22
7.	Jalgaon	211	11	57	21	1	9
8.	Ahmednagar	6	1	9	6	43	307
9.	Poona	6	1	15	16	15	99
10.	Satara	6	1	67	74	13	86
11.	Sangli	5	1	64	61	18	120
12.	Sholapur	11	2	20	10	12	58
13.	Kolhapur	1	-	56	59	37	351
14.	Aurangabad	119	5	20	4	6	41
15.	Parbhani	113	7	6	4	3	17
16.	Bhir	15	1	24	5	2	9
17.	Nanded	170	10	29	17	4	22
18.	Osmanabad	31	-	85	39	5	20
19.	Buldhana	250	10	20	11	2	12
20.	Akola	338	28	23	13	1	4
21.	Amravati	363	22	34	22	-	1
22.	Yatmal	349	34	32	20	1	3
23.	Wardha	180	13	8	5	-	1
24.	Nagpur	87	7	15	8	-	1
25.	Bhandara	-	-	1	1	1	4
26.	Chanda	39	3	-	-	-	1
<b>Total Maharashtra</b>		<b>2378</b>	<b>165</b>	<b>751</b>	<b>468</b>	<b>182</b>	<b>1298</b>

Source : Handbook of Basic Statistics of Maharashtra State.

Table 2.11 : Areas)

Year	Commodity	Parola	Ehadgaon	Pachora	Jamner	Chalisgaon
1965-66	Cotton	12770	9592	20103	38044	8637
	Groundnut	7100	3079	5825	9225	14365
1966-67	Cotton	10460	8358	16566	22407	6489
	Groundnut	5301	1647	3347	6420	10733
1967-68	Cotton	11586	9142	21101	34033	8957
	Groundnut	4912	1291	2912	3559	9247
1968-69	Cotton	11479	9885	20402	39220	8914
	Groundnut	5923	1488	4126	7248	10578
1969-70	Cotton	17086	10078	22998	40889	9475
	Groundnut	5583	1400	3489	7120	8768
1970-71	Cotton	18324	8794	19570	37996	9186
	Groundnut	6074	1263	3409	9417	9409

Source : District



Table 2.11 : Area under Cotton and Groundnut in the Tahsils of Jalgaon District (1965-66 to 1970-71) (hectares)

Year	Commodity	District Total	Chopda	Yawal	Hawer	Amalner	Erandol	Jalgaon	Bhusaval	Edlabad	Parola	Bhadgaon	Pachora	Jamner	Chalisgaon
1965-66	Cotton	239702	24488	14620	16242	18821	19098	19422	20414	17791	12770	9592	20103	38044	8637
	Groundnut	82795	6460	8009	3461	7953	6683	3593	5209	1833	7100	3079	5825	9225	14365
1966-67	Cotton	205280	24755	15463	8571	17688	17802	18130	20762	17789	10460	8358	16566	22407	6489
	Groundnut	57243	2160	4933	2471	5081	3095	2349	2901	810	5301	1647	3347	6420	10733
1967-68	Cotton	251109	26381	18548	19493	20172	20071	20630	21929	19066	11586	9142	21101	34033	8957
	Groundnut	42463	1901	5613	2182	3807	2096	1724	2726	493	4912	1291	2912	3559	9247
1968-69	Cotton	234436	22395	14262	17108	18951	16892	17835	20338	16795	11479	9885	20402	39220	8914
	Groundnut	60552	2245	9049	2961	5005	3875	2577	4480	797	5923	1488	4126	7248	10578
1969-70	Cotton	263205	20614	17066	19009	20556	18697	21434	20566	18737	17086	10078	22998	40889	9475
	Groundnut	56891	2479	8627	2989	4912	2547	2219	5837	921	5583	1400	3489	7120	8768
1970-71	Cotton	243277	24139	15938	18295	17463	16221	18024	21751	18076	18324	8794	19570	37996	9186
	Groundnut	66310	3251	9550	3847	6064	3779	2605	6116	1526	6074	1263	3409	9417	9409

Source : District Statistical Abstracts.

Table 2.12 : Arrivals of Cotton and Groundnut in the Regulated Markets (1966-67 to 1971-72) (Tonnes)

Year	Commodity	District Total	Chopda	Yawal	Rawer	Amalner	Dharangaon	Jalgaon	Bhusaval	Bodwad	Parola	Pachora	Jamner	Chalisgaon
1966-67	Cotton	49249	12075	387	3512	7325	846	7731	41	5306	584	7359	1499	2544
	Groundnut	8740	746	300	133	1365	5	203	52	152	550	1647	142	3445
1967-68	Cotton	68918	12400	1945	4372	11196	1024	7047	913	6922	559	13418	3432	5060
	Groundnut	12132	500	980	337	1613	23	267	499	271	426	3168	153	3885
1968-69	Cotton	57453	9813	2406	4467	11810	312	9511	1014	6915	435	1291	4448	5061
	Groundnut	19861	1548	888	561	3261	2	1353	699	993	566	4357	490	5143
1969-70	Cotton	71664	6864	2660	3480	9700	504	6580	671	5524	419	29046	1601	4615
	Groundnut	19954	1746	1436	532	2788	-	1148	631	1000	712	4554	422	4985
1970-71	Cotton	37504	6802	1100	1756	5955	107	3831	677	4280	733	8559	1374	2290
	Groundnut	21781	1757	154	883	3829	34	1245	579	961	763	5782	546	5848
1971-72	Cotton	40599	11506	1474	1815	9475	45	5786	352	3657	566	4507	101	1255
	Groundnut	21525	2589	1526	604	4935	19	1078	285	-	1009	3954	117	5409

Source : District Statistical Abstracts.

**Table 2.13 : Area (in hectares) under Sugarcane in the Tahsils of Ahmednagar District (1966-67 to 1970-71)**

	1966-67	1967-68	1968-69	1969-70	1970-71
DISTRICT TOTAL	40277	34877	47118	51960	52047
Kopergaon	12100	12051	14857	15267	15796
Akola	229	147	470	575	502
Sangamner	7172	1352	2926	3839	3491
Shrirampur	14057	18240	17152	18338	17878
Rahuri	4373	5058	6238	6137	7769
Nevasa	879	848	2125	2279	1986
Shevgaon	241	193	415	820	653
Parner	74	45	112	193	161
Ahmednagar	180	190	145	609	645
Pathardi	111	186	313	627	495
Shrigonda	313	447	1125	1987	1614
Karjat	433	360	685	958	802
Jamkhed	115	110	195	231	255

Source : District Statistical Abstracts.

**Table 2.14 : Arrivals (in tons) of Gur in Regulated Markets  
in Ahmednagar District (1967-68 to 1971-72)**

	1967-68	1968-69	1969-70	1970-71	1971-72
DISTRICT TOTAL	15132	13111	16247	13406	10769
Kopergaon	8927	6122	4270	4171	1971
Sangamner	2262	1893	3826	1676	792
Shrirampur	1509	592	366	634	700
Rahuri	429	398	1355	841	829
Nevasa	-	-	285	214	12
Shevgaon	72	147	437	481	178
Ahmednagar	1611	3383	2928	2923	4209
Pathardi	322	291	1	141	277
Shrigonda	-	12	2398	2325	1760
Jamkhed	-	273	381	-	31

**Source : District Statistical Abstracts.**

**Table 2.15 : Area (in hectares) under Sugarcane in the Tahsils of Poona District (1966-67 to 1970-71)**

	1966-67	1967-68	1968-69	1969-70	1970-71
<b>DISTRICT TOTAL</b>	12595	13342	15840	17772	16227
Junnar	110	75	166	200	173
Ambegaon	15	12	33	38	42
Khed	-	34	-	79	42
Sirur	288	274	591	791	685
Mawal	19	19	31	38	30
Poona City	104	112	162	165	159
Haveli	614	727	1297	1438	1406
Dhond	443	478	610	755	659
Mulshi	40	46	25	20	9
Velhe	4	6	4	4	10
Purandhar	372	390	-	698	698
Baramati	6209	6838	7763	7854	6791
Indapur	4346	4549	5043	5621	5442
Ehor	31	42	73	91	81

**Source :** District Statistical Abstracts.

**Table 2.16 : Arrivals (in tons) of Gur in Regulated Markets  
of Poona District (1967-68 to 1971-72)**

	1967-68	1968-69	1969-70	1970-71	1971-72
<b>DISTRICT TOTAL</b>	57223	69417	60604	54639	27481
Poona	40410	45117	44233	41071	13110
Sirur	414	777	1205	1712	475
Manchar	-	-	-	-	2210
Junnar	-	-	-	-	477
Dhond	302	868	132	885	684
Indapur	698	1048	1249	1357	839
Nira	5777	13555	4699	4614	3743
Baramati	9622	8052	9086	5000	5637
Bhor	-	-	-	483	306

**Source : District Statistical Abstracts.**

**Table 2.17 : Area (in hectares) under Sugarcane in the  
Tahsils of Satara District (1966-67 to 1970-71)**

	1966-67	1967-68	1968-69	1969-70	1970-71
<b>DISTRICT TOTAL</b>	11057	11174	12747	14307	13183
<b>Khandala</b>	113	123	161	180	202
<b>Phaltan</b>	4580	4972	5076	6234	5286
<b>Wai</b>	409	397	567	628	731
<b>Mahabaleshwar</b>	-	-	-	1	-
<b>Jaoli</b>	156	99	116	161	107
<b>Koregaon</b>	219	193	299	314	301
<b>Khatav</b>	484	465	583	519	563
<b>Man</b>	268	255	334	389	370
<b>Satara</b>	305	234	383	483	415
<b>Patan</b>	471	489	524	569	462
<b>Karad</b>	3752	3947	4704	4829	4746

**Source : District Statistical Abstracts.**

Table 2.18 : Arrivals (in tons) of Gur in Regulated Markets  
in Satara District (1967-68 to 1971-72)

	1967-68	1968-69	1969-70	1970-71	1971-72
DISTRICT TOTAL	10822	17019	16265	14062	11868
Lonand	-	62	76	759	1000
Phaltan	1513	1191	484	560	484
Koregaon	9	121	67	72	1187
Vaduj	765	2770	3961	1793	684
Satara	1683	2417	2978	1905	710
Patan	-	598	466	178	248
Karad	6852	9860	8233	8795	7333
Dahiwadi	-	-	-	-	222

Source : District Statistical Abstracts.



**Table 2.19 : Area (in hectares) under Sugarcane in the Tahsils of Sangli District (1966-67 to 1970-71)**

	1966-67	1967-68	1968-69	1969-70	1970-71
<b>DISTRICT TOTAL</b>	12849	13555	19026	21730	19910
Atpadi	77	51	87	106	96
Khanapur	746	772	1013	1269	1095
Shirala	1308	1077	1229	1395	1167
Walwa	3850	3987	4814	4950	5079
Tasgaon	2757	3522	5518	6589	5860
Jat	384	329	429	658	499
Kavathe	641	419	668	841	702
Miraj	3085	3398	5268	5928	5412

Source : District Statistical Abstracts.

**Table 2.20 : Arrivals (in tons) of Gur in Regulated Markets of Sangli District (1967-68 to 1971-72)**

	1967-68	1968-69	1969-70	1970-71	1971-72
<b>DISTRICT TOTAL</b>	17582	29810	34219	25536	28668
Khanapur	128	147	135	148	10
Islampur	276	293	224	199	100
Tasgaon	451	625	587	424	347
Sangli	16727	28745	33273	24765	28211

Source : District Statistical Abstracts.

**Table 2.21 : Area (in hectares) under Sugarcane in the Tahsils of Sholapur District (1966-67 to 1970-71)**

	1966-67	1967-68	1968-69	1969-70	1970-71
DISTRICT TOTAL	11081	10532	13007	14299	13599
Karmala	357	190	256	306	290
Barsi	366	280	535	736	664
Madha	520	381	413	797	977
Malsiras	5762	6240	7017	6715	6413
Pandharpur	766	732	1144	1182	1410
Mohol	499	419	469	645	661
North Sholapur	620	568	839	978	840
South Sholapur	641	508	679	802	618
Sangola	287	280	271	395	460
Mangalwedha	293	255	322	315	378
Akkalkot	970	679	1067	1428	888

**Source : District Statistical Abstracts.**

**Table 2.22 : Arrivals (in tons) of Gur in Regulated Markets of Sholapur District (1967-68 to 1971-72)**

	1967-68	1968-69	1969-70	1970-71	1971-72
DISTRICT TOTAL	31885	39076	50320	33503	31295
Karmala	861	1478	7725	2046	1413
Barsi	759	611	1897	1994	1484
Kurduwadi	545	208	2239	2575	2929
Akluj	9797	11027	10646	6472	5054
Pandharpur	3253	3730	4278	4287	3882
Mohol	481	847	783	1032	560
Sholapur (Dist.)	14041	18770	20462	13668	14846
Sangola	286	501	532	464	439
Mangalwedha	1455	1382	928	415	335
Akkalkot	437	522	830	550	263

Source : District Statistical Abstracts.

**Table 2.23 : Area (in hectares) under Sugarcane in the Tahsils  
of Kolhapur District (1966-67 to 1970-71)**

	1966-67	1967-68	1968-69	1969-70	1970-71
<b>DISTRICT TOTAL</b>	32607	32398	40670	42567	39895
Shahuwadi	1440	1322	1648	1863	1468
Panhala	3675	3548	4215	4457	4210
Hatkanangale	4646	4674	5650	5198	5257
Shirol	2782	2659	4213	5075	4962
Karvir	7874	8096	9401	9962	9700
Bawada	700	669	783	917	782
Radhanagari	3492	3664	4392	4123	3836
Kagal	2356	2721	2845	2880	2586
Bhudargad	1728	1583	2135	2237	1774
Gadhinglaj	2073	2042	2856	3029	2898
Chandgad	1323	1289	1745	1905	1670

**Source :** District Statistical Abstracts.

**Table 2.24 : Arrivals (in tons) of Gur in Regulated Markets  
in Kolhapur District (1967-68 to 1971-72)**

	1967-68	1968-69	1969-70	1970-71	1971-72
<b>DISTRICT TOTAL</b>	132153	40254	139052	138853	131008
Karvir Kolhapur	116768	16682	123540	124195	125363
Gadhinglaj	6720	11348	7482	7602	7753
Jaysingpur	8565	11778	7996	7022	7382
Vadgaon	100	246	54	74	56

**Source :** District Statistical Abstracts.

Table 2.25 : Land Utilization in Jalgaon District and Pachora Tahsil, 1969-70 to 1971-72 (Area in hectares)

	Jalgaon District						Pachora Tahsil					
	1969-70	Percentage	1970-71	Percentage	1971-72	Percentage	1969-70	Percentage	1970-71	Percentage	1971-72	Percentage
Forests	172755	14.84	172864	14.85	173180	14.88	5685	6.93	4661	5.68	4183	5.10
Not available for cultivation	85193	7.32	85180	7.32	85534	7.35	5569	6.79	5343	6.51	5351	6.52
Other Uncultivated excluding fallows	76335	6.56	75549	6.49	75812	6.51	5472	6.67	5777	7.04	6255	7.62
Fallow	18485	1.59	28015	2.41	40319	3.46	1174	1.43	2399	2.92	5094	6.21
Net area sown	811213	69.69	802373	68.93	789136	67.80	64141	78.18	63861	77.85	61158	74.55
Total Geographical Area	1163981	100.00	1163981	100.00	1163981	100.00	82041	100.00	82041	100.00	82041	100.00

Table 2.26 : Land Utilization in Poona District and Baramati Tahsil, 1969-70 to 1971-72 (Area in hectares)

	Poona District						Baramati Tahsil					
	1969-70	Percentage	1970-71	Percentage	1971-72	Percentage	1969-70	Percentage	1970-71	Percentage	1971-72	Percentage
Forests	192527	12.32	194591	12.46	199204	12.75	6678	4.83	6678	4.83	7157	5.18
Not available for cultivation	188193	12.05	187185	11.98	199432	12.77	9973	7.21	9973	7.21	9975	7.22
Other Uncultivated excluding fallows	32800	2.10	29384	1.88	47095	3.01	109	0.08	106	0.08	-	-
Fallow	138539	8.87	120334	7.70	106192	6.80	27009	19.54	21310	15.41	28155	20.37
Net area sown	1010058	64.66	1030623	65.98	1010194	64.67	94479	68.34	100181	72.47	92961	67.23
Total Geographical Area	1562117	100.00	1562117	100.00	1562117	100.00	138248	100.00	138248	100.00	138248	100.00

**Table 2.27 : Area Irrigated by Source in Jalgaon District and Pachora Tahsil,  
1969-70 to 1971-72**

	Jalgaon District			Pachora Tahsil		
	1969-70	1970-71	1971-72	1969-70	1970-71	1971-72
Government canals	21.05	18.83	21.02	2.76	4.25	3.22
Private canals	-	-	-	-	-	-
Tanks	-	-	-	-	-	-
Wells	78.64	80.55	78.64	97.24	95.75	96.68
Other sources	0.31	0.62	0.34	-	-	-
<b>Total Net Irrigated</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>
<b>Hectares</b>	<b>66389</b>	<b>66400</b>	<b>76011</b>	<b>3151</b>	<b>3200</b>	<b>4093</b>

**Table 2.28 : Area Irrigated by Source in Poona District and Baramati Tahsil,  
1969-70 to 1971-72**

	Poona District			Baramati Tahsil		
	1969-70	1970-71	1971-72	1969-70	1970-71	1971-72
Government canals	39.58	44.00	32.67	53.78	67.71	30.41
Private canals	1.11	0.61	4.49	-	-	-
Tanks	1.52	1.36	0.66	2.14	1.79	-
Wells	49.48	43.36	53.78	40.07	27.00	61.93
Other sources	8.31	10.67	8.40	4.01	3.50	7.66
<b>Total Net Irrigated</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>
<b>Hectares</b>	<b>102068</b>	<b>124237</b>	<b>124970</b>	<b>28472</b>	<b>35662</b>	<b>39968</b>

Table 2.29 : (a) Cropwise Irrigated Area as Percentage of Total Irrigated Area, (b) Cropwise Irrigated Area as Percentage to Total Area under the Crop in Jalgaon District and Pachora Tahsil, 1969-70 to 1971-72

		Jalgaon District						Pachora Tahsil					
		1969-70	Percentage	1970-71	Percentage	1971-72	Percentage	1969-70	Percentage	1970-71	Percentage	1971-72	Percentage
Rice	(a)	6319	7.19	5938	5.60	7877	7.13	809	17.35	679	10.53	675	10.83
	(b)	6581	96.01	7101	83.62	8141	90.33	809	(cent)	888	76.46	675	(cent)
Wheat	(a)	31317	35.67	42238	39.86	41569	37.64	1134	24.31	2174	33.71	2039	32.72
	(b)	37554	91.66	47100	89.67	43801	94.90	1377	82.35	2279	95.39	2039	(cent)
Jowar	(a)	456	0.52	1769	1.67	2740	2.48	-	-	-	-	-	-
	(b)	153028	0.30	151013	1.17	173608	1.58	12136	-	14034	-	22970	-
Other cereals and pulses	...	3692	4.20	5384	5.08	5804	5.25	83	1.78	539	8.36	432	6.93
Total Foodgrains	...	41784	47.58	55329	52.21	57990	52.50	2026	43.44	3392	52.60	3146	50.48
Sugarcane	(a)	1638	1.86	1431	1.35	1064	0.96	117	2.51	74	1.15	78	1.25
	(b)	1638	(cent)	1431	(cent)	1064	(cent)	117	(cent)	74	(cent)	78	(cent)
Banana	(a)	25780	29.35	24318	22.94	22954	20.79	1380	29.59	1537	23.82	1292	20.73
	(b)	25780	(cent)	24318	(cent)	22954	(cent)	1380	(cent)	1537	(cent)	1292	(cent)
Chillies	(a)	5454	6.21	6291	5.94	6260	5.67	340	7.29	377	5.85	265	4.25
	(b)	5454	(cent)	6291	(cent)	6260	(cent)	340	(cent)	377	(cent)	265	(cent)
Others		13179	15.00	18609	17.56	22182	20.08	801	17.17	1069	16.58	1451	23.29
Total for all crops (hectares)	...	87835	100.00	105978	100.00	110450	100.00	4664	100.00	6449	100.00	6232	100.00



Table 2.30 : (a) Cropwise Irrigated Area as Percentage of Total Irrigated Area, (b) Cropwise Irrigated Area as Percentage to Total Area under the Crop in Poona District and Baramati Tahsil, 1969-70 to 1971-72

		Poona District						Baramati Tahsil					
		1969-70	Percentage	1970-71	Percentage	1971-72	Percentage	1969-70	Percentage	1970-71	Percentage	1971-72	Percentage
Rice	(a)	2850	2.44	3154	2.02	3555	2.51	1285	3.53	1299	3.03	1203	2.64
	(b)	46450	6.14	43906	7.18	43848	8.11	1285	(cent)	1302	99.76	1203	(cent)
Wheat	(a)	14093	12.08	15420	9.86	16539	11.65	1752	4.81	4694	10.75	5691	12.49
	(b)	23462	60.07	24246	63.59	24368	67.87	4752	36.86	4694	(cent)	5691	(cent)
Jowar	(a)	37161	31.87	39275	25.10	48698	34.32	11610	31.90	11216	26.17	18663	40.97
	(b)	354715	10.47	353727	11.10	356341	8.63	60487	19.19	63357	17.70	65205	28.62
Bajra	(a)	8962	7.68	6877	4.39	5044	3.55	3223	8.85	1941	4.53	815	1.79
	(b)	191170	4.69	176920	3.89	148264	3.40	7582	42.51	6970	27.84	4797	16.98
Other cereals and pulses	...	7499	6.43	6685	4.27	9180	6.47	2343	6.44	1974	4.61	3189	7.00
Total for foodgrains	...	70565	60.50	71411	45.64	83016	58.50	20213	55.53	21124	49.29	29561	64.89
Sugarcane	(a)	17772	15.24	16227	10.37	17153	12.09	7854	21.58	6791	15.84	7340	16.12
	(b)	17772	(cent)	16227	(cent)	17160	(cent)	7854	(cent)	6791	(cent)	7340	(cent)
Potato	(a)	2607	2.24	2715	1.73	3754	2.65	2	-	8	0.02	2	-
	(b)	5309	49.11	4904	55.36	5713	65.70	2	(cent)	8	(cent)	2	(cent)
Cotton	(a)	5450	4.67	7572	4.84	1765	1.24	3202	8.80	3730	8.70	N.A.	-
	(b)	5871	92.82	7596	99.68	7272	24.27	3202	(cent)	3730	(cent)	4239	-
Groundnut	(a)	854	0.73	1089	0.70	1626	1.15	52	0.14	134	0.31	125	0.27
	(b)	17527	4.87	27490	3.96	26891	6.05	52	(cent)	134	(cent)	125	(cent)
Others		19383	16.62	57467	36.72	34592	24.37	5076	13.95	11078	25.84	8525	18.72
Total for all crops (hectares)	...	116631	100.00	156481	100.00	141906	100.00	36399	100.00	42865	100.00	45553	100.00

Table 2.31 : Cropping Pattern in Jalgaon District and Pachora Tahsil, 1969-70 to 1971-72

	Jalgaon District						Pachora Tahsil					
	1969-70	Percentage	1970-71	Percentage	1971-72	Percentage	1969-70	Percentage	1970-71	Percentage	1971-72	Percentage
A) Rice	6581	0.76	7101	0.83	8141	0.96	809	1.20	888	1.33	676	1.05
Wheat	37554	4.34	47100	5.51	43801	5.16	1377	2.04	2279	3.41	2039	3.18
Jowar	153028	17.69	151013	17.64	173608	20.45	12136	17.96	14034	21.00	22970	35.79
Bajra	89917	10.40	89555	10.47	97932	11.53	7955	11.77	8377	12.53	14592	22.72
Other cereals	981	0.11	1114	0.13	1426	0.17	96	0.14	101	0.15	88	0.14
Black Gram	114536	13.24	110111	12.87	94481	11.13	10268	15.19	9727	14.55	4168	6.49
Other pulses	94663	10.94	90901	10.63	74090	8.73	5374	7.95	5331	7.98	2518	3.92
Sugarcane	1638	0.19	1431	0.17	1064	0.13	117	0.17	74	0.11	78	0.12
Banana	25780	2.98	24318	2.84	22951	2.70	1380	2.04	1537	2.30	1292	2.01
Other food crops	13069	1.51	15374	1.80	17112	2.02	926	1.37	1075	1.61	1064	1.66
Total Food Crops	537747	62.17	538020	62.89	534606	62.96	40438	59.84	43423	64.97	49485	77.06
B) Cotton	263505	30.47	243277	28.44	226140	26.63	22998	34.03	19570	29.28	10695	16.65
Other fibres	658	0.08	721	0.08	922	0.11	85	0.13	104	0.16	68	0.11
Groundnut	56890	6.58	66310	7.75	72457	8.53	3489	5.16	3409	5.10	2430	3.78
Other oilseeds	3659	0.42	3640	0.43	7573	0.89	449	0.66	165	0.25	483	0.75
Other non-food crops	2452	0.28	3482	0.41	7474	0.88	120	0.18	162	0.24	1054	1.64
Total Non-food Crops	327164	37.83	317430	37.11	314506	37.04	27141	40.16	23410	35.03	14730	22.94
Total Gross Crops (hectares)(A + B)	864911	100.00	855450	100.00	849112	100.00	67579	100.00	66833	100.00	64215	100.00

Table 2.32 : Cropping Pattern in Poona District and Baramati Tahsil, 1969-70 to 1971-72

	Poona District						Baramati Tahsil					
	1969-70	Percentage	1970-71	Percentage	1971-72	Percentage	1969-70	Percentage	1970-71	Percentage	1971-72	Percentage
A) Rice	46450	4.24	43906	3.95	43848	4.03	1285	1.25	1302	1.20	1203	1.19
Wheat	23462	2.14	24246	2.18	24368	2.24	4752	4.64	4694	4.31	5691	5.64
Jowar	354715	32.40	353727	31.82	356341	32.76	60487	59.06	63357	98.17	65205	64.67
Bajra	191170	17.46	176920	15.91	148264	13.64	7582	7.40	6970	6.40	4797	4.76
Other cereals	20728	1.89	19396	1.74	19670	1.81	188	0.18	230	0.21	168	0.17
Pulses	67182	6.14	60740	5.46	49771	4.58	8534	8.33	6522	5.99	4517	4.48
Sugarcane	17772	1.62	16227	1.46	17160	1.58	7854	7.68	6791	6.23	7340	7.28
Potato	5309	0.48	4904	0.44	5713	0.53	2	-	8	-	2	-
Other food crops	21447	1.96	29324	2.64	21416	1.97	1574	1.54	8702	7.99	1741	1.73
Total Food Crops	748235	68.35	729450	65.62	686551	63.14	92258	90.08	98576	90.50	90664	89.92
B) Cotton	5671	0.54	7596	0.68	7272	0.67	3202	3.13	3730	3.42	4239	4.20
Other fibres	495	0.05	438	0.04	458	0.04	90	0.09	59	0.05	120	0.12
Groundnut	17527	1.60	27490	2.47	26891	2.47	52	0.05	134	0.12	125	0.13
Other oilseeds	35097	3.21	38033	3.42	34753	3.20	5612	5.47	5613	5.17	4921	4.87
Other non-food crops	287467	26.26	308664	27.77	331397	30.48	1204	1.18	811	0.74	764	0.76
Total Non-Food Crops	346457	31.65	382221	34.38	400771	36.86	10160	9.92	10347	9.50	10169	10.08
Total Gross Crops (hectares)(A + B)	1094692	100.00	1111671	100.00	1087322	100.00	102418	100.00	108923	100.00	100833	100.00

**Table 2.33 : Land Utilization in the Villages Selected for Study**

(In hectares)								
Sr. No.	Name of the Village	Tahsil	Forests	Cultivable land (sown with crops covered by orchards and current fallows)		Culturable waste	Not- available for cultivation	Total
				Irrigated with source	Unirrigated			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1.	Vadgaon Ambe	Pachora	-	18	1066	26	79	1189
2.	Nipane	Pachora	-	7	682	20	49	758
3.	Hol	Baramati	122	160 (well) 1011 (other)	175	9	329	1806
4.	Korhale Khurd	Baramati	116	105 (well) 296 (other)	52	13	216	798

**Source :** District Census (1971) Handbooks for Jalgaon and Poona Districts compiled by Maharashtra Census Office, Bombay and published in 1973 and 1974 respectively.

**Table 2.34 : Area under Different Crops (in hectares) in the Villages in Pachora Tahsil, 1971-72**

Crop	Vadgaon Ambe	Nipane
Cereals (Jowar, Bajra, Wheat and Rice)	275	373
Pulses (Black-gram, gram, Mung, tur, math, Kulith)	257	79
Banana	-	1
Groundnut	311	119
Cotton	234	163
Others	28	15
<b>Total Crops</b>	<b>1105</b>	<b>750</b>

Source : T-20 Register, Tahsil Office, Pachora.

**Table 2.35 : Area under Different Crops (in hectares) in the Villages in Baramati Tahsil, 1971-72**

Crop	Hol	Korhale Khurd
Cereals (Jowar, Bajra, Wheat and Rice)	1258	592
Pulses (Gram, Math, Hulga)	98	19
Grapes	12	-
Sugarcane	462	109
Safflower	28	-
Cotton	201	106
Others	27	10
<b>Total Crops</b>	<b>2086</b>	<b>836</b>

Source : T-20 Register, Tahsil Office, Baramati.

### CHAPTER III

#### METHODS AND COSTS OF STORAGE

This chapter consists of two sections. Section I analyses the pattern, type and cost of storage of cotton and groundnut at the farm, village and primary market levels in Pachora Tahsil and Section II describes that of gur in Baramati Tahsil.

#### Section I ; Pachora Tahsil

##### Introduction

As already pointed out in Chapter I, our analysis in this chapter is based on the data collected from the cultivators via interview from the villages of Vadgaon-Ambe and Nipane for the year 1971-72. The information was collected from 44 cultivators of Vadgaon-Ambe and 40 cultivators of Nipane. The methodology of selection is already described in detail in Chapter II. We had taken a 50 per cent sample of small and medium farmers from village Vadgaon-Ambe and that of small farmers from village Nipane. All the (cent per cent) large farmers from village Vadgaon-Ambe and medium and large farmers from village Nipane were covered by us. In our analysis while aggregating, we have taken this into account and due weight has been given to the farmers which came from the 50 per cent sample. Because of this the total number of cultivators in our analysis for village Vadgaon-Ambe appears as 64 and for village Nipane as 50.

Village Vadgaon-Ambe is to the east of Pachora. It is connected by a pakka road and is accessible throughout the year. The population of the village as per 1971 Census is 2354. The village has the following facilities: Post office, Panchayat, Middle school, Dispensary, S. T. bus stop, Co-operative society, Godown, Community radio set, Demonstration plot of National Seeds Corporation. The village has electricity. On 6 kms from Vadgaon-Ambe is Varkhedi, which is a railway station on Pachora-Shendurni-Jamner line. There bazaar is held on every Thursday.

Another village Nipane is 29 kms to south-west of Pachora. There is a pakka road and railway upto Nagardevale 19 kms. From Nagardevale station to Nagardevale village, there is metalled road of 5 kms. Nipane village is 5 kms. away from Nagardevale. It is accessible by cart only except in rainy season. The population of the village according to 1971 Census is 771. The village has a Group Panchayat. There are cultivators in this village who have become the members of co-operative society in the nearby village of Vadgaon-Mulane at 5 kms. The village has a community radio set. There is a primary school. Post office is at Badarkhe, which is 2 kms away. On every Monday the village bazaar is held at Nagardevale.

The land utilization, irrigation facilities and cropping pattern in these villages are already described in Tables 2.37 and 2.38 of the earlier chapter. Both the villages have hardly any land under irrigation. The main crops are cotton, groundnut, wheat, jowar, bajra, udid and tur. In the following

paragraphs we first examine the harvesting season of cotton and then describe the type and period of its storage:

### Picking of Cotton

The picking of cotton in this region is mostly done by women by hands. The number of pickings and their intervals mainly depend on the variety of cotton, weather conditions and labour available at the time of harvesting.

Table 3.1 shows the number and intervals of pickings of cotton and proportion of cotton picked in different pickings in the villages of Vadgaon-Ambe and Nipane, separately.

It will be seen that the number of pickings ranged from 3 to 5 but normally it was 3. The number of days between two pickings varied from 16 to 25. But on an average in one village the interval was of 23 days and in the other of 21 days. The bulk of the produce was harvested during the first two pickings. In one village it was 90 per cent and in the other 89 per cent. The picking during the third instalment was below 10 per cent and during subsequent pickings almost negligible. The harvesting of cotton during the year started in the second week of September and ended by the second week of December.

### Nature and Extent of Storage of Cotton

In Tables 3.2 and 3.3, we present the type of storage and the period of storage in respect of cotton. It will be seen that in this region cotton was mainly stored in loose heaps on farms and in houses. The use of gunny bags and 'bhots'



**Table 3.1 : Number and Interval of Pickings of Cotton and Proportion of Cotton Picked in Different Pickings in the Villages of Pachora Tahsil, 1971-72**

Village	Number of Pickings			Number of days of interval			Proportion in various pickings (Percentage)			
	Minimum	Maximum	Average	Minimum	Maximum	Average	1st	2nd	3rd	4th
1. Vadgaon-Ambe	3	5	3	18	25	23	64	26	8	2
2. Nipane	3	4	3	16	24	21	58	31	10	1

**Table 3.2 : Nature of Storage of Cotton in the Villages of Pachora Tahsil, 1971-72**

Village	Type of storage	No. of cultivators whose size of holding under cotton was (hectares)						Group Total	Percentage
		Upto					Above		
		1	2	3	4	5	5		
1. Vadgaon-Ambe	1. Loose on Farm	-	-	-	2	2	1	5	15.59
	2. Loose in House	12	20	10	9	2	6	59	84.41
	<b>Total</b>	<b>12</b>	<b>20</b>	<b>10</b>	<b>11</b>	<b>4</b>	<b>7</b>	<b>64</b>	<b>100.00</b>
2. Nipane	1. Loose on Farm	-	-	-	-	1	1	2	4.00
	2. Loose in House	27	12	9	-	-	1	48	96.00
	<b>Total</b>	<b>27</b>	<b>12</b>	<b>9</b>	<b>-</b>	<b>1</b>	<b>1</b>	<b>50</b>	<b>100.00</b>

**Table 3.3 : Extent of Storage of Cotton in the Villages of Pachora Tahsil, 1971-72**

Village	Period of storage	No. of cultivators whose size of holding under cotton was (hectares)					Group Total	Percentage	
		Upto							Above
		1	2	3	4	5			5
1. Vadgaon-Ambe	1. Upto Week	8	-	-	-	-	8	12.50	
	2. " Fortnight	4	14	4	9	2	34	53.17	
	3. " 1 month	-	6	6	2	1	15	23.44	
	4. " 2 months	-	-	-	-	1	2	3.13	
	5. Above	-	-	-	-	-	1	1.56	
Total		12	20	10	11	4	64	100.00	
2. Nipane	1. Upto Week	22	6	-	-	-	28	56.00	
	2. " Fortnight	5	6	1	-	-	12	24.00	
	3. " 1 month	-	-	8	1	-	9	18.00	
	4. " 2 months	-	-	-	-	-	1	2.00	
Total		27	12	9	1	-	50	100.00	

was made for packing the cotton. It was said that the main advantage was of handling easily and transporting from the farm to house and then to the market. One gunny bag filled with cotton weighed from 20 to 30 kgs. and such 16 to 20 bags made a cart-load. A bhot is loosely woven net-like structure made from jute or hemp fibre. It is also made from 2 to 4 opened out used gunny bags. The bhot weighs from 160 kgs. to 200 kgs. Here also the advantage is the same i.e. ease in handling and transport. Moreover, the gunny bags and bhots could be used for a number of seasons with occasional repairs. The gunny bags can be used for storing other commodities also. The price of a new gunny bag during the year was Rs. 3.80 and that of old one from Rs. 1.37 to Rs. 1.50. The cost of Bhot (both net-like and made of gunny bags) ranged from Rs. 3 to Rs. 7. It was stored in loose condition by the cultivators in all size groups of holding small and big. It was also carried loose in carts. The sides of the cart are raised by stalks and gunny cloth is packed on it. It is called "Bhawar" a boat-shaped structure, which accommodates 5 to 6 quintals of cotton. As soon as a sufficient quantity of produce is collected for marketing during the first picking, it is sent to the market. It will be seen that the most of the producers i.e. 93 per cent in village Vadgaon-Ambe had stored the produce upto the period of one month only. The percentage is still higher i.e. 98 in village Nipane. There were 4.68 per cent and 2.00 per cent cultivators who stored produce for a period of two months in village Vadgaon-Ambe and Nipane respectively. The percentage

of cultivators storing produce for a period of more than two months was 1.56 in village Vadgaon-Ambe. The maximum period of storage was 3 months and 20 days in respect of a lone cultivator possessing the largest holding of cotton in the village.

The above discussion will indicate that the cotton is mostly stored in loose form and usually for a short period of not more than one month.

Description of Methods of Storage  
and Loss in Storage of Cotton

We have seen that a few cultivators stored their cotton on the farm. The place of storage was usually near the farm house or cattle shed so as to get some protection from wind and dust. The floor was smeared with mud and cow-dung in order to protect against dampness. It was argued by these cultivators that this method kept the kapas dry and there was no effect on quality. Besides, the period of storage being very short there was no loss in quantity. However, when it was inquired regarding the danger from rats and fire, the cultivators told us that they took maximum care of this valuable commodity. They could make use of rat poison, if necessary, and patrolling during the day and night. All the cultivators in this group took their cotton directly to the market in bullock-carts either loose or in bhots.

The majority of the cultivators stored their produce loose in heaps in a portion of their houses. The floor was plastered with mud and cow-dung. However, it was seen that

many of the houses lacked good ventilation. As the period of storage was very short, the effect on quality (change of colour) and quantity was stated to be almost negligible. As regards the losses due to storage, such estimates were obtained from the cultivators who stored the cotton for a period of more than one month. Actual loss on account of either theft or fire was not reported by any one covered by our sample. These types of losses were termed as accidental and were quite rare in occurrence. There was no loss or gain on account of weight as the weather in the area was dry during the season. However, some cultivators in view of their experience had expressed that there was a possibility of fetching a slightly lower price on account of the change in colour. Such a loss was estimated as getting about 5 per cent lower price than the average. No actual loss was experienced by the cultivators as most of them disposed of their produce within one month of harvesting. They said that losses also depended on the quality of seeds used and the condition of the crop at the time of harvest. All of them reported using Virnar (Y-1) variety and there was no deterioration in quality during a very short period of storage. They were also found particular about selling of cotton of different pickings separately so that there was no reduction in the price on account of the difference in quality, if any due to mixing and change in colour.

#### Costs of Storage of Cotton in Villages

The storage costs are not static but change with type,

period, and place where it is stored and magnitude of investment etc. involved. Usually, the cultivators stored cotton either in houses or in fields in a loose condition. Normally, space involves no charge and no outside labour is employed for storing the produce. Two other main items of costs are interest and loss in weight. Majority of the cultivators sold their produce within a month. About 5 per cent cultivators from Vadgaon-Ambe and 2 per cent from Nipane stored for a period of 2 months. The problem of accommodation was examined by us. We collected the information regarding the space used for the purpose of storage by each cultivator, their family size and household needs of accommodation. It was found that in both the villages about 30 per cent cultivators faced the problem of accommodation but at the same time they expressed that the period of storing cotton being very short, and as some of the male members of the family used to sleep in chawadi, temple or on farm, they did not really feel that their household needs were squeezed on account of this. Only thing was that there was some inconvenience but they were used to it over years. The cost of storing one quintal of cotton for one month in villages taking into consideration the main item of interest is estimated at 1 rupee 8 paise i.e. 0.65 per cent of the price. The average price of one quintal of cotton in October was Rs. 275. Interest is calculated on 60 per cent loan amount available from the bank at the rate of 8 per cent per annum prescribed by the District Central Co-operative Bank, Jalgaon for the year 1971-72.

### Harvesting of Groundnut

During the year harvesting season of groundnut in the region lasted for two months of September and October. Generally, the haulms are first cut to be utilized as fodder. The field is then worked with a harrow one or more times. Pods brought to surface are collected mostly by women by hands. After the pods have been collected, they are dried in the sun till the nuts make a rattling sound and kernels get loose in the shell. The period of drying varies from 3 to 10 days depending upon weather and crop condition. The pods are spread in the threshing yards on the farm, roofs of houses and such other open spaces.

### Nature and Extent of Storage of Groundnut

Tables 3.4 and 3.5 provide us with the information regarding the type of storage and period of storage of groundnut in two villages of Pachora Tahsil. It will be seen that only 3.12 per cent cultivators in Vadgaon-Ambe village had stored their produce on the farm in a loose condition. All of them had houses on the farm. The produce was kept inside the farm houses. Fifty-six per cent and 70 per cent of the cultivators stored in loose heaps in their houses in Vadgaon-Ambe and Nipane villages respectively. The percentage of storing in gunny bags was over 18 in village Vadgaon-Ambe and 12 in Nipane. 6.24 per cent cultivators made use of earthen vessels in Vadgaon-Ambe. The percentage of such cultivators in Nipane was 8.00. Similarly, the use of Kothi was made by 9.36 and



**Table 3.4 : Nature of Storage of Groundnut in the Villages of Pachora Tahsil, 1971-72**

Village	Type of storage	No. of cultivators whose size of holding under groundnut was (hectares)						Group Total	Percentage
		Upto					Above		
		1	2	3	4	5	5		
1. Vadgaon-Ambe	1. Loose on Farm	-	-	1	-	-	1	2	3.12
	2. Loose in House	20	6	2	6	1	1	36	56.32
	3. Earthern Vessels	4	-	-	-	-	-	4	6.24
	4. Gunny bags	6	3	1	1	-	1	12	18.72
	5. Kanagi	-	1	1	1	1	-	4	6.24
	6. Kothi	-	2	1	1	1	1	6	9.36
	<b>Total</b>		30	12	6	9	3	4	64
2. Nipane	1. Loose on Farm	-	-	-	-	-	-	-	-
	2. Loose in House	22	9	4	-	-	-	35	70.00
	3. Earthern Vessels	4	-	-	-	-	-	4	8.00
	4. Gunny bags	3	2	1	-	-	-	6	12.00
	5. Kanagi	1	-	1	-	-	-	2	4.00
	6. Kothi	-	2	1	-	-	-	3	6.00
	<b>Total</b>		30	13	7	-	-	-	50

**Table 3.5 : Extent of Storage of Groundnut in the Villages of Pachora Tahsil, 1971-72**

Village	Period of storage	No. of cultivators whose size of holding under groundnut was (hectares)					Group Total	Percentage	
		Upto							Above 5
		1	2	3	4	5			
1. Vadgaon- Ambe	1. Fortnight	1	-	1	-	-	-	2	3.12
	2. 1 month	12	6	3	-	-	-	21	32.86
	3. 2 months	13	3	-	4	-	1	21	32.86
	4. 3 months	4	1	2	1	-	-	8	12.48
	5. 4 months	-	-	-	3	-	-	3	4.64
	6. 5 months	-	2	-	-	1	1	4	6.24
	7. 6 months & above	-	-	-	1	2	2	5	7.80
	<b>Total</b>		<b>30</b>	<b>12</b>	<b>6</b>	<b>9</b>	<b>3</b>	<b>4</b>	<b>64</b>
2. Nipane	1. Fortnight	1	-	-	-	-	-	1	2.00
	2. 1 month	9	3	4	-	-	-	16	32.00
	3. 2 months	15	7	-	-	-	-	22	44.00
	4. 3 months	2	2	1	-	-	-	5	10.00
	5. 4 months	3	-	-	-	-	-	3	6.00
	6. 5 months	-	-	-	-	-	-	-	-
	7. 6 months & above	-	1	2	-	-	-	3	6.00
	<b>Total</b>		<b>30</b>	<b>13</b>	<b>7</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>50</b>

6.00 per cent cultivators in Vadgaon-Ambe and Nipane villages respectively. 6.24 and 4.00 per cent cultivators from Vadgaon-Ambe and Nipane villages respectively used Kanagi for the purpose.

The period of storage of groundnut varied from a fortnight to more than six months (actually 11 months in respect of one cultivator from Vadgaon-Ambe in the group of holding above 5 hectares). The number of cultivators storing for a short period of a fortnight was very small. The period of storage most popular with the cultivators was between 1 to 3 months. A considerable number of cultivators from both the villages had undertaken to store for a period of 4 months and above.

The above discussion shows that mostly cultivators in this region either like to store groundnut in a loose condition or in gunny bags. The use of earthen vessels is mainly made for storing nuts reserved for seeds. The use of small and big kothis was also made by the cultivators in all size groups of holdings. The period of storage ranged from a fortnight to over six months. It was also observed that in general there was a tendency to sell the cotton immediately after harvesting and postponing the sale of groundnut and store it for some time. This arrangement enables them to satisfy their immediate financial needs.

It is interesting to note that although there is a small size godown of co-operative multipurpose society in

village Vadgaon-Ambe, during the year 1971-72, none of the producers in the village stored his produce in this godown. Half of the space of the godown was rented to the Dairy Society. The remaining portion of the godown was used as the office of the co-operative multipurpose society.

We tried to find out from the cultivators as to why they did not make use of godown of co-operative society in their village for storing produce. Most of them told us that they were not willing to part with their produce and preferred to store it in whichever structure was available with them so as to dispose it whenever they liked for obtaining cash money in their own hands. Although there was some awareness about the losses incurred due to unsatisfactory method of storage adopted by them, they seemed to avoid the use of the common godown facility for the sole reason that they will be obliged to pay off all the dues of different agencies such as Government, co-operative society, traders and moneylenders etc. at the time of the withdrawal of the goods. It was also observed by us that a few cultivators with large holdings were having sufficient accommodation to store the produce in their big houses. The need for a common facility of storage was not felt by them. The behaviour of the cultivators in the village without a godown was found to be similar.

However, two cultivators from Vadgaon-Ambe had availed the storage facility for groundnut at Pachora market provided by the co-operative society and obtained loan. They belonged to the group of large holdings above 5 hectares.

Description of Methods of Storage  
and Loss in Storage of Groundnut

We have seen that a few cultivators have stored their produce in loose heaps on the farm in unpacked condition. The produce was left on the threshing yard for about one week till it is dry and then it was stored in the farm house. On the farm the place for drying was usually the threshing yard. The methods of storing in the house in a loose condition and also in bags were popular and practised by a large number of cultivators. The place of threshing yard on the farm and the floor of the houses on the farm and in villages was smeared with mud and cow-dung and made as far as possible hard and damp-proof. The kanagi is made from cotton or tur stalks and plastered preferably with cow-dung. It is cylindrical in shape and 5 to 6 feet in height. Five to ten bags of produce can be easily stored in it depending on its diameter. Another type of storage used in this region was a kothi.<sup>1</sup> In this region a kothi means a small room itself in a house or made purposively in a big room by constructing a partition wall of brick or stone. In these kothis 5 to 25 quintals of groundnuts could be stored depending upon the size.

Nuts kept loose and in gunny bags are more liable to damage by dampness and rats than compared with those kept in earthen vessels, kanagis and kothis. The extent of deteriora-

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<sup>1</sup> But this kothi is distinct from that made of unburnt clay mixed with straw and cow-dung or brick and masonry, cylindrical in shape commonly in use in Bihar, Uttar Pradesh and Punjab.

tion in quality and loss in quantity (due to drilage and rats) depends upon the condition of nuts and the place of container where they are stored. The freshly harvested nuts contain a considerable amount of moisture. After drying in sun their weight is reduced considerably. The estimates of losses on account of drilage and due to rats were obtained from the cultivators. The loss on this account together is estimated at 2 kgs per quintal per month i.e. 1/2 kg. per bag.

Our study showed that with a view to increasing production 60 per cent of the cultivators from village Vadgaon-Ambe and 45 per cent cultivators from village Nipane had adopted new technology by making use of either one or more of the following items: fertilisers, improved seeds, implements, insecticides and pesticides. In this context we wanted to know from them as to what they did for conservation of produce. But we were disappointed to find that not much thought was given by them to this aspect. Similarly they have not visualized use of modern bins and silos. May be they were haunted by the considerations of cost. It appears that our agricultural extension service has also remained ineffective in the matter. Another handicap in this regard was the poor quality of their old dwelling places. Our enquiry revealed that for the proper storage arrangements of the produce neither the extension staff nor co-operatives and panchayats have impressed upon the cultivators with concrete proposals and demonstrations.

### Costs of Storage of Groundnut in Villages

We have seen that the nuts were stored in a loose condition on the farm and in the houses. The use of earthen vessels, gunny bags, kanagi and kothi was also made for the purpose. Space usually involves no cost and other types could be used for storing more than one commodity during the year and over a number of seasons. As in the case of cotton, here also the accommodation was not found adequate for storing the produce and meeting the household needs by about 30 per cent cultivators in both the villages. But it did not involve any cost to them. No expenditure was incurred on handling of the produce. The cost of kanagi ranged from Rs. 10 to Rs. 15. A new gunny bag costs Rs. 3.80 and old one from Rs. 1.37 to Rs. 2.50. The average price of one quintal of groundnut in October was Rs. 116. The estimates of cost under main items of interest (at 8 per cent per annum on co-operative loan), depreciation of the container and loss in weight in respect of gunny bags, kanagi and kothi worked out to Rs. 1.09, 88 paise and 91 paise per quintal per month i.e. 0.94, 0.76 and 0.78 per cent respectively of the price. As the nuts kept loose and in gunny bags were more liable to damage, the use of kanagi and kothi was found effective and cheaper. But hardly 5 per cent cultivators adopted this method.

### Characteristics of Sale

Tables 3.6 and 3.7 show the place of sale, agency of sale and mode of transport in respect of cotton and groundnut respectively in the villages of Pachora Tahsil. It will be

Table 3.6 : Place of Sale, Agency of Sale and Mode of Transport of Cotton in respect of Villages in Pachora Tahsil, 1971-72

Item	Vadgaon-Ambe								Nipane							
	No. of cultivators whose size of holding under cotton was (hectares)						Group Total	Percentage	No. of cultivators whose size of holding under cotton was (hectares)						Group Total	Percentage
	Upto 1	2	3	4	5	Above 5			Upto 1	2	3	4	5	Above 5		
<b>Place of Sale</b>																
1. Village	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2. Village bazaar	-	1	-	-	-	-	1	1.56	2	1	-	-	-	-	3	6.00
3. Market Centre	2	2	2	1	-	-	7	10.94	-	-	-	-	-	-	-	-
4. Regulated Market	10	17	8	10	4	7	56	87.50	25	11	9	1	-	1	47	94.00
<b>Total</b>	<b>12</b>	<b>20</b>	<b>10</b>	<b>11</b>	<b>4</b>	<b>7</b>	<b>64</b>	<b>100.00</b>	<b>27</b>	<b>12</b>	<b>9</b>	<b>1</b>	<b>-</b>	<b>1</b>	<b>50</b>	<b>100.00</b>
<b>Agency of Sale</b>																
1. Co-operative Society	12	16	8	11	3	5	55	85.94	24	11	8	1	-	1	45	90.00
2. Trader	-	4	2	-	1	2	9	14.06	3	1	1	-	-	-	5	10.00
<b>Total</b>	<b>12</b>	<b>20</b>	<b>10</b>	<b>11</b>	<b>4</b>	<b>7</b>	<b>64</b>	<b>100.00</b>	<b>27</b>	<b>12</b>	<b>9</b>	<b>1</b>	<b>-</b>	<b>1</b>	<b>50</b>	<b>100.00</b>
<b>Mode of Transport</b>																
1. Head-load	-	2	-	-	-	-	2	3.12	3	1	-	-	-	-	4	8.00
2. Cart	12	18	10	11	4	6	61	95.32	24	11	9	1	-	1	46	92.00
3. Truck	-	-	-	-	-	1	1	1.56	-	-	-	-	-	-	-	-
<b>Total</b>	<b>12</b>	<b>20</b>	<b>10</b>	<b>11</b>	<b>4</b>	<b>7</b>	<b>64</b>	<b>100.00</b>	<b>27</b>	<b>12</b>	<b>9</b>	<b>1</b>	<b>-</b>	<b>1</b>	<b>50</b>	<b>100.00</b>



Table 3.7 : Place of Sale, Agency of Sale and Mode of Transport of Groundnut in respect of Villages in Pachora Tahsil, 1971-72

Item	Vadgaon-Ambe							Nipane								
	No. of cultivators whose size of holding under groundnut was (hectares)						Group Total	Percentage	No. of cultivators whose size of holding under groundnut was (hectares)						Group Total	Percentage
	Upto 1	2	3	4	5	Above 5			Upto 1	2	3	4	5	Above 5		
<b>Place of Sale</b>																
1. Village	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
2. Village Bazaar	3	2	-	-	-	-	5	7.81	1	-	-	-	-	-	1	2.00
3. Market Centre	2	-	2	-	-	-	4	6.25	2	1	-	-	-	-	3	6.00
4. Regulated Market	25	10	4	9	3	4	55	85.94	27	12	7	-	-	-	46	92.00
Total	30	12	6	9	3	4	64	100.00	30	13	7	-	-	-	50	100.00
<b>Agency of Sale</b>																
1. Co-operative Society	25	10	6	9	2	4	56	87.50	27	11	6	-	-	-	44	88.00
2. Trader	5	2	-	-	1	-	8	12.50	3	2	1	-	-	-	6	12.00
Total	30	12	6	9	3	4	64	100.00	30	13	7	-	-	-	50	100.00
<b>Mode of Transport</b>																
1. Head-load	3	1	-	-	-	-	4	6.25	1	-	-	-	-	-	1	2.00
2. Cart	27	11	6	9	3	3	59	92.19	29	13	7	-	-	-	49	98.00
3. Truck	-	-	-	-	-	1	1	1.56	-	-	-	-	-	-	-	-
Total	30	12	6	9	3	4	64	100.00	30	13	7	-	-	-	50	100.00

seen that as regards cotton there were no village sales at all. Hardly 1.56 per cent and 6 per cent cultivators in Vadgaon-Ambe and Nipane villages respectively sold their produce in village bazaars of Varkhedi and Nagardevale. In Vadgaon-Ambe about 11 per cent cultivators sold the produce in a market centre viz. Shendurni, which is 10 kms. away and where there is a sub-yard of the regulated market of Jamner Tahsil Agricultural Produce Market Committee. All these cultivators reported that their decision to sell the produce in Shendurni market was not influenced by the factor of distance. Between 87.50 and 94.00 per cent cultivators had taken their produce straight to the regulated market at Pachora which is at a distance of 15 kms. Most of the sales were through co-operative society for both the villages. Seventy-three per cent cultivators from Vadgaon-Ambe and 62 per cent from Nipane availed co-operative loans from village co-operative societies. Over 95 and 92 per cent of the cultivators from Vadgaon-Ambe and Nipane villages respectively used bullock-cart for carrying their produce to the market. There was a single cultivator from Vadgaon-Ambe who made use of a truck. The holding of this cultivator under cotton was more than 5 hectares. The pattern for the commodity groundnut was similar one. Between 86 and 92 per cent cultivators took the produce to regulated market at Pachora. Six per cent sold at market centre viz. Shendurni. There were no village sales. Very little produce was sold in village bazaars of Varkhedi and Nagardevale. Most of the transactions

were made through co-operative societies. Traders accounted for the produce of 12 per cent of cultivators. Usual mode of transport was the cart. One cultivator from the group of 5 hectares and above used truck for transporting his produce to market. Seventy per cent and 59 per cent cultivators from Vadgaon-Ambe and Nipane respectively owned bullock-carts. Others made use of carts on hire.

It was revealed during our survey that none of the producers (64 from Vadgaon-Ambe and 50 from Nipane) retained cotton either for seed or domestic purposes. Entire produce was sold by them. For the purpose of seed they relied on outside sources. As regards groundnut the quantity retained mainly for seeds ranged from 8 per cent to 15 per cent. About 75 per cent of the requirements of seed were met from the quantity retained by them.

#### Marketing Information

Marketing information is useful for interpretation of marketing behaviour. It consists of news regarding price quotations, information on production and marketing plans, data relating to acreage and production of crops in the past, outlook information which enables to forecast market conditions, studies describing varying types of markets and general economic information that helps interpreting market behaviour.

The agencies which disseminate this information are State and Central Governmental Agricultural and Marketing Departments, magazines and newspapers, radio and firms

supplying price quotation to their customers etc. The information on various aspects is made available in several market reports and statistics published by Government and through Market News Service on radio.

During our survey it was observed that the producers in villages were trying to obtain information if not on all aspects (demand and supply trends, stocks, Government policies etc.) but on one viz. price quotations before enacting sales. It was learnt that such information was available to them through radio and newspapers in a reasonably accurate and simplified form. It was observed that they were particularly interested in securing the information for the nearby markets viz. Pachora and Shendurni to which they usually take their produce for sale. They did not give any thought to compare the prices ruling in nearby markets with those in terminal markets. They thought that selling in terminal markets at long distances would involve a lot of expenditure on transport and waste of their time.

Table 3.8 gives sources of information to cultivators in villages of Pachora Tahsil. The sources of information cited by them as more accurate and reliable were: newspapers, radio, letters from traders or societies, and visits to the markets. The remaining sources where information is received indirectly are treated as less accurate and biased. It may be noted here that a number of cultivators had multiple sources of information. However, the source of which continuous use was made by them is taken for our analysis. It will

**Table 3.8 : Sources of Market Information to Cultivators in Villages of Pachora Tahsil, 1971-72**

Source	No. of cultivators whose holding under all crops was (hectares)						Group Total	Percentage
	Upto 5	10	15	20	25	Above 25		
1. Newspaper	11	14	6	8	-	1	40	46.35
2. Radio	-	2	3	-	-	-	5	6.00
3. By letter from Trader	-	-	1	-	-	-	1	1.20
4. By letter from Society/ Processing Concern/ Mill/Factory	2	-	-	-	-	-	2	2.40
5. By going to the market	8	14	2	1	-	-	25	30.95
6. From buyer visiting the place	2	1	2	-	-	-	5	5.95
7. From Neighbour	6	-	-	-	-	-	6	7.15
<b>Total</b>	<b>29</b>	<b>31</b>	<b>14</b>	<b>9</b>	<b>-</b>	<b>1</b>	<b>84</b>	<b>100.00</b>

be seen from the Table that the largest number of cultivators 46.35 per cent relied on newspapers. Similarly equally large number 30.95 per cent verified the prices by visiting the markets personally. Further, it was seen that the cultivators from all size groups of holdings had made use of these two reliable sources of market information.

#### Nature and Extent of Storage at the Primary Market Level

The analysis in the following paragraphs is based on the case studies made by us of 7 godowns at Pachora, of which 5 were operated by the Maharashtra State Warehousing Corporation and one godown belonged to Shetkari Sahakari Sangh, Pachora (Purchase and Sale Co-operative Union) and the other one to a private trader. On account of the wealth of information we had from the records of the State Warehousing Corporation, it has been possible for us to analyse the problem of storage at the primary market level in a systematic and convincing manner.

#### Description of Methods of Storage and Loss in Storage

In Table 3.9 we present the details of these godowns depicting the nature of storage at the market level. It will be seen that all the seven godowns are pakka godowns and as such goods could be stored there properly and for longer periods. In the godowns of Maharashtra State Warehousing Corporation stacking is done in such a way as to allow sufficient space by the side of walls for spraying etc. The godowns are swept twice a week. After every three weeks Maltheon 50 cc

Table 3.9 : Details of Storage Godowns and Nature of Storage at Pachora Primary Market, 1971-72

Sr. No.	Size of Godown	Capacity (Quintals)	Location	User	Owned or Hired	Construction				Commodities stored	Method of storage
						Floor	Walls	Roof	Doors and windows		
1.	100' x 40' x 18'	5,000	Market Yard	M.S.W.C.	Hired	Concrete	Bricks in lime	Galvanized sheets	4 doors on one side; 8 ventilators on each side	Fertilizers	Gunny bags
2.	60' x 40' x 15'	3,000	Market Yard	M.S.W.C.	Hired	Shahabad stone	Bricks in cement and lime	Galvanized tins	2 doors; 12 ventilators on each side	Foodgrains	Gunny bags
3.	39' x 20' x 13'	1,000	1 Furlong from Market and Railway Station	M.S.W.C.	Hired	Concrete	Stone and bricks in lime	Galvanized sheets	3 doors in front; 3 ventilators back side	Cotton bales	Pressed bales
4.	100' x 40' x 15'	5,000	Ginning Factory	M.S.W.C.	Hired	Shahabad stone	Bricks in cement and lime	Galvanized tins	2 doors; 12 ventilators on each side	Groundnut Cotton bales Cotton seeds	Loose and gunny bags Pressed bales Gunny bags
5.	100' x 40' x 15'	5,000	Ginning Factory	M.S.W.C.	Hired	- do -	- do -	- do -	- do -	- do -	- do -
6.	40' x 18' x 12'	750	Market Yard	S.S.S.	Owned	Concrete	Bricks in lime	Galvanized sheets	1 door; 4 ventilators	Foodgrains Groundnut	Gunny bags - do -
7.	50' x 35' x 15'	2,000	Oil Mill	Trader	Owned	Concrete	Stone in lime	Tin sheets	4 doors; 12 ventilators	Oilseeds Cake	Loose Gunny bags

M.S.W.C. = Maharashtra State Warehousing Corporation.

S.S.S. = Shetkari Sahakari Sangh (Taluka Co-operative Purchase and Sale Union).

is sprayed in the godown. If necessary, stocks are fumigated with aluminium phosphate. Bamboo mats are spread on the floor as dunnage. Polythene roles are put on the top stacking. As the condition and maintenance of these godowns was very good, there occurred hardly any losses during storage. However, in respect of groundnut the loss in weight mainly due to driage is estimated at 4 kgs. per quintal during the maximum period of 10 months. No losses have been reported on account of any other reasons including pilferage etc. In none of the godowns cotton (kapas) was stored during the year. The sales of cotton take place in the compounds of Ginning and Pressing Factories where it lies in loose condition for one or two weeks until it is sent for ginning and pressing. Similarly, groundnut is kept in the premises of processing concerns either in loose heaps or sheds till decorticating.

In Table 3.10 we give detailed information regarding the storage transactions which took place in the godowns of Maharashtra State Warehousing Corporation at Pachora during the year from 1-9-1971 to 31-8-1972. As regards groundnut it may be seen that the total number of deposits and withdrawals was 16 each. The minimum period of storage was 8 days and maximum 10 months. Fifty per cent each of the total number of deposits were made by traders and co-operative societies. There was no individual primary producer who stored groundnut in the warehouse during the year. Loans were taken on 7 deposits of groundnut from the Pachora Peoples Co-operative Bank. The other commodities stored were wheat, cotton bales,



Table 3.10 : Details of Storage Transactions in the Godowns of the Maharashtra State Warehousing Corporation during the Year 1971-72

Commodity	No. of deposits during the year	ownership classification			No. of withdrawals	Period of storage		No. of deposits against which loan is taken from				
		Primary producer	Trader	Society		Minimum Months-Days	Maximum Months-Days	Pachora Peoples Co-operative Bank	United Western Bank, Bhadgaon	Bank of Baroda	Aurangabad District Central Co-operative Bank	Jalgaon District Central Co-operative Bank
1. Groundnut	16	-	8	8	16	0-08	10-00	7	-	-	-	-
2. Wheat	44	25	5	14	84	0-20	10-00	3	9	1	-	-
3. Cotton bales	28	-	3	25	28	0-04	5-10	2	-	-	3	3
4. Cotton seed	2	-	2	-	2	1-05	1-26	-	-	-	-	-
5. Rice	2	2	-	-	6	1-14	4-10	-	-	-	-	-
6. Jowar	2	2	-	-	5	1-02	5-12	-	-	-	-	-
7. Bajra	4	4	-	-	7	3-22	13-27	-	-	-	-	-
8. Tur dal	4	3	-	1	4	0-22	5-22	-	3	-	-	-
9. Safflower	5	5	-	-	7	0-17	13-03	4	1	-	-	-
10. Gram	1	-	1	-	-	0-07	2-03	1	-	-	-	-
11. Gur	5	5	-	-	5	1-18	3-12	1	-	-	-	-

cotton seeds, rice, jowar, bajra, tur dal, safflower, gram and gur. In all, loans were obtained by 38 depositors against the commodities groundnut, wheat, cotton bales, tur dal, safflower, gram and gur. The largest number of loans were taken against wheat deposits. Of all commodities minimum period of storage was 4 days in respect of cotton bales and maximum 13 months and 27 days in case of bajra.

During the year groundnut was stored in the godown of Shetkari Sangh by 9 depositors who were producers. The number of withdrawals against these deposits were 13. The minimum period of storage was 4 days and maximum 8 months and 2 days. The total quantity stored was about 515 quintals. Advances were made available to these depositors upto 60 per cent of the value of the produce at 9 per cent interest per annum. The storage charge was 10 paise per bag (35 kgs. to 45 kgs.) per month.

The godown of the private trader studied by us was mainly used for storing oilseeds and cakes. It was located near the oil mill. Groundnut was purchased by the trader outright for processing.

The largest proportion of groundnut sold in Pachora market was through the co-operatives. The buyers mainly were processing concerns. It was revealed during our survey that in Pachora market generally the private traders did not undertake storage of groundnut on behalf of producers and did not give them advances.

Costs of Storage of Groundnut  
at Pachora Primary Market

In Table 3.11 we provide the details of deposits of groundnut with the Maharashtra State Warehousing Corporation during the year 1971-72. Actually out of 16 deposits loans were obtained against 7 deposits. The loans to the extent of 60 per cent of the value of produce were advanced by the Pachora Peoples Co-operative Bank at Pachora. The rate of interest was 12 per cent per annum.

Table 3.11 : Details of Deposits of Groundnut at the Warehouse of the Corporation during 1971-72

Deposit Sr.No.	Quantity Deposited (Quintals)	Value at the price at the time of deposit (Rs.)	Period of Storage Months-Days
1	52.50	6562.50	10-00
2	16.00	2400.00	1-10
3	32.80	4920.00	8-15
4	4.80	625.00	2-05
5	18.80	2630.00	10-00
6	16.80	2100.00	3-00
7	23.10	3118.50	7-05
8	24.30	3400.00	7-05
9	8.80	1230.00	3-10
10	19.60	2450.00	0-10
11	3.50	490.00	6-10
12	15.40	2160.00	1-25
13	13.60	1905.00	4-15
14	11.60	1740.00	5-25
15	11.20	1570.00	7-20
16	43.50	6025.00	0-08

Actually loans were not obtained on deposits at Sr.Nos. 2, 4, 8, 9, 10, 11, 13, 14 and 16. But in fact all those who keep in store, bear the interest.

In Table 3.12 the schedule of storage charges prescribed by the Maharashtra State Warehousing Corporation for different commodities on a monthly basis is given for information. The storage charge per quintal per month in respect of groundnut is 55 paise. As already pointed out the storage charge prescribed by the Co-operative Purchase and Sale Union is 10 paise per bag for one month, which means about 25 paise per quintal per month.

Besides storage charges and interest on the loan taken, depreciation of bag, loss in storage and labour (loading and unloading) are the main constituents of storage costs. In the godowns at Pachora groundnuts were stored in gunny bags. The cost of a new bag during the year was Rs. 3.80 and that of an old one ranged from Rs. 1.37 to Rs. 1.50. A new gunny bag could be used for about 5 seasons and an old one for 2 seasons. A gunny bag full of groundnuts weighs from 35 to 45 kgs. On an average a bag weighs 40 kgs. Therefore two-and-a-half bags would be required to make a quintal. The maximum period of storage of groundnut was 10 months. On this basis the depreciation of a bag per quintal per month works out to 19 paise. The loss in weight mainly due to driage is estimated at 4 kgs. per quintal over a period of 10 months. The average price of one quintal of groundnut was Rs. 116 in October. The loss in weight per quintal per month comes to 46 paise. The cost in storing groundnut in the godowns of Warehousing Corporation at Pachora primary market works out to Rs.2.05 (i.e. 1.77 per cent of the price) per quintal per month:

**Table 3.12 : Schedule of Storage Charges : Maharashtra State Warehousing Corporation—Warehouse at Pachora**

Commodity	Weight of Gunny bag (kgs.)	Monthly Rate (Paise)	Weekly Rate (Paise)
1. Wheat, Bajra, Jowar, Paddy, Maize, etc.	95 to 100	28	7
	71 to 94	25	7
	41 to 70	22	6
2. Udid, Mung, Gram, all Dals	95 to 100	30	8
	71 to 94	28	7
3. Safflower, Til, Linseed and all Oilseeds	95 to 100	30	8
	71 to 94	28	7
	41 to 70	25	7
4. Groundnut	41 to 45	24	6
	38 to 40	22	6
	Upto 37	21	6
5. Gur	26 to 40	19	5
	Upto 25	15	4
6. Chillies	Upto 65	29	8
7. Ginned Cotton		Rs. per month per bale	
a) Egyptian pressed 351 kgs.		3.30	
b) Fully pressed 180 kgs.		1.50	
c) Half Pressed 'dokra' 150 kgs.		1.38	
8. Unginned Cotton			
a) Bag upto 30 kgs.		0.28	
b) Bhot upto 150 kgs.		1.38	

Note : 1) The co-operative society gets 20 per cent rebate in storage charges.  
2) If 5000 bags of ground is kept for 4 months, a rebate of 20 per cent is given.

1) Storage charges	Rs. 0.55
2) Interest	Rs. 0.70
3) Depreciation of bag	Rs. 0.19
4) Loss in weight	Rs. 0.46
5) Labour (Hamali)	Rs. 0.15
	-----
Total	Rs. 2.05
	-----

The cost of storing groundnut in the godown of Co-operative Purchase and Sale Union works out to Rs. 1.57 (i.e. 1.35 per cent of the price) per quintal per month. The difference was mainly due to the lower rates of interest and storage charges. It is seen that the storage facility at the primary market of Pachora provided by Co-operative Union was available to the cultivators at a cheaper rate than that of Warehousing Corporation.

## Section II : Baramati Tahsil

### Introduction

The two villages selected for our study were (1) Hol, and (2) Korhale Khurd. Hol village is to the south-west of Baramati at a distance of 34 kms. and is connected by pakka road. Traffic is possible throughout the year. It has a population of 5493 as per 1971 Census. Hol is 4 kms. away from the road. But a large population has settled at Athphata on the road and live in scattered farm houses all around. Panchayat and school are located at Athphata and it is the bus stop for Hol village. The village has the following facilities: Post office, telephone, Panchayat, middle school, two

Multipurpose Co-operative societies, two godowns, Health Centre, S. T. Bus Stop, Community Radio Set, Nabhovani Shetkari Mandal, Reading Room, Demonstration plot for sugarcane and bajra. Bazaars are held in nearby villages on every Monday at Vadgaon (5 kms. away) and Wanewadi (4 kms. away) and on Sunday at Karanje (5 kms. away).

The other village Korhale Khurd is 25 kms. away to the south-west of Baramati. It has a population of 1698 as per 1971 Census. There is a pakka road of 20 kms. upto Korhale Budruk and from there a katcha village road of 5 kms. upto Korhale Khurd. This village road (cart tract) becomes unfit for transport during rainy season. Bus facility is upto Korhale Budruk throughout the year. There is another bus route from Baramati-Shirsate-Late to Korhale Khurd which operates except during the rainy season. There is a Panchayat, Co-operative Society, primary school, community radio set, reading room and demonstration plot for sugarcane and Bajra. The nearby village Korhale Budruk 5 kms. away has a godown of co-operative society. Bazaar is held at Korhale Budruk on Saturday. Also bazaar is held at Vadgaon-Nimbalkar 3 kms. away on every Sunday. Both the villages of Hol and Korhale Khurd are electrified.

The land utilization, irrigation facilities and cropping pattern in these villages have already been described in Tables 2.37 and 2.39 of the preceding chapter. The main crops grown are sugarcane, cotton, jowar, bajra, wheat and gram. We will first recapitulate the harvesting season of sugarcane and then

describe the method of preparation of gur in this region. Thereafter we will proceed to examine the type, period and cost of storage of gur in these two villages.

#### Harvesting of Sugarcane

The variety of sugarcane grown in this area is called CO-419. It is a heavy yielding thickish variety, fairly good in tillering and sucrose content. It is used on a large scale for gur making in view of its high yield. Gur of fair quality, light brown in colour, hard, crystalline and sweet to taste is made from this variety of sugarcane. During the year 1971-72 the harvesting season of sugarcane in this area started in October and lasted till the end of March.

#### Preparation of Gur

In both the villages sugarcane was crushed by crushers run either by oil engines or on electricity. At Hol village a giant sugarcane crusher was available with a big cultivator. Most of the producers from this village made use of this machinery and paid hire charges for the same. The labourers who worked in the process of gur making were mainly the cultivators themselves. The juice from the crushed cane is run off into a bucket. It is strained and transferred to large pan where it is heated for one hour or so. Bagasse, the fibrous remainder of the cane after the juice is extracted is used as fuel. The workers ladle off the scum formed of albuminoid substances that collect on the top of the liquid. Then some clarifying agents are added to the juice in the pan, which is heated for half an hour. The scum collected on the top is



removed again. The heated mixture is stirred and when it reaches its proper viscosity, it is run off into a specially built pit. The mixture after it solidifies is put into buckets which are lined with wet cloth from inside. After half an hour the lumps of gur are ready. Depending on the mould and the handling of the gur, different varieties of this product are formed. About 10 to 15 per cent of the weight of cane is realized as gur.

The lump of gur is called 'bheli'. The bheli made in Baramati area is smaller in size and weighs from 20 to 25 kgs. The bheli prepared in Kolhapur area is bigger one and weighs from 30 to 35 kgs. The author of this study had personally observed the process of gur making during the year 1971-72 in both the Baramati and Kolhapur areas.

From the juice of two tons of sugarcane at Kolhapur 8-1/2 bhelis of gur (weighing 30 kgs. each) were prepared at a cost of Rs.12. The charges for crusher were Rs. 3. The remaining Rs. 9 included labour, fuel and clarifying chemicals. The cost of making one bheli worked out to Rs. 1.40. At Baramati from the juice of one ton of sugarcane 5 bhelis (weighing 25 kgs. each) were made at a cost of Rs. 1.25 per bheli. The yield of sugarcane per hectare ranged from 150 to 175 tons. Almost 10 to 12 per cent of a given weight of cane is realized as gur. Usually, the process of gur making starts in the afternoon (say 4 p.m.) and continues late night till 1 to 2 a.m. Daily gur from 5 to 10 tons of sugarcane is made depending upon the size of crusher and pane used for the

purpose. The quality of gur made not only depends on the quality of sugarcane but also the process of gur making and climatic conditions.

Nature and Extent of Storage of Gur  
in the Villages Surveyed

All cultivators from the villages of Hol and Korhale Khurd who had converted their sugarcane into gur during the year 1971-72 were interviewed by us for the purpose of our study. The classification of these cultivators according to the size of their sugarcane holding from which all the sugarcane was crushed by them for making gur is given below.

Village	Size of holding upto (hectares)						Total
	0.50	1	2	3	4	Above 4	
1. Hol	14	5	13	1	3	2	38
2. Korhale Khurd	21	7	-	-	-	-	28

It may be mentioned here that most of these cultivators had planted sugarcane in equal holdings during the year 1971-72. Therefore the area under sugarcane in a year of a cultivator consists of sugarcane planted during the year (which is called "Navin") and the sugarcane which he cuts and uses for conversion (which is called "Galan"). Our analysis refers to the size of holdings of the cultivators from which the sugarcane ("Galan") was used for making gur.

In Table 3.13 we give the period of storage of gur in

Table 3.13 : Extent of Storage of Gur in the Villages of Baramati Tahsil, 1971-72

Village	Period of storage	No. of cultivators whose size of holding from which sugarcane was crushed for gur making (hectares)						Group Total	Percentage
		Upto					Above		
		0.50	1	2	3	4	4		
1. Hol	1. One week	6	-	-	-	-	-	6	15.79
	2. Fortnight	8	4	10	-	-	-	22	57.90
	3. 1 month	-	1	2	1	2	-	6	15.79
	4. 2 months	-	-	-	-	1	-	1	2.63
	5. 3 months	-	-	-	-	-	-	-	-
	6. 4 months	-	-	1	-	-	-	1	2.63
	7. 5 months	-	-	-	-	-	-	-	-
	8. 6 months & above	-	-	-	-	-	2	2	5.26
Total		14	5	13	1	3	2	38	100.00
2. Korhale Khurd	1. One week	5	-	-	-	-	-	5	17.85
	2. Fortnight	13	1	-	-	-	-	14	50.00
	3. 1 month	3	6	-	-	-	-	9	32.15
	Total	21	7	-	-	-	-	28	100.00

respect of these cultivators of two villages. It will be seen that in village Hol more than 72 per cent and in village Korhale Khurd more than 67 per cent of the cultivators have stored their produce for a period of one fortnight only. This means the majority of the cultivators sold their produce almost immediately. The percentage of cultivators holding the produce for a period upto 1 month was 15 and 32 in Hol and Korhale Khurd respectively. None of the producers from the small village of Korhale Khurd have stored their produce beyond one month. It may be noticed that the sugarcane converted by them was from the holdings upto 1 hectare only. In village Hol a few cultivators stored their produce for a longer period. One kept it for 2 months and another one for 4 months. There were 2 cultivators who could store their produce for a maximum period of one year. It may be noted here that these producers were from the group of large size of holdings under the crop. Actually they had converted sugarcane grown in 7.60 hectares and 13.90 hectares.

The above discussion will show that most of the producers in these villages have sold their produce almost immediately and did not store it for a longer period. However, there were a few exceptions.

#### Description of the Methods of Storage and Loss in Storage

It was seen from our study that the cultivators in both the villages had kept gur 'bhelis' in a separate room, if there was one or in a corner of the house. At all places dry

sugarcane leaves (called "Pachat") were spread on the floor and 'bhelis' were kept on it. In no case any packing was used for the gur bhelis, the reason being they were stored in their houses for a very short period of time. As we have seen earlier that there were two cultivators in village Hol, who have stored gur for a period of over one year. Out of these two, one cultivator has a very big newly built house in the village. The other one also has a big house on his farm itself. During our visit we happened to see this farm house, where a part of it was used as a godown for storing gur. The floor of both the houses was masonry and walls were built with bricks in lime. Both the places were kept clean. Bamboo matting was spread on the floor. Gur bhelis were not piled up one upon the other but kept separately. It was told that the bhelis break or get flattened when they are heaped. Both these cultivators had taken sufficient care to see that there is no damage during storage. In hot season the bhelis were kept open and in rainy season they were covered with tarpaulin so as to protect from humidity. It was told that deterioration sets in gur on account of climatic conditions and also due to the effects of soil, manuring and defective processing. Gur is likely to suffer in storage by becoming sticky. Gur which is produced late in the season and which is absolutely dry and hard can be kept in storage for a longer period and during monsoon period. Although no account of loss in storage was kept by the producers in these villages who stored gur for a longer time it was estimated at 4 kgs. per quintal over a period of 8 months.

### Costs of Storage of Gur in Villages

We have seen that gur was stored by most of the producers for a very short period and for that they were not required to incur any expenditure. The space where they kept it was a part of their house. Those few who stored for a longer period however were required to bear interest on the investment and loss in storage. The average price of gur in November 1971 was Rs. 103 per quintal. Taking into consideration these main items the cost of storage of gur in villages worked out to Rs. 1.19 (i.e. 1.16 per cent of the price) per quintal per month.

It may be mentioned here that in village Hol, there were two godowns of Multi-purpose Co-operative Societies. It was found that none of the producers in the village has made any use of these godowns for either storing gur or any other commodities. Here also as in the case of the cultivators from the village Vadgaon-Ambe in Pachora taluka we tried to probe behind the behaviour of the cultivators and their apathy towards a common storage facility in village. The replies were stereotyped that they do not want to part with their produce. May be they did not feel the need since the period of storage of gur was very short. But in that case they could have used the facility for the storage of other commodities, which they did not do. The reasons appear to be different in case of each individual cultivator. The problem was related with his size of surplus,<sup>1</sup> period of storage, means of storage and space

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<sup>1</sup> See V. S. Patvardhan, "A Note on the Data relating to Production and Marketing in Rural Credit Follow up Surveys of the R.B.I.," Artha Vinana, Vol. 6, No. 4, 1964, pp. 260-72.

available with him, Government levy, recovery of dues and the last but not least his credit needs. A lot efforts on the part of Government and Panchayat and co-operative agencies, it appears, are needed and marketing finance made available to cultivators if the existing godowns in villages were to be put to optimum use.

#### Characteristics of Sale

Table 3.14 shows the place of sale, agency of sale and mode of transport of gur in the villages of Baramati Tahsil. It will be seen that the gur produced in both the villages was sold in the regulated markets only. Baramati and Nira were the places. About 75 per cent of the producers took their produce to Baramati and 25 per cent to Nira. Hol was at a distance of 34 kms. from Baramati and 11 kms. from Nira. Korhale Khurd was at a distance of 25 kms. from Baramati and 25 kms. from Nira. It was found during our study that distance had no bearing on the producers' choice for marketing their produce viz. gur in any of the two markets. The proportion of sales through traders was 90 per cent from Hol and 75 per cent from Korhale Khurd. Ten per cent cultivators from Hol and 25 per cent from Korhale Khurd sold through co-operative societies. Fifty-five per cent cultivators from Hol and 62 per cent from Korhale Khurd availed crop loans from village co-operative societies. Usual mode of transport for gur was bullock-cart. All the producers from Korhale Khurd used cart. Similarly, from Hol all used cart except two cultivators in the size of

Table 3.14 : Place of Sale, Agency of Sale and Mode of Transport of Gur in respect of Villages in Baramati Tahsil, 1971-72

Item	Hol								Korhale Khurd							
	No. of cultivators whose size of holding under sugarcane was (hectares)						Group Total	Percentage	No. of cultivators whose size of holding under sugarcane was (hectares)						Group Total	Percentage
	Upto 0.50	1	2	3	4	Above 4			Upto 0.50	1	2	3	4	Above 4		
<b>Place of Sale</b>																
1. Village	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
2. Village Bazaar	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
3. Market Centre	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
4. Regulated Market	14	5	13	1	3	2	38	100.00	21	7	-	-	-	-	28	100.00
<b>Total</b>	<b>14</b>	<b>5</b>	<b>13</b>	<b>1</b>	<b>3</b>	<b>2</b>	<b>38</b>	<b>100.00</b>	<b>21</b>	<b>7</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>28</b>	<b>100.00</b>
<b>Agency of Sale</b>																
1. Co-operative Society	2	1	1	-	-	-	4	10.42	3	4	-	-	-	-	7	25.00
2. Trader	12	4	12	1	3	2	34	89.58	18	3	-	-	-	-	21	75.00
<b>Total</b>	<b>14</b>	<b>5</b>	<b>13</b>	<b>1</b>	<b>3</b>	<b>2</b>	<b>38</b>	<b>100.00</b>	<b>21</b>	<b>7</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>28</b>	<b>100.00</b>
<b>Mode of Transport</b>																
1. Head-load	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2. Cart	14	5	13	1	3	-	36	94.79	21	7	-	-	-	-	28	100.00
3. Truck	-	-	-	-	-	2	2	5.21	-	-	-	-	-	-	-	-
<b>Total</b>	<b>14</b>	<b>5</b>	<b>13</b>	<b>1</b>	<b>3</b>	<b>2</b>	<b>38</b>	<b>100.00</b>	<b>21</b>	<b>7</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>28</b>	<b>100.00</b>



big land holdings who made use of truck for the purpose. Sixty-five per cent and 52 per cent cultivators from Hol and Korhale Khurd respectively owned a bullock-cart. Others hired carts for carrying gur to market.

From both the villages all cultivators except six from Hol in the size of holding above 2 hectares retained about 1 per cent of the produce for domestic use. The gur retained by these six cultivators ranged from 1 per cent to 3 per cent of total production.

#### Marketing Information

Table 3.15 shows the sources of information to cultivators in the villages of Baramati Tahsil. It will be seen that the largest number of cultivators i.e. over 75 per cent relied upon the newspaper. Nine per cent listened to broadcasts particularly regarding prices. About 8 per cent ascertained the prices by personally visiting the regulated markets. A few cultivators relied on the information given to them by the traders or co-operative societies through letters. All of them were interested in knowing the prices ruling in the nearby markets of Baramati and Nira only. Two cultivators from the group of large size of holdings have made use of telephone available at Baramati and Nira to know the prices ruling in different markets. It was noticed by us that the producers in both the villages were price conscious and were in a position to sell at the time which was right according to their judgement.

#### Nature and Extent of Storage at the Primary Market Level

At Baramati we made a case study of one giant size

**Table 3.15 : Sources of Market Information to Cultivators in Villages of Baramati Tahsil, 1971-72**

Source	No. of cultivators whose holding under all crops was upto (hectares)						Group Total	Percentage
	5	10	15	20	25	Above 25		
1. Newspaper	36	12	2	-	-	-	50	75.75
2. Radio	-	5	1	-	-	-	6	9.09
3. Telephone	-	-	-	-	-	2	2	3.03
4. By letter from Trader	2	-	-	-	-	-	2	3.03
5. By letter from Society/Processing Concern/Mill/Factory	1	-	-	-	-	-	1	1.53
6. By going to the market	4	-	-	1	-	-	5	7.57
<b>Total</b>	<b>43</b>	<b>17</b>	<b>3</b>	<b>1</b>	<b>-</b>	<b>2</b>	<b>66</b>	<b>100.00</b>

godown of the Neera Canals Societies' Co-operative Purchase and Sale Union and one godown of a private trader. We tried to collect as much information as was available from these two agencies. The same is presented in the following paragraphs.

Description of Methods of Storage  
and Loss in Storage

Table 3.16 gives the details of the two godowns. It will be seen that both the godowns of co-operative society and trader were pakka godowns and proper care was taken of the produce in store. The godowns were kept clean and tidy. As the condition and maintenance of these godowns was very good, there were less chances of losses during storage. In respect of gur the storage life depends upon the method of preparation, quality, hardness, moisture content, size of lumps, season of storage and local atmospheric conditions. The weather in Baramati is generally dry throughout the year. The loss in weight is estimated at 4 kgs. over a period of 8 months, the usual period of storage there.

During the year gur was stored in the godown of Neera Canals Societies Co-operative Purchase and Sale Union by 14 depositors. All of them were producers. The total number of transactions was 30 during the year. The minimum period of storage was 5 days and maximum 8 months. The total quantity stored was about 240 quintals ( $240 \times 5 = 1100$  bhelis). Advances were taken by the depositors on 23 deposits to the extent of 60 per cent of the value of the produce in storage. The rate of interest charged by the co-operative society was at 9.37

**Table 3.16 : Details of Storage Godowns and Nature of Storage at Baramati Primary Market, 1971-72**

Item	Neera Canals Societies' Co-operative Purchase and Sale Union	Trader
Size of Godown	250' x 80' x 35'	50' x 20' x 13'
Capacity (Quintals)	50,000	1,000
Location	Near Market Yard	Near Market Yard
Owned or Hired	Owned	Owned
Construction/ Floor	Shahabad Stone	Shahabad Stone
Walls	Bricks in lime	Bricks in lime
Roof	Galvanized Sheets	Galvanized Sheets
Doors and Windows	<ol style="list-style-type: none"> <li>1. One door of large size in front;</li> <li>2. Another small on side;</li> <li>3. 40 Ventilators.</li> </ol>	<ol style="list-style-type: none"> <li>1. Two doors at back and front side;</li> <li>2. 8 Ventilators.</li> </ol>
Commodities stored	Gur, Groundnut, Food-grains, cotton bales, Fertilizers and Consumer goods	Gur only
Method of storage	<ol style="list-style-type: none"> <li>1. Separate space was allotted for gur;</li> <li>2. Bamboo matting spread on floor;</li> <li>3. Tarpaulin as a cover;</li> <li>4. Packing was used only for bhelis, which were kept for a longer period.</li> </ol>	<ol style="list-style-type: none"> <li>1. Dry sugarcane leaves (Pachat) spread on floor;</li> <li>2. Polythene Sheets for covering;</li> <li>3. Each bheli was packed with jute cloth called 'Kintan'.</li> </ol>

per cent per annum. The storage charge was Rs. 2.50 per 100 lumps of gur for one month. The monthly charge per quintal worked out to 12.50 paise.

The details of the deposits and withdrawals in the godown of the private trader were not available. The traders collected storage charges at Rs. 0.25 per quintal per month. However, a minimum storage charge for 6 months (i.e. at Rs.1.50 per quintal) was collected from the depositors. The traders advanced loans at the interest rate of 12 per cent per annum. The cost of packing at Rs. 0.75 per bheli. (Rs.3.75 per quintal) was recovered from the depositors. The loss in storage was estimated at 4 kgs. per quintal over a period of 8 months. Hardly one per cent of the arrivals of gur in Baramati market were sold through co-operatives during the year 1971-72. The whole trade of gur was in the hands of private traders.

Costs of Storage of Gur at  
Baramati Primary Market

In Table 3.17 we provide the details of deposits of gur in the godown of the Neera Canals Societies' Co-operative Purchase and Sale Union. The storage charge per quintal per month for gur is fixed at 12.50 paise by the Union. The cost of packing (jute cloth) for a bheli was Rs. 0.75. This works out to Rs. 3.75 per quintal. The maximum period of storage was 8 months. The depreciation of bag worked to Rs.0.47 per quintal per month (9 paise per bheli). The loss in weight is estimated at 4 kgs. per quintal over a period of 8 months. The average price of one quintal of gur was Rs.103.00. The loss

**Table 3.17 : Details of Deposits of Gur from the Neera Canals Societies' Co-operative Purchase and Sale Union, Baramati, 1971-72**

Deposit Sr. No.	Quantity Deposited (Quintals)	Value at the price at the time of deposit (Rs.)	Period of Storage Months-Days
1	6.00	780.00	1-25
2	15.00	1950.00	1-25
3	24.00	3120.00	2-00
4	9.00	1270.00	2-05
5	10.00	1300.00	2-10
6	5.00	650.00	2-10
7	10.00	1300.00	2-10
8	5.00	650.00	2-15
9	10.00	1300.00	2-20
10	6.00	780.00	3-05
11	11.00	1430.00	3-10
12	10.00	1300.00	3-15
13	4.00	520.00	4-00
14	6.00	840.00	0-05
15	10.00	1400.00	0-05
16	20.00	2800.00	0-10
17	10.00	1400.00	0-20
18	14.00	1960.00	0-25
19	10.00	1300.00	1-05
20	5.00	650.00	2-00
21	5.00	900.00	0-05
22	5.00	900.00	0-10
23	15.00	1800.00	2-10
24	1.00	120.00	4-00
25	1.00	120.00	8-00
26	5.00	600.00	0-05
27	6.00	720.00	0-20
28	6.00	780.00	0-05
29	7.00	980.00	0-05
30	7.00	980.00	0-05

Actually loans were not obtained on deposits at Sr.Nos. 14, 15, 21, 26, 28, 29 and 30. But all those who keep in store bear the interest.

in weight per quintal per month comes to 38 paise. The loading and unloading charges for one quintal of gur (4 to 5 bhehis) came to 15 paise. The cost of storing one quintal of gur in the godown of co-operative union at Baramati primary market for one month works out to Rs. 1.75 (i.e. 1.70 per cent of the price).

Storage charges	Rs. 0.13
Interest	Rs. 0.48
Depreciation of bag	Rs. 0.47
Loss in weight	Rs. 0.52
Labour	Rs. 0.15
Total	Rs. 1.75

The cost of storing in the godown of a trader was higher than that of the Co-operative Union. This was mainly because of higher rates of interest and storage charges. The cost works out to Rs. 3.28 (i.e. 3.18 per cent of price) per quintal per month.

Thus it will be seen that the storage facility provided by the Co-operative Union was cheaper than that of a trader at Baramati.

#### Summary and Conclusions

In the two sections of this chapter we have described the pattern, type and cost of storage of the commodities cotton and groundnut in Pachora regulated market and that of gur in Baramati regulated market. For the purpose we studied the harvesting seasons of cotton, groundnut and sugarcane during the year 1971-72 and mentioned the peculiarities. We

observed the different methods of storage and found out the period for which these commodities were stored at different levels and the losses in storage. We have also studied the costs of storage in detail and tried to work out the average costs at the primary market level. We described the characteristics of sale of these commodities particularly the place of sale, agency of sale, mode of transport and the quantity retained by the producers. We also knew the sources of market information which were frequently used by them.

We have seen that in the two villages of Pachora Tahsil, the number of pickings of cotton from second week of September to second week of December 1971 ranged from 3 to 5, but was normally three. The number of days between two pickings varied from 16 to 25. But on an average in one village the interval was of 23 days and in the other of 21 days. The bulk of the produce was harvested during the first two pickings. In one village it was 90 per cent and in the other 89 per cent. The picking during the third instalment was below 10 per cent and during subsequent pickings almost negligible.

As regards cotton, it was mostly stored in loose form in a portion of house and usually for a period of not more than two months in these villages. However, it was seen that most of the houses were very old and lacked in ventilation. Roofs of many of these houses were required to be repaired during the rainy season so as to prevent leakage. A number of cultivators made use of gunny bags and bhots for the transport of cotton to market. The cost of storing cotton in the villages was



nominal. There were no village sales at all. About 90 per cent of the cultivators took produce to the regulated market and sold through co-operatives. Entire produce was sold by them. For seeds they depended upon outside sources which were said to be reliable.

The harvesting of groundnut during the year was completed in two months of September and October. In this region the cultivators either like to store groundnut in a loose condition or gunny bags. The use of earthen vessels is mainly made for storing nuts for the purpose of seeds. Some cultivators had made the use of kanagi and kothi. The period of storage ranged from a fortnight to over six months. It was observed that in general there was a tendency to sell the cotton immediately after harvest and store the groundnut for some time. The sale of cotton one of the cash crops with them satisfied their immediate cash needs. Not a single producer was found making use of the village godown for storing his produce. It was found that they were not willing to part with their produce and did not show much interest for a common storage facility in the village. However, a few cultivators were reported to have made use of the godown of the co-operative society for storing groundnut at Pachora. The costs of storage in the village were worked out by us. The methods of storing in kanagi and kothi were found to be cheaper than the method of storing in gunny bags. The latter method also involved more losses.

No records regarding loss in weight and quality of the

produce stored in villages were kept by the cultivators. However, some estimates were given by the cultivators on the basis of their experience.

Although a substantial number of cultivators had adopted new technology by making use of one or more items of inputs such as fertilizers, improved seeds and also insecticides and implements, they have not paid sufficient attention to the conservation of produce. The blame for this cannot be put on them entirely. Our agricultural extension service has remained ineffective in the matter. The aspect of improvement in general of their dwelling places needs attention.

There were no village sales at all. The pattern of sales was similar to that of cotton. The usual mode of transport for both the commodities was the bullock-cart. The quantity retained by them for seeds was below 15 per cent.

It was found that the producers obtained reliable and accurate information regarding prices and market trends for the nearby markets through radio broadcasts, newspapers and visits to markets.

It was seen that the function of storage tends to be concentrated at the primary market level. The godowns of Maharashtra State Warehousing Corporation, Co-operative Purchase and Sale Union and processing concerns were pakka ones and goods could be stored there properly for a longer period. The facility of loan against the deposits was available from the Banks and Co-operative Purchase and Sale Union. Actually, the benefit of this was taken by a number of depositors as is

evident from our study. It is seen that the storage facility at the primary market of Pachora provided by the Co-operative Union was available to the cultivators at a cheaper rate than that of the Warehousing Corporation.

The harvesting season of sugarcane in Baramati Tahsil started in October and lasted till March end. It was seen by us that in the two villages of Hol and Korhale Khurd most of the producers have sold their gur almost immediately and did not store it for a longer period. However, there were a few exceptions. Gur bhelis were kept in houses on dry sugarcane leaves ("Pachat"). Proper care was taken by those who kept it for a longer period. The condition of houses of cultivators in this tahsil was similar to that of Pachora. The houses were very old and lacked in ventilation. Roofs of these houses needed repairs before the onset of monsoon. The costs of storage in villages were worked out by us and estimates of losses were obtained from the producers who stored for a longer period.

It was found that none of the producers in village Hol had taken advantage of the facility of godown (there were two) for storing their produce during the year. The tendency of cultivators not to part with their produce was similar to that of the cultivators observed by us in Pachora Tahsil. Besides, the reasons for their behaviour appear to be different in case of each individual cultivator. Most of them availed crop loans from co-operative societies but no effective arrangement existed for getting marketing finance. Their decisions to

store in their own houses or godowns were dependent on many factors such as size of surplus, space and means of storage available, period of storage, Government levy, recovery of dues, and credit needs.

All the producers from two villages sold gur only in regulated markets and mostly through traders. The usual mode of transport was bullock-cart. The quantity retained for domestic use by most of the producers was about 1 per cent. The majority of the cultivators relied on market news available through radio broadcasts, newspapers and visits to markets.

At Baramati, ample storage facilities were available with the traders and co-operative society. There were pakka godowns and produce could be stored for longer periods safely. A number of producers had stored gur in the godown of the co-operative society and availed of loan facility. The rate of interest was Rs. 9.37 per cent per annum. Advances were also made available by traders but the rate of interest was at 12 per cent per annum i.e. higher than that of the co-operative society. The storage facility provided by co-operative union was found to be cheaper than that of traders. At both the places Pachora and Baramati the storage accommodation available with the Warehousing Corporation and Co-operative Unions was not fully utilized throughout the year. Particularly more than half the capacity of the godown owned by Co-operative Union at Baramati remained unutilized during the year.

In the next chapter we describe the pattern of location of storage godowns with a view to finding out the inadequacies and inefficiencies.

## CHAPTER IV

### PATTERN OF LOCATION OF STORAGE GODOWNS

This chapter reviews the pattern of location of storage godowns in Pachora and Baramati Tahsils in two separate sections. In each section firstly an account of the constitution, working of the Market Committee and volume of trade in the regulated market is given for the background and general information. It is followed by the description of the location of the market yard proper and the facilities available there including storage godowns. Thereafter we have described the storage facilities available in the market town. Lastly, the pattern of location of storage godowns in the villages of the tahsil is studied with the help of a location map.

#### Section I - Pachora

##### Establishment of the Market

Pachora is one of the important commercial centres in Jalgaon District (Khandesh). It is linked with the district headquarters Jalgaon and the State capital Bombay with broad-gauge railway line and State highway. The Bombay Agricultural Produce Markets Act, 1939,<sup>1</sup> was made applicable to Pachora

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<sup>1</sup> A new Act called "The Maharashtra Agricultural Produce Marketing (Regulation) Act, 1963" has come into force from 25th of May 1967. The working of the regulated markets in the State is governed by the Act and the Maharashtra Agricultural Produce Marketing (Regulation) Rules, 1967, made thereunder. The sole objective of the legislation is to improve the bargaining position of the agricultural producers. This is sought to be done by regulating marketing practices within a given area

(Principal Market) in the year 1944, but the actual functioning of the regulated market started from the year 1945. The jurisdiction (market area) of the Agricultural Produce Market Committee at Pachora was extended to the adjoining Tahsil of Bhadgaon right from the beginning. Two sub-market yards (subsidiary markets) were established under Pachora Market at village Varkhede and Nagardevale during the year 1956 and 1963 respectively and these are functioning as cattle markets only. Initially only cotton and groundnut were the regulated commodities. Later, in 1950 black gram, other pulses and gur were brought under regulation. In 1954, jowar, bajra and wheat also came under regulation. Lastly in 1955, cattle, sheep, goats etc. were brought within the purview of the market.

#### Volume of Trade

The quantity and value of the arrivals of different regulated commodities during the year 1971-72 are given in Table 4.1.

It can be seen from this Table that cotton and groundnut were the most important commodities traded in this market both in terms of quantity and value. As per rules wholesale

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by establishment of regulated markets and constituting market committees for the purpose of enforcing the various provisions relating to: (1) licensing of market functionaries and supervision over them, (2) use of standard weights and measures, (3) sale by open auction, (4) prescribing definite market charges and prohibiting unauthorized deductions or trade allowances, (5) arrangement for settlement of disputes regarding quality and weight etc. of produce, and (6) dissemination of marketing information.

**Table 4.1 : Arrivals and Value of Regulated Commodities in Pachora (Principal) Market during the Year 1971-72**

Commodity	Quantity (Quintals)	Value (Rs.)
1. Cotton	45,465	96,11,865
2. Groundnut	34,728	46,37,235
3. Gur	17,419	23,49,946
4. Black gram	4,707	7,22,739
5. Mung	5,616	8,80,877
6. Math	213	18,309
7. Til	524	1,23,276
8. Tur	420	49,688
9. Chawali	84	11,071
10. Erandi	1,041	1,30,388
11. Jowar	1,608	1,55,321
12. Bajra	13,152	11,36,864
13. Wheat	31,027	28,81,324
<b>Total</b>	<b>1,56,004</b>	<b>2,27,08,903</b>

**Source :** Annual Administration Report of the Agricultural Produce Market Committee, Pachora, for the year 1971-72.

trading in the notified commodities can take place in the principal and subsidiary markets established for the purpose. However, in view of the powers vested in it the market committee at Pachora has permitted 'B' and 'C' class traders to make transactions in the market area on a small scale basis under intimation to the market committee as per the procedure laid down in this behalf. There were in all 106 traders and 6 co-operative societies operating in the market during the

year 1971-72. The volume of transactions done through the co-operative societies is given in Table 4.2.

It may be seen that 69 per cent of the total sales in the market were done through the co-operative societies, 74 per cent of the total arrivals of cotton and 80 per cent of the total arrivals of groundnut were sold through the 'adat' shops of the co-operative societies. During the year 1971-72, 12,178 bales of cotton were pressed by the 7 ginning and pressing factories. Out of these seven factories five factories belonged to the private traders and two were of the Shetkari Sahakari Sangh. The groundnut sold in the market was mainly used by the local oil mills. There were 8 such mills belonging to private traders except one, which was operated by the Shetkari Sahakari Sangh.

The following banks were functioning at Pachora: (1) State Bank of India, (2) Bank of Maharashtra, (3) Jalgaon District Central Co-operative Bank, and (4) The Pachora Peoples Co-operative Bank. The first two nationalized banks gave development loans to cultivators and trade credit to traders. The District Central Co-operative Bank made available short, medium and long term loans to co-operative societies for production, marketing and development purposes. The Pachora Peoples Bank gave loans to producers and traders at 12 per cent per annum on warehouse receipt upto the value of 60 per cent of the agricultural produce. The Co-operative Purchase and Sale Union also gave advances on the pledge of produce stored in its godowns by the cultivators. However, it was



**Table 4.2 : Volume of Transactions Made Through Co-operative Societies during 1971-72**

Name of the Society	Cotton	Ground-nut	Other commodities (Quintals)	Value (Rs.)	As a percent of total market transactions
1. Shetkari Sahakari Sangh Ltd., Pachora	12,989	11,138	12,743	56,87,469	29
2. Shetkari Sahakari Sangh Ltd., Bhadgaon	3,071	5,336	12,653	14,46,005	7
3. Shetkari Sahakari Sangh Ltd., Erandol	3,626	610	1,300	10,53,742	5
4. Soygaon Taluka Purchase and Sale Society	7,899	10,324	14,897	49,36,943	21
5. Nagardevale Group Co-operative Society	3,939	624	2,153	10,18,475	5
6. Amadade Group Co-operative Society	2,262	-	-	3,30,921	2
<b>Total</b>	<b>33,786</b>	<b>28,082</b>	<b>43,746</b>	<b>1,44,73,555</b>	<b>69</b>

**Source :** Annual Administration Report of the Agricultural Produce Market Committee, Pachora, for the year 1971-72.

found that generally, the general commission agents at Pachora did not give credit to the cultivators. The reason for this may be that 70 per cent of the produce was sold through co-operatives.

The number of cattle sold during the year at the subsidiary markets at Varkhedi and Nagardevale was 84,684 of the value of Rs. 33,79,180. The market charges (gate pass fee, witness fee and market fee) collected by the committee for these cattle transactions amounted to Rs. 30,062.55.

#### Constitution of the Market Committee

The members of the committee were as per rules elected from the different constituencies consisting of the whole of the market area. From the year 1971 the elected committee comprised of 18 members of which ten agriculturist members (7 from co-operative societies constituency and 3 from Village Panchayats constituency); 3 members from traders constituency; 1 chairman or his representative doing business of processing or marketing of agricultural produce in the market area; and 4 members such as 1 chairman of the Panchayat Samiti, 1 Sarpanch of the local authority, 1 Extension Officer (Co-operation), 1 Assistant Cotton Extension Officer or District Agricultural Officer. The chairman and the vice-chairman of the committee were elected from among its elected members. The members of the market committee hold office for a period of three years. The powers and duties of the market committee have been laid down in the Act and Rules. The market committee is authorized to appoint one or more sub-committees consisting

one or more of its members and to delegate such of its powers as it may think fit. The Pachora Agricultural Produce Market Committee has formed sub-committees for Licensing, Trading, Building Construction, Disputes and Cattle Fair during the year.

#### Settlement of Disputes

Disputes between buyers and sellers, or their agents, including any disputes regarding the quality or weight or payment of any agricultural produce, or any matter in relation to the regulation <sup>of</sup> marketing of agricultural produce in the market area are settled by the sub-committee (Board) consisting of (1) vice-chairman, (2) three members elected from agriculturists constituency and (3) two members elected from traders constituency. The decision of the Board shall be binding on the parties to the dispute. The procedure for the settlement of disputes had been prescribed in the rules. During the year 1971-72 no dispute arose in Pachora market.

#### Market Committee Staff

The administrative staff of the market committee consisted of :

1. Secretary (1)
2. Accountant (1)
3. Grader (1)
4. Supervisors (2)
5. Senior clerks (2)
6. Junior clerks (2)
7. Peons (3)
8. Watchmen (3)

The secretary is the chief executive officer of the committee. His powers and functions have been prescribed under the rules. The service conditions of the secretary and staff are also defined by the Rules.

#### Market Charges

The various market charges, including the market fee prescribed by the market committee are shown in the Table 4.3.

**Table 4.3 : Market Charges Prescribed by the Agricultural Produce Market Committee, Pachora, 1971-72**

Item	Rate (Rs.)
1. Market fee	0.20 per Rs. 100 worth produce
2. Commission	0.75 - do -
3. Hamali	0.15 per quintal of cotton, groundnut and gur
	0.20 per quintal of other commodities
4. Weighment	0.12 per quintal
5. Sieving and cleaning	0.15 - do -
6. Assistance	0.10 per quintal particularly during sale of cotton

**Note** : Only market fee is payable by the purchaser. All other items are payable by the sellers.

**Source** : Annual Administration Report of the Agricultural Produce Market Committee, Pachora, for the year 1971-72.

#### Market Functionaries

The various functionaries operating in the market are: the traders, general commission agents, brokers, processors, weighmen, warehousemen, labourers and other assistants etc.

The licence fee prescribed by the market committee for the different class of functionaries and the number of such functionaries operating in the market during the year 1971-72 are given in Table 4.4, below:

**Table 4.4 : Licence Fee Prescribed by the Market Committee and Number of Functionaries during the Year 1971-72**

Class of functionaries	Licence fee annual (Rs.)	No. of functionaries operating in the market
1. General Commission Agent	100	8
2. Trader 'A' Class	100	40
3. Trader 'B' Class	50	22
4. Trader 'C' Class	25	36
5. Processor	100	3
6. Warehouseman	15	1
7. Weighman	10	16
8. Hamal (Labourer)	3	76
9. Broker	30	34
10. Trader (for Cattle)	50	10
11. Butcher	25	42
12. Assistant	5	49

**Source :** Annual Administration Report of the Agricultural Produce Market Committee, Pachora, for the year 1971-72.

The conditions under which a licence is issued and the duties of the various functionaries in the market have been specified in the Rules and Bye-laws. Traders holding 'A' class licence can buy and sell the produce anywhere in the market area. 'B' and 'C' class licence holders can buy anywhere in the market

area excepting in the market yard and sell in the market yard. Purchases by traders outside the market yard and market proper but within the market area are not controlled by the market Committee. 'A' class traders can also obtain licence to operate as general commission agents. Similarly persons holding licence to operate as general commission agents can obtain a licence to work as 'A' class traders. The following are the limits prescribed for transactions by the traders :

- (1) 'A' class above Rs. 50,000 annually;
- (2) 'B' class upto Rs. 50,000 annually;
- (3) 'C' class upto Rs. 25,000 annually.

Weightment is done by the weighmen licensed by the Market Committee. These weighmen are required not to take up employment with any trader or commission agent and they are not attached to any particular trader or commission agent. The licensed weighmen are required to use only the standard weights and measures certified by the market committee. The regulations of the market practices under the supervision of the market committee is confined only to the principal and subsidiary markets and the process of regulation starts only when the produce arrives in the market proper. It is beyond the means of the market committee to physically control the operations of the wholesale traders etc. in the market area and for which there is no machinery with it. Hence, such transactions remain <sup>ac</sup>unaccounted for and do not reflect in the figures of arrivals recorded by the market committee.

Procedure of Sale

The commission agents arrange for the sale of produce brought by the producers. They also provide storage facilities, if required until the produce is sold. Weighment is done by the licensed weighmen. Trading takes place on all days except Sunday. After the deal is struck an agreement in favour of the seller is executed (in triplicate) wherein the buyers agree to buy the produce at the price agreed upon. A copy of the agreement slip is given each to the seller and the Market Committee. The weighment slip is prepared by the commission agent in triplicate in the proforma prescribed by the committee and it is signed by the weighman. One copy is given to the seller and one to the market committee. The payment of the produce is to be made by the purchaser on the very day the produce is sold. The bill contains the details such as the names of the seller and purchaser, quantity, rate, deductions to be made and the net amount payable. The deductions allowed are such as commission, weighment and hamali. The market fee is collected from the purchaser. Recovery of any trade allowance (any deductions in price or rate of the produce on account of any variation in the quality, weight, container, sample or admixture) is prohibited by the Act.

In the Pachora market the commission agents have been assigned specific places (adat shops) for effecting transactions. The producer can take his produce at his will to any shop of 'Adatya'. The produce brought for sale is heaped in the commission agent's shop separately for each seller. Sales

take place in the presence of the market committee staff who note down the price at which the various lots are sold. The purchasers move from one lot to another. The price of the produce is decided by open auction. However, it is not binding on the seller to sell his produce to the highest bidder. He may accept a lower bid or postpone the sale of his produce to a later hour or date.

#### Marketing Information

For the information of the buyers and sellers, the market committee displays the daily prices prevailing in the local market and also other markets on the notice board kept in the committee's office. The daily prices ruling in the market are announced on the loud-speakers. Also the daily prices are published in the local newspapers. The daily prices are intimated by sending letters to other market committees and also to the Panchayats of important villages. This is all done with a view to enabling the producers to take a decision regarding the place and time at which the produce may be sold by them. The daily prices of cotton, groundnut and black-gram at Pachora market are sent by the Committee to the Marketing Research Officer, Bombay, telegraphically. These prices are broadcast from the Bombay, Poona and Nagpur stations of All India Radio daily in the morning and evening. The market committee has got a radio set in its office. The weekly wholesale prices of cotton and groundnut are intimated to the Economical and Statistical Adviser, Ministry of Food and Agriculture, Government of India, New Delhi.



## Principal Market (Market Yard at Pachora)

### Location and Facilities

The principal market at Pachora is located near the railway station within the town on a land measuring 4 hectares and 27 ares (Survey No. 74) acquired for it by Government as long as in 1952. Subsequently, another adjacent piece of land of 2 hectares and 80 ares had been acquired for the market. For the subsidiary markets at Varkhedi and Nagardevale Survey Nos. 80 (3 hectares 51 ares) and 292 (1 hectare 20 ares) respectively have been acquired during the years 1956 and 1963. Besides, at Varkhedi another 1 hectare and 20 ares land has been taken on 99 years lease from the Panchayat at a rent of Rs.1000 per year from April 1970. The principal market at Pachora is well developed in all respects and all the facilities for smooth and efficient working of the regulated market are available there. The market has a compound wall from three sides and wire fencing from the front side. In the front portion of the market is two storied office building facing the road. There are two big gates on both sides of the building. The built up area of the office is about 3025 square feet and consists of 2 big halls and 7 rooms including a store room. The office accommodation is sufficient and has toilet facilities inside. Both tap and well water is available in plenty on the market throughout the day. A separate trough has been built for drinking water for bullocks. The approach roads to the market and inside the market are

metalled. An area of about 40,000 sq.ft. inside the market is also metalled and made pakka, particularly for the transactions of groundnut. There are separate sanitary blocks on the market for public. There is a separate shed built up on the market yard where auctions take place normally. Adjacent to it is a common room for the use of traders. There is a guest house called "Shetkari Niwas" (50' x 20') on the market yard for the producers who can stay overnight there. A canteen is also nearby the guest house which provides tea and snacks. The area of the market is well lighted by several lamp posts. A phone is available in the market committee. As the market is situated within the town, it is connected by pakka roads from all sides. It is very near (hardly 2 furlongs) the railway station and also the bus stand. The post office is also not very far off. The office of the warehouseman of the Maharashtra State Warehousing Corporation is situated on the market, near the shed, where auctions take place. The Market Committee has made arrangement for grading of groundnut, wheat, black-gram, Mung since 1970. A grader has been appointed for the purpose of maintaining for the use of sellers and buyers a set of samples of standard grades of these commodities. However, it is observed that in practice hardly any use of the grading facilities available on the market has been made either by sellers or buyers. A number of triple sieves (rectangular in shape) have been provided in market for sieving and cleaning of the produce.

The subsidiary market for cattle at Nagardevale is

provided with a barbed wire fencing from all sides. A small office and a rest house and one room for gateman has been built there by the market committee. Well water is available in the market for drinking. A trough is built for cattle. Similarly, the subsidiary market for cattle at Varkhedī village is provided with wire fencing from all sides. There is a well and also a trough built for cattle. A small room has been built for the gateman and a temporary shed for office people who remain present during auctions.

The accommodation for all the three markets, Pachora Principal Market and subsidiary markets at Nagardevale and Varkhedī is quite sufficient and all amenities are available there.

#### Location of Storage Godowns

(a) In Market Proper : We have seen that six co-operative societies were operating as commission agents in the Pachora principal market during the year 1971-72 and these societies handled together 69 per cent of the total market arrivals. The Shetkari Sahakari Sangh Ltd., Pachora, was the single biggest commission agent handling 29 per cent of the total market arrivals of all commodities. The Sangh not only worked as the commission agent in the market but also provided various facilities such as pooling, ginning and pressing of cotton, processing of groundnuts and other oilseeds, storage, supply of seeds, fertilizers, iron, steel, cement, engines, pumps, spare parts, sprayers and other equipments, consumer goods etc. and also made available credit facilities to the

cultivators and co-operative societies. The Sangh had built three pakka godowns on the market yard itself, the details are as given in Table 4.5.

(b) In Market Town : The details of the godowns located at different places within the town are given in Table 4.6.

Besides, the godowns described in the Table 4.6 the facilities for storage of cotton bales and cotton seed existed in 4 ginning and pressing factories belonging to the private traders. So also another 5 traders had their own oil mills and the arrangement for storage of oilseeds, oil and oilcake was available in their premises.

Similarly, all dwelling places and shops in the market town belonging to the wholesale traders were utilized for the purpose of storing agricultural produce. As already mentioned earlier, in all 106 traders and commission agents were operating in the Pachora market as wholesale traders.

Location of Storage Godowns in Villages in Pachora Tahsil

With a view to providing storage facilities for marketing societies at their headquarters and for collecting surplus produce of the members of village co-operatives on behalf of marketing societies, as well as for supplying production requisites such as fertilisers, seeds, etc. at suitable centres in rural areas, the National Co-operative Development and Warehousing Board gave to the State Governments loans and subsidies upto 62-1/2 per cent and 12-1/2 per cent respectively of the total cost of the construction or purchase of godowns.

**Table 4.5 : Details of Godowns Situated on the Market Yard of Pachora Principal Market, 1971-72**

Sr. No.	Size	No.	Capacity (Quintals) each	User	Owned or Hired	Commodities stored during 1971-72	Location
1.	100' x 40' x 18'	1	5,000	Maharashtra State Warehousing Corporation	Hired	Chemical Fertilizers	Within the market yard
2.	60' x 40' x 15'	1	3,000	- do -	Hired	Foodgrains	- do -
3.	40' x 18' x 12'	1	750	Shetkari Sahakari Sangh	Owned	Foodgrains, Oilseeds	- do -

Table 4.6 : Details of Godowns Situated in the Market Town of Pachora, 1971-72

Sr. No.	No.	Capacity (Quintals) each	User	Owned or Hired	Commodities stored during 1971-72	Location	
1.	39' x 20' x 13'	1	1,000	Maharashtra State Warehousing Corporation	Hired	Cotton bales	Bhadgaon Road 1 furlong each from market & railway station.
2.	100' x 40' x 15'	2	5,000	- do -	Hired	Groundnut, Cotton bales, Cotton seeds	- do -
3.	30' x 40' x 16'	2	1,900	Shetkari Sahakari Sangh	Owned	Cotton seed	Ginning and Pressing Factory No. 1.
4.	30' x 30' x 16'	18	1,400	- do -	Owned	Fertilizers	- do -
5.	100' x 40' x 16'	2	5,000	- do -	Owned	Cotton seed, Oil & cakes	- do - No. 2.
6.	40' x 50' x 15'	4	2,500	- do -	Owned	Groundnut & cake, Cotton seed & cake	- do -
7.	50' x 35' x 15'	8	2,000	Mansinghka Industries	Owned	Oilseeds and cake	Vegetable Oil and Solvent Extraction Plant.
8.	60' x 40' x 20'	4	3,000	- do -	Owned	- do -	- do -
9.	450' x 50' (without roof)	1	10,000	- do -	Owned	Drying place for groundnuts	- do -
10.	60' x 40' x 15'	1	3,000	Navabharat Fruit Sale Society	Owned	Fruits and vegetables	In the middle of town.

In case of godowns of district and apex marketing societies, larger assistance was made available. The godowns built by marketing societies and village co-operative societies were assisted under this scheme during the period of the Second and Third Five Year Plans (1956 to 1966) and annual Plans of the next three years. After a review of this scheme by the State Government no assistance was sanctioned under this scheme to village societies for the purpose after 1970. However, the amount of subsidy was given to such societies which built the godowns from their own funds. Moreover, the nationalized banks have been advised to assist this activity and grant loans for which guarantee is given by the Government. Besides, in order to augment the storage facilities in the producing centres, the Agricultural Refinance Corporation provides refinance to nationalized banks which undertake to advance medium or long term loans to entrepreneurs in the private sector to enable them to construct modern storage godowns or silos for the purpose of renting out the same to small farmers or organizations such as co-operative credit or marketing societies. The salient feature of this scheme is that prior to sanctioning of assistance a proper survey regarding the location of the godown is required to be carried out and a study of the economics of the godown is to be undertaken.

The general pattern of godowns built by the village societies under the scheme of National Co-operative Development and Warehousing Board was as under :

Type	Size	Capacity (Qtls.)	Loan 75 per cent	Subsidy 25 per cent	Rate of inte- rest %	No. of instal- ments for repayment of loan
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1. Large	60'x80'x18'	6,000	30,000	10,000	6	15 equal
2. Medium	60'x40'x14'	3,000	15,000	5,000	6	15 equal
3. Small	40'x20'x12'	1,000	7,500	2,500	6	15 equal

However, this general pattern was slightly modified in respect of size by the State Government for implementation in Maharashtra. The details are given in the Table below:

Type	Size	Capacity (quintals)
<u>Pattern upto 1963</u>		
1. Large	100' x 40' x 18'	5,000
2. Medium	50' x 40' x 18'	2,500
3. Small	50' x 20' x 14'	1,000
<u>Pattern After 1963</u>		
1. Large	100' x 40' x 14'	4,500
2. Medium	50' x 35' x 14'	2,000
3. Small	40' x 20' x 12'	800

Generally, the above types of godowns were constructed by the village service and marketing societies in Maharashtra on the basis of the model plans and estimates framed for the purpose and as per the allotment made by the Co-operative Department.

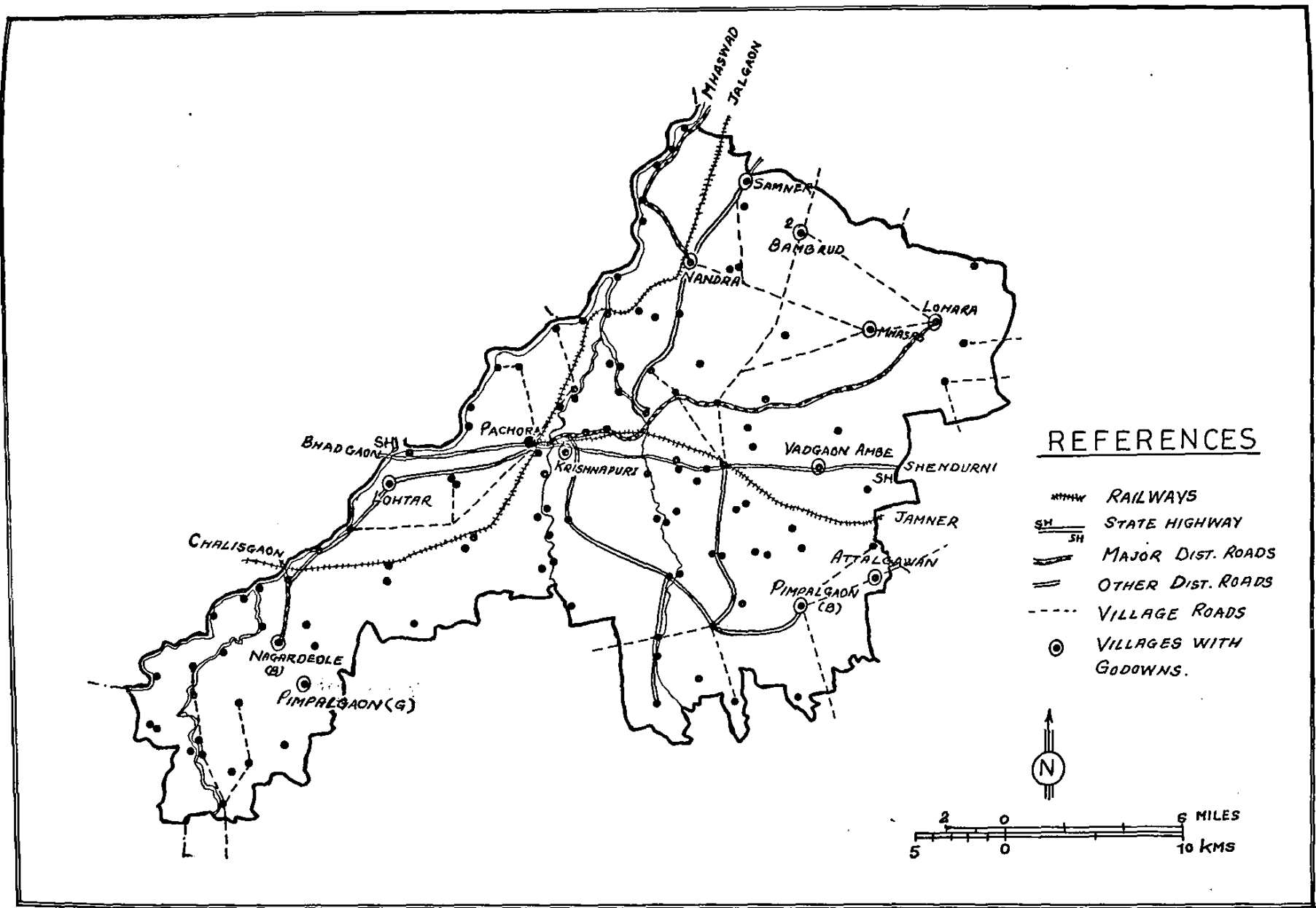


Under the scheme mentioned above, godowns were built by the co-operative societies in the following villages of Pachora tahsil:

**Table 4.7 : Details of Godowns Situated in Villages of Pachora Tahsil, 1971-72**

Sr. No.	Name of the village	Population	Distance from Pachora (kms.)	Size of the godown
(1)	(2)	(3)	(4)	(5)
1.	Pimpalgaon Budruk	8,322	27	Small
2.	Pimpalgaon Khurd	370	26	Small
3.	Nandra	2,415	20	Small
4.	Krishnapuri (Pachora rural)	-	2	Small
5.	Attalgaon	429	18	Small
6.	Samner	2,572	24	Small
7.	Vadgaon-Ambe	1,712	15	Small
8.	Bambrud	3,127	20	{ 1 Medium, 1 Small
9.	Lohtar	2,723	10	Small
10.	Nagardevale Budruk	9,469	25	Small
11.	Khasas	922	24	Small
12.	Lohara	5,425	24	Small

From the Map 4.1 (page 146) showing communications and location of villages with godowns it will be seen that out of these 12 places, 8 were connected by pakka roads. Out of the remaining 4, three were connected by katcha village roads and one was approachable only by cart tract. The



MAP NO.4-1: PACHORA TAHSIL : COMMUNICATION AND VILLAGES WITH GODOWNS

nearest village from the market town was at a distance of 2 kilometres and the farthest at a distance of 27 kilometres. According to the 1971 Census, the population of 63 villages out of the total 121 villages of Pachora tahsil was below 1,000. Twenty villages had a population upto 2,000. Only 10 villages were having a population between 2 and 4 thousands. Remaining 18 villages had a population above 4,000. From the population figures of the villages with godowns, it will be seen that the most of them were big villages.

### Section II - Baramati

#### Establishment of the Market

In Poona District, Baramati is the biggest centre of commerce and trade next to Poona. It is well connected by rail and roads to Poona and other places. The Baramati Cotton Market Committee was established in 1935 under the Bombay Cotton Markets Act, 1927. Under this Act the marketing of cotton alone was regulated by Government. The Committee actually started functioning from 1-9-1936. Subsequently, in 1942 the Baramati Cotton Market Committee was converted into the Agricultural Produce Market Committee under the Bombay Agricultural Produce Markets Act, 1939. Gur was brought under regulation in the year 1948. But actual trading in gur started in the market from December 1951. The jurisdiction of the market committee extends over the whole Baramati tahsil excluding 16 villages near Nira market in adjoining Purandhar tahsil. Although these 16 villages stand officially excluded from the

area of Baramati Agricultural Produce Market Committee, the producers from these places do sell their produce in both the markets of Baramati and Nira according to their convenience.

Later, other agricultural commodities—jowar, bajra, wheat, gram, tur, safflower, onion and groundnut—were brought under regulation in 1955. In 1956, cattle, sheep, Mosambi, fodder, castor seed and paddy were added to the list of regulated commodities. The Maharashtra Agricultural Produce Marketing (Regulation) Act, 1963 came into force from 25-5-1967. Since then the Baramati Agricultural Produce Market Committee is functioning under the provisions of this Act and Rules and the byelaws made thereunder. Baramati is the principal market. Recently a subsidiary market has been started at village Supe with effect from 25-2-1971. The main commodity traded in this subsidiary market is safflower.

#### Volume of Trade

Of all the commodities traded in the market, gur is the most important. The total quantity of arrivals of the regulated commodities in the market during the years 1969-70, 1970-71 and 1971-72 is given in Table 4.8.

The arrivals of gur in Baramati market are mostly from the Baramati Tahsil itself and from a few villages of adjoining Tahsils of Indapur and Phaltan. The cotton sold in the market comes from all the surrounding areas viz., Phaltan Tahsil (Satara District) and Dhond, Indapur and Purandhar Tahsils (Poona District). There were in all 204 traders and

**Table 4.8 : Arrivals of Regulated Commodities in Baramati (Principal) Market during the Years 1969-70, 1970-71 and 1971-72**

Commodity	Quantity (in quintals)		
	1969-70	1970-71	1971-72
1. Gur	90,862	84,875	56,367
2. Cotton	1,27,628	1,38,609	53,187
3. Jowar	7,331	9,615	7,617
4. Bajra	6,441	6,581	2,981
5. Wheat (unhusked)	42,136	38,196	47,157
6. Wheat (husked)	13,547	15,937	32,262
7. Gram	4,358	4,895	5,145
8. Tur	3,526	1,280	975
9. Safflower	6,164	7,214	6,565
10. Paddy (unhusked)	-	1,104	98
11. Paddy (husked)	-	315	4
12. Onion	17,763	19,614	12,949
13. Groundnut	2,654	2,191	1,981
14. Cattle	3,377	3,290	4,753
15. Sheep and Goat	6,581	8,002	7,283

**Source :** Annual Administration Report of the Baramati Agricultural Produce Market Committee for the year 1971-72 (unpublished).

commission agents operating as licences in the market during the year 1971-72. The following 4 co-operative societies had taken licences to work as commission agents during the year:

1. Nira Canals Societies Co-operative Purchase and Sale Union,
2. Baramati Co-operative Purchase Sale Society,
3. Baramati Gramodyog and Tel Utpadak Co-operative Society,
4. Teli Samaj Co-operative Society.

While the society at Sr.No. 1 dealt in all commodities, the society at Sr.No. 2 traded in cotton only and the remaining two societies purchased only safflower. The quantities of the different commodities sold through these societies are given in Table 4.9.

**Table 4.9 : Volume of Transactions Made Through Co-operative Societies during the Year 1971-72**

Commodity	Quantity (Quintals)	As a percentage of total arrivals
1. Gur	124	0.20
2. Cotton	4,258	8.00
3. Jowar	195	0.50
4. Bajra	109	3.60
5. Wheat	2,119	6.50
6. Wheat (unhusked)	4,306	9.10
7. Gram	235	4.56
8. Tur	58	6.00
9. Paddy	16	16.32
10. Safflower	514	7.80
11. Onion	847	6.50
12. Groundnut	77	3.88

**Source :** Annual Administration Report of the Agricultural Produce Market Committee, Baramati, for the Year 1971-72 (unpublished).

It will be seen that hardly 7 per cent of the total sales of all commodities in the market were made through the co-operative societies. Almost the entire quantity of gur in the market was purchased by traders. There were 10 cotton ginning factories and 4 ginning and pressing factories at

Baramati proper. One of the ginning and pressing factories belonged to the Nira Canal Societies Co-operative Purchase and Sale Union. There were the following two sugar factories in Baramati tahsil run on co-operative basis:

1. The Malegaon Co-operative Sugar Factory Ltd.,
2. Shri Someshwar Co-operative Sugar Factory Ltd.

The following banks were operating at Baramati :

1. State Bank of India,
2. Bank of Maharashtra,
3. Dena Bank,
4. Central Bank of India,
5. Poona District Central Co-operative Bank,
6. Baramati Urban Co-operative Bank.

The first four nationalized banks made development loans available to cultivators, and trade credit to traders. The Poona District Central Co-operative Bank gave short, medium and long term loans to co-operative societies for different purposes. The Co-operative Purchase and Sale Union and General Commission Agents gave advances to cultivators upto 60 per cent of the value of their produce stored in their godowns. The rate of interest during the year charged by the Co-operative Society was 9.37 per cent per annum and that by traders was 12 per cent per annum.

#### Constitution of the Market Committee

From the year 1967 to 1970, the market committee consisted of 12 members of which 7 were from Agriculturists' constituency, 3 from Traders' constituency, 1 belonging to local authority and 1 nominated by Government. Since 1971, the

Committee consisted of the following 18 members:

- 10 Agriculturists, seven of whom elected by the members of managing committees of Agricultural Credit Societies and multi-purpose co-operative societies functioning in the market area and three elected by members of village panchayats functioning therein;
- 3 Members elected by traders and commission agents holding licences to operate in the market area;
- 1 Chairman of the Co-operative society doing business of processing or marketing of agricultural produce in the market area;
- 1 Chairman of the Panchayat Samiti within the jurisdiction of which the market area or major portion thereof is situated;
- 1 President or Sarpanch of the Local authority (other than the Panchayat Samiti) within the jurisdiction of which the principal market is situated; .
- 1 The Extension Officer, Co-operation, appointed by the Zilla Parishad;
- 1 The Assistant Cotton Extension Officer or District Agricultural Officer.

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The ex-officio members belonging to the last two categories shall have no right to vote. The term of office of the Committee is for 3 years. They elect their chairman and vice-chairman. The Committee carries out its functions according to the Rules and Byelaws. It is authorized to appoint one or more sub-committees for the purposes of licensing, grading, disputes etc., and to delegate them powers.

#### Settlement of Disputes

We have already described the constitution and functions of the sub-committee for this purpose in Section I (page<sup>131</sup>). No disputes were referred to the committee during the year 1971-72.



### Market Committee Staff

The administrative work of the committee was carried out by the secretary who was assisted by Supervisory and Clerical staff as follows: 1 Assistant Secretary, 1 Accountant, 1 Supervisor, 1 Grader, 1 Treasurer, 1 Senior Clerk, 3 Junior Clerks, 4 Peons and 1 Watchman.

### Market Charges

The various market charges including the market fee prescribed by the Market Committee are shown in the Table 4.10.

### Market Functionaries

The various functionaries operating in the market are the traders, general commission agents, brokers, processors, weighmen, warehousemen, labourers and other assistants etc. The licence fee prescribed by the market committee for these functionaries and their number operating in the market during the year 1971-72 are given in the Table 4.11.

The conditions under which a licence is issued and the duties of the various functionaries have been specified by the Rules and Byelaws. The general commission agent works for the producers or wholesalers and earns commission. 'A' class traders are the purchasers who handle the trade above Rs.50,000 per annum. 'B' class traders are permitted to carry out transactions upto Rs. 50,000 annually.

### Procedure of Sale

The method of sale is already described in detail in Section I (page 135 ). Majority of the producers bring their

**Table 4.10 : Market Charges Prescribed by the Agricultural Produce Market Committee, Baramati, 1971-72**

Item	Rate Rs.
1. Market Fee	0.20 per Rs. 100 worth produce
2. Commission	1.50 per Rs. 100 worth produce For Mosambi (3.12)
3. Hamali	0.025 per bheli of gur 0.80 per quintal of cotton (unginned) 0.20 per quintal of cotton (pressed) 0.15 per bag (quintal) of cotton waste
4. Weighment	0.01 per bheli of gur 0.04 per bag (quintal) of cotton unginned 0.06 per bag (quintal) of cotton pressed 0.05 per bag (quintal) all other commodities
5. Dalali	1.00 per Rs. 100 worth of fodder and cattle

**Note** : The market fee is payable by the purchaser. All other items are payable by the seller. These market charges are in force from 1-10-1967.

**Source** : Annual Administration Report of the Agricultural Produce Market Committee, Baramati, for the year 1971-72 (unpublished).

**Table 4.11 : Licence Fee Prescribed by the Market Committee and Number of Functionaries during the Year 1971-72**

Class of functionaries	Licence fee annual (Rs.)		Number of functionaries operating in the market
	First time	Renewal	
1. General Commission Agents	100	90	61
2. Traders 'A' Class	100	90	80
3. Traders 'B' Class	50	45	63
4. Processors 'A' Class	100	90	4
5. Processors 'B' Class	30	25	12
6. Traders (Cattle, Sheep and Goat)	20	15	37
7. Brokers (Cattle, Sheep and Goat)	25	20	3
8. Weighmen	10	9	24
9. Carting and Clearing Agents	20	19	8
10. Assistants to Traders and Commission Agents	5	4	117
11. Hamals	3	2	158
12. Surveyors	15	14	-
13. Warehousemen	15	14	-
14. Cart (drawn by two bullocks)	5	4	-
15. Cart (drawn by one bullock)	3	2	1
16. Motor Truck	5	4	-
17. Assistants to Carting and Clearing Agents	5	4	-

**Source :** Annual Administration Report of Agricultural Produce Market Committee, Baramati, for the year 1971-72 (unpublished).

produce to the market by bullockcarts. The produce is sold by open auction. The sale of cattle, sheep and goat is made by open agreement. Certain days have been fixed for marketing of different commodities in the Baramati market. Foodgrains are sold on Mondays and Thursdays. Gur is sold on Mondays and Tuesdays in the market yard proper. On other days of the week, the transactions of gur take place at the shops of traders and commission agents situated in the market town. The other commodities are traded on all the days of the week. The market remains closed on Sunday.

#### Marketing Information

For the information of the buyers and sellers, the Market Committee displays the daily prices prevailing in the local market and at Kolhapur, Shrirampur and Kopergaon (all the three are important gur markets) on the notice-board. The information received from the Bombay Cotton Market is also placed on the notice-board. The figures of weekly arrivals and prices are sent to newspapers—Vishal Sahyadri, Maharashtra Times, Kesari and Loksatta—for publication. The daily prices of bajra, wheat, gram, tur, safflower, gur, cotton and cattle are reported to Marketing Research Officer, Bombay, telegraphically. These prices are daily broadcast from the stations of All India Radio at Bombay, Poona and Nagpur in the morning and evening. The use of radio and loudspeaker is also made on the market yard for announcing the prices and other important information to the producers and traders. The weekly wholesale prices of bajra are communicated to the Economical and

Statistical Adviser, Ministry of Food and Agriculture, Government of India, Delhi.

Principal Market (Market Yard at Baramati)

Location and Facilities

The principal market at Baramati is located near the railway station (450 metres) within the town on a land measuring 1.83 hectares (Survey No. 351). This land is given by the Municipality on lease for 99 years at a rent of Rs.900 per annum. Out of this land 50 ares is used by the municipality where a big hall has been built for cultural activities. The remaining land of the market is too small looking to the volume of trade. There is no scope for development of this site and it also lacks in the necessary facilities for a trading centre.

The market committee had made efforts to secure about 5 hectares of land (Survey Nos. 2 and 3) nearby the present yard from the municipality. But it has not succeeded so far.

Government had offered about 16 hectares of land, about half a kilometre away from town, to the market committee on Indapur road (Survey No. 15) long back in 1958. It has not been possible for the committee to take possession of this land and make a plan for shifting to the new site upto now. Half of the land from this survey number has already slipped out of the hands of the Market Committee. Government had given this piece of land to the Backward Class Housing Co-operative Societies. From the discussions with the authorities of the

Market Committee and influential traders, it is learnt that the Committee is not very keen to shift the market yard to the new site for the reasons best known to the vested interests. It seems the traders are not inclined to move to the new site as they fear that their business will be affected by the new arrangement.

The present market yard is surrounded by a number of godowns of traders and Nira Canals Societies Co-operative Purchase and Sale Union from the western and eastern sides respectively. To the north is Bhigwan road. To the south is the town road and cultural centre. The market yard has a simple and uneven floor. No surfacing whatsoever has been done either by metalling or asphaltting. Moreover both the cattle market and grain market are held on the same place. There is a lot of congestion when a large number of cattle and bullock-carts loaded with produce arrive on the yard.

The Municipality has provided a trough on the yard for cattle.

The office of the Market Committee is housed in three rooms, the total area of which is 70' x 45'. Inside one drinking water tap is available. The office is provided with a telephone also.

There exist no sanitary facilities (urinals and toilets) either in the office of the Market Committee or on the market yard. Auction of produce takes place on the open ground. There is no shed built for the purpose. Simple sieves are available on the yard for sieving the produce. The post office is at a

distance of about 100 metres. As the market yard is within the town, there are a number of hotels and shops nearby it. Thus the whole area is always crowded. As already pointed out the market lacks in many essential requirements of a trade centre. The main drawback is its site which is too small in area. It presents no scope for expansion or development.

The regulated market at Baramati was selected for grading of bajra, tur, gram, wheat and gur. The scheme started functioning in 1964. The necessary equipment for grading of these commodities and services of a qualified grader were made available to the Market Committee by Government. Besides, the market committee itself made appointment of a grader and constituted a grading sub-committee for guidance. During our long stay at this market it was, however, found that hardly any use of this facility was made either by the sellers or buyers.

#### Location of Storage Godowns

(a) In the Market Proper : As mentioned earlier the present yard of the market is very small and there is no scope for building shops and godowns either by traders or co-operative societies who work as commission agents. There is no godown built on the market yard proper as such.

(b) In Market Town : As already stated in preceding paras the market yard is surrounded by a number of godowns of traders and the Nira Canals Societies Co-operative Purchase and Sale Union from western and eastern sides respectively. The Nira Canals Societies Co-operative Purchase and Sale Union

works as a commission agent in the market. It provides a number of services to the societies and members such as pooling, ginning and pressing of cotton, storage, supply of seeds and fertilizers, iron, steel, cement, engines, spares, sprayers, equipments and consumer goods etc. The Union has built a pakka giant godown (size 250' x 80' x 35') with a capacity to store 50,000 bags (quintals) of produce. The total number of godowns possessed by the Union is 11, out of which 8 were in Baramati town and one each at Someshwarnagar (100' x 40'), Sansar (50' x 35') and Jalochi (100' x 40'). The details of the godowns located at different places within the town are given in the Table 4.12.

In addition to the godowns mentioned in this Table a large number of dwelling places and shops belonging to the wholesale traders and commission agents were used as storage godowns. The total number of licensed traders and commission agents operating in Baramati market during the year 1971-72 was 204. The byelaws of the Agricultural Produce Market Committee, Baramati, provide for registration of storage places and payment of a fee of Re. 1 per year.

During the year 1971-72, in all 49 persons (47 individuals and 2 co-operative societies) had registered their godowns numbering 76 with the Agricultural Produce Market Committee. All the 14 cotton ginning and pressing societies had their own storage accommodation for cotton, bales and seeds.



**Table 4.12 : Details of Godowns Situated in the Market Town of Baramati, 1971-72**

Sr. No.	Size	No.	Capacity (Quintals each)	User	Owned or Hired	Commodities stored during 1971-72	Location
1.	50'x20'x12'	1	1,000	Nira Canals Purchase & Sales Union	Owned	Foodgrains	Marwad Peth (Middle of the Town)
2.	110'x40'x35'	2	7,000	- do -	Owned	Cotton, bales, seeds	Ginning & Pressing Factory
3.	100'x20'x14'	2	2,500	- do -	Owned	- do -	- do -
4.	250'x80'x35'	1	50,000	- do -	Owned	Gur, Groundnut, Foodgrains, cotton bales, fertilizers, other consumer articles	Within the Town (near the market)
5.	40'x20'x12'	2	1,000	- do -	Hired	Consumer goods	Within the Town (houses)
6.	50'x20'x13'	1	1,000	Shivlal Devachand	Owned	Gur	Near the market
7.	50'x20'x12'	1	1,000	P. S. Langarekar	Hired	Gur, Foodgrains	- do -
8.	20'x20'x12'	1	400	- do -	Hired	- do -	- do -
9.	60'x40'x14'	1	3,000	G.G. Potekar	Hired	Foodgrains, Gur	- do -
10.	35'x20'x12'	1	750	- do -	Hired	- do -	- do -
11.	40'x15'x14'	1	625	Kashi Wishweshwar M.P. Society	Hired	Fertilizers, Seeds,	Within the Town (Station Road)

Location of Storage Godowns in Villages of Baramati Tahsil

The scheme under which godowns were built in villages by the co-operative societies has been described in detail in Section I of this chapter (page 140 ). The details of the godowns built under this scheme in the Baramati Tahsil are given in the Table 4.13.

From the Map 4.2 (page 164 ) showing location of villages with godowns and communications, it will be seen that out of 15 villages, 10 were connected by pakka roads. Remaining 5 were connected by katcha village roads. The nearest village with a godown was at a distance of 5 kms. from the market town and the farthest at a distance of 34 kms. Out of 63 villages in the Baramati Tahsil, 33 villages i.e. more than half the total number, had a population below 2,000. Sixteen villages had population between 2 and 5 thousand and the remaining 15 were above 15,000. From the population figures of the villages with godowns it will be seen that most of them are big villages.

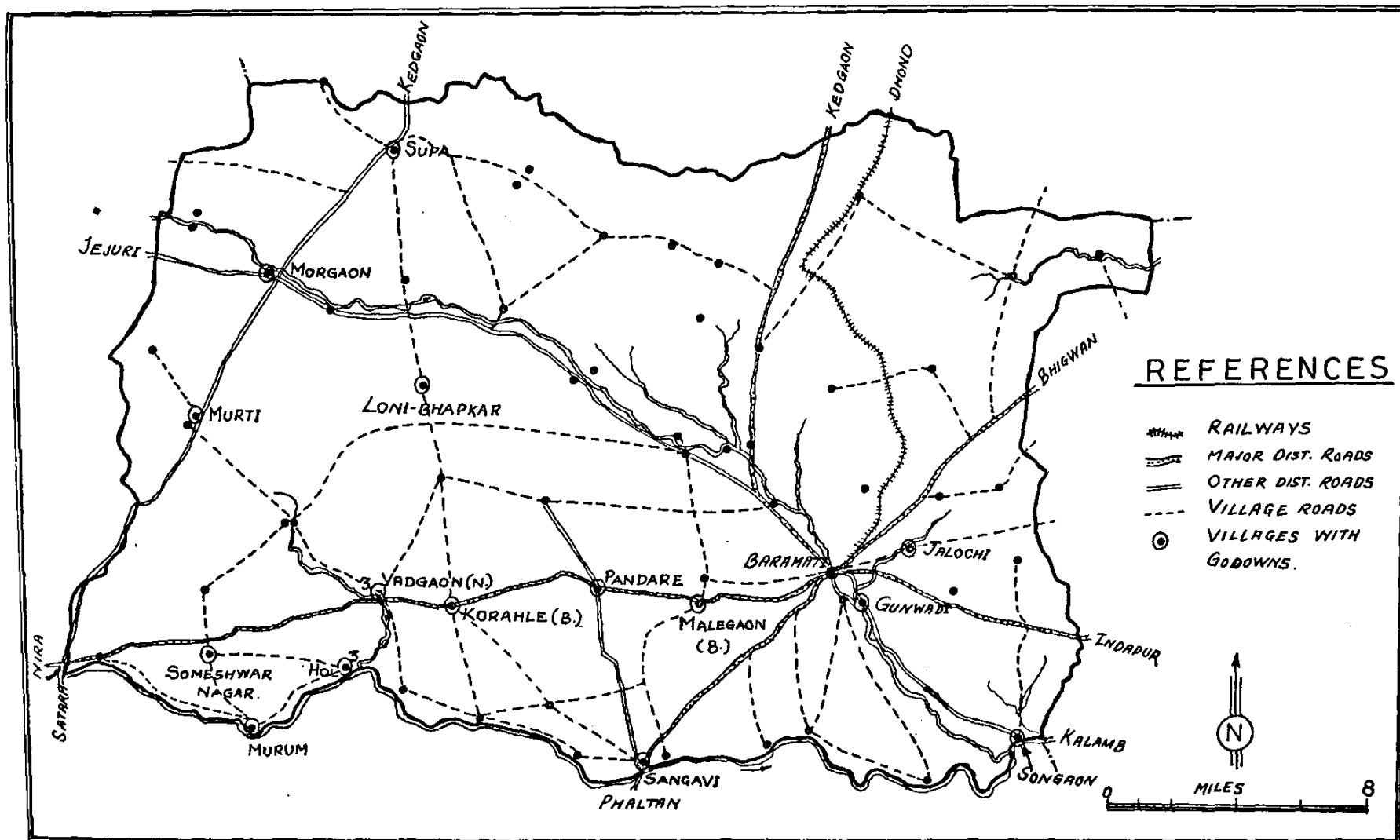
Summary and Conclusions

We gave an account of the constitution and working of the Market Committees at Pachora and Baramati and volume of trade in the regulated markets at these places. We knew that both the Pachora and Baramati towns were important centres of commerce and trade. (1) Cotton, groundnut and (2) gur were the most important commodities traded in (1) Pachora market and (2) Baramati market, respectively. Very good credit and banking facilities were available there to both the cultivators and

**Table 4.13 : Details of Godowns Situated in the Villages of Baramati Tahsil, 1971-72**

Sr. No.	Name of the Village	Population	Distance from Baramati (kms.)	Size of the godown
1.	Supa	9,047	25	Small
2.	Murti	2,924	23	Small
3.	Gunwadi (Dorlewadi)	8,024	3	Small
4.	Morgaon	2,658	18	Small
5.	Hol	5,493	34	{ 1 Large, 1 Medium, 1 Small
6.	Vadgaon Nimbalkar	5,356	12	{ 1 Medium, 2 Small *
7.	Malegaon Budruk	16,461	5	Small
8.	Murum	11,882	16	Small
9.	Panadare	11,927	8	Small
10.	Sangvi	5,171	12	Small
11.	Loni Bharker	5,501	15	Small
12.	Songaon (Zargadwadi and Dhekalwadi)	7,808	10	2 small
13.	Korhale Budruk	4,700	12	Small
14.	Someshwarnagar (Karanje)	5,265	16	Large
15.	Jalochi	1,572	5	Large

\* Out of these two godowns one was still incomplete. It has no roof.



MAP NO.4-2: BARAMATI TAHSIL: COMMUNICATION AND VILLAGES WITH GODOWNS

traders. The market committees there functioned smoothly and efficiently under the uniform provisions of the Maharashtra Agricultural Produce Marketing (Regulation) Act, 1963, Rules 1967 and byelaws made thereunder. The co-operative societies played a dominant role in marketing of agricultural produce by handling about 70 per cent of arrivals in the Pachora market. On the contrary, in Baramati market the transactions through co-operatives accounted for hardly 7 per cent of the total arrivals in the market.

Next, we found that the market yard of Pachora was well developed and all the necessary facilities were provided there. The market yard was located on such a site which possessed potentialities for expansion and development. However, the area of the yard at Baramati was too small and there was no scope for future development. It also lacked in many essential requirements of a marketing place. The market yards of both the places were located within the town and in the proximity of the railway station. A good location of regulated market helps in efficient marketing of agricultural produce. The existing location of the Baramati Regulated Market which is only a small meeting place of sellers and buyers in a congested area is not proper and it is incapable of handling increased volume of arrivals during the peak marketing period and to promote the efficiency of labour and transport. Moreover, inadequacy of market yard accompanied by its bad and rough conditions, lack of sheds for produce against weather risks and even common sanitary facilities further add to the lowering

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of marketing efficiency. A serious thought should therefore be given for shifting of the Baramati regulated market to a proper and better site, urgently.

At both the places (Pachora and Baramati) graders have been appointed for the purpose of maintaining for the use of sellers and buyers a set of sample of standard grades of the commodities. However, it is observed that in practice hardly any use of the grading services has been made either by sellers or buyers.

In Pachora the storage godowns of the Co-operative Marketing Society and the Warehousing Corporation were located on the market yard proper. Besides godowns were located around it and in all processing factories. The storage facility also existed in shops and dwelling places of almost all the wholesale traders.

In Baramati, as the market yard was too small there was no scope for having storage godowns or adats shops of licensees on it. However, the yard was surrounded by a number of godowns of private traders and the Co-operative Marketing Society. There existed in the market town storage facility in all the processing concerns and in the shops and dwelling places of traders.

In both the Tahsils of Pachora and Baramati in some big villages there were godowns built by the co-operative societies.

Our study showed that in the market towns the storage godowns were located on the market yard proper and around it.

Besides, the godowns were located in all the processing concerns such as ginning and pressing factories and oil mills. Similarly, all the shops and a number of dwelling places were used as storage godowns by the traders. The storage godowns were located in some villages of the tahsils where there were co-operative societies. Most of these villages were situated less than 25 kms. from market and were well connected by pakka roads. These were accessible throughout the year. Most of these villages were big villages from the point of view of area and population.

The considerations of cost of movement and cost of storage are the major factors in location decisions. The locations of godowns at market places of Pachora and Baramati and also in big villages of these two talukas do not appear to be improper. The under-utilization of these facilities at present is on account of other reasons. However, increased agricultural production and waiting capacity of the cultivators would change the picture gradually. Even the existing facilities may fall short of the requirements of storage of inputs (mainly fertilizers) for distribution and procured grains under levy system of the State on account of bumper crops in future years. Hence, the development of storage facilities should be flexible to meet future requirements also.

In the next chapter we proceed to examine the seasonality of arrivals, prices and returns to storage of the commodities cotton and groundnut in the Pachora market and gur in the Baramati market.



## CHAPTER V

### SEASONALITY IN ARRIVALS AND PRICES AND RETURNS TO STORAGE

In three different sections of this chapter, it is proposed to examine the extent and pattern of seasonal fluctuations in arrivals and prices and the relation between the extent of price rise during the marketing season and storage costs in respect of cotton and groundnut in Pachora regulated market and in relation to gur in Baramati regulated market.

Seasonality in the marketing of agricultural produce is a well known phenomenon. It is a widely held view that the high seasonality in the marketing of agricultural produce tends to depress the prices in periods of heavy arrivals in the market and thus diminishes the returns to the producers.

In the first section we attempt to examine the seasonality in arrivals as a prelude to the discussion on behaviour of prices in the subsequent section. In the last section we study the seasonal price movement and costs of storage in order to estimate the profitability of storage.

#### Section I : Seasonality in Arrivals

The arrivals registers maintained by the Agricultural Produce Market Committees at Pachora and Baramati provided the daily and weekly arrivals figures. The figures of arrivals refer to the quantities brought and sold in the market. From these figures monthly and annual totals were computed for the present analysis.

The seasonality in arrivals is determined by expressing the monthly arrivals as percentage of annual totals. The overall seasonal pattern is obtained by averaging percentage shares of arrivals for a given month over all the ten years.

Extent of Seasonality in Arrivals  
of Cotton in Pachora Market

The percentage arrivals during each month of the season and the average for all the years are presented in Table 5.1 and Charts 5.1, 5.2 and 5.3. The main marketing period starts in November one month after the beginning of the season and extends over a period of three months i.e. from November to January. On an average a little more than 62 per cent of the annual arrivals are during these three months with the peak in November (25.43 per cent). The arrivals in the first two months after the commencement of the season, account for 7.77 per cent of the annual total, whereas the arrivals during the last six months are about 30 per cent of the annual total. In the average seasonal pattern large and conspicuous month to month changes occur in November (sudden rise), December-January (small decline), February-May (further decline), June (small rise), and July (steep fall).

We have already seen in Chapter III that the harvesting period of cotton during the year started in the second week of September and ended by the second week of December. We have also seen that most of the producers from both the villages (in one 94 per cent and in another 98.00 per cent) have disposed off their cotton within one month of harvesting. It was

**Table 5.1 : Monthly Arrivals of Cotton as Percentage of Annual Total : Pachora Market, 1962-63 to 1971-72**

Months	1962-63	1963-64	1964-65	1965-66	1966-67	1967-68	1968-69	1969-70	1970-71	1971-72	Average for all years: 1962-63 to 1971-72
September	-	-	-	-	-	-	-	-	-	0.08	0.04
October	7.44	7.15	9.86	6.44	0.54	13.97	1.55	5.41	18.05	11.84	7.73
November	28.60	28.13	39.39	21.70	19.54	25.04	24.29	28.18	31.90	18.91	25.43
December	24.07	23.91	10.08	17.56	29.51	13.45	25.06	29.06	14.84	23.89	19.62
January	20.78	17.72	17.39	19.40	23.77	13.68	23.74	17.00	14.19	13.28	17.27
February	8.90	9.83	6.92	0.32	8.71	7.90	10.46	9.54	4.77	0.40	6.92
March	2.96	4.79	1.48	18.34	7.70	8.87	4.42	6.58	2.93	8.84	6.08
April	1.67	8.47	2.63	2.33	3.23	10.17	0.32	4.05	7.57	1.65	4.25
May	5.58	-	0.01	13.91	0.43	5.11	-	0.18	1.93	20.88	4.09
June	-	-	12.24	-	6.57	1.81	10.16	-	-	0.23	5.06
July	-	-	-	-	-	-	-	-	3.82	-	3.51
August	-	-	-	-	-	-	-	-	-	-	-
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Annual Arrivals (Quintals)	115948	110800	86998	89962	73372	134170	129090	86039	94498	45552	102417

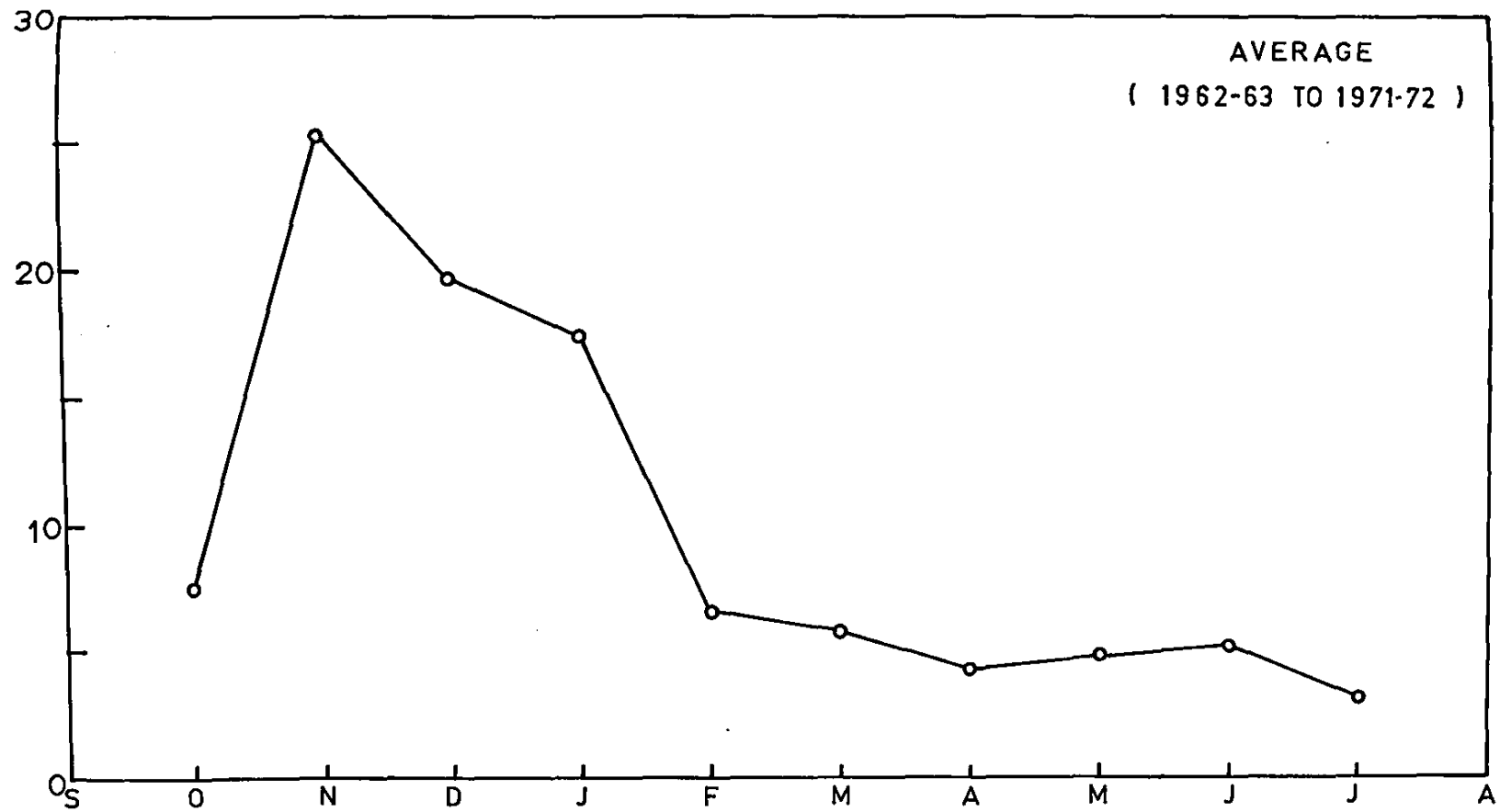


CHART NO.5.1: MONTHLY ARRIVALS OF COTTON AS PERCENTAGE OF ANNUAL TOTAL, PACHORA MARKET ( AVERAGE FOR TEN YEARS, 1962-63 TO 1971-72 )

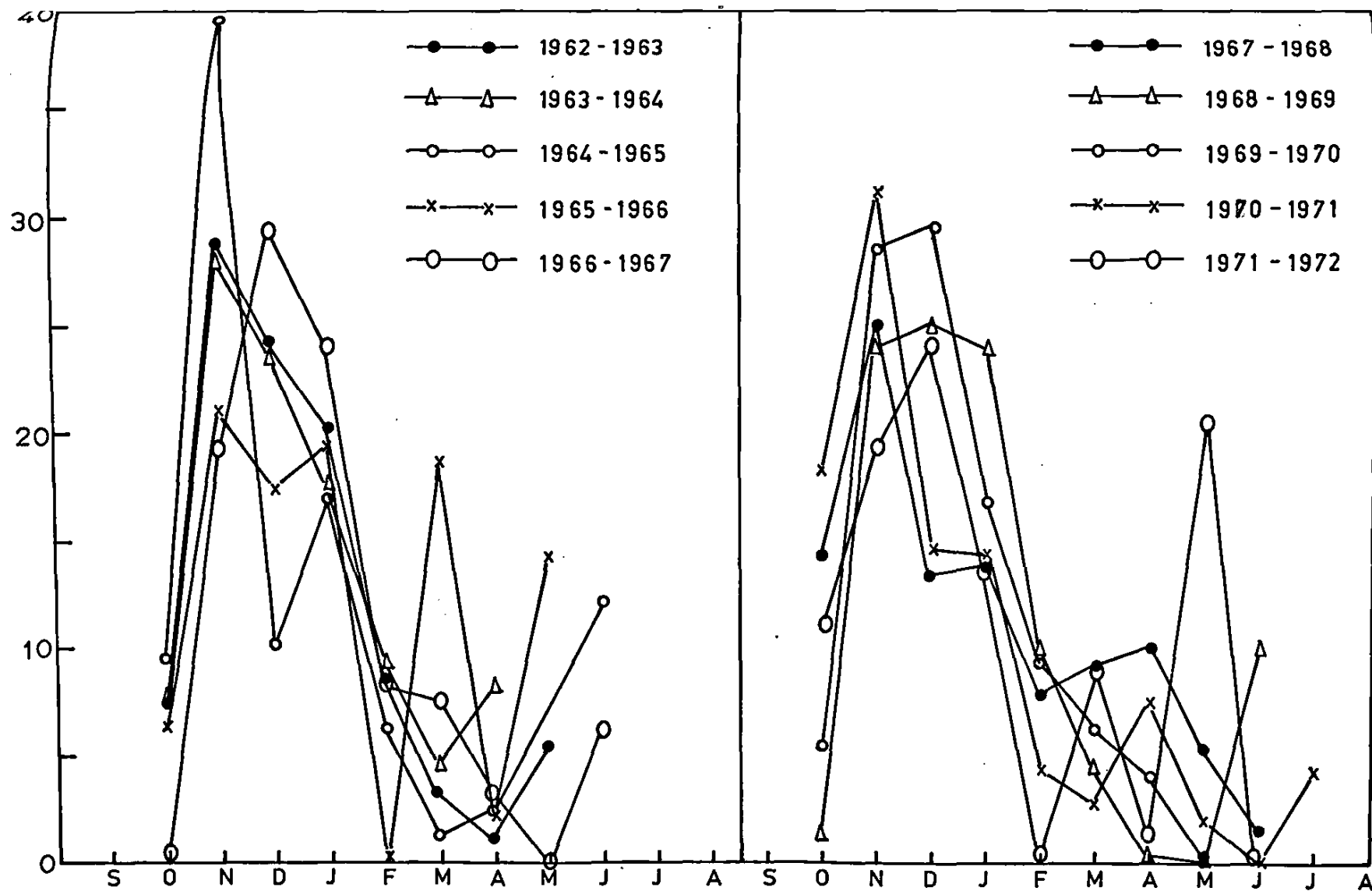


CHART NO.5-2: MONTHLY ARRIVALS OF COTTON AS PERCENTAGE OF ANNUAL TOTAL,  
 and  
 5-3: PACHORA MARKET, 1962-63 TO 1971-72 (TEN YEARS) (YEARWISE )

observed that the remaining farmers in this region have stored cotton for a short period of not more than two months. The pattern of storage shows positive relationship with the pattern of arrivals and peak marketing period.

The seasonal pattern in individual years, however, showed departures from the average pattern. While the sudden rise in November and small decline in December-January is repeated in all years, a forward shift in the peak arrival month from the average pattern is observed in some years. This can be clearly seen from Charts 5.2 and 5.3. The peak arrival month coincides with the average pattern in six out of ten years (1962-63, 1963-64, 1964-65, 1965-66, 1967-68, 1970-71). During the remaining four years (1966-67, 1968-69, 1969-70, 1971-72) it is reached in December, a delay of one month. The most important factor causing such a shift in the peak arrival month is the delayed rainy season, which causes a forward shift in sowing and harvesting time.

Fluctuations in arrivals within a season largely depend upon the factors like timing of harvests, the prevailing weather conditions, the total quantity of the produce available for sale, availability of transport and last but not least the postponement of sale by the producers with a view to getting a better price. In Chapter III we had already discussed the behaviour of the producers in this regard and the role played by co-operative societies and processing concerns.

Deviations of the individual years from the average

seasonal course are measured by taking the deviation of each month from the 10-year average for that month. The resulting twelve deviations of a year are summed up irrespective of sign and the sums applying to several years are compared. The results are shown in Table 5.2 expressed as percentages of the sum of deviations in the least variable year.

Table 5.2 : Index of Variability in Seasonality of Arrivals of Cotton in Pachora Market

Year	Index of variability	
1962-63	100.21	(29.20)
1963-64	100.00	(29.14)
1964-65	160.53	(46.78)
1965-66	166.16	(48.42)
1966-67	146.26	(42.62)
1967-68	116.33	(33.90)
1968-69	141.04	(41.10)
1969-70	105.08	(30.62)
1970-71	140.15	(40.84)
1971-72	191.97	(55.94)

(Sum of deviations is given in parentheses.)

The least variable year according to this measure is 1963-64 (sum of deviations 29.14) and the most variable year is 1971-72 (sum of deviations 55.94).

Extent of Seasonality in Arrivals of Groundnut in Pachora Market

The percentage arrivals during each month of the season and the average for all the years are presented in Table 5.3.

**Table 5.3 : Monthly Arrivals of Groundnut as Percentage of Annual Total : Pachora Market, 1962-63 to 1971-72**

Months	1962-63	1963-64	1964-65	1965-66	1966-67	1967-68	1968-69	1969-70	1970-71	1971-72	Average for all years: 1962-63 to 1971-72
September	2.23	2.07	0.12	1.43	3.46	1.35	2.34	1.13	2.21	2.14	1.73
October	40.87	48.83	40.82	42.90	60.45	27.92	37.80	53.04	49.76	30.58	42.99
November	22.23	18.90	23.64	19.48	11.17	18.11	34.22	15.21	18.81	29.92	21.79
December	15.04	7.38	16.71	8.30	9.16	3.95	8.98	9.08	6.89	8.17	10.16
January	3.48	3.33	2.51	6.44	5.77	7.28	6.19	4.20	3.47	8.02	4.57
February	2.29	0.90	1.36	3.39	1.88	4.72	2.39	3.51	0.59	2.27	2.14
March	2.58	0.95	1.18	3.29	1.54	2.51	1.59	2.76	0.82	3.21	1.95
April	1.09	2.53	1.96	3.91	0.52	4.65	1.21	2.28	2.66	1.09	2.15
May	1.90	5.02	3.97	5.09	2.31	13.69	2.29	3.34	5.06	4.27	4.38
June	4.02	8.26	2.11	2.07	2.91	6.56	2.61	3.10	8.28	7.56	4.83
July	2.09	1.31	3.94	1.65	0.22	3.90	0.35	1.38	1.12	2.61	1.96
August	2.18	0.52	1.68	2.05	0.61	5.36	0.03	0.97	0.33	0.16	1.35
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Annual Arrivals (Quintals)	74639	55680	64219	34127	15850	31114	44093	44786	56730	35162	45640



and Charts 5.4, 5.5 and 5.6. October through December is the period of heavy arrivals. On an average 74.94 per cent of the annual arrivals are during these three months. The peak in arrivals is reached in October in all the ten years. On an average 1.73 per cent of the arrivals are in the first one month of the marketing season. The last seven months account for 18.76 per cent of the annual arrivals. Out of this, the intervening two months viz. May and June record 9.21 per cent, almost 50 per cent of the arrivals in seven months.

We have seen in Chapter III that groundnut was harvested during the months of September and October and the period of storage most popular with the cultivators was between 1 and 3 months. The pattern of arrivals shows that during the three months of October-December the arrivals were heavy in the market. Sixty-eight per cent cultivators in one village and 78 per cent in another who stored the produce upto two months were required to sell during this period. The pattern of arrivals shows a positive relationship with the periodicity of storage in villages. However, 32 per cent cultivators in one village and 22 per cent in another who stored for more than two months were in a position to avoid sales during the peak marketing period.

The individual years exhibit a great deal of similarity with the average seasonal course. The declining trend in the arrivals is more or less of the same order in all the years. A certain amount of slight variation between the individual

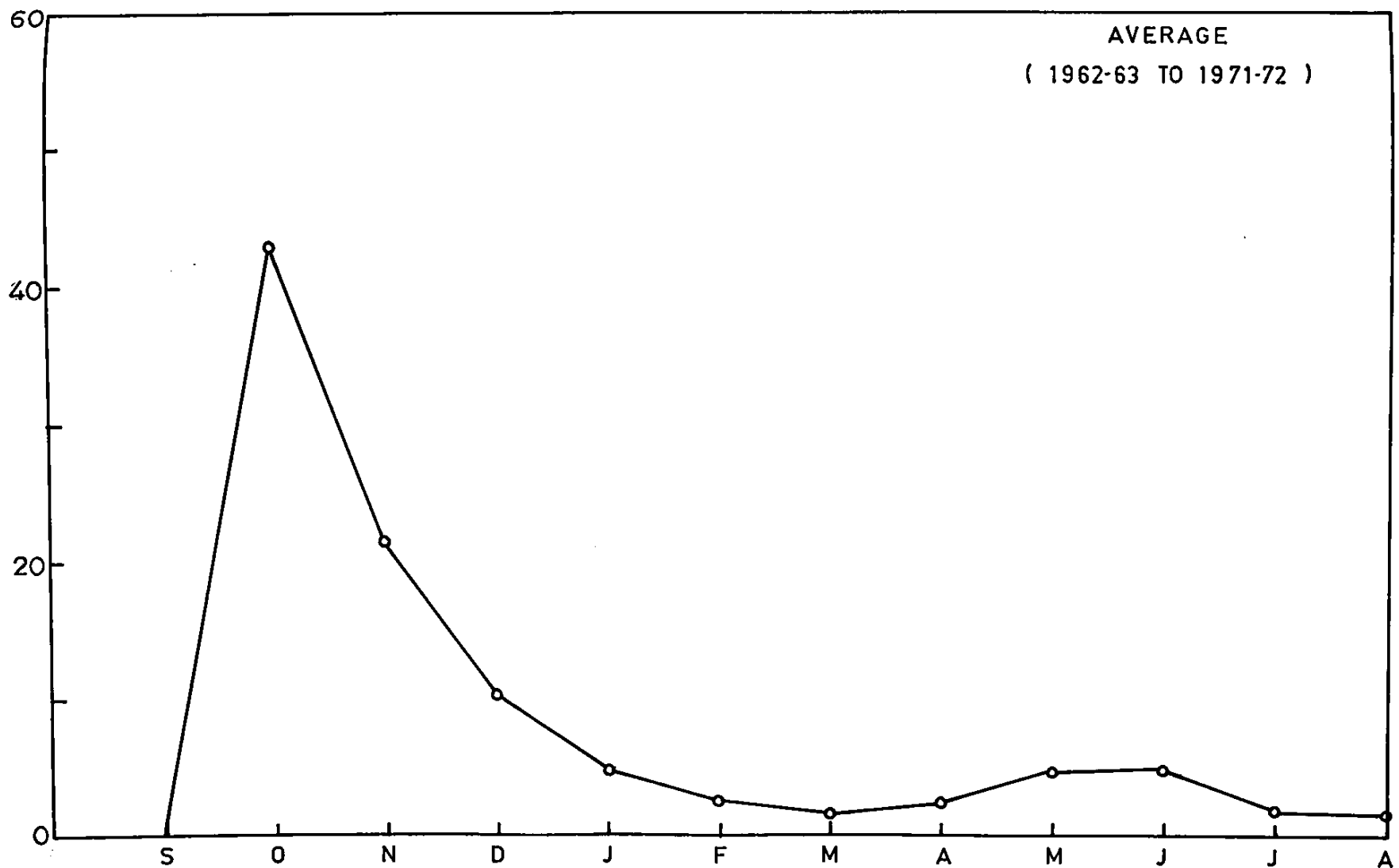


CHART NO.5-4: MONTHLY ARRIVALS OF GROUNDNUT AS PERCENTAGE OF ANNUAL TOTAL,  
PACHORA MARKET ( AVERAGE FOR TEN YEARS: 1962-63 TO 1971-72 )

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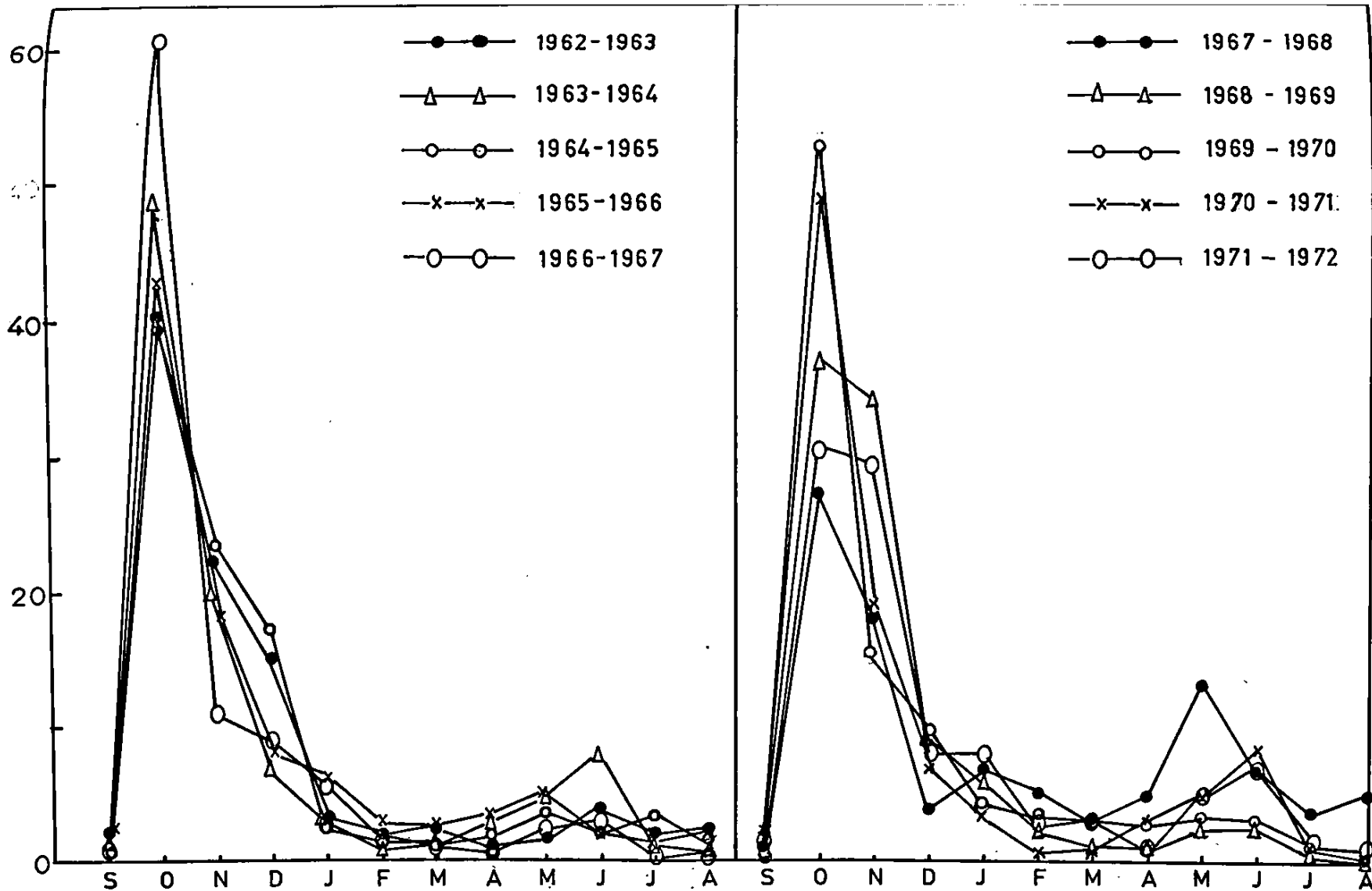


CHART NO. 5-5 MONTHLY ARRIVALS OF GROUNDNUT AS PERCENTAGE OF ANNUAL TOTAL,  
 and 5-6 PACHORA MARKET, 1962-1963 TO 1971-1972 ( TEN YEARS ---YEARWISE )

years and the average pattern is observed after the peak month. Out of the ten years, only in three years there is a steep fall in arrivals in the months of February and March during 1963-64 and 1970-71, and in April during 1966-67.

Deviations of the individual years from the average seasonal course expressed as percentages of the deviations in 1962-63, the least variable year, are given in Table 5.4, below.

Table 5.4 : Index of Variability of Arrivals of Groundnut in Pachora Market

Year	Index of variability	
• 1962-63	100.00	(15.12)
1963-64	140.61	(21.26)
1964-65	141.67	(21.42)
1965-66	100.93	(15.26)
1966-67	269.71	(40.78)
1967-68	335.79	(50.68)
1968-69	197.22	(29.82)
1969-70	163.49	(24.72)
1970-71	157.28	(23.78)
1971-72	221.69	(33.52)

(Sum of deviations is given in parentheses.)

The largest variability in the deviations from the average seasonal pattern is in the year 1967-68 (50.68) with 1962-63 (15.12) the least variable year.

Extent of Seasonality in Arrivals of Gur in Baramati Market

The monthly arrivals as a percentage of the annual totals for the years 1962-63 to 1971-72 and the average

seasonal pattern are presented in the Table 5.5 and Charts 5.7, 5.8 and 5.9.

The average seasonal pattern for the years 1962-63 to 1971-72 shows that about 65 per cent of the season's arrivals is in the period of five months from September through January. The arrivals reach the peak in November, two months after the heavy marketing period begins. There is a declining trend in arrivals from February to June. Thereafter the months of July and August show a rising trend in arrivals.

In Chapter III we have seen that the harvesting period of sugarcane was spread over from October to March. We have also seen that the majority of the cultivators have sold their produce (gur) within a fortnight. The percentage of cultivators holding the produce for a period of upto one month was 15 and 32 in the villages of Hol and Korhale Khurd respectively. There were a very few cultivators who stored gur for a longer period. The periodicity of harvesting and storage in the villages shows a positive relationship with the seasonality of arrivals of gur in the primary market of Baramati.

The seasonal pattern in individual years showed some departures from the average pattern in respect of the peak marketing month. Out of the ten years peak was reached in September during one year viz. 1967-68, in November during four years viz. 1962-63, 1963-64, 1968-69, 1971-72, in December during three years viz. 1964-65, 1965-66, 1970-71 and in January during two years viz. 1966-67 and 1969-70.

**Table 5.5 : Monthly Arrivals of Gur as Percentage of Annual Total : Baramati Market, 1962-63 to 1971-72**

Months	1962-63	1963-64	1964-65	1965-66	1966-67	1967-68	1968-69	1969-70	1970-71	1971-72	Average for all years: 1962-63 to 1971-72
September	3.25	5.79	7.75	8.05	5.94	30.91	13.26	4.23	4.62	2.55	9.78
October	11.00	15.13	9.77	12.21	5.88	17.14	9.13	3.55	10.80	10.48	10.82
November	17.16	17.14	16.62	13.24	8.32	15.02	21.29	12.71	17.75	16.12	15.43
December	14.11	13.69	23.55	14.31	12.22	8.26	16.99	13.04	19.79	14.05	14.87
January	15.74	11.70	18.21	9.44	12.71	5.79	15.11	17.79	19.98	12.98	13.62
February	8.76	7.69	6.13	8.72	8.74	2.99	4.95	14.99	7.69	9.64	7.71
March	11.67	4.03	3.34	8.88	8.98	2.51	2.03	11.73	4.72	7.41	6.22
April	4.91	3.30	3.58	5.07	5.97	3.17	1.84	6.69	3.58	3.56	4.14
May	5.95	6.92	1.24	4.36	3.76	3.10	2.82	4.71	2.48	2.25	3.76
June	4.72	5.07	1.41	4.40	5.86	1.81	2.93	2.64	2.05	6.39	3.54
July	0.96	4.47	2.51	5.38	8.02	2.42	3.08	4.17	4.19	6.12	4.04
August	1.77	5.07	5.89	5.94	13.60	6.88	6.57	3.75	2.35	8.45	6.07
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Annual Arrivals (Quintals)	77262	96339	101082	92410	94709	123129	83855	82842	87955	50534	89012

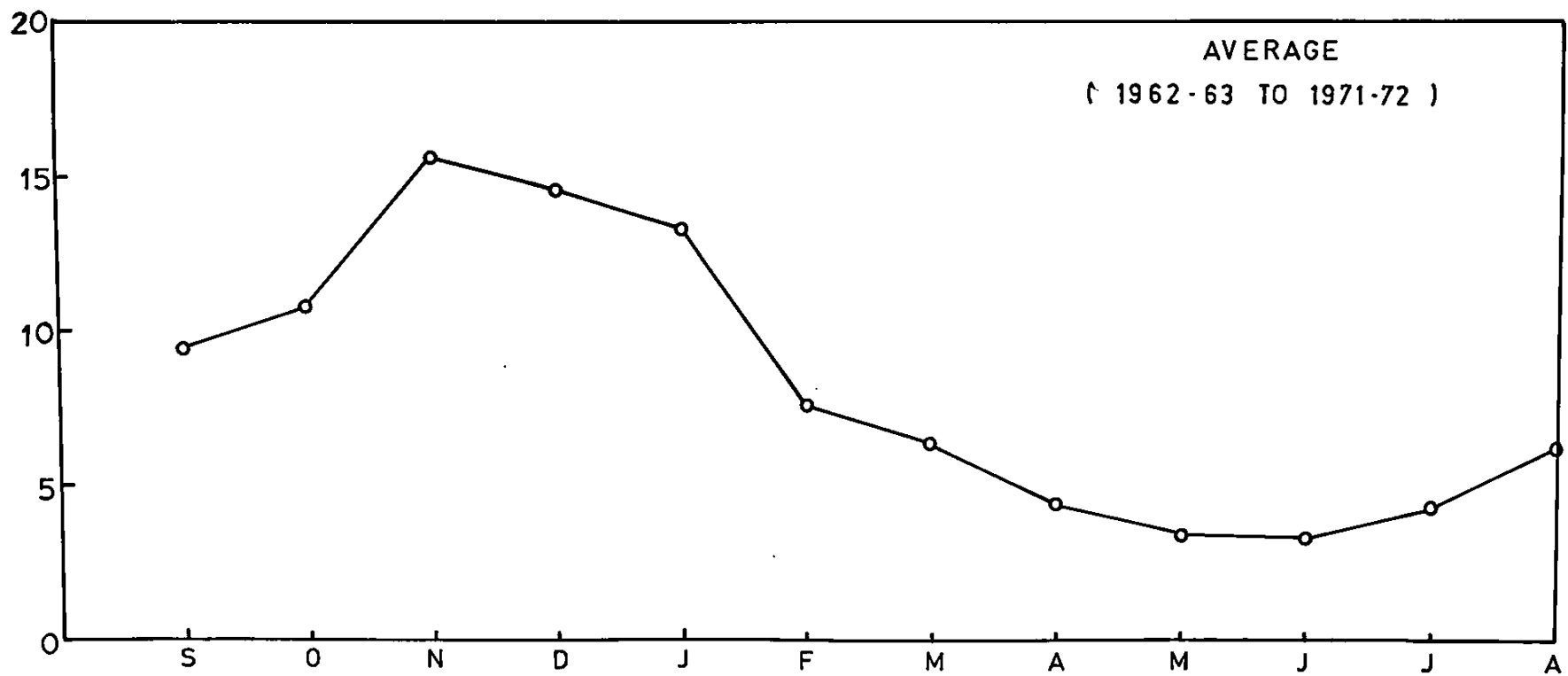


CHART NO.5-7: MONTHLY ARRIVALS OF GUR AS PERCENTAGE OF ANNUAL TOTAL, BARAMATI MARKET ( AVERAGE FOR TEN YEARS, 1962-63 TO 1971-72 )

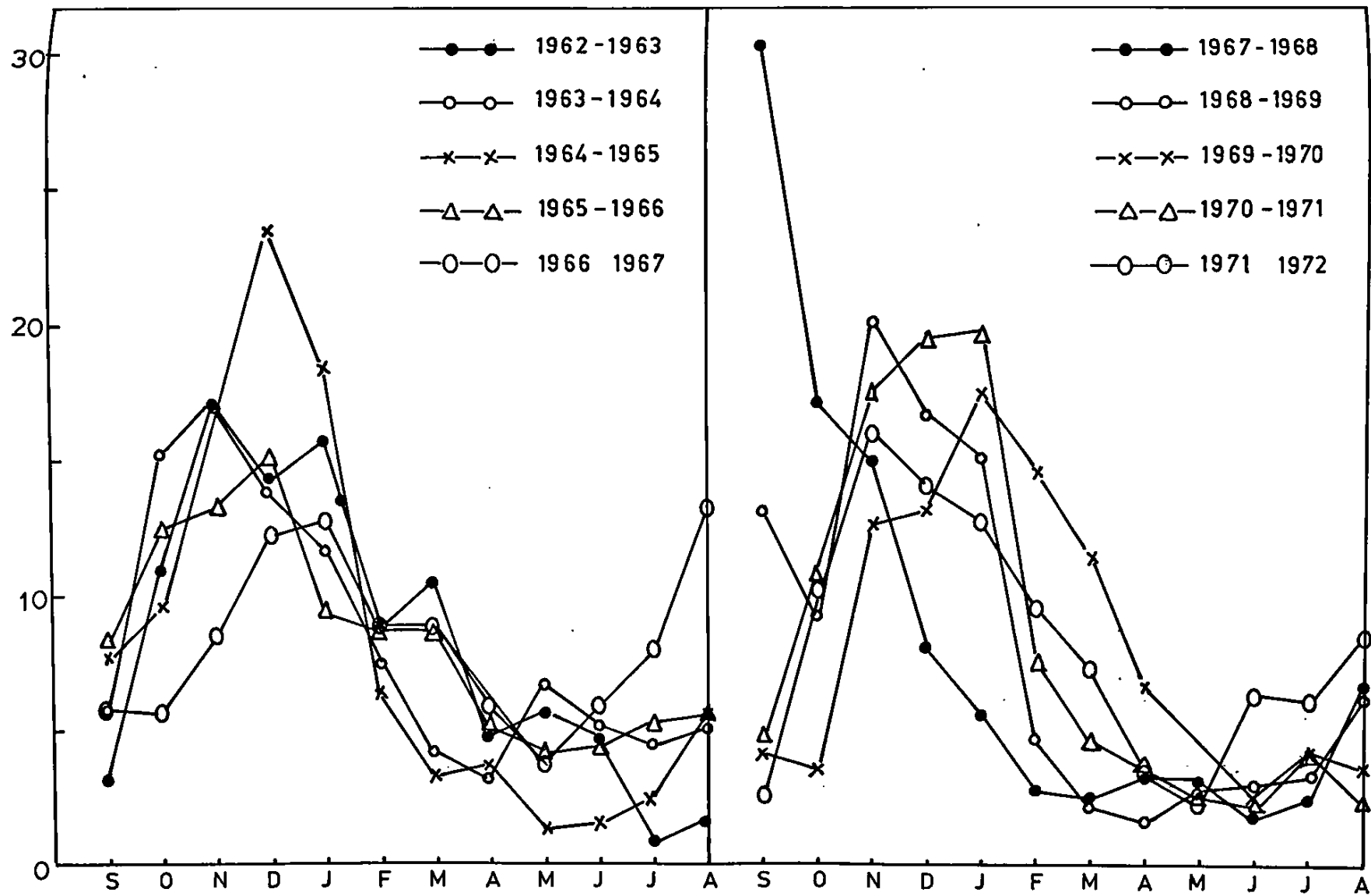


CHART NO. 5-8: MONTHLY ARRIVALS OF GUR AS PERCENTAGE OF ANNUAL TOTAL, and 5-9 BARAMATI MARKET, 1962-1963 TO 1971-1972 ( TEN YEARS-YEARWISE )

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Most of the individual years exhibit a great deal of similarity in general with the declining trend from February to June and rising trend from July of the average seasonal course. However, there occurred some large and conspicuous month to month changes in the pattern of particular years. There was a sudden rise in arrivals during the months of March, May, April and June in the years of 1962-63, 1963-64, 1967-68 and 1971-72 respectively. Besides, there was a slight rise during the month of March in two years viz., 1965-66 and 1966-67, and during the months of May and June in the year 1968-69. In the lone year of 1962-63 there was a steep fall in arrivals during the month of July.

The deviations from the average seasonal course expressed as percentage of the least variable year, are given in the Table 5.6, below.

Table 5.6 : Index of Variability in Seasonality of Arrivals of Gur in Baramati Market

Year	Index of variability	
1962-63	166.89	(29.84)
1963-64	126.73	(22.28)
1964-65	164.57	(28.92)
1965-66	100.00	(17.58)
1966-67	221.27	(38.90)
1967-68	321.50	(56.52)
1968-69	153.01	(26.90)
1969-70	248.75	(43.73)
1970-71	156.43	(27.50)
1971-72	126.51	(22.24)

(Sum of deviations is given in parentheses.)

1965-66 is the least variable year and the sum of deviation is 17.58. The year 1967-68 exhibits the largest deviation from the average seasonal pattern.

The fact that a high seasonality in arrivals of cotton and groundnut in Pachora market and that of gur in Baramati market exists is thus established by the above discussion. The seasonal pattern in arrivals, however, showed a slight variation between years in both the markets in respect of these commodities.

### Section II : Seasonality in Prices

In the preceding section we have seen the extent of seasonal fluctuations in arrivals and the variation in the particular years from the average seasonal pattern in the two markets of Pachora and Baramati in respect of cotton, groundnut and gur respectively. In the present section we analyse the weekly prices of these commodities with a view to studying the extent and pattern of seasonal fluctuations in the prices in the primary markets. The analysis is made for the period of ten years from September 1962 to August 1972.

#### Source and Nature of the Price Data

While doing this we first present the source and nature of price data. The price data for the three commodities in the two markets under study are taken from the records (Daily Price Register) of the Agricultural Produce Market Committees. These records provide three price indicators for each day of the transactions, that is, daily 'maximum', 'minimum', and

'modal' prices for each commodity. The maximum price is the highest price paid to any single lot (or lots) in the market on a given day, while the minimum price refers to the lowest price. The concept of modal price refers to the price at which maximum number of lots are sold on a given day. It pertains to the fair average quality of the most common variety of the commodity transacted in the market. At the time of sale in each commission agent's shop the price for each commodity lotwise is recorded by the staff of the market committee. The maximum, minimum and modal prices for each commodity are compiled later for the market as a whole.

In Pachora market the variety of cotton which is traded in the largest quantity is "Virnar" and its improved strains. The most common variety of groundnut in this area is called "Peanut". It is locally known as "Ghungari". In Baramati market the gur sold is of light brown colour (each 'bheli' weighing about 20 to 25 kgs.) known as 'Baramati gur' distinct from 'Kolhapuri' yellow gur (each 'bheli' weighing about 30 to 35 kgs.). The prices in the analysis below are for these varieties of the commodities.

#### Method of Study

The analysis is based on the weekly prices. The weekly prices were computed from the daily prices by taking a simple average for each week starting from Monday through Saturday.

The method adopted to compute the seasonal index in the present analysis in respect of the commodities groundnut and gur is that of relative deviations from a properly centred

52-week moving average.<sup>1</sup> For each series a two item total of a 52-week moving total was taken and the final sum divided by 104. This amounts to taking a 53-week moving average with two end-weeks at half weight. The reason for thus modifying the simple 52-week moving average is twofold: (1) the average may be properly centred at the 27th week of the original 52-weeks; (2) the resulting line of moving averages is slightly more elastic than the line of a simple 52-week moving average; this tends to reduce the erratic elements in the relative deviations. By dividing the original data by the ordinates of the moving average and multiplying the ratio by 100 the relatives for each week are obtained. The weekly relatives were averaged to get the monthly seasonal index for each year and the average seasonal pattern for all the years, in each of the markets.

The average seasonal pattern of arrivals and prices of cotton for the period of 10 years (1962-63 to 1971-72) showed that there were continuous transactions for five months only viz. from November to March during the year. The method adopted to compute the seasonal index in respect of groundnut and gur (which were sold continuously during all the weeks of the year) was not used in respect of cotton. The seasonal index of cotton prices was prepared on the basis of monthly and yearly averages based on available prices.

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<sup>1</sup> This is based on the method followed by Simon Kuznets in his study "Seasonal Variations in Industry and Trade", National Bureau of Economic Research, New York, 1933, p. 27. See also F. E. Croxton and D. J. Cowden, "Applied General Statistics", Sir Isaac Pitman & Sons, London, 1956, pp. 326-34.

As mentioned earlier, the prices of only one variety i.e. largest selling and most common are analysed. However, the quality difference even within the single variety is considerable in the primary markets. It may be mentioned that the producers do not sort or grade the produce and as such the variety brought by them contains mixture of different grades. The traders after making the purchase sort and grade the produce. Because of the admixture of different grades and quality in the produce sold by the cultivators, a considerable variation exists in the prices obtained in the auction. This fact has to be borne in mind while analysing the prices particularly in the primary wholesale markets.

The Pattern of Seasonality of  
Cotton Prices in Pachora Market

The index of seasonal variation in the prices of cotton is presented in the Tables 5.7, 5.8 and 5.9 and Charts 5.10, to 5.20. It can be seen from the Charts that the price reaches the lowest in the month of March. The peak in prices occurs in the month of November or January. The three prices 'maximum', 'minimum' and 'modal' move in sympathy with each other. Generally, the price starts declining in the month of February and the trough is reached in March. The difference in price is attributed to the quality of cotton collected late (say in third or subsequent pickings) or kept in store. We have discussed in detail about this in Chapter III.

The seasonal pattern in prices, as revealed by the indices, for the individual years, however, showed some

**Table 5.7 : Index of Seasonal Variation in Cotton Prices (Maximum) for the Years 1962-63 to 1971-72 and Average for the 10 Years : Pachora Market**

Year	October	November	December	January	February	March	April	May	Mean deviation	Peak as percentage of trough
1962-63	-	<u>103.10</u>	99.00	99.51	<u>94.60</u>	97.49	101.30	-	3.13	14.27
1963-64	103.30	100.51	101.99	103.81	<u>105.29</u>	100.80	<u>84.30</u>	-	4.48	24.90
1964-65	-	101.97	103.71	102.12	<u>106.06</u>	96.28	<u>89.86</u>	-	4.62	18.03
1965-66	104.57	<u>105.15</u>	101.62	95.92	<u>95.34</u>	97.40	-	-	3.78	10.28
1966-67	-	108.99	94.49	102.61	<u>111.54</u>	108.37	99.37	<u>74.63</u>	9.00	49.45
1967-68	<u>117.98</u>	105.30	103.90	101.22	94.54	92.40	<u>89.80</u>	94.86	7.10	31.38
1968-69	<u>112.91</u>	97.05	92.85	106.89	99.59	104.39	<u>86.32</u>	-	6.91	30.08
1969-70	-	93.85	<u>92.53</u>	99.14	<u>108.54</u>	107.07	98.87	-	5.20	17.30
1970-71	-	99.18	121.76	<u>132.49</u>	94.96	83.50	<u>80.03</u>	88.08	15.42	65.55
1971-72	<u>114.37</u>	105.83	102.26	105.14	89.26	<u>83.14</u>	-	-	9.16	37.56
Average for the 10 years	-	101.38	100.22	<u>103.66</u>	98.80	<u>95.94</u>	-	-	2.92	8.95

**Table 5.8 : Index of Seasonal Variation in Cotton Prices (Minimum) for the Years 1962-63 to 1971-72 and Average for the 10 Years : Pachora Market**

Year	October	November	December	January	February	March	April	May	Mean Devia- tion	Peak as percentage of trough
1962-63	-	<u>126.68</u>	106.00	99.81	<u>76.24</u>	94.30	96.97	-	7.56	66.15
1963-64	108.68	108.67	<u>109.94</u>	108.77	105.63	92.07	<u>66.24</u>	-	11.91	65.97
1964-65	-	118.69	<u>121.59</u>	96.56	99.50	90.13	<u>73.53</u>	-	13.59	65.85
1965-66	121.08	<u>122.23</u>	113.52	<u>80.83</u>	85.78	90.59	-	-	16.56	51.22
1966-67	-	<u>121.14</u>	107.91	115.24	118.46	100.75	79.33	<u>57.17</u>	18.14	111.89
1967-68	<u>156.19</u>	140.21	128.93	102.06	106.57	63.21	<u>44.17</u>	58.66	33.49	253.61
1968-69	<u>117.43</u>	108.89	109.42	104.88	84.07	95.24	<u>80.07</u>	-	11.60	46.65
1969-70	-	111.87	116.25	<u>117.25</u>	109.27	89.33	<u>56.03</u>	-	18.21	109.26
1970-71	-	124.58	<u>134.90</u>	119.05	104.20	96.77	65.85	<u>54.65</u>	23.63	146.84
1971-72	<u>174.58</u>	69.90	<u>64.14</u>	90.70	126.52	74.16	-	-	33.70	172.18
Average for the 10 years	-	<u>110.78</u>	106.91	99.47	97.65	<u>85.19</u>	-	-	7.07	30.04

**Table 5.9 : Index of Seasonal Variation in Cotton Prices (Modal) for the Years 1962-63 to 1971-72 and Average for the Ten Years : Pachora Market**

Year	October	November	December	January	February	March	April	May	Mean Devia- tion	Peak as percentage of trough
1962-63	-	<u>113.81</u>	98.96	<u>96.31</u>	99.72	97.02	99.72	-	3.68	18.17
1963-64	<u>110.68</u>	108.59	104.63	108.40	100.94	100.97	<u>65.79</u>	-	9.77	68.23
1964-65	-	108.67	<u>110.76</u>	105.29	107.71	89.03	<u>78.54</u>	-	10.81	41.02
1965-66	<u>108.59</u>	103.05	102.54	<u>94.14</u>	<u>94.14</u>	97.54	-	-	4.72	15.35
1966-67	-	<u>110.35</u>	94.72	102.28	109.38	105.60	94.08	<u>83.59</u>	7.88	32.01
1967-68	<u>120.74</u>	107.77	105.81	101.08	94.11	90.85	<u>88.45</u>	91.19	8.45	36.97
1968-69	<u>111.63</u>	98.27	<u>91.73</u>	98.98	97.47	103.35	98.57	-	4.28	21.69
1969-70	-	92.06	<u>86.99</u>	102.12	<u>110.44</u>	109.38	99.01	-	7.30	26.95
1970-71	-	105.41	123.90	<u>134.95</u>	99.59	78.15	87.00	<u>71.00</u>	18.36	90.07
1971-72	<u>120.02</u>	110.98	105.24	109.31	79.87	<u>74.58</u>	-	-	15.18	60.92
Average for the 10 years	-	<u>104.29</u>	100.97	103.70	97.83	<u>93.21</u>	-	-	3.58	11.88



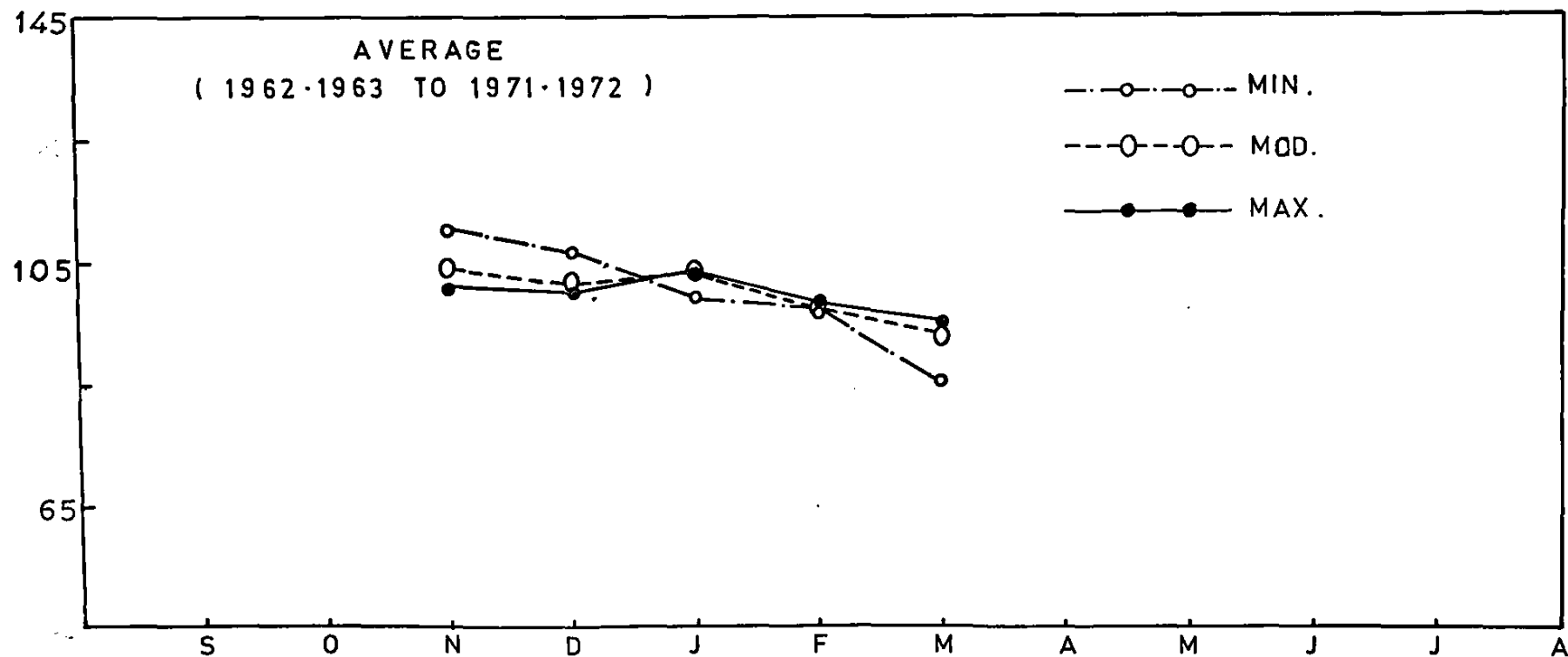


CHART NO.5-10: INDEX OF SEASONAL VARIATION IN COTTON PRICES, PACHORA MARKET,  
AVERAGE FOR TEN YEARS, 1962-1963 TO 1971-1972.

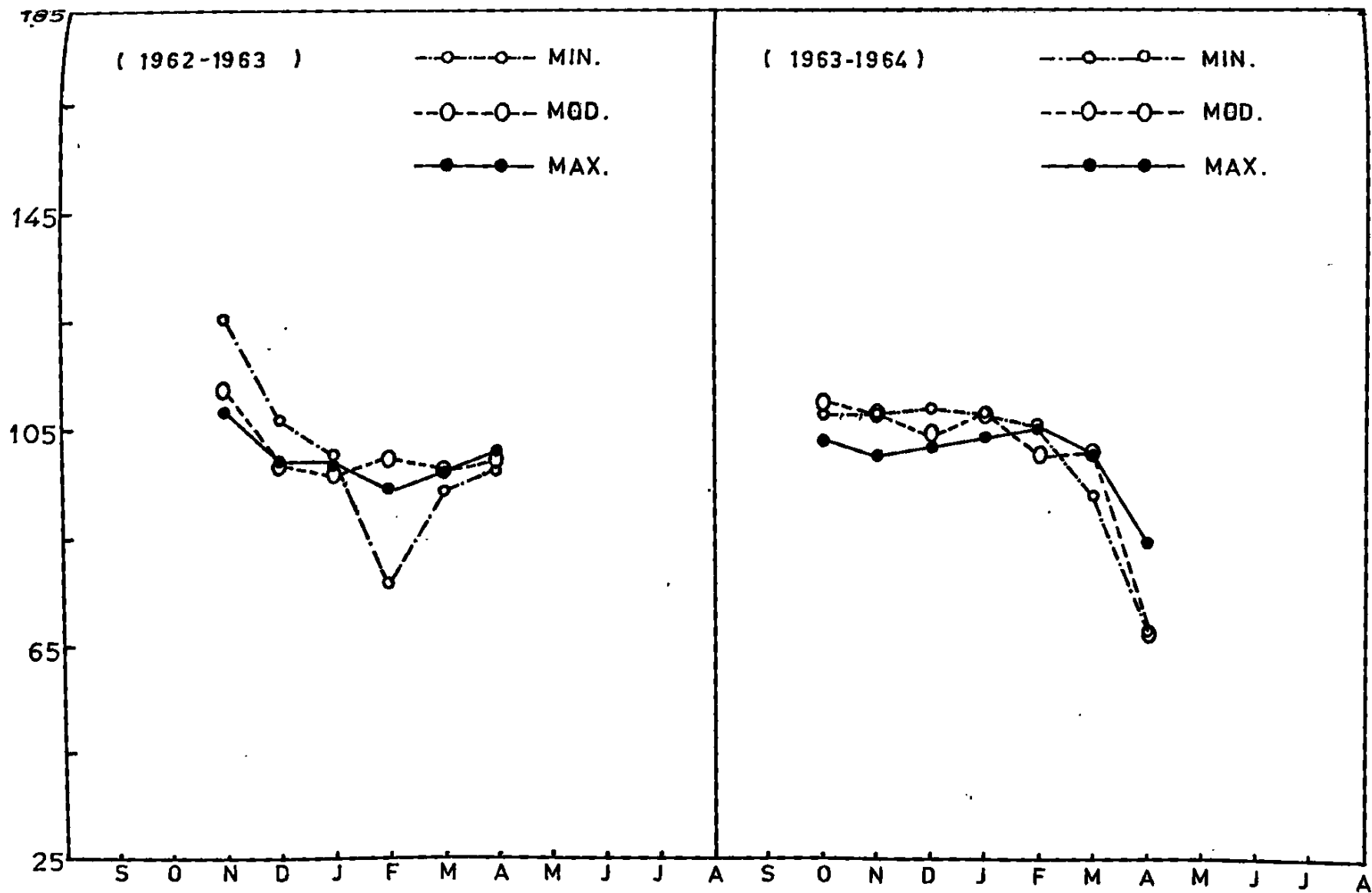


CHART NO. 5.11: INDEX OF SEASONAL VARIATION IN COTTON PRICES PACHORA MARKET  
 and  
 5.12: FOR THE YEARS 1962-1963 AND 1963-1964.

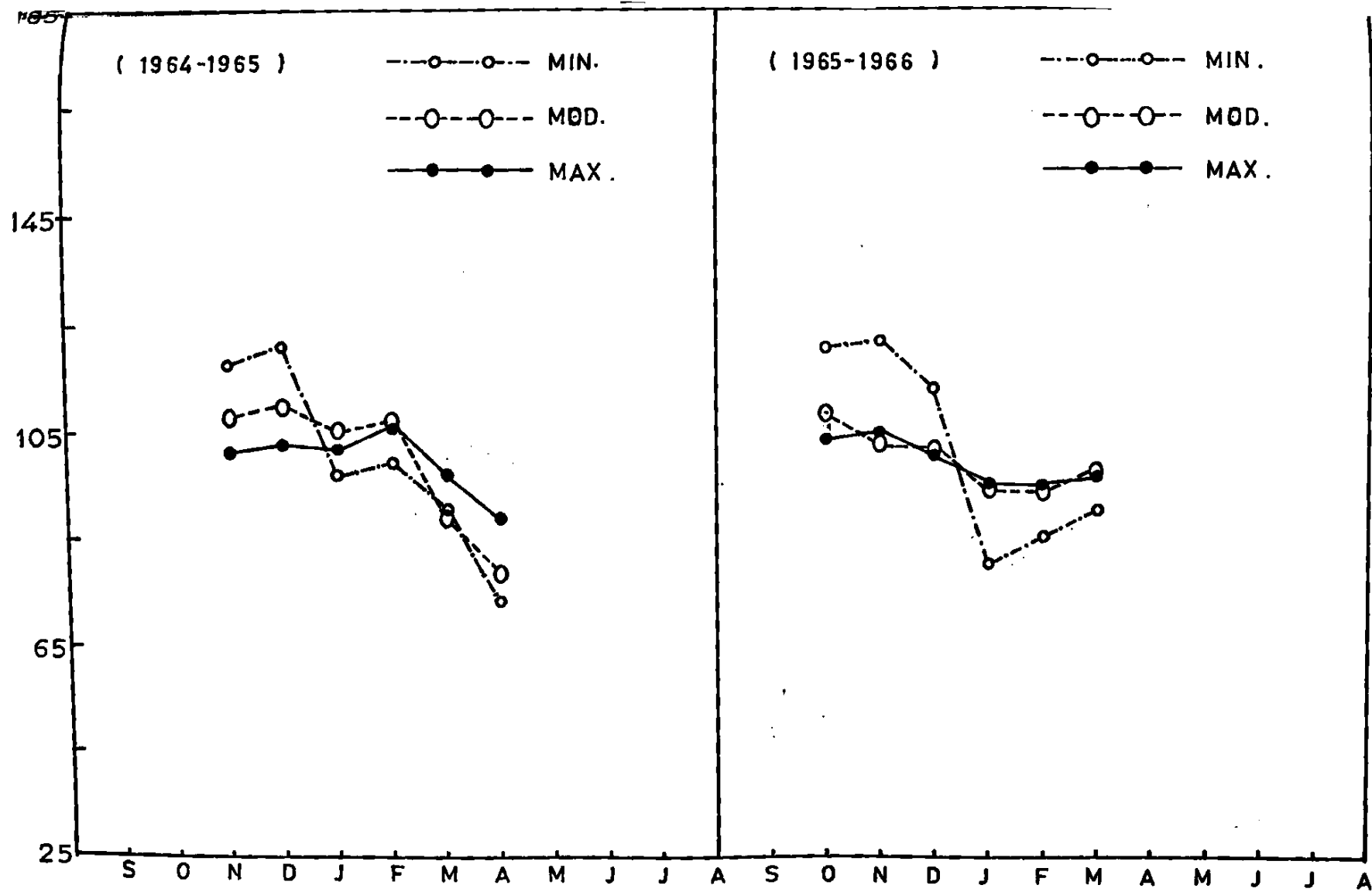


CHART NO.5-13: INDEX OF SEASONAL VARIATION IN COTTON PRICES, PACHORA MARKET,  
 and  
 5-14: FOR THE YEARS 1964-1965 AND 1965-1966.

100

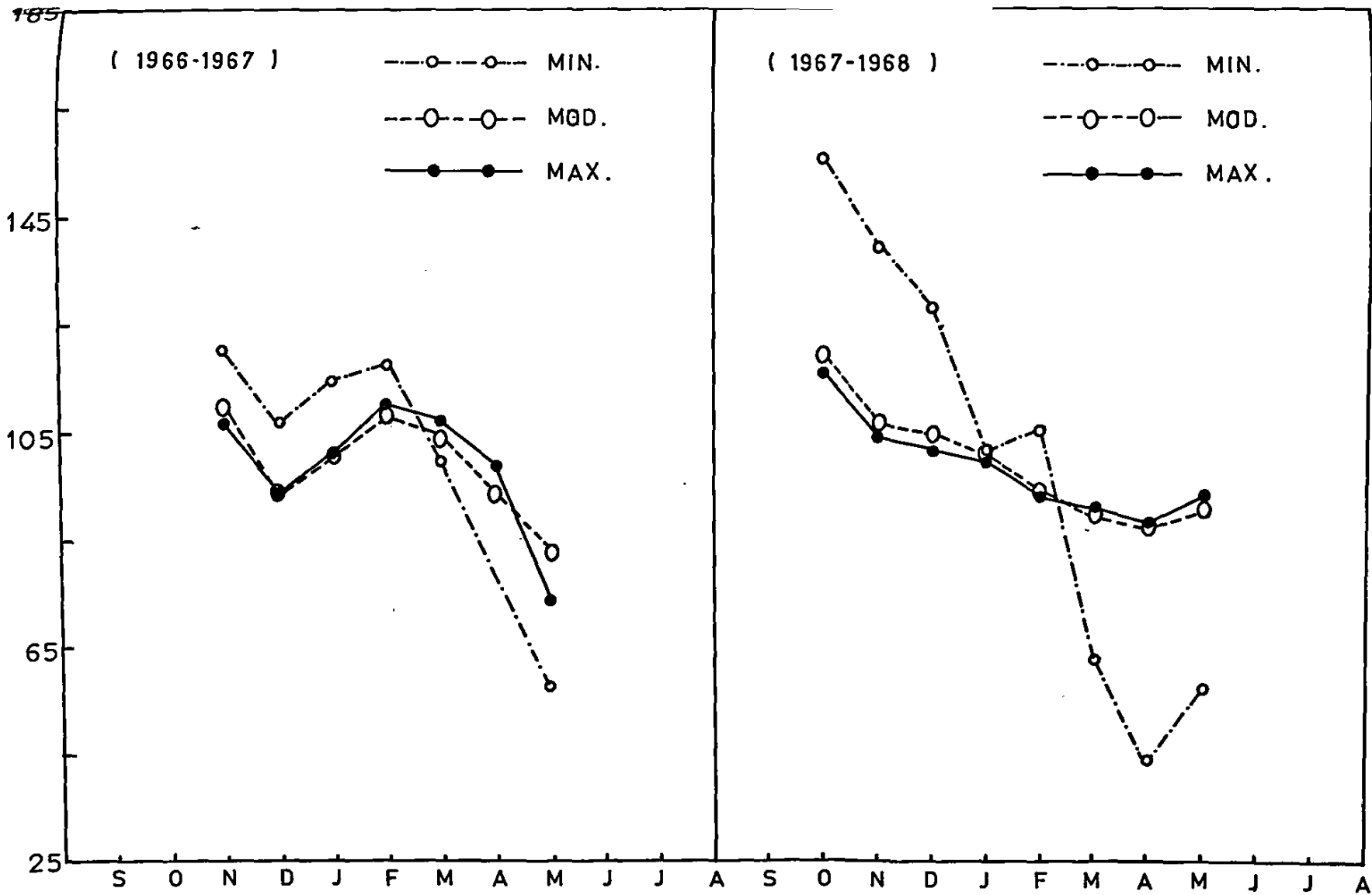


CHART NO. 5-15: INDEX OF SEASONAL VARIATION IN COTTON PRICES, PACHORA MARKET,  
 and 5-16: FOR THE YEARS 1966-1967 AND 1967-1968.

1969

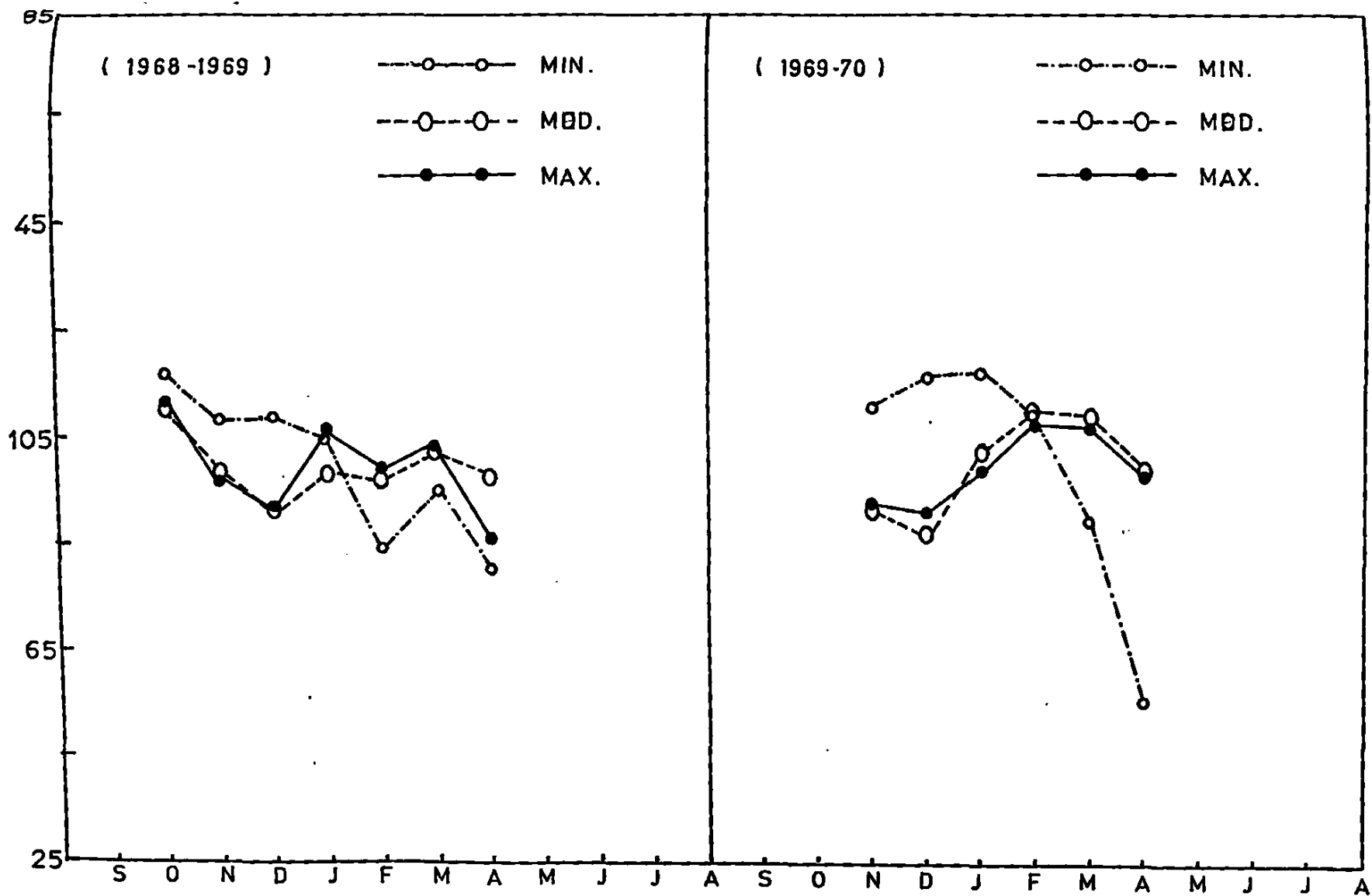


CHART NO.5-17: INDEX OF SEASONAL VARIATION IN COTTON PRICES, PACHORA MARKET,  
 and FOR THE YEARS 1968-1969 AND 1969-1970.  
 5-18

1969

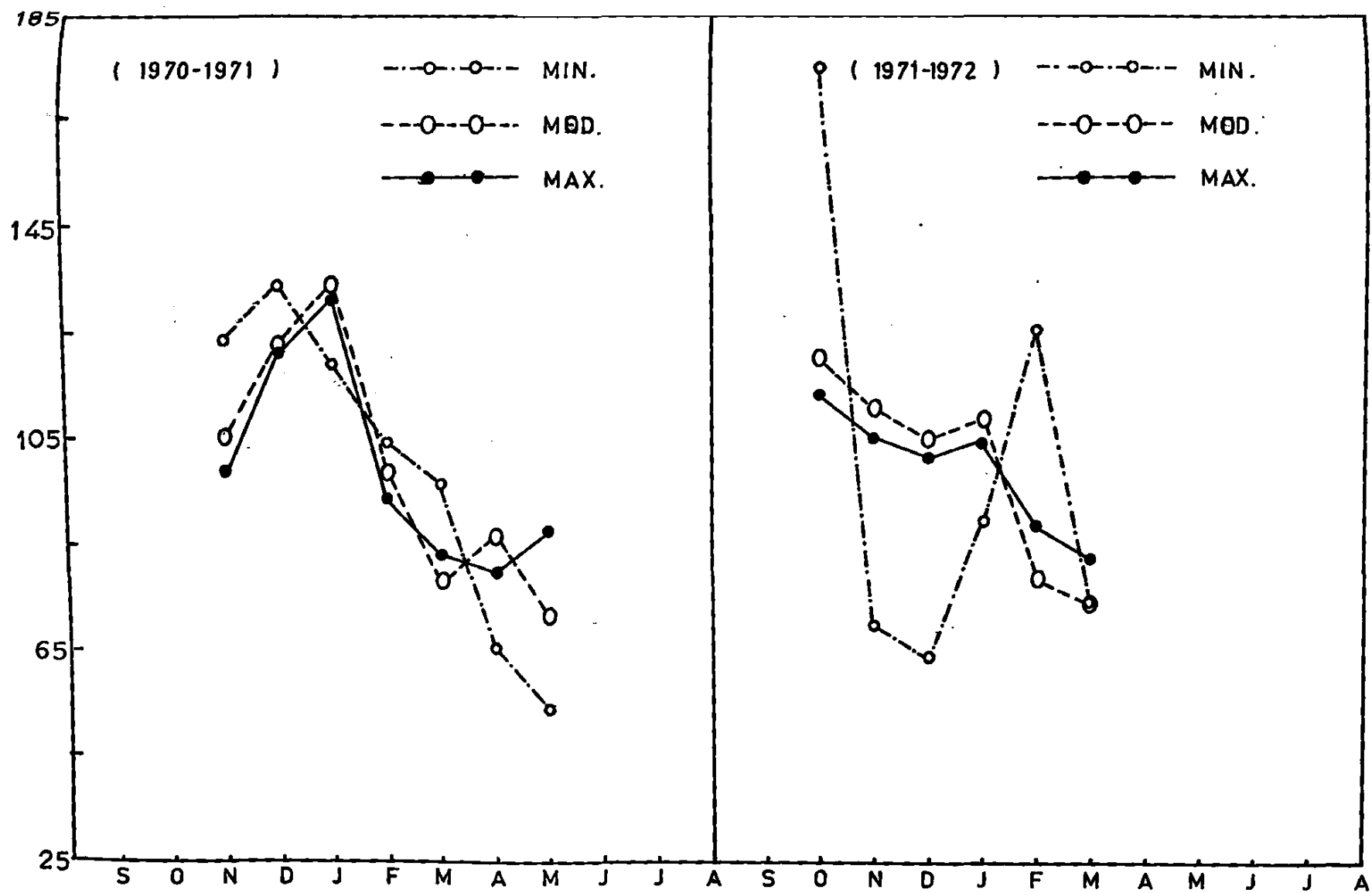


CHART NO. 5.19: INDEX OF SEASONAL VARIATION IN COTTON PRICES, PACHORA MARKET,  
 and  
 5.20: FOR THE YEARS 1970-1971 AND 1971-1972.

variation from the average for all the years. This can be clearly seen from the Charts 5.10 to 5.20. While the prices reached peak in January in average seasonal pattern, in the particular years, the peak in prices occurred during the months of October to February. Similarly, the trough in prices was generally in the months of April and May. However, in a few years the trough in prices occurred during earlier months. The prices of lint are subject to floors and ceilings without any restrictions on the prices of cotton (kapas). Under controlled conditions the usual factors influencing the prices generally do not operate particularly in case of cotton.

In earlier section of this chapter we have seen that the main marketing period of cotton starts in November, one month after the beginning of the season and extends over a period of three months i.e. from November to January. More than 62 per cent of the annual arrivals in the market are during these three months. The peak in cotton prices occurs during these months only. This shows that the prices in the main marketing period were favourable to the farmers. This also confirms our finding regarding the pattern of sale of cotton by the farmers in this region which is discussed in detail in Chapter III.

#### The Pattern of Groundnut Prices in Pachora Market

The index of seasonality in the prices of groundnut is presented in the Tables 5.10, 5.11 and 5.12 and Charts 5.21 to 5.29.

**Table 5.10 : Index of Seasonal Variation in Groundnut Prices (Maximum) for the Years 1962-63 to 1971-72 and Average for the Ten Years :  
Pachora Market**

Year	September	October	November	December	January	February	March	April	May	June	July	August	Mean Devia- tion	Peak as Percentage of trough
1962-63	-	-	-	-	-	-	91.80	99.58	108.22	105.58	104.96	102.28	-	-
1963-64	97.91	<u>118.70</u>	<u>91.99</u>	93.96	96.55	99.33	98.31	99.43	104.13	104.96	109.22	104.91	5.37	129.03
1964-65	96.02	94.91	93.98	<u>107.03</u>	99.70	97.57	92.59	98.55	93.48	<u>92.27</u>	100.71	104.57	4.43	115.99
1965-66	106.01	103.94	106.27	96.43	94.74	<u>89.54</u>	99.31	98.15	107.81	107.28	107.31	<u>125.06</u>	7.12	139.66
1966-67	103.45	102.38	90.62	90.44	100.81	101.30	104.10	<u>106.35</u>	115.35	119.96	107.56	<u>81.33</u>	8.25	130.76
1967-68	86.08	102.95	101.67	<u>83.22</u>	101.66	94.32	90.62	97.29	96.21	89.39	90.61	<u>103.17</u>	6.81	123.97
1968-69	116.32	108.33	99.03	92.93	<u>91.52</u>	92.29	100.72	99.57	104.64	116.12	<u>116.85</u>	113.06	8.39	127.67
1969-70	105.16	86.13	<u>81.43</u>	87.89	98.51	108.25	106.57	107.96	<u>112.37</u>	107.26	101.82	109.54	7.74	137.99
1970-71	103.21	<u>91.58</u>	97.09	102.25	102.07	98.48	100.15	101.38	101.24	100.28	94.70	107.99	3.06	117.91
1971-72	104.34	89.20	96.70	98.41	106.31	101.82	-	-	-	-	-	-	-	-
Average for the 10 years	101.43	99.17	94.82	<u>94.14</u>	98.49	97.49	97.63	100.30	104.17	104.13	103.10	<u>105.13</u>	3.04	111.67



**Table 5.11 : Index of Seasonal Variation in Groundnut Prices (Minimum) for the Years 1962-63 to 1971-72 and Average for the Ten Years : Pachora Market**

Year	September	October	November	December	January	February	March	April	May	June	July	August	Mean Deviation	Peak as Percentage of trough
1962-63	-	-	-	-	-	-	90.93	103.36	106.78	113.62	117.88	102.02	-	-
1963-64	107.73	<u>75.24</u>	88.52	93.29	99.17	97.53	103.40	106.77	<u>114.59</u>	113.76	113.66	107.73	9.49	151.19
1964-65	71.29	<u>68.53</u>	97.61	109.60	105.20	105.28	96.00	79.72	97.36	97.37	106.03	<u>111.25</u>	10.79	162.33
1965-66	95.22	83.19	103.74	96.26	97.10	<u>93.72</u>	99.72	105.41	120.21	118.85	118.79	<u>132.94</u>	11.20	141.85
1966-67	<u>62.97</u>	67.80	78.25	95.28	109.20	115.95	112.34	110.10	116.49	<u>119.56</u>	107.01	83.76	16.04	189.86
1967-68	79.88	<u>77.42</u>	103.92	105.90	104.30	99.14	98.98	101.54	90.18	85.98	85.32	<u>109.60</u>	9.03	141.56
1968-69	<u>132.20</u>	<u>63.50</u>	82.16	97.11	93.56	98.65	110.11	110.76	110.12	126.31	131.08	121.01	17.21	108.19
1969-70	64.22	<u>63.65</u>	80.22	94.69	98.23	113.15	124.13	120.23	110.98	103.93	95.26	<u>128.93</u>	17.10	102.56
1970-71	<u>59.84</u>	68.91	100.93	105.95	113.80	<u>124.30</u>	116.59	115.89	84.02	55.78	94.57	120.62	19.57	107.72
1971-72	106.13	62.75	75.22	98.56	118.56	117.50	-	-	-	-	-	-	-	-
Average for the 10 years	86.60	<u>70.10</u>	90.05	99.62	104.33	107.23	105.79	105.97	105.63	103.90	107.72	<u>113.06</u>	8.93	161.28

**Table 5.12 : Index of Seasonal Variation in Groundnut Prices (Modal) for the Years 1962-63 to 1971-72 and Average for the Ten Years : Pachora Market**

Year	September	October	November	December	January	February	March	April	May	June	July	August	Mean Deviation	Peak as Percentage of trough
1962-63	-	-	-	-	-	-	91.63	100.93	104.45	106.70	107.93	105.36	-	-
1963-64	98.23	<u>89.55</u>	89.82	95.78	96.95	99.87	99.67	101.79	105.14	108.12	<u>110.79</u>	108.14	5.33	123.71
1964-65	<u>80.93</u>	91.64	95.46	108.23	99.88	100.36	94.41	98.36	94.42	93.08	101.78	<u>105.16</u>	5.61	129.93
1965-66	105.32	101.12	102.25	98.06	94.77	<u>89.90</u>	94.96	98.76	109.93	109.37	105.76	<u>126.00</u>	6.94	140.16
1966-67	95.94	98.50	87.77	90.29	101.25	104.15	106.26	105.90	<u>116.25</u>	115.52	104.91	<u>82.34</u>	8.28	141.18
1967-68	86.94	94.71	100.08	100.93	100.47	94.24	91.75	96.92	94.90	<u>85.65</u>	89.80	<u>104.14</u>	5.89	121.59
1968-69	113.42	102.06	96.15	92.58	<u>90.26</u>	92.32	102.47	101.99	105.87	<u>118.23</u>	118.11	114.93	8.81	130.99
1969-70	86.82	85.09	<u>80.87</u>	87.05	98.89	104.20	110.19	109.95	<u>114.43</u>	106.90	104.05	109.77	10.06	141.50
1970-71	<u>83.61</u>	89.32	95.55	102.88	103.96	101.80	101.64	103.17	101.81	99.52	90.07	<u>106.07</u>	5.27	126.86
1971-72	103.69	85.09	93.49	100.01	107.48	103.41	-	-	-	-	-	-	-	-
Average for the 10 years	95.09	<u>93.10</u>	93.58	97.40	99.42	99.02	99.32	102.07	105.34	104.89	103.78	<u>106.99</u>	3.84	114.92

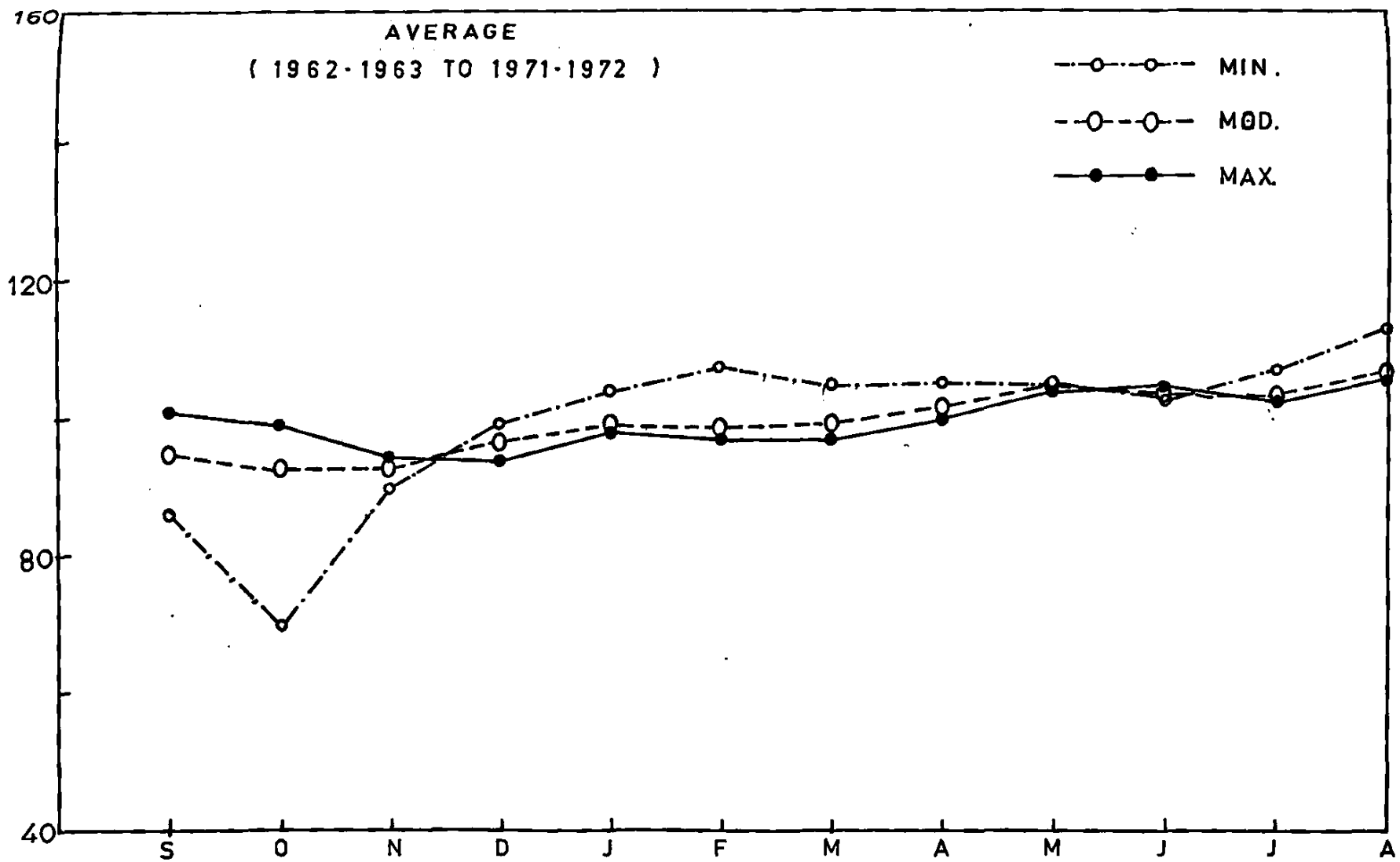


CHART NO.5-21: INDEX OF SEASONAL VARIATION IN GROUNDNUT PRICES, PACHORA MARKET,  
AVERAGE FOR TEN YEARS, 1962-1963 TO 1971-1972.

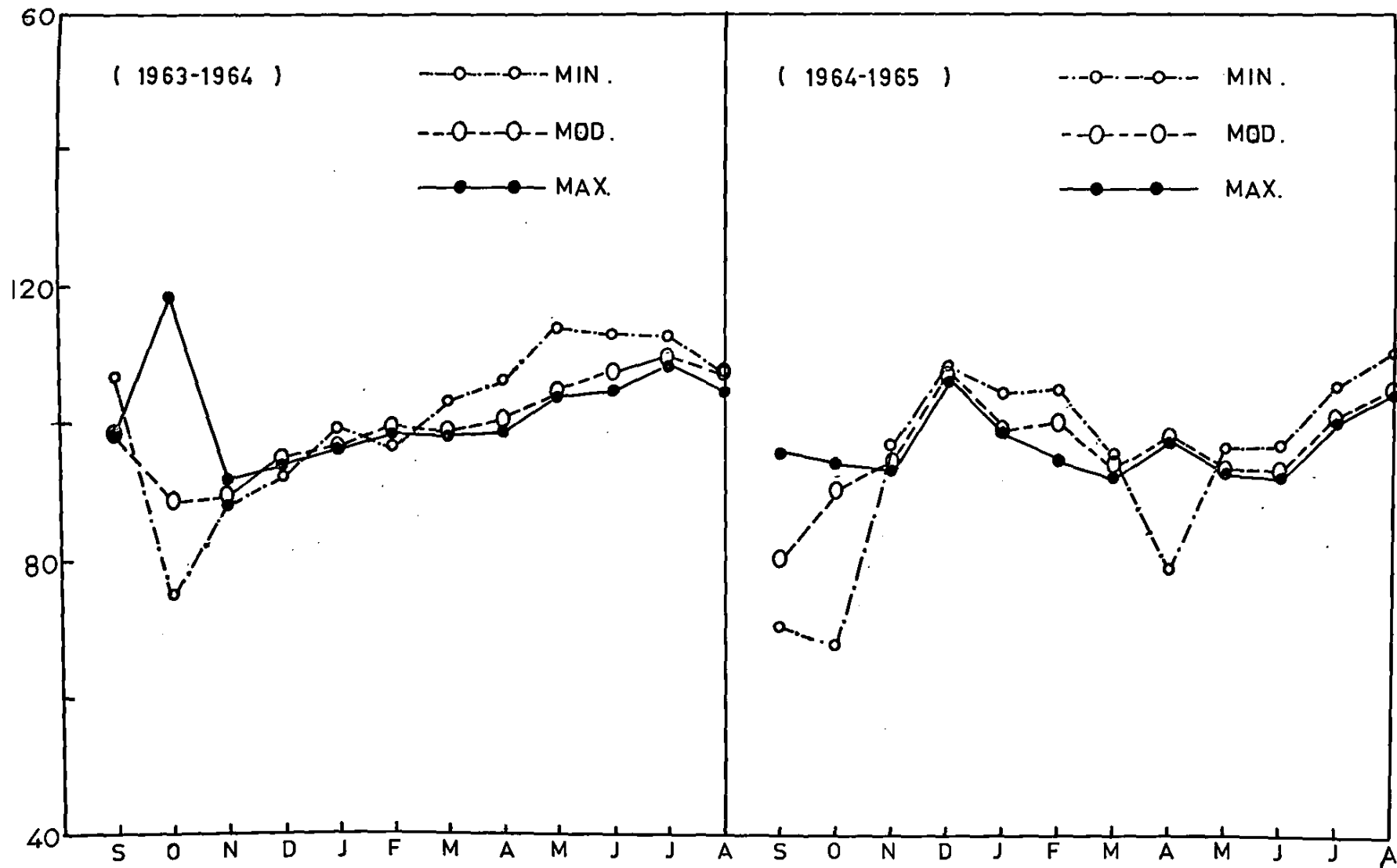


CHART NO. 5-22: INDEX OF SEASONAL VARIATION IN GROUNDNUT PRICES, PACHORA MARKET,  
 and  
 5-23: FOR THE YEARS 1963-1964 AND 1964-1965.

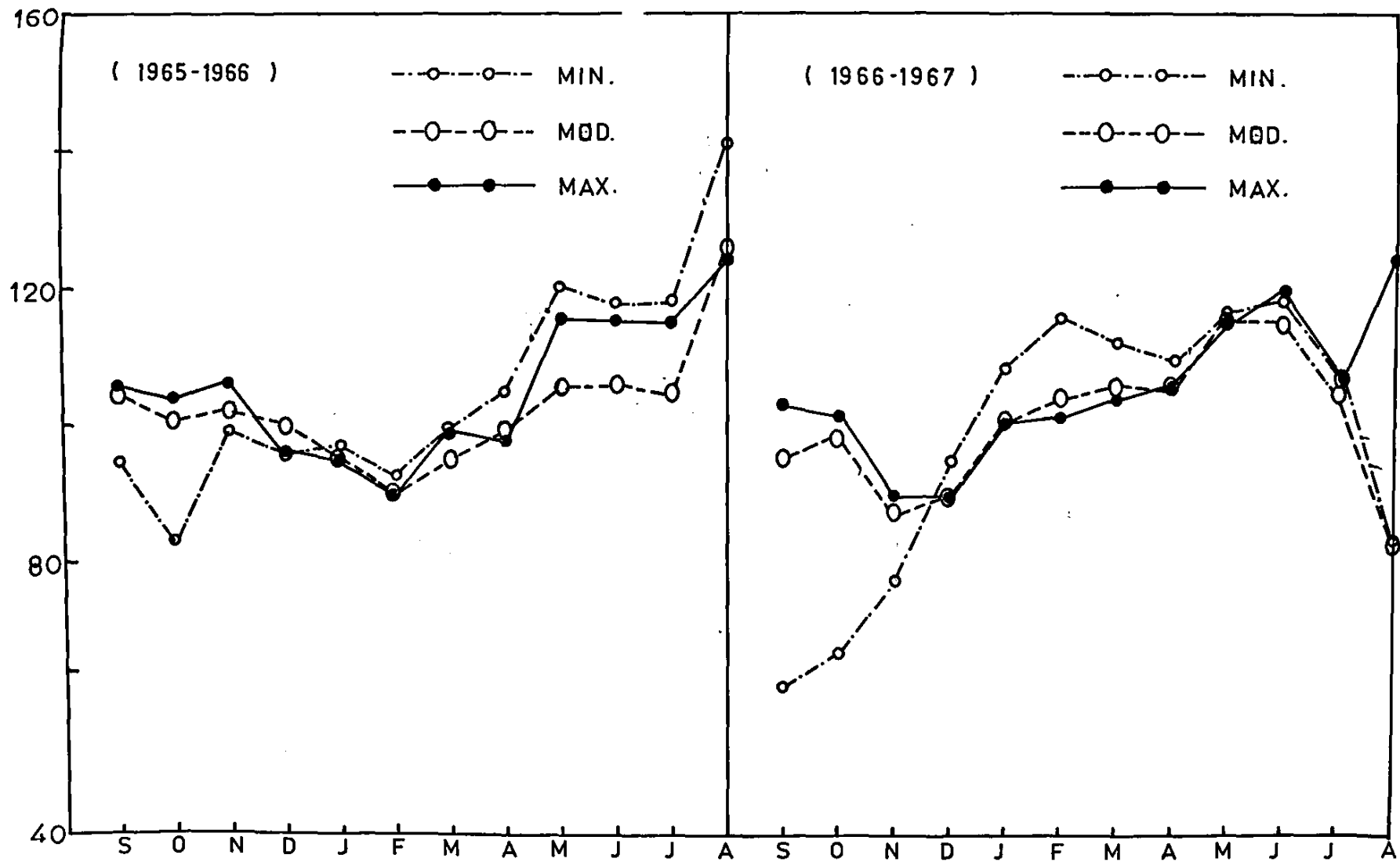


CHART NO.5-24: INDEX OF SEASONAL VARIATION IN GROUNDNUT PRICES, PACHORA MARKET, and 5-25 FOR THE YEARS 1965-1966 AND 1966-1967.

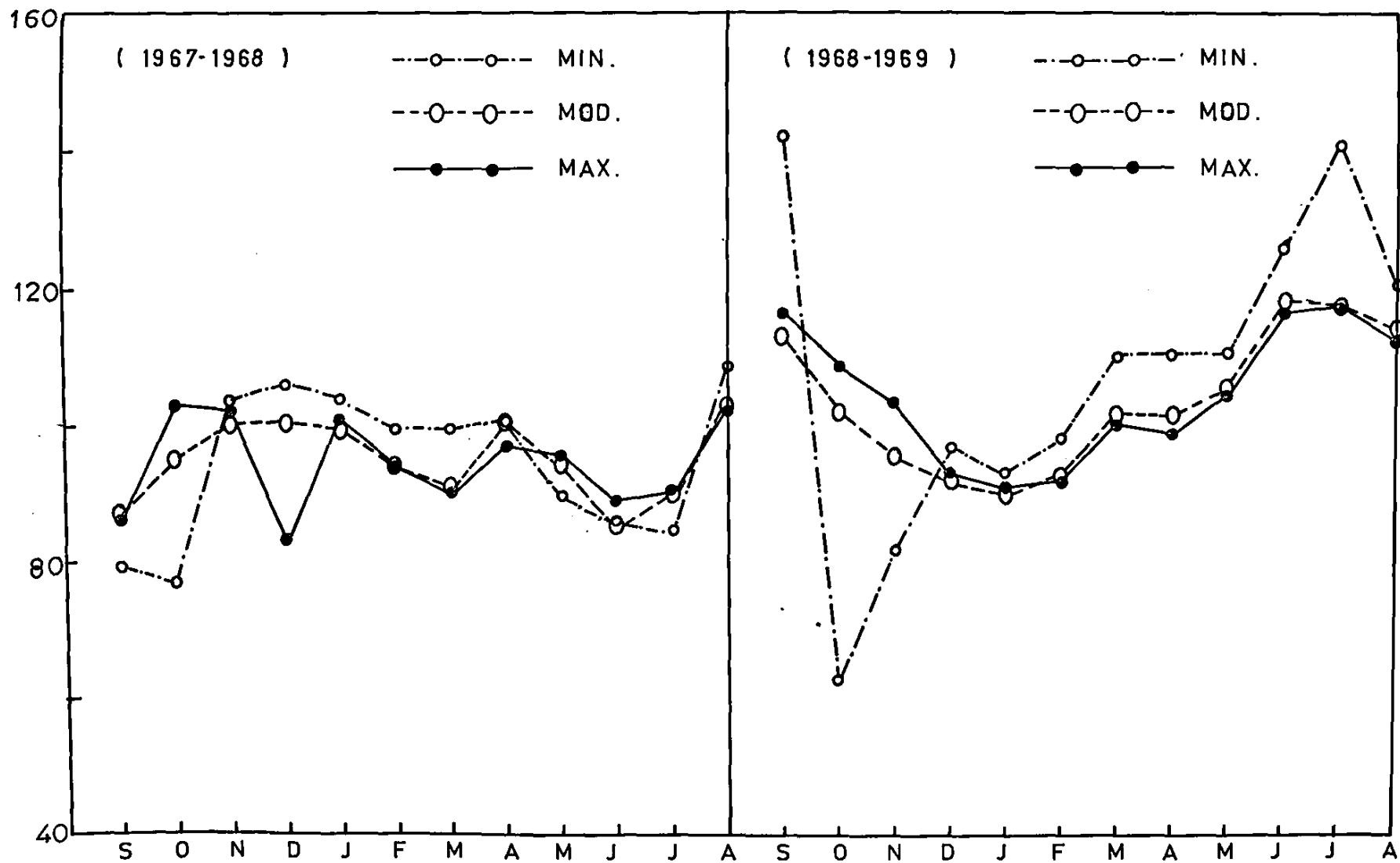


CHART NO.5-26: INDEX OF SEASONAL VARIATION IN GROUNDNUT PRICES, PACHORA MARKET, and 5-27: FOR THE YEARS 1967-1968 AND 1968-1969.

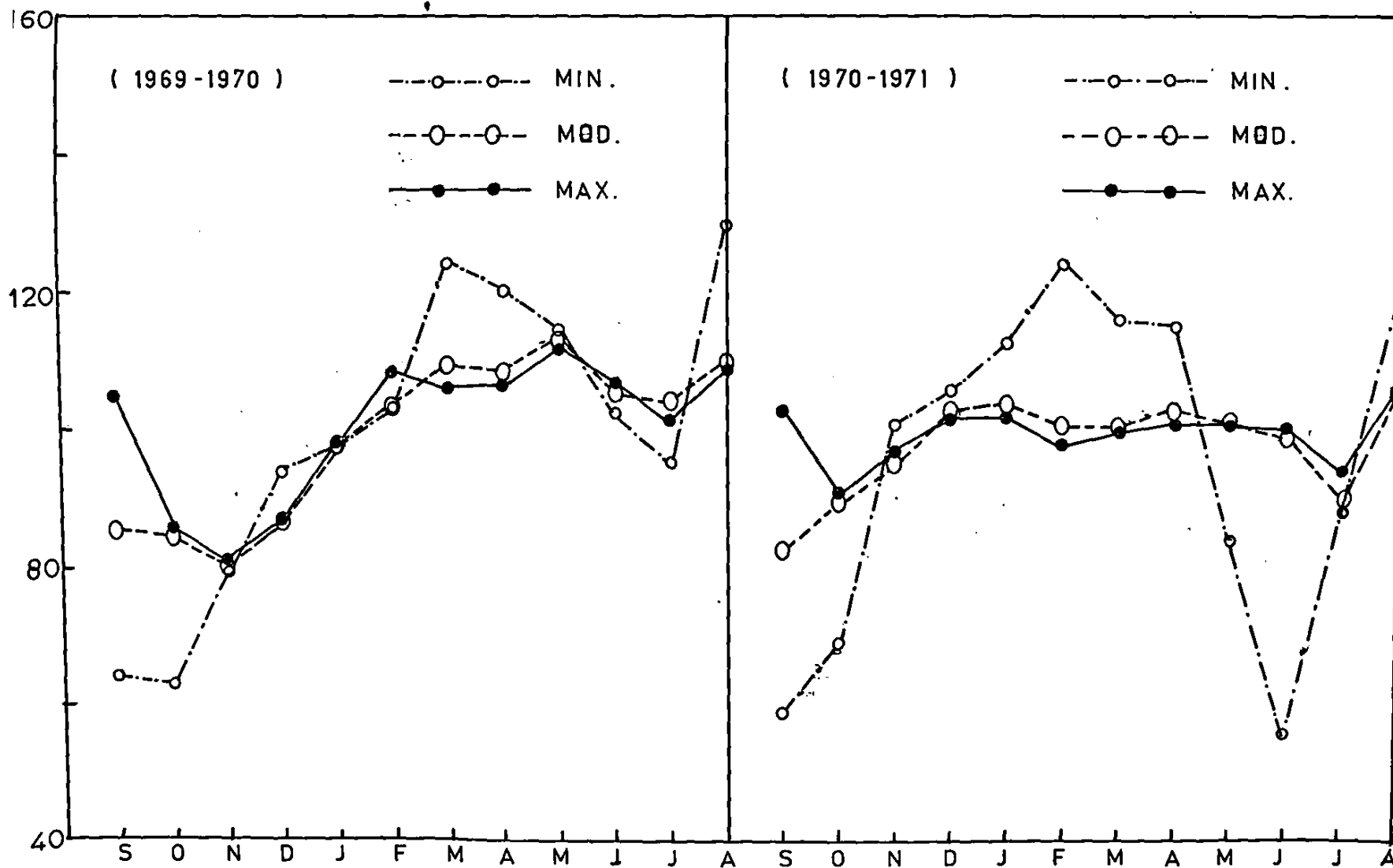


CHART NO.5.28: INDEX OF SEASONAL VARIATION IN GROUNDNUT PRICES, PACHORA MARKET, and 5.29: FOR THE YEARS 1969-1970 AND 1970-1971.

It can be seen from the Tables that the price of groundnut reaches the trough in October or December in the average seasonal pattern. There is a continuous rise in price till the peak is reached in August. The prices show a declining trend from September to December. The three prices maximum, minimum and modal, move in sympathy with each other. As can be seen from the Charts 5.21 to 5.29 the peak and trough months in the prices in the particular years did not always coincide with the average pattern for all the years. It may be that the shifts in peak and trough months were caused due to random factors peculiar to particular years. But, within these variations it is observed that the seasonality in prices existed.

We have seen that October to December is the period of heavy arrivals of groundnut in the market. We have also seen that the prices show a declining trend during this period. Thereafter the prices show a continuously rising trend. It appears from our analysis of pattern of arrivals in the market and periodicity of storage in villages that the producers who withheld groundnut from 1 to 2 months were not in a position to avail of the rise in price but a considerable number of farmers who postponed sales further (from 2 to 6 months) were, however, benefited by the price rise.

#### The Pattern of Gur Prices in Baramati Market

The index of seasonal variation in the prices of gur is presented in the Tables 5.13, 5.14 and 5.15 and Charts 5.30 to 5.38. The average seasonal pattern for the period of the ten



**Table 5.13 :** Index of Seasonal Variation in Gur Prices (Maximum) for the Years 1962-63 to 1971-72 and Average for the 10 Years .  
Baramati Market

Year	September	October	November	December	January	February	March	April	May	June	July	August	Mean Deviation	Peak as Percentage of trough
1962-63	-	-	-	-	-	-	85.82	93.83	100.33	103.68	99.81	111.38	-	-
1963-64	124.42	<u>124.72</u>	105.54	98.39	89.79	88.64	85.11	<u>80.95</u>	96.57	101.53	100.64	107.97	10.40	154.07
1964-65	<u>131.63</u>	124.43	108.80	115.40	99.77	85.22	79.51	87.71	<u>83.23</u>	89.76	94.34	91.67	14.92	158.15
1965-66	111.14	111.16	113.49	96.19	91.39	84.84	86.45	<u>78.73</u>	87.66	91.41	104.67	<u>125.55</u>	12.44	159.46
1966-67	119.92	113.74	98.84	84.95	<u>79.02</u>	81.77	82.15	85.82	89.33	104.51	111.22	<u>121.42</u>	14.07	153.65
1967-68	140.86	<u>152.65</u>	98.79	94.76	83.25	<u>77.75</u>	86.42	103.10	106.09	106.77	111.68	123.01	16.93	196.33
1968-69	123.62	<u>142.57</u>	100.90	83.64	85.60	82.04	<u>81.00</u>	85.79	82.38	98.66	102.94	127.10	16.51	176.01
1969-70	<u>120.35</u>	118.00	113.56	96.67	97.35	91.20	95.63	81.18	<u>78.39</u>	84.81	93.53	112.03	12.10	153.52
1970-71	115.26	<u>148.53</u>	99.80	97.61	90.91	96.89	91.79	90.57	<u>89.29</u>	105.20	117.88	126.55	13.04	166.34
1971-72	129.52	118.94	88.64	86.96	97.17	93.51	-	-	-	-	-	-	-	-
Average for the 10 years	123.00	<u>127.19</u>	102.25	94.12	89.68	86.11	<u>85.24</u>	86.76	89.57	97.62	103.17	115.29	11.81	149.21

Table 5.14 : Index of Seasonal Variation in Gur Prices (Minimum) for the Years 1962-63 to 1971-72 and Average for the Ten Years :  
Baramati Market

Year	September	October	November	December	January	February	March	April	May	June	July	August	Mean Devia- tion	Peak as Percentage of trough
1962-63	-	-	-	-	-	-	84.34	93.22	100.81	108.85	112.61	120.90	-	-
1963-64	<u>135.36</u>	96.84	95.95	101.73	<u>83.98</u>	90.79	88.22	97.30	105.90	110.21	113.52	112.57	10.50	161.18
1964-65	<u>117.34</u>	88.00	94.98	108.53	104.74	98.83	90.05	105.74	88.19	<u>78.00</u>	84.37	94.07	9.98	150.43
1965-66	96.12	88.49	108.28	107.83	114.17	102.43	86.65	<u>75.07</u>	90.05	83.86	95.13	<u>114.49</u>	10.98	152.51
1966-67	101.06	93.07	85.99	90.72	<u>87.07</u>	99.01	101.01	93.92	<u>112.47</u>	102.11	106.31	93.24	6.50	129.17
1967-68	<u>125.95</u>	107.53	102.86	111.03	92.17	<u>88.62</u>	93.01	113.06	112.19	88.92	114.60	118.84	11.94	142.12
1968-69	<u>121.99</u>	119.83	98.86	93.32	86.90	94.40	93.99	85.69	<u>76.83</u>	84.27	102.10	101.14	10.90	158.77
1969-70	104.37	<u>82.19</u>	92.12	97.79	<u>111.94</u>	110.04	102.70	95.88	87.91	91.42	84.26	98.42	8.26	136.19
1970-71	102.91	103.75	<u>84.60</u>	96.68	95.22	88.64	106.29	95.50	95.60	112.33	<u>118.42</u>	118.23	8.80	139.97
1971-72	122.99	109.67	90.72	92.08	100.19	94.28	-	-	-	-	-	-	-	-
Average for the 10 years	<u>114.77</u>	99.28	95.37	100.44	97.83	96.79	<u>94.47</u>	95.48	97.11	96.00	103.96	108.50	4.61	121.49

**Table 5.15 : Index of Seasonal Variation in Gur Prices (Modal) for the Years 1962-63 to 1971-72 and Average for the Ten Years : Baramati Market**

Year	September	October	November	December	January	February	March	April	May	June	July	August	Mean Devia- tion	Peak as Percentage of trough
1962-63	-	-	-	-	-	-	84.66	94.17	100.30	106.11	104.72	115.05	-	-
1963-64	<u>127.69</u>	122.07	100.92	97.72	88.69	88.16	<u>85.09</u>	86.50	102.67	101.79	102.25	106.19	9.78	150.06
1964-65	119.47	116.06	106.76	<u>119.88</u>	99.40	94.60	83.04	89.39	88.48	<u>81.79</u>	91.50	82.64	12.61	146.57
1965-66	106.55	116.19	<u>118.50</u>	100.29	92.98	86.56	<u>75.26</u>	78.18	89.55	96.37	102.72	106.11	10.95	157.45
1966-67	104.60	100.98	99.55	91.42	<u>83.70</u>	89.97	86.24	86.02	93.92	103.49	108.04	<u>109.71</u>	8.00	131.08
1967-68	137.47	<u>140.05</u>	96.40	95.50	82.30	<u>79.75</u>	86.28	105.85	111.59	101.76	111.18	120.32	15.66	175.61
1968-69	116.58	<u>125.49</u>	96.73	87.60	88.49	88.25	86.41	83.20	<u>79.00</u>	83.96	93.98	105.20	13.30	158.84
1969-70	102.61	110.75	<u>112.38</u>	103.98	99.84	95.00	91.25	81.93	<u>72.90</u>	77.54	81.08	107.55	11.47	154.15
1970-71	111.45	124.17	103.15	98.55	88.12	<u>81.88</u>	98.18	95.74	95.34	104.26	110.81	<u>125.26</u>	10.10	152.97
1971-72	114.99	109.77	87.00	88.63	96.53	94.49	-	-	-	-	-	-	-	-
Average for the 10 years	115.89	<u>118.58</u>	102.54	98.32	91.26	<u>88.88</u>	97.52	89.14	92.79	95.38	100.86	108.84	7.78	133.42

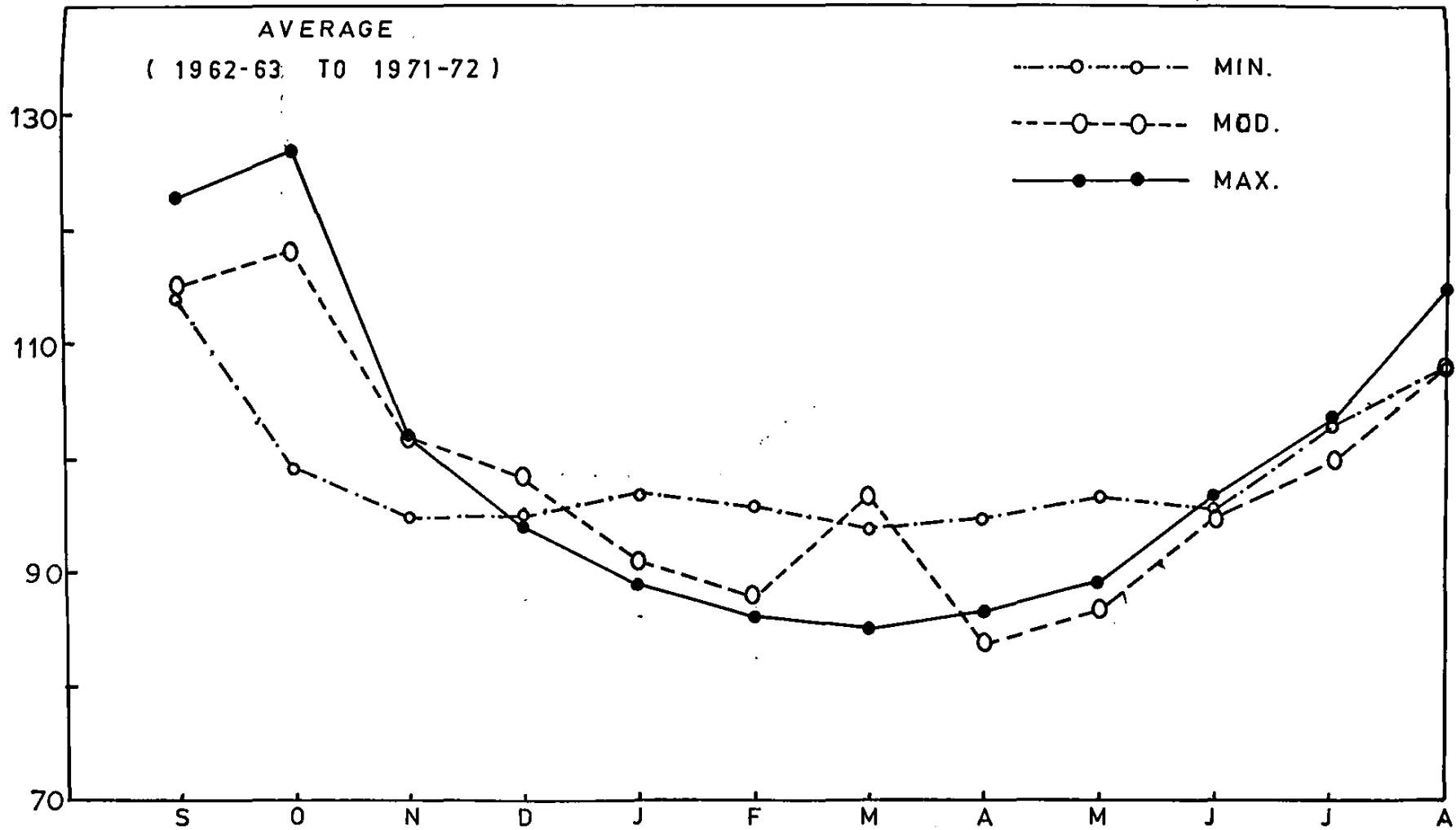


CHART NO.5.30: INDEX OF SEASONAL VARIATION IN GUR PRICES, BARAMATI MARKET:  
AVERAGE FOR TEN YEARS: 1962-1963 TO 1971-1972.

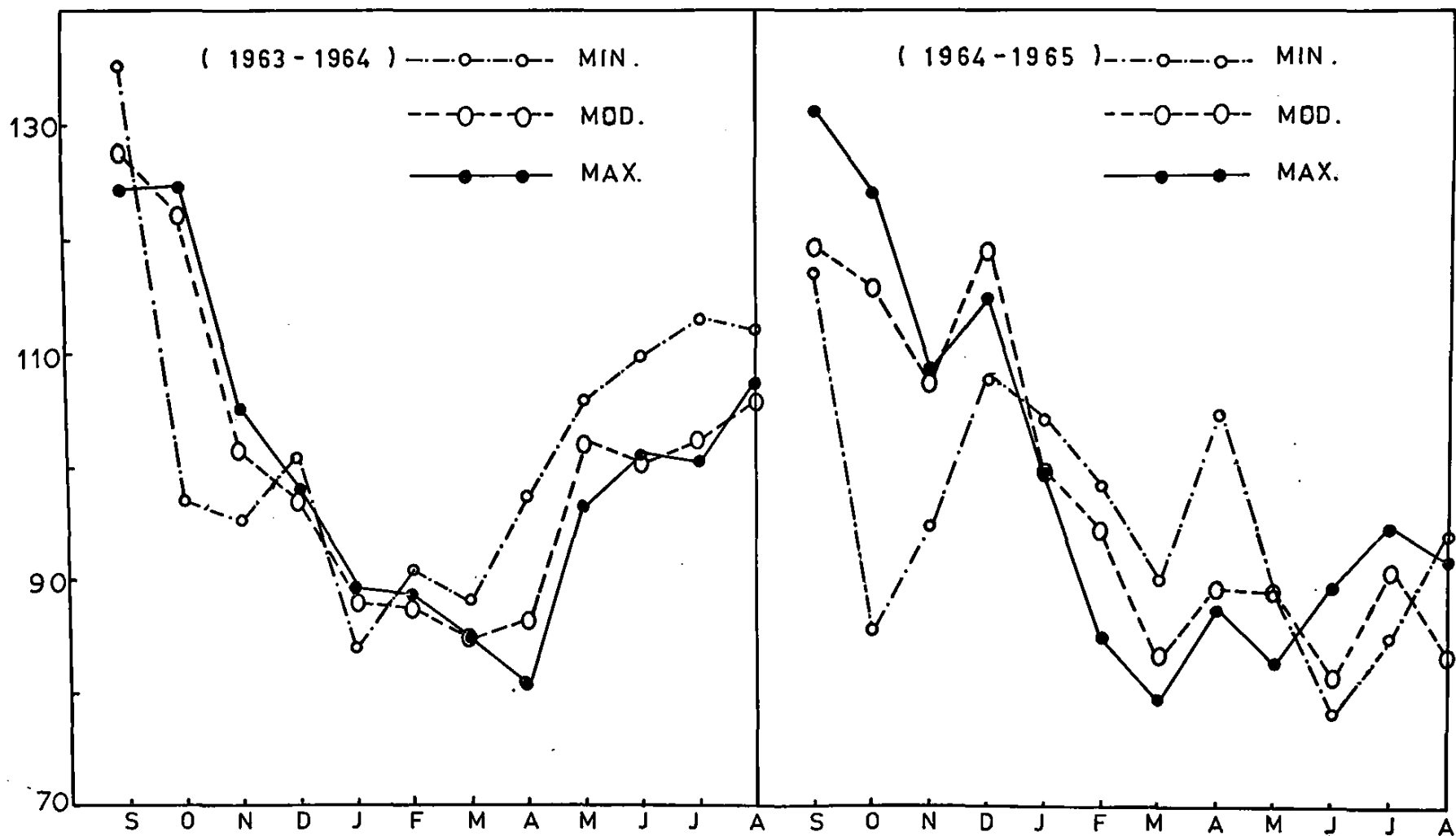


CHART NO.531: INDEX OF SEASONAL VARIATION IN GUR PRICES, BARAMATI MARKET  
 and  
 5.32: FOR THE YEARS 1963-1964 AND 1964-1965.

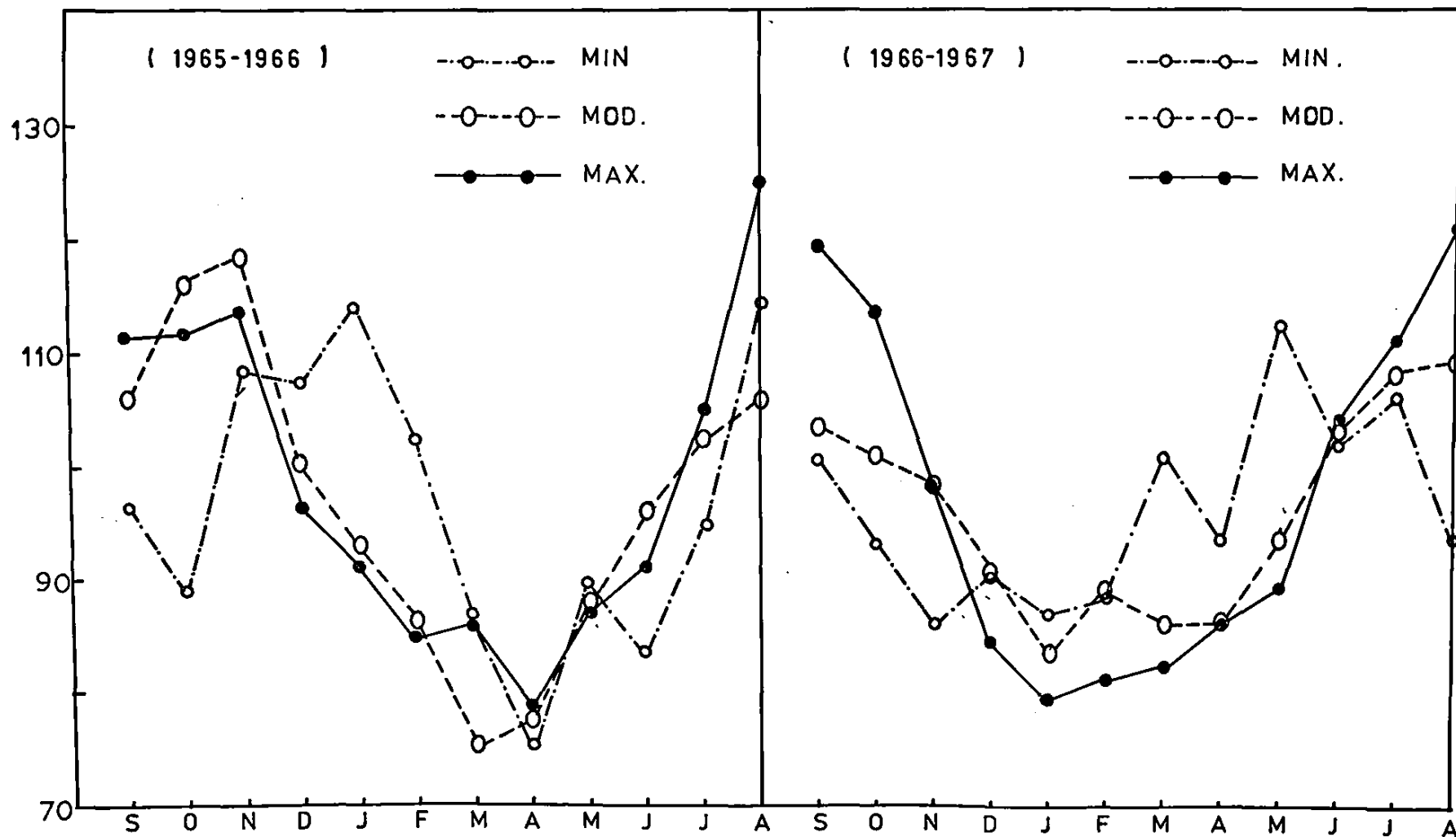


CHART NO.5-33: INDEX OF SEASONAL VARIATION IN GUR PRICES, BARAMATI MARKET  
 and  
 5.34: FOR THE YEARS 1965-1966 AND 1966-1967.

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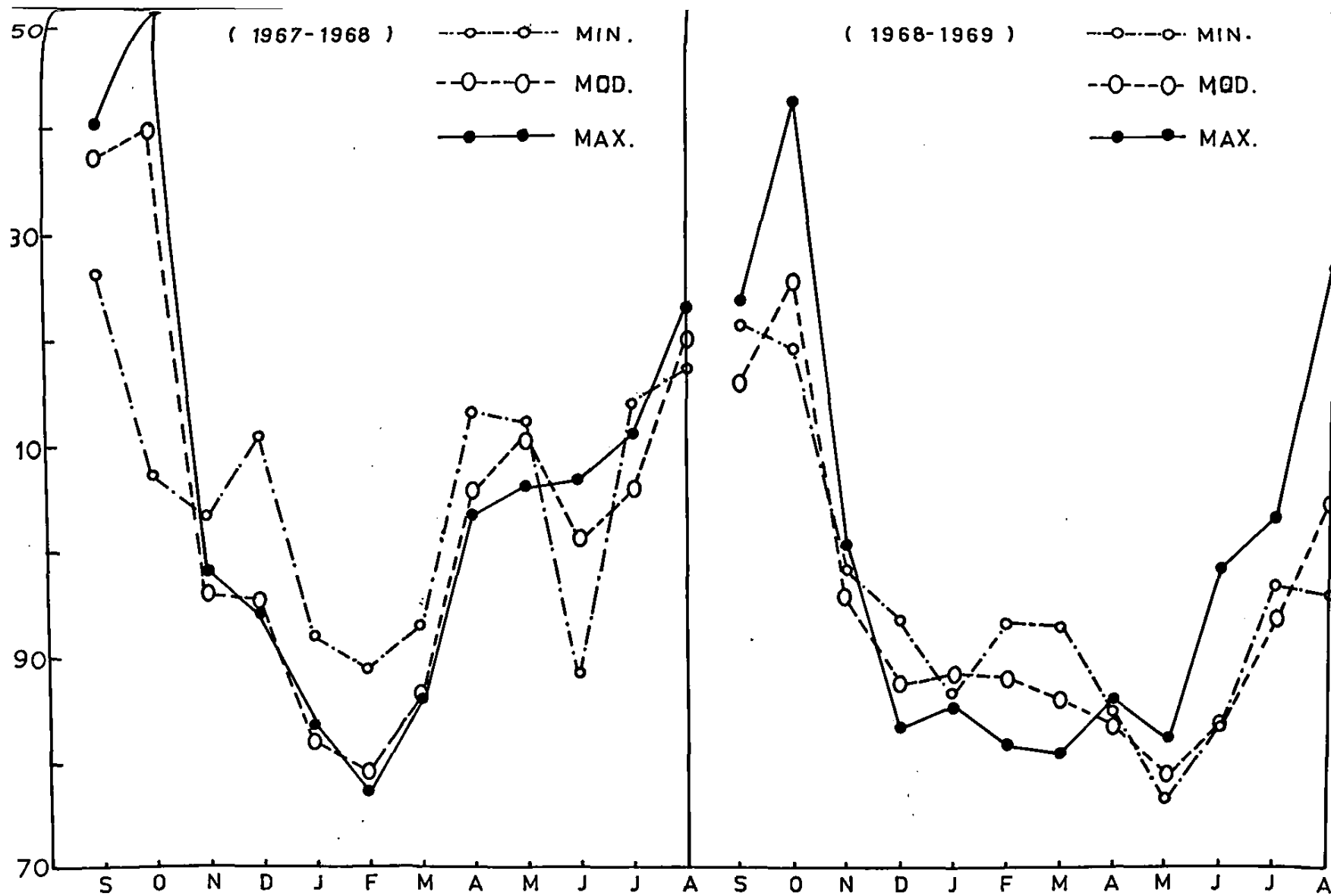


CHART NO. 535: INDEX OF SEASONAL VARIATION IN GUR PRICES, BARAMATI MARKET  
 and  
 536: FOR THE YEARS 1967-1968 AND 1968-1969.

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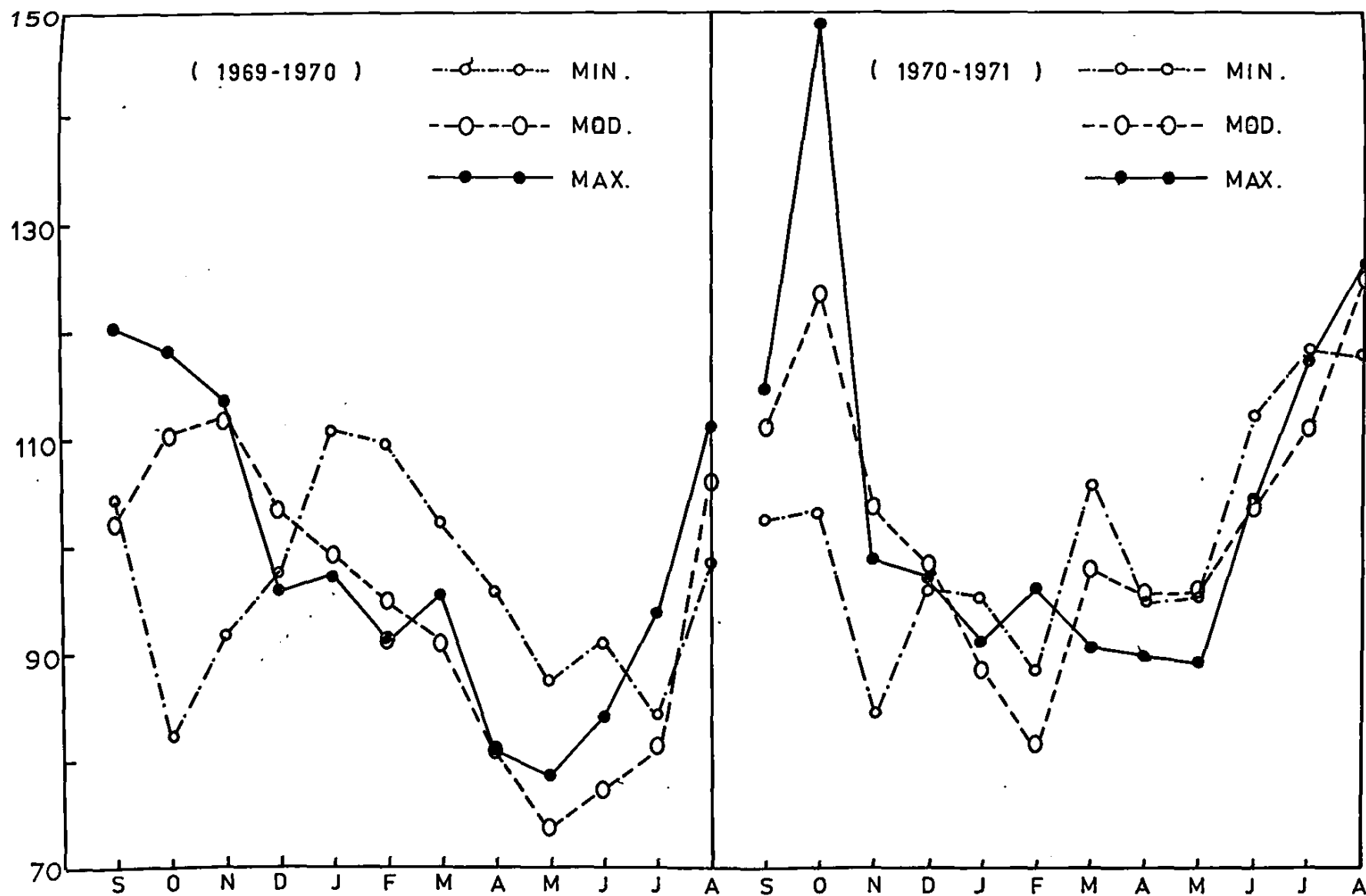


CHART NO.5-37: INDEX OF SEASONAL VARIATION IN GUR PRICES, BARAMATI MARKET  
 and  
 5-38: FOR THE YEARS 1969-1970 AND 1970-1971.



years 1962-63 to 1971-72 shows that the price of gur reaches seasonal low either in February or March. The price reaches peak in September or October when either fresh or stored gur is sold in the market. The price starts declining gradually from November through March, where it reaches the lowest point, after which there is a continuous rise in the price till the peak is attained in September or October. The maximum, minimum and modal prices move in sympathy with each other. There were slight variations in respect of individual years. Generally, the peak in prices was reached in September or October as in the case of average pattern with a few exceptions. However, the trough in prices occurred in different months during the particular years. But, the general rising and declining trend in prices from trough to peak and peak to trough was observed in all the years similar to the average pattern for all the years. The average seasonal pattern largely reflects the pattern for particular years.

We have seen that 20 per cent of annual arrivals were during the months of September and October. The prices were favourable to the farmers during this period when both fresh and stored gur was disposed of by them. But with the rush of arrivals during the next three months the prices exhibited a declining trend. They show improvement only at the end of the season, when the arrivals mainly of stored gur are meagre. From our analysis it is seen that the majority of the farmers in the villages surveyed by us were keen in disposing off

their produce immediately in the beginning of the season on account of the trend of the prices.

The above discussion in Section II of this chapter in respect of behaviour of prices of cotton and groundnut in Pachora market and Gur in Baramati market shows a fairly consistent seasonal pattern. The slight variations in the pattern during individual years may be due to a number of factors peculiar to a particular year. As an example, among others may be mentioned delayed rainy season, size of the carry over of stock from the preceding year and other local and random factors. It is not possible to remove the influence of erratic factors from annual seasonal index prepared even by the moving average method. Hence it is not necessary to expect a strict uniformity in the seasonal pattern from year to year.

#### Extent of Seasonal Fluctuations in the Prices

The fact that seasonality in the prices of cotton, groundnut and gur in Pachora and Baramati primary markets respectively exists is thus established by the above discussion. We now examine the extent of seasonal fluctuations in the prices. For this purpose the extent of seasonal rise in prices, the seasonal index of the peak month expressed as a percentage of the trough in respect of all the three commodities is presented in Table 5.16.

It can be seen from the Table 5.16, following, that the percentage rise over season in respect of cotton was 8.95, 30.03 and 11.88 per cent in the maximum, minimum and modal

**Table 5.16 : The Peaks and Troughs in the Seasonal Index of Cotton, Groundnut and Gur Prices in Pachora and Baramati Markets**

Commodity	Price	Trough	Peak	Peak as percentage of trough	Intervening period (months)
1. Cotton	Maximum	95.14 (March)	103.66 (January)	108.95	9
	Minimum	85.19 (March)	110.78 (November)	130.03	7
	Modal	93.21 (March)	104.29 (November)	111.88	7
2. Groundnut	Maximum	94.14 (December)	105.13 (August)	111.67	7
	Minimum	70.10 (October)	113.06 (August)	161.28	9
	Modal	93.10 (October)	106.99 (August)	114.92	9
3. Gur	Maximum	85.24 (March)	127.19 (October)	149.21	6
	Minimum	94.47 (March)	114.77 (September)	121.49	5
	Modal	88.88 (February)	118.58 (October)	133.42	7

prices respectively. The peak maximum, minimum and modal prices of groundnut were 11.67, 61.28 and 14.92 per cent above the trough. In case of gur the rise was 49.21, 21.49 and 33.42 per cent in maximum, minimum and modal prices.

It is evident from the above discussion that the prices in the primary markets exhibit a considerable amount of seasonal fluctuation. The largest fluctuation is seen in respect of gur prices in the Baramati market and smallest in respect of cotton prices in the Pachora market. Also a considerable amount of fluctuation is observed only in respect of the minimum prices of groundnut in Pachora market. This is mainly because of the quality of the produce. In the beginning of the season, the groundnuts which are not well dried, fetch a low price on account of subsequent loss in weight.

### Section III : Returns to Storage

In the preceding section we discussed about the extent and pattern of fluctuations in the prices of cotton, groundnut and gur over the season. It clearly indicated that the prices exhibit seasonal fluctuation of a perceptible order and of varying size in the primary markets. It is the purpose of this section to study seasonal price movement in relation to the storage cost. The aim is to find out whether the price rise in the later marketing period is such as to leave a margin over and above the storage cost. It is proposed to examine the possibility of cultivator gaining by stocking for sale

later in the season in respect of two commodities only viz., groundnut in the Pachora market and gur in the Baramati market. It is not attempted to examine the returns to storage of cotton (kapas) as it is sold in the region immediately after harvest and not stored for long periods of time.

Before we move to discuss the procedure followed to compare off-seasonal price rise with cost of storing and examine the results, it will be useful to recapitulate the harvesting seasons of these two commodities already described in Chapter II. In Pachora (Khandesh), harvesting of groundnut begins in September and it is over by the end of October. The bulk of the produce is harvested during these two months. After the harvest it does not take much time for the produce to arrive in the market. Generally, there are heavy arrivals into the market from October to December. However, the marketing season of groundnut extends all over the year.

The harvesting season of sugarcane in Baramati area starts in October and lasts till the end of March. Gur is made and sold in large quantities during the four months from October to January. It is marketed throughout the year.

The fluctuations in marketing of these commodities within a season not only depend upon the timing of harvests and prevailing climatic conditions but also on the withholding capacity of the producers and their judgement about price changes and consequently the margin of profit due to storage over a period. If the price offered at any given point of time is below their expectations, the producers have the

choice of postponing the sale. We have seen in the preceding two sections of this chapter that the seasonality in arrivals and prices in respect of both the groundnut and gur was of varying magnitude and pattern.

With this background we examine below the extent of seasonal rise in prices and the costs of storing the produce for the later period after the harvest.

In order to study the profitability in postponing the sale from the peak season to the off-season, with a view to availing the seasonal rise in prices, it is necessary to know the cost of storage mainly the storage charges and the interest on the advance taken against the warehouse receipt. We have discussed in detail in Chapter III the costs of storage at different levels. In the analysis below we are going to use these costs of storage arrived at by us on the basis of the original data collected during the survey work. It may be mentioned here that, so far, in all the studies (some of which are mentioned in bibliography), the returns to storage have been worked out on the basis of estimated storage costs. The present study is distinct from them in this respect.

October and November are taken as the base months for groundnut and gur respectively. At this time the heavy marketing season commences and the prices are also generally low. Storage costs are added to the monthly average modal prices. These costs included storage charges, interest on the actual amount of advances, depreciation of bag, <sup>labours,</sup> and loss in weight. The difference between the actual price prevailing

and the estimated price in different months (after adding the storage costs) would give an estimate of return to storage. If the return is positive, the producer gains by postponing the sale and, if it is negative he would lose by withholding it.

Since the marketing of both the groundnut and gur takes place throughout the year, the returns to storage are calculated for all the months. The results of our analysis in the case of each commodity are discussed below, separately.

Returns to storage—average for all years (1962-63 to 1971-72) and separately for each year in respect of groundnut in Pachora market—are presented in the Tables 5.17 and 5.18 and Charts 5.39 to 5.49.

It can be seen that the returns were positive for all the months from November to August on an average during the years 1962-63 to 1971-72, except for one month, i.e. September, the returns were negative. The positive returns to storage varied from 0.80 per cent to 5.87 per cent and negative return was 13.39 per cent. The positive returns ranged from Rs.0.95 to Rs. 7.65 and the negative return was Rs.18.55 per quintal.

However, a considerable fluctuation was noticed in the particular years. Out of the ten years, the years 1962-63, 1966-67, 1967-68 and 1970-71 were dominated by negative returns, whereas during the majority of the years, viz. six, positive returns were observed. It appears from the above analysis that on the whole, it was beneficial for the producer if he undertook to store groundnut in the primary market of

**Table 5.17 : Returns to Storage—Average for All Years  
(1962-63 to 1971-72) :**

**Groundnut—Pachora Market**

Month	Monthly average price (Rs. per quintal)	October price + storage cost (Rs. per quintal)	Returns to storage	
			Rs. per quintal (Col. 1 - 2)	Percentage (Col. 3/2) x 100
	(1)	(2)	(3)	(4)
October	116.00	-	-	-
November	119.00	118.05	+ 0.95	0.80
December	122.00	120.10	+ 1.90	1.35
January	127.00	122.15	+ 4.85	4.22
February	127.00	124.20	+ 2.80	2.25
March	131.00	126.25	+ 4.75	3.80
April	131.00	128.30	+ 2.70	2.10
May	138.00	130.35	+ 7.65	5.87
June	140.00	132.40	+ 7.60	5.74
July	136.00	134.45	+ 1.55	1.15
August	143.00	136.50	+ 6.50	4.76
September	120.00	138.55	- 18.55	(-) 13.39



**Table 5.18 : Returns to Storage—Yearwise (1962-63 to 1971-72):  
Groundnut—Pachora Market**

Month	Monthly average price (Rs. per quintal) (1)	October price + storage cost (Rs. per quintal) (2)	Returns to storage	
			Rs. per quintal (Col. 1-2) (3)	Percentage (Col. 3/2) x 100 (4)
<u>1962-63</u>				
October	57.00	-	-	-
November	62.00	59.05	+ 2.95	5.00
December	61.00	61.10	- 0.10	(-) 0.16
January	62.00	63.15	- 1.15	(-) 1.82
February	61.00	65.20	- 4.20	(-) 6.44
March	61.00	67.25	- 6.25	(-) 9.29
April	67.00	69.30	- 2.30	(-) 3.32
May	70.00	71.35	- 1.35	(-) 1.89
June	75.00	73.40	+ 1.60	2.17
July	74.00	75.45	- 1.45	(-) 1.92
August	74.00	77.50	- 3.50	(-) 4.52
September	72.00	79.55	- 7.55	(-) 9.49
<u>1963-64</u>				
October	65.00	-	-	-
November	67.00	67.05	- 0.05	(-) 0.07
December	74.00	69.10	+ 4.90	7.09
January	77.00	71.15	+ 5.85	8.22
February	81.00	73.20	+ 7.80	10.66
March	84.00	75.25	+ 8.75	11.63
April	85.00	77.30	+ 7.70	9.96
May	90.00	79.35	+10.65	13.42
June	94.00	81.40	+12.60	15.47
July	99.00	83.45	+15.55	18.63
August	99.00	85.50	+13.50	15.79
September	71.00	87.55	-16.55	(-) 18.67

(continued)

Table 5.18 : (continued)

Month	Monthly average price (Rs. per quintal) (1)	October price + storage cost (Rs. per quintal) (2)	Returns to storage	
			Rs. per quintal (Col. 1 - 2) (3)	Percentage (Col. 3/2) x 100 (4)
<u>1964-65</u>				
October	86.00	-	-	-
November	91.00	88.05	+ 2.95	3.35
December	104.00	90.10	+13.90	15.42
January	97.00	92.15	+ 4.85	5.26
February	100.00	94.20	+ 5.80	6.15
March	97.00	96.25	+ 0.75	0.77
April	104.00	98.30	+ 5.70	5.79
May	104.00	100.35	+ 3.65	3.63
June	105.00	102.40	+ 2.60	2.53
July	117.00	104.45	+12.55	12.01
August	124.00	106.50	+17.50	16.43
September	75.00	108.55	-33.55	(-) 30.90
<u>1965-66</u>				
October	126.00	-	-	-
November	132.00	128.05	+ 3.95	3.08
December	131.00	130.10	+ 0.90	0.69
January	132.00	132.15	- 0.15	(-) 0.11
February	130.00	134.20	- 4.20	(-) 3.12
March	141.00	136.25	+ 4.75	3.48
April	150.00	138.30	+11.70	8.45
May	168.00	140.35	+27.65	19.70
June	169.00	142.40	+26.60	18.67
July	164.00	144.45	+19.55	13.53
August	201.00	146.50	+54.50	37.20
September	126.00	148.55	-22.55	(-) 15.18

(continued)

Table 5.18 : (continued)

Month	Monthly average price (Rs. per quintal) (1)	October price + storage cost (Rs. per quintal) (2)	Returns to storage	
			Rs. per quintal (Col. 1 - 2) (3)	Percentage (Col. 3/2) x 100 (4)
<u>1966-67</u>				
October	161.00	-	-	-
November	144.00	163.05	- 19.05	(-) 11.68
December	149.00	165.10	- 16.10	(-) 9.75
January	167.00	167.15	- 0.15	(-) 0.09
February	167.00	169.20	- 2.20	(-) 1.30
March	164.00	171.25	- 7.25	(-) 4.23
April	150.00	173.30	- 23.30	(-) 13.44
May	175.00	175.35	- 0.35	(-) 0.19
June	172.00	177.40	- 5.40	(-) 3.04
July	150.00	179.45	- 29.45	(-) 16.41
August	116.00	181.50	- 65.50	(-) 36.05
September	159.00	183.55	- 24.55	(-) 13.37
<u>1967-68</u>				
October	122.00	-	-	-
November	127.00	124.05	+ 2.95	2.38
December	118.00	126.10	- 8.10	(-) 6.42
January	119.00	128.15	- 9.15	(-) 7.14
February	108.00	130.20	- 22.20	(-) 17.05
March	106.00	132.25	- 26.25	(-) 19.84
April	113.00	134.30	- 21.30	(-) 15.86
May	111.00	136.35	- 25.35	(-) 18.59
June	101.00	138.40	- 37.40	(-) 27.02
July	105.00	140.45	- 35.45	(-) 25.24
August	124.00	145.50	- 21.50	(-) 14.77
September	117.00	147.55	- 30.55	(-) 20.70

(continued)

Table 5.18 : (continued)

Month	Monthly average price (Rs. per quintal) (1)	October price + storage cost (Rs. per quintal) (2)	Returns to storage	
			Rs. per quintal (Col. 1 - 2) (3)	Percentage (Col. 3/2) x 100 (4)
<u>1968-69</u>				
October	128.00	-	-	-
November	124.00	130.05	- 6.05	(-) 4.65
December	124.00	132.10	- 8.10	(-) 6.13
January	127.00	134.15	- 7.15	(-) 5.33
February	136.00	136.20	- 0.20	(-) 0.15
March	158.00	133.25	+ 19.75	14.28
April	153.00	140.30	+ 12.70	9.05
May	159.00	142.35	+ 16.65	11.69
June	179.00	144.40	+ 34.60	23.96
July	184.00	146.45	+ 37.55	25.64
August	180.00	148.50	+ 31.50	21.21
September	143.00	150.55	- 7.55	(-) 5.01
<u>1969-70</u>				
October	141.00	-	-	-
November	136.00	143.05	- 7.05	(-) 4.93
December	148.00	145.10	+ 2.90	1.86
January	168.00	147.15	+ 20.85	14.14
February	178.00	149.20	+ 28.80	19.30
March	189.00	151.25	+ 37.75	24.95
April	189.00	153.30	+ 35.70	23.28
May	198.00	155.35	+ 42.65	27.45
June	188.00	157.40	+ 30.60	19.44
July	183.00	159.45	+ 23.55	14.76
August	195.00	161.50	+ 33.50	21.98
September	140.00	163.55	- 23.55	(-) 14.39

(continued)

Table 5.18 : (continued)

Month	Monthly average price (Rs. per quintal) (1)	October price + storage cost (Rs. per quintal) (2)	Returns to storage	
			Rs. per quintal (Col. 1 - 2) (3)	Percentage (Col. 3/2) x 100 (4)
<u>1970-71</u>				
October	152.00	-	-	-
November	160.00	154.05	+ 5.95	3.86
December	169.00	156.10	+ 12.90	8.26
January	166.00	158.15	+ 7.85	4.96
February	159.00	160.20	- 1.20	(-) 0.75
March	158.00	162.25	- 4.25	(-) 2.62
April	159.00	164.30	- 5.30	(-) 3.23
May	155.00	166.35	- 11.35	(-) 6.82
June	149.00	168.40	- 19.40	(-) 11.52
July	133.00	170.45	- 37.45	(-) 21.97
August	156.00	172.50	- 16.50	(-) 9.56
September	140.00	174.55	- 34.55	(-) 19.79
<u>1971-72</u>				
October	124.00	-	-	-
November	143.00	126.05	+ 16.95	13.44
December	144.00	128.10	+ 15.90	12.41
January	156.00	130.15	+ 25.85	19.86
February	151.00	132.20	+ 18.80	14.22
March	152.00	134.25	+ 17.75	13.22
April	140.00	136.30	+ 3.70	2.71
May	141.00	138.35	+ 2.65	1.92
June	148.00	140.40	+ 7.60	5.41
July	155.00	142.45	+ 12.55	8.81
August	160.00	144.50	+ 15.50	10.72
September	152.00	146.55	+ 5.45	3.71

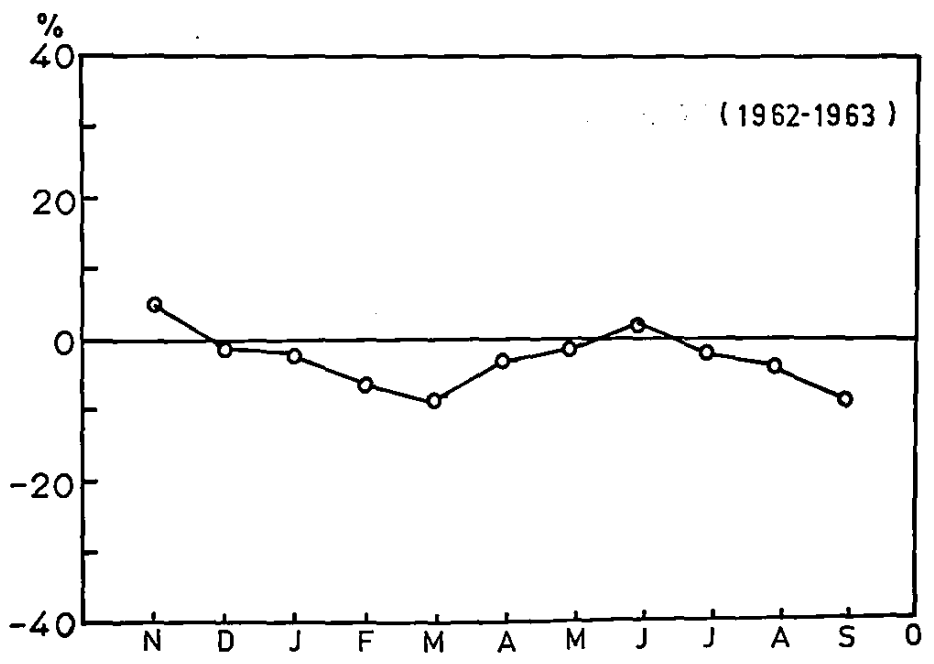
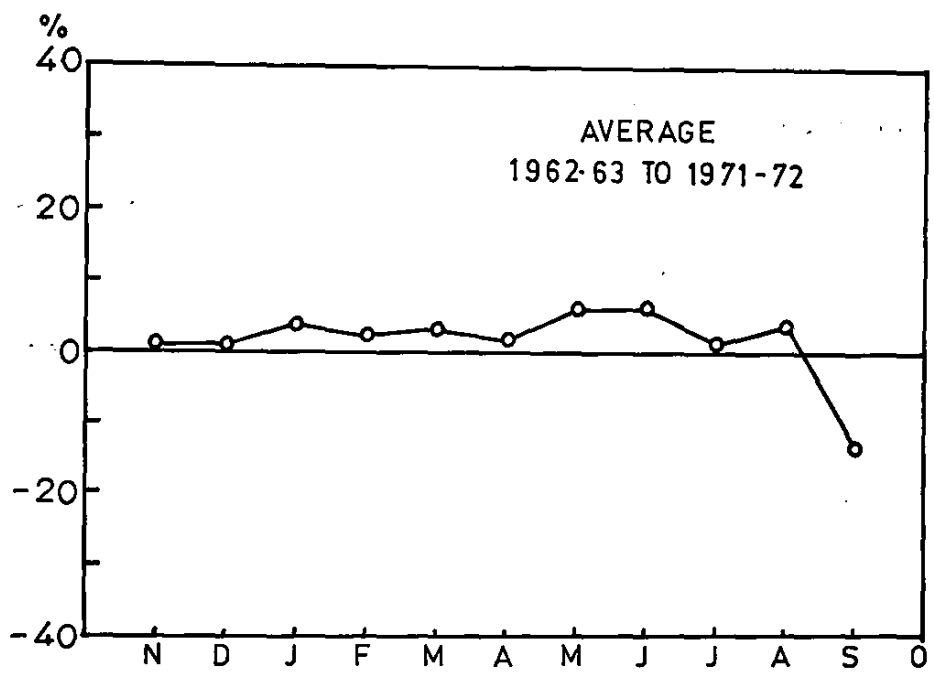


CHART NO.5-39: RETURNS TO STORAGE ( in %) -- GROUNDNUT:  
and PACHORA MARKET; AVERAGE 1962-1963 TO  
5-40: 1971-1972 AND FOR THE YEAR 1962-1963

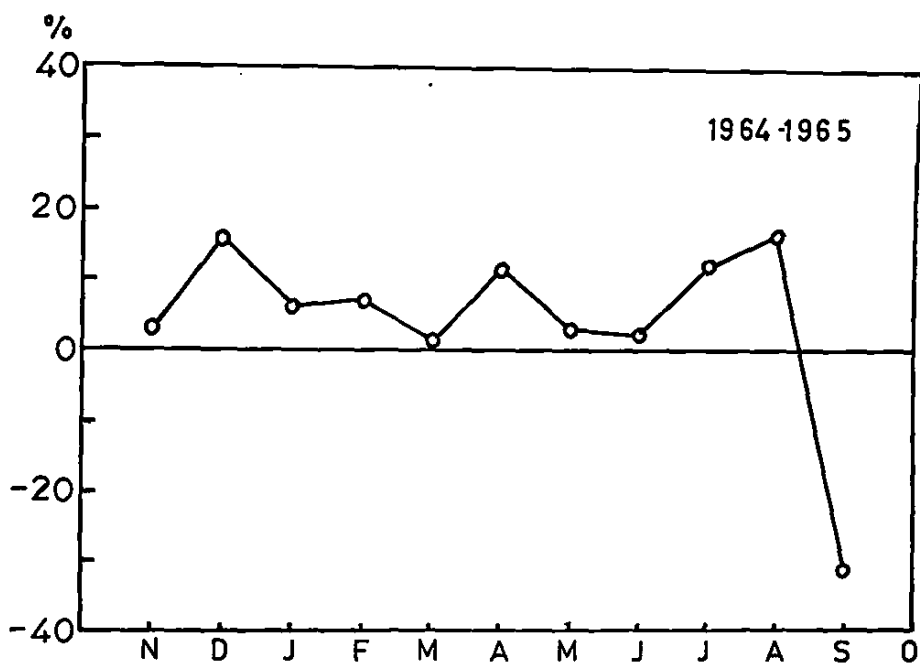
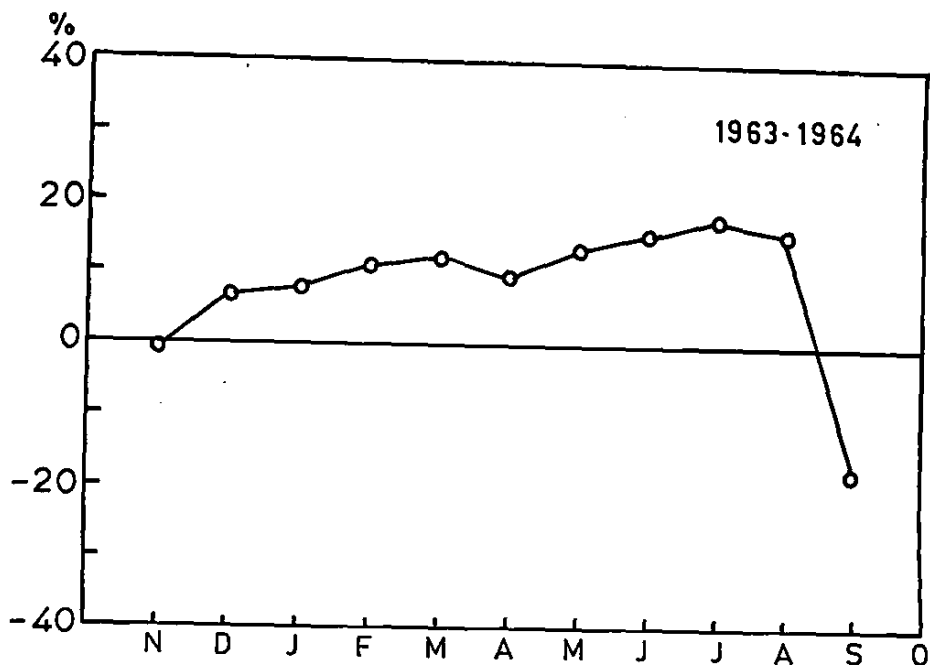


CHART NO. 5.41: RETURNS TO STORAGE (in %) GROUNDNUT: PACHORA  
 and  
 5.42: MARKET, FOR THE YEARS 1963-1964 AND 1964-1965.

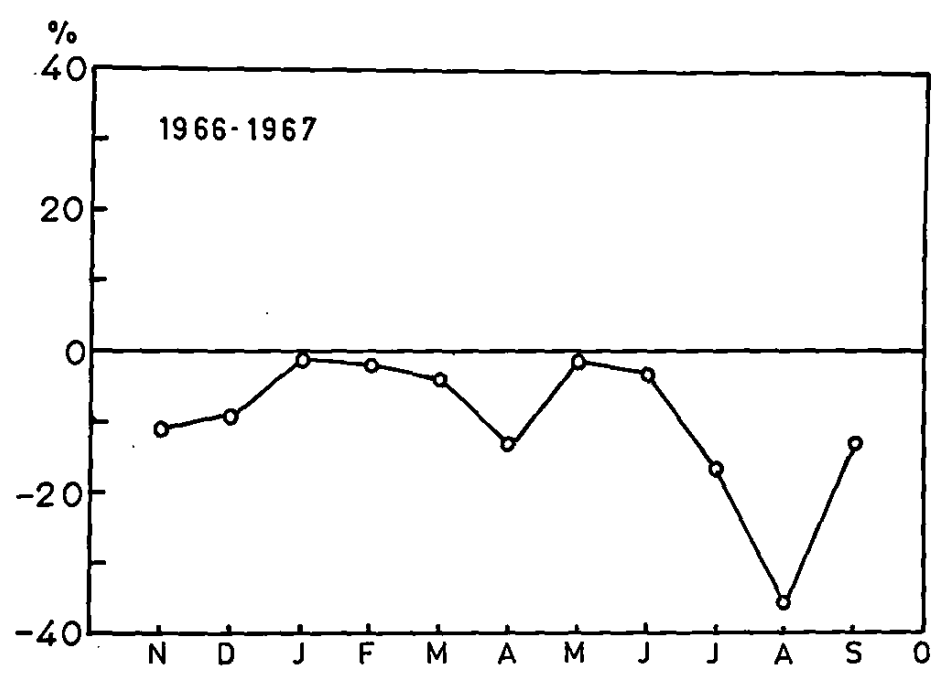
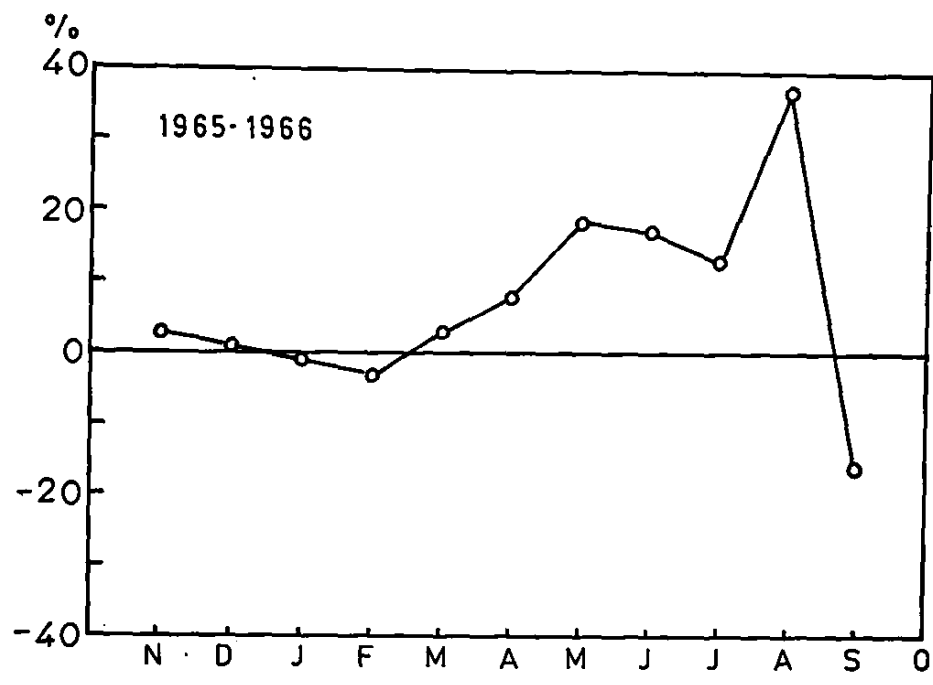


CHART NO.5.43: RETURNS TO STORAGE ( in % ) -- GROUNDNUT: PACHORA and MARKET, FOR THE YEARS 1965-1966 AND 1966-1967. 5'44:



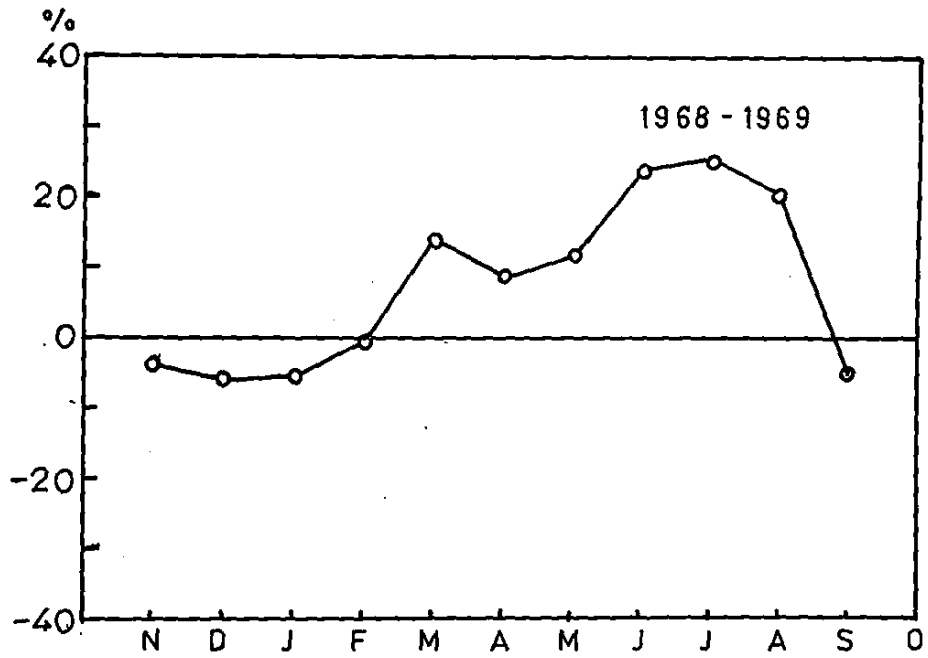
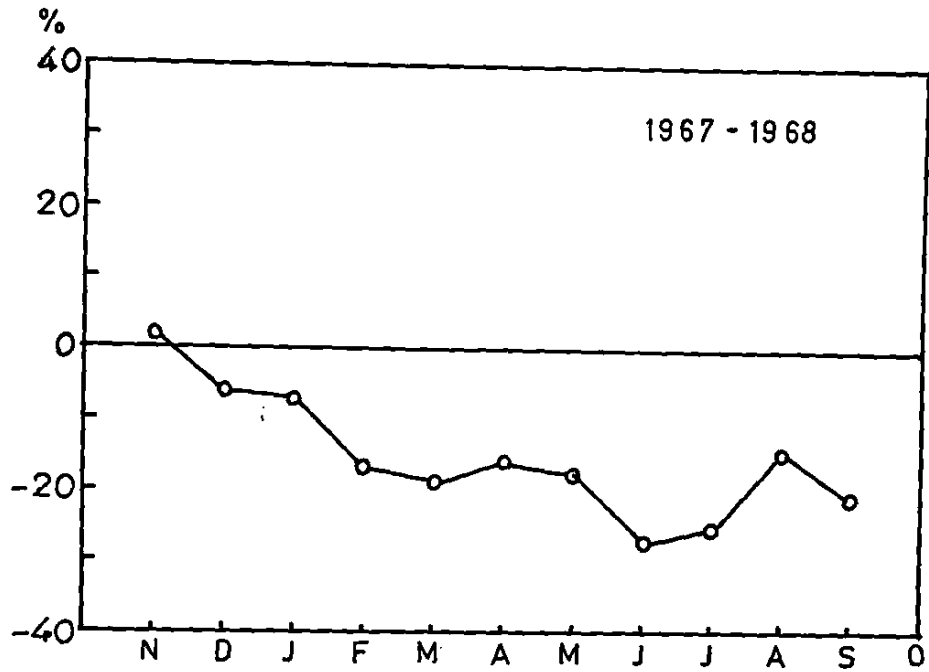


CHART NO. 5-45: RETURNS TO STORAGE (in %) -- GROUNDNUT: PACHORA and MARKET, FOR THE YEARS 1967-1968 AND 1968-1969

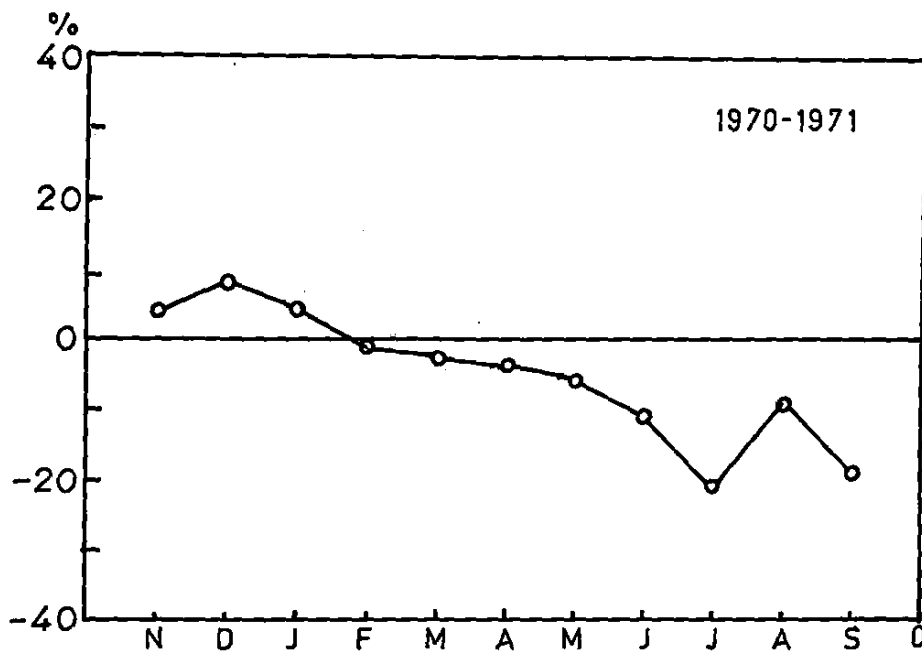
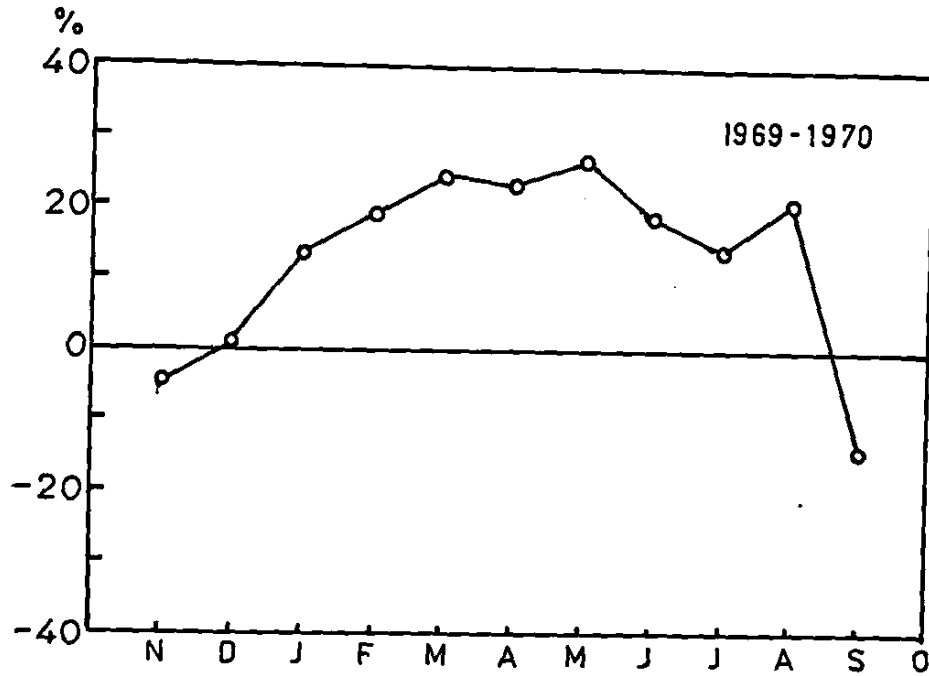


CHART NO.5-47: RETURNS TO STORAGE (in %) -- GROUNDNUT: PACHORA and MARKET, FOR THE YEARS 1969-1970 AND 1970-1971  
5.48:

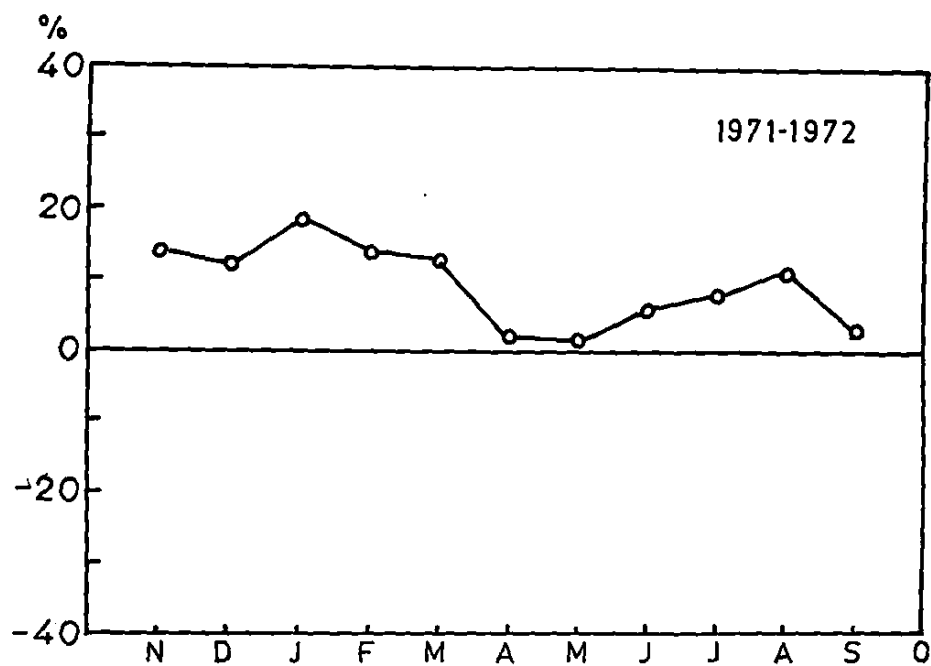


CHART NO.549: RETURNS TO STORAGE (in %)--GROUNDNUT:  
PACHORA MARKET, FOR THE YEAR- 1971-72

Pachora. This confirms our finding in Chapter III that a large number of farmers from both the villages had undertaken to store for a period of 2 months and above. Moreover, by selling cotton one of the cash crops immediately after harvest they were able to satisfy their cash needs. The prices of cotton were also favourable to them in the beginning of the season. This afforded them an opportunity to avoid the sales of groundnut in the beginning of the season.

Next in the Tables 5.19 and 5.20 and Charts 5.50 to 5.60, we present the returns to storage—average for all years (1962-63 to 1971-72) and separately for each year in respect of gur in the Baramati market.

It may be seen that the returns were negative for storage periods upto July and were positive for the next three months of August, September and October on an average during the ten years of 1962-63 to 1971-72. The negative returns to storage varied from 1.71 per cent to 14.08 per cent and positive returns from 0.41 per cent to 5.26 per cent. The negative returns ranged from Rs. 2.00 to Rs. 15.25 and positive returns from Rs. 0.50 to Rs. 6.25.

It was observed that a considerable fluctuation has occurred in returns of particular years. Out of the ten years, in four (1963-64, 1964-65, 1965-66 and 1969-70) years the returns were almost negative for all the months. In other four years (1962-63, 1967-68, 1968-69 and 1970-71) the returns were mixed both positive and negative. In the remaining two (1966-67 and 1971-72) years, the returns were almost positive.

**Table 5.19 : Returns to Storage—Average for All Years  
(1962-63 to 1971-72):  
Gur—Baramati Market**

Month	Monthly average price (Rs. per quintal)	November price + storage cost (Rs. per quintal)	Returns to storage	
			Rs. per quintal (Col. 1 - 2)	Percentage (Col. 3/2) x 100
	(1)	(2)	(3)	(4)
November	103.00	-	-	-
December	100.00	104.75	- 4.75	(-) 4.53
January	93.00	106.50	- 13.50	(-) 12.67
February	93.00	108.25	- 15.25	(-) 14.08
March	95.00	110.00	- 15.00	(-) 13.63
April	99.00	111.75	- 12.75	(-) 11.41
May	104.00	113.50	- 9.50	(-) 8.37
June	108.00	115.25	- 7.25	(-) 6.29
July	115.00	117.00	- 2.00	(-) 1.71
August	125.00	118.75	+ 6.25	5.26
September	121.00	120.50	+ 0.50	0.41
October	125.00	122.25	+ 2.75	2.24

**Table 5.20 : Returns to Storage—Yearwise (1962-63 to 1971-72):  
Gur—Baramati Market**

Month	Monthly average price (Rs. per quintal) (1)	November price + storage cost (Rs. per quintal) (2)	Returns to storage	
			Rs. per quintal (Col. 1 - 2) (3)	Percentage (Col. 3/2 x 100) (4)
<u>1962-63</u>				
November	61.00	-	-	-
December	54.00	62.75	- 8.75	(-) 13.94
January	58.00	64.50	- 6.50	(-) 10.08
February	65.00	66.25	- 1.25	(-) 1.89
March	65.00	68.00	- 3.00	(-) 4.41
April	75.00	69.75	+ 5.25	7.52
May	83.00	71.50	+ 11.50	16.08
June	91.00	73.25	+ 17.75	23.54
July	92.00	75.00	+ 17.00	22.66
August	103.00	76.75	+ 26.25	34.20
September	67.00	78.50	- 11.50	(-) 14.64
October	78.00	80.25	- 2.25	(-) 2.80
<u>1963-64</u>				
November	94.00	-	-	-
December	91.00	95.75	- 4.75	(-) 4.96
January	83.00	97.50	- 14.50	(-) 14.87
February	82.00	99.25	- 17.25	(-) 17.38
March	79.00	101.00	- 22.00	(-) 21.78
April	79.00	102.75	- 23.75	(-) 23.11
May	94.00	104.50	- 10.50	(-) 10.05
June	94.00	106.25	- 12.25	(-) 11.53
July	95.00	108.00	- 13.00	(-) 12.04
August	98.00	109.75	- 11.75	(-) 10.71
September	116.00	111.50	+ 4.50	4.04
October	112.00	113.25	- 1.25	(-) 1.10

(continued)

Table 5.20 : (continued)

Month	Monthly average price (Rs. per quintal) (1)	November price + storage cost (Rs. per quintal) (2)	Returns to storage	
			Rs. per quintal (Col. 1 - 2) (3)	Percentage (Col. 3/2) x 100 (4)
<u>1964-65</u>				
November	94.00	-	-	-
December	101.00	95.75	+ 5.25	5.48
January	80.00	97.50	- 17.50	(-) 17.94
February	73.00	99.25	- 26.25	(-) 26.44
March	61.00	101.00	- 40.00	(-) 39.60
April	63.00	102.75	- 39.75	(-) 38.68
May	60.00	104.50	- 44.50	(-) 42.58
June	53.00	106.25	- 53.25	(-) 50.11
July	57.00	108.00	- 51.00	(-) 47.22
August	50.00	109.75	- 59.75	(-) 54.44
September	109.00	111.50	- 2.50	(-) 2.24
October	104.00	113.25	- 9.25	(-) 8.16
<u>1965-66</u>				
November	70.00	-	-	-
December	60.00	71.75	- 11.75	(-) 16.37
January	57.00	73.50	- 16.50	(-) 22.44
February	55.00	75.25	- 20.25	(-) 26.91
March	58.00	77.00	- 19.00	(-) 24.67
April	53.00	78.75	- 25.75	(-) 32.69
May	62.00	80.50	- 18.50	(-) 22.98
June	69.00	82.25	- 13.25	(-) 16.10
July	77.00	84.00	- 7.00	(-) 8.33
August	84.00	85.75	- 1.75	(-) 2.04
September	64.00	87.50	- 23.00	(-) 26.28
October	69.00	89.25	- 20.25	(-) 22.41

(continued)

Table 5.20 : (continued)

Month	Monthly average price (Rs. per quintal)	November price + storage cost (Rs. per quintal)	Returns to storage	
			Rs. per quintal (Col. 1 - 2)	Percentage (Col. 3/2) x 100
	(1)	(2)	(3)	(4)
<u>1966-67</u>				
November	95.00	-	-	-
December	94.00	96.75	- 2.75	(-) 2.84
January	95.00	98.50	- 3.50	(-) 3.55
February	109.00	100.25	+ 8.75	8.73
March	114.00	102.00	+ 12.00	11.76
April	128.00	103.75	+ 24.25	23.37
May	148.00	105.50	+ 42.50	40.28
June	172.00	107.25	+ 64.75	60.37
July	187.00	109.00	+ 78.00	71.55
August	195.00	110.75	+ 84.25	76.07
September	88.00	112.50	- 24.50	(-) 21.78
October	90.00	114.25	- 24.25	(-) 21.22
<u>1967-68</u>				
November	186.00	-	-	-
December	188.00	187.75	+ 0.25	0.13
January	150.00	189.50	- 39.50	(-) 20.84
February	159.00	191.25	- 32.25	(-) 16.33
March	170.00	193.00	- 23.00	(-) 11.91
April	202.00	194.75	+ 7.25	3.72
May	210.00	196.50	+ 13.50	6.87
June	186.00	198.25	- 12.25	(-) 6.18
July	199.00	200.00	- 1.00	(-) 0.50
August	210.00	201.75	+ 8.25	4.09
September	250.00	203.50	+ 46.50	22.85
October	262.00	205.25	+ 56.75	27.64

(continued)



Table 5.20 : (continued)

Month	Monthly average price (Rs. per quintal) (1)	November price + storage cost (Rs. per quintal) (2)	Returns to storage	
			Rs. per quintal (Col. 1 - 2) (3)	Percentage (Col. 3/2) x 100 (4)
<u>1968-69</u>				
November	145.00	-	-	-
December	121.00	146.75	- 25.75	(-) 17.54
January	114.00	148.50	- 34.50	(-) 23.23
February	104.00	150.25	- 46.25	(-) 30.78
March	91.00	152.00	- 61.00	(-) 40.13
April	82.00	153.75	- 71.75	(-) 46.66
May	72.00	155.50	- 83.50	(-) 53.69
June	72.00	157.25	- 85.25	(-) 54.56
July	77.00	159.00	- 82.00	(-) 51.57
August	83.00	160.75	- 77.75	(-) 48.36
September	197.00	162.50	+ 34.50	21.23
October	202.00	164.25	+ 37.75	22.98
<u>1969-70</u>				
November	80.00	-	-	-
December	72.00	81.75	- 9.75	(-) 11.92
January	68.00	83.50	- 15.50	(-) 18.56
February	64.00	85.25	- 21.25	(-) 24.92
March	61.00	87.00	- 26.00	(-) 29.88
April	56.00	88.75	- 32.75	(-) 36.90
May	51.00	90.50	- 39.50	(-) 43.64
June	55.00	92.25	- 37.25	(-) 40.37
July	59.00	94.00	- 35.00	(-) 37.23
August	80.00	95.75	- 15.75	(-) 16.44
September	77.00	97.50	- 20.50	(-) 21.02
October	81.00	99.25	- 18.25	(-) 18.38

(continued)

Table 5.20 : (continued)

Month	Monthly average price (Rs. per quintal) (1)	November price + storage cost (Rs. per quintal) (2)	Returns to storage	
			Rs. per quintal (Col. 1 - 2) (3)	Percentage (Col. 3/2) x 100 (4)
<u>1970-71</u>				
November	90.00	-	-	-
December	91.00	91.75	- 0.75	(-) 0.82
January	87.00	93.50	- 6.50	(-) 6.95
February	87.00	95.25	- 12.25	(-) 12.84
March	108.00	97.00	+ 11.00	11.34
April	113.00	98.75	+ 14.25	14.43
May	115.00	100.50	+ 14.50	14.42
June	129.00	102.25	+ 26.75	26.16
July	141.00	104.00	+ 37.00	35.57
August	165.00	105.75	+ 59.25	56.03
September	86.00	107.50	- 21.50	(-) 20.00
October	102.00	109.25	- 7.25	(-) 6.64
<u>1971-72</u>				
November	121.00	-	-	-
December	126.00	122.75	+ 3.25	2.65
January	139.00	124.50	+ 14.50	11.64
February	137.00	126.25	+ 10.75	8.51
March	144.00	128.00	+ 16.00	12.15
April	140.00	129.75	+ 10.25	7.89
May	140.00	131.50	+ 8.50	6.46
June	155.00	133.25	+ 21.75	16.32
July	165.00	135.00	+ 30.00	22.22
August	184.00	136.75	+ 47.25	34.55
September	155.00	138.50	+ 16.50	11.91
October	151.00	140.25	+ 10.75	7.64

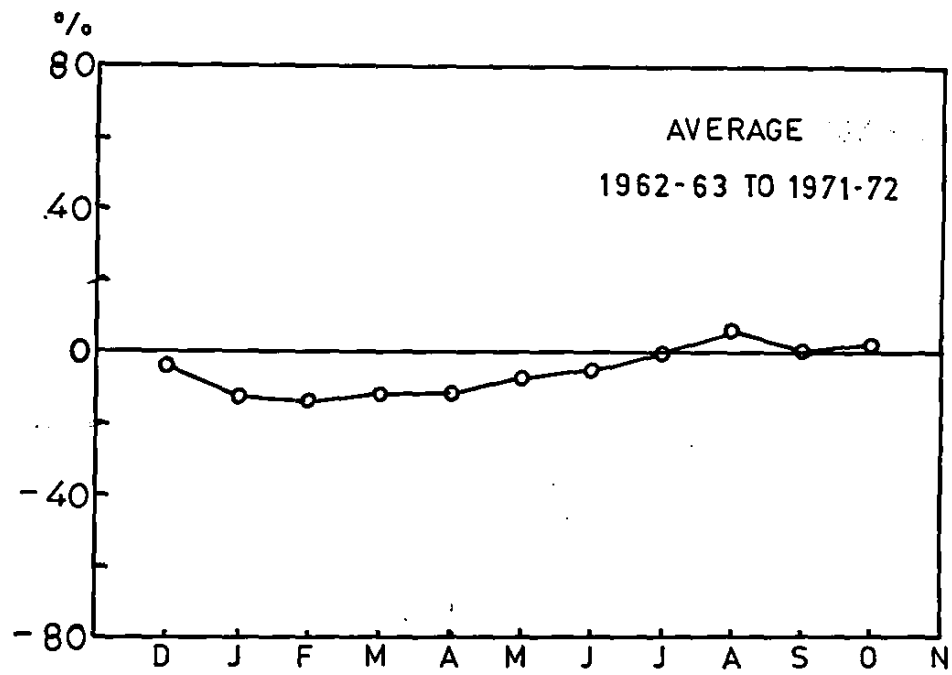
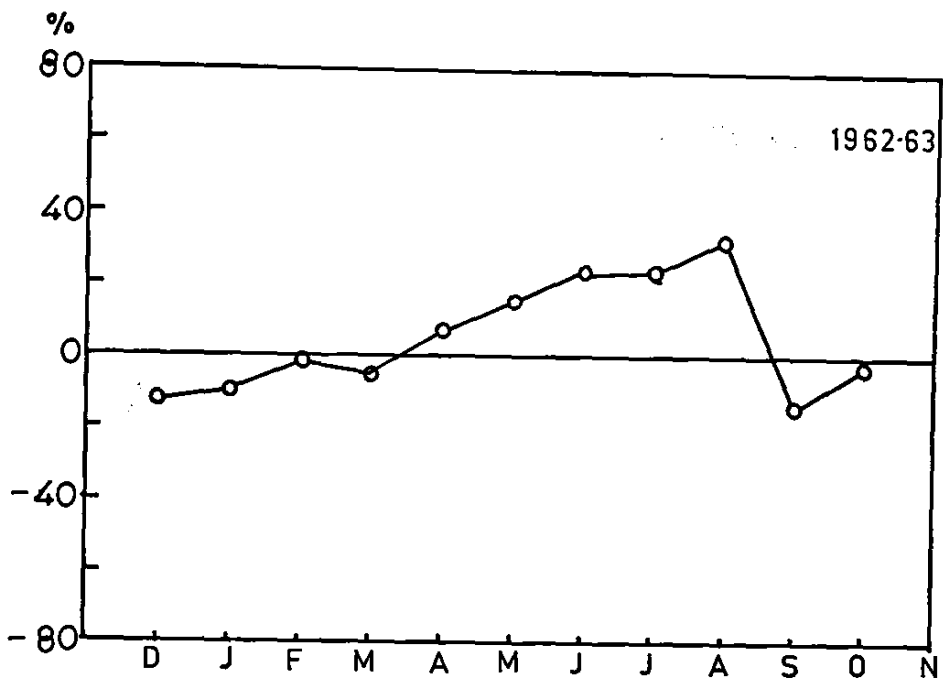


CHART NO: 5-50: RETURNS TO STORAGE ( in %) -- GUR: BARAMATI and 5.51: MARKET, FOR 1962-63 AND AVERAGE FOR TEN YEARS: 1962-1963 TO 1971-1972.

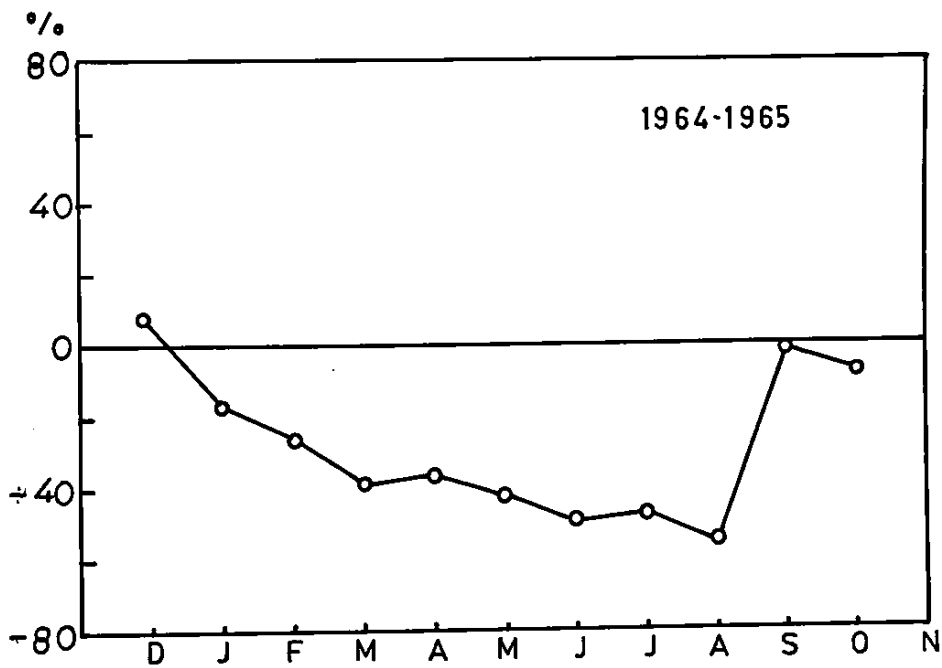
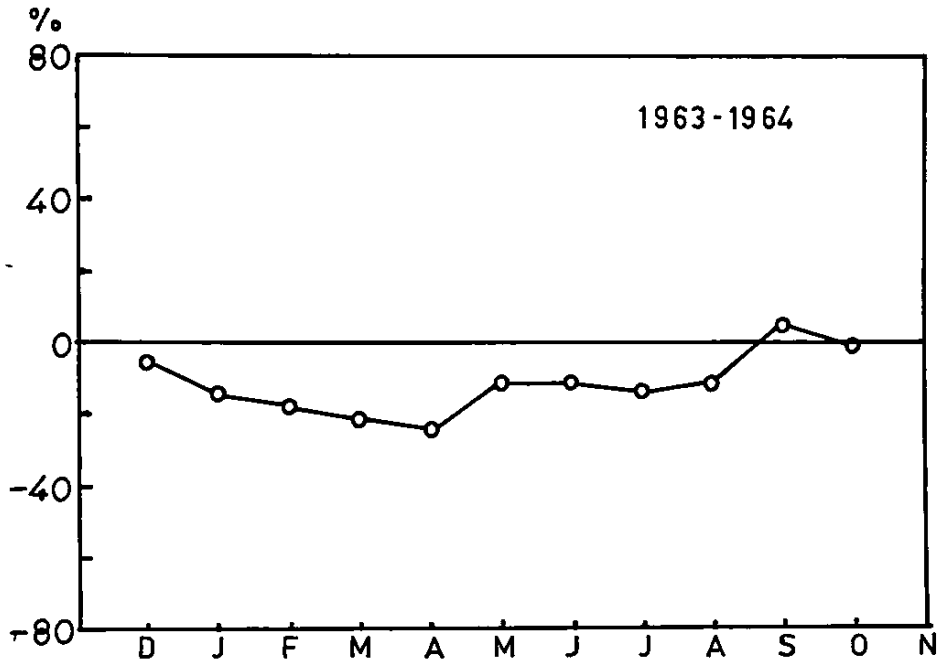


CHART NO.5-52: RETURNS TO STORAGE ( in % ) --GUR: BARAMATI MARKET,  
 and  
 5-53; FOR THE YEARS 1963-1964 -AND 1964-1965.

554

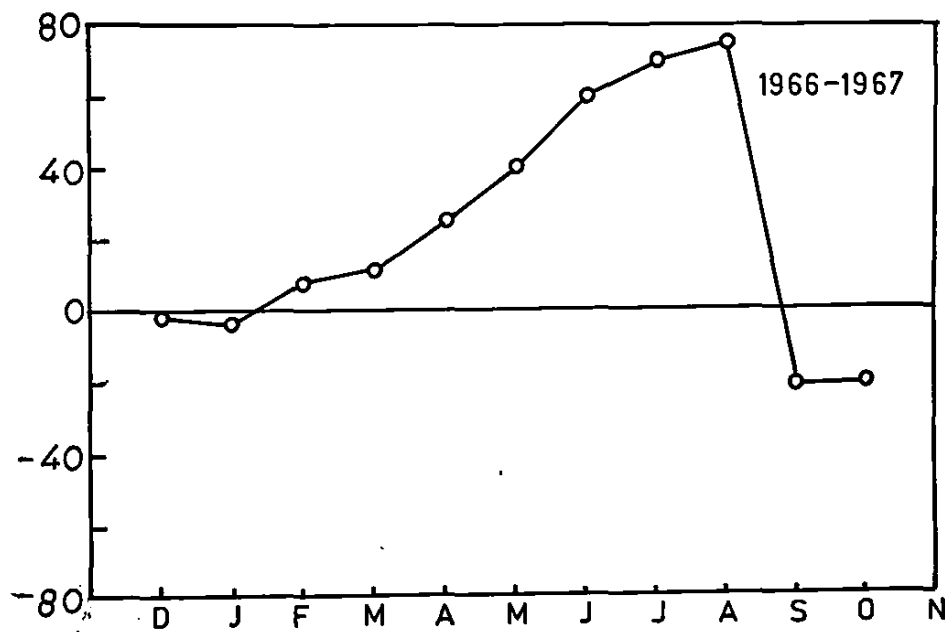
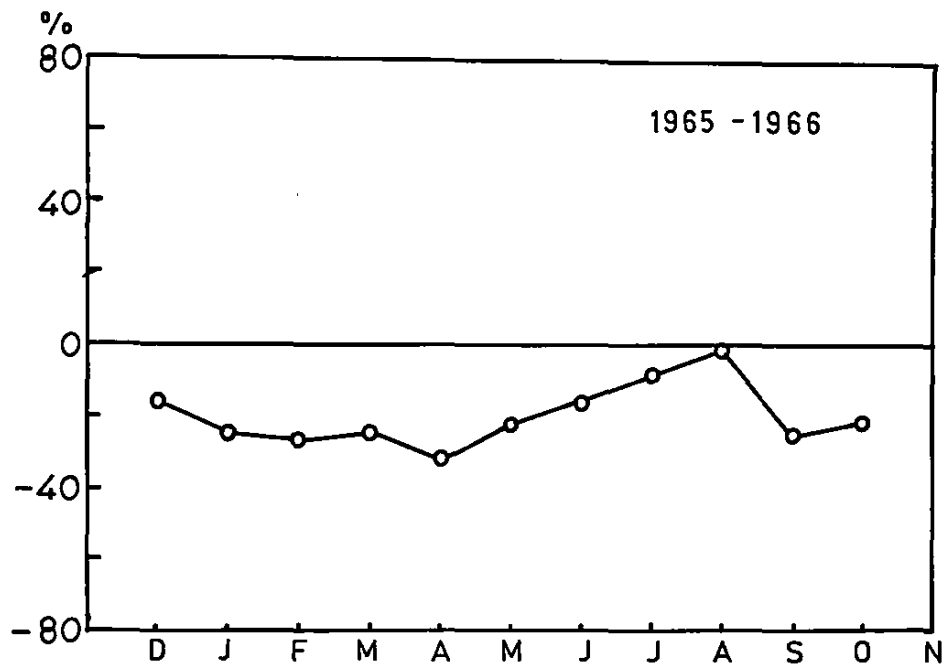


CHART NO.554: RETURNS TO STORAGE (in %)--GUR: BARAMATI MARKET,  
and  
555: FOR THE YEARS 1965-1966 AND 1966-1967.

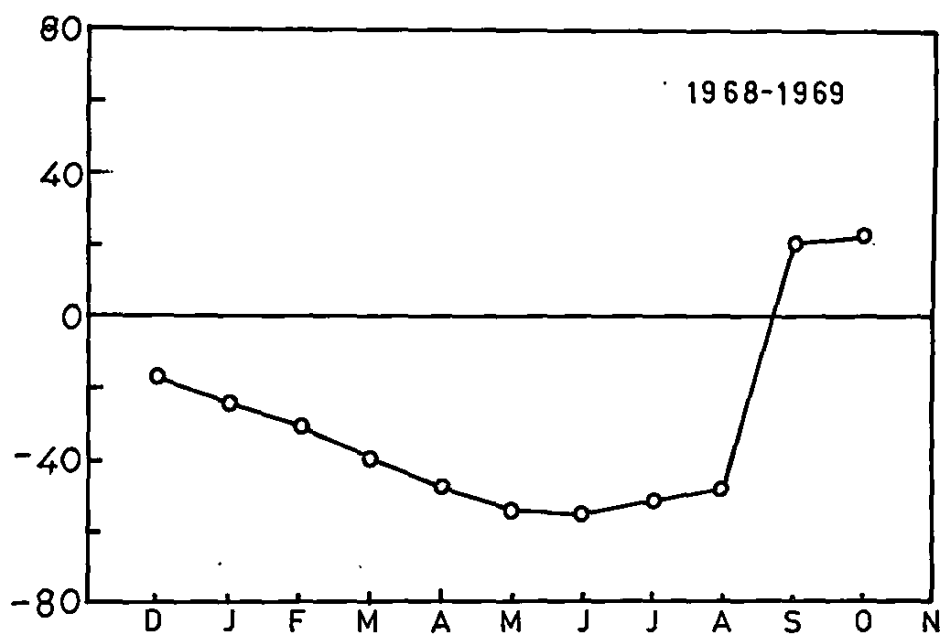
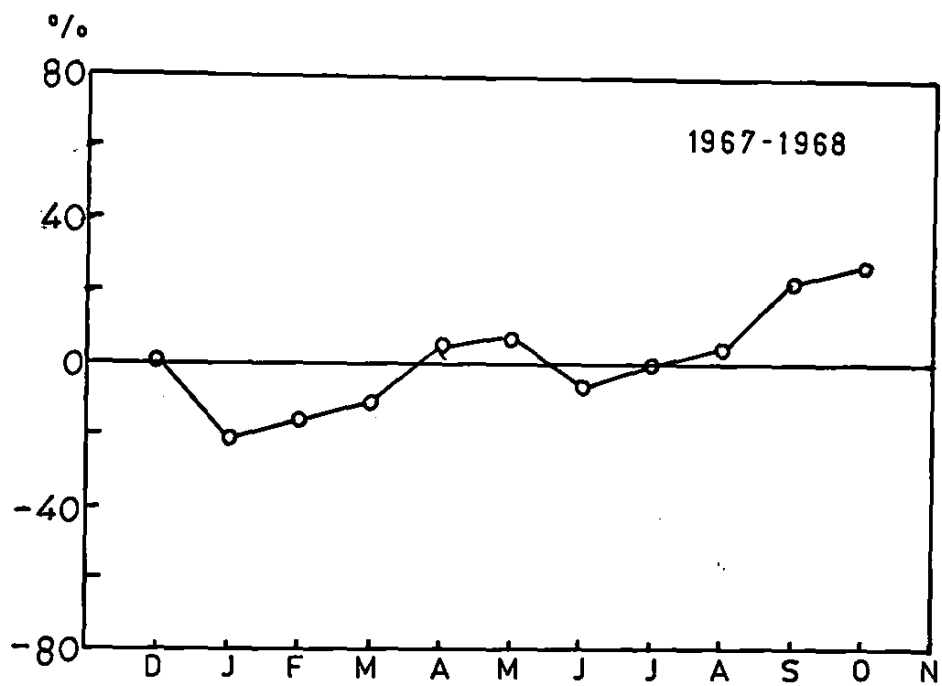


CHART NO.5.56: RETURNS TO STORAGE ( in %) --GUR:BARAMATI MARKET,  
 and  
 5.57: FOR THE YEARS 1967-1968 AND 1968-1969.

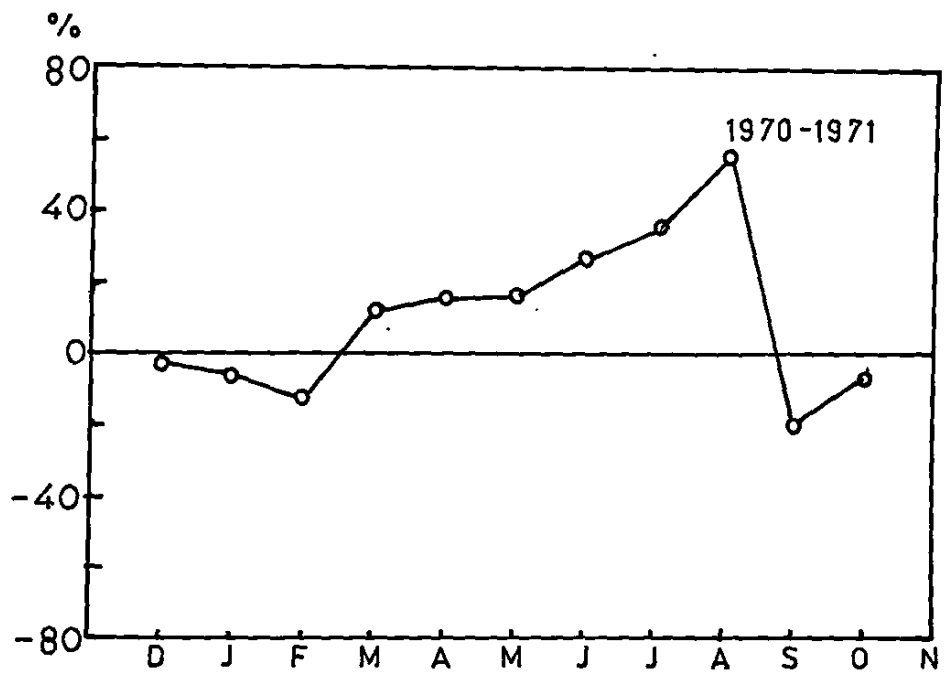
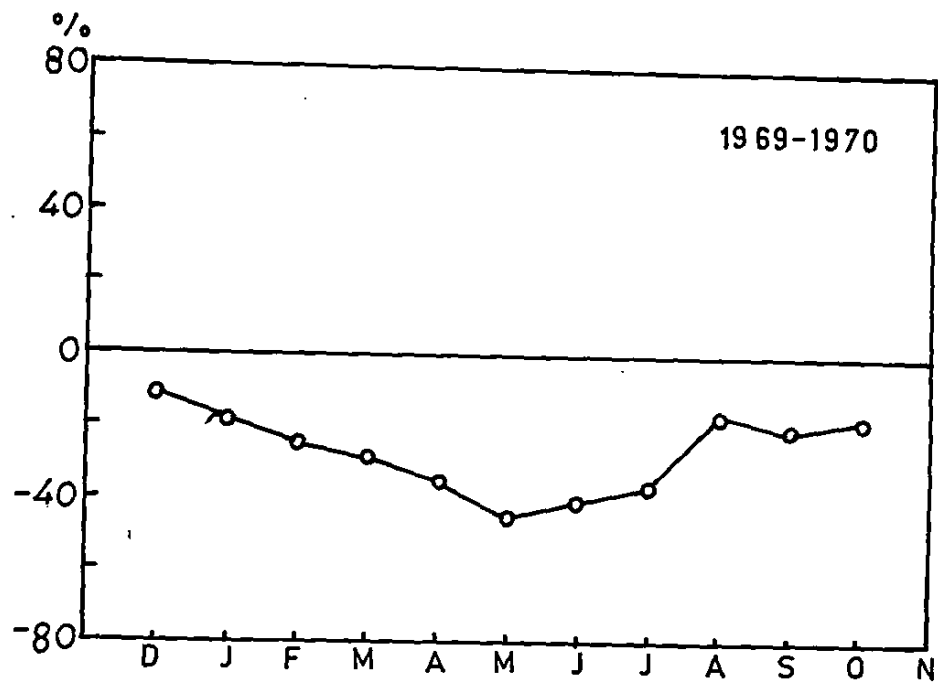


CHART NO.5-58: RETURNS TO STORAGE ( in %) --GUR: BARAMATI MARKET,  
and 5.59: FOR THE YEARS 1969-1970 AND 1970-1971.

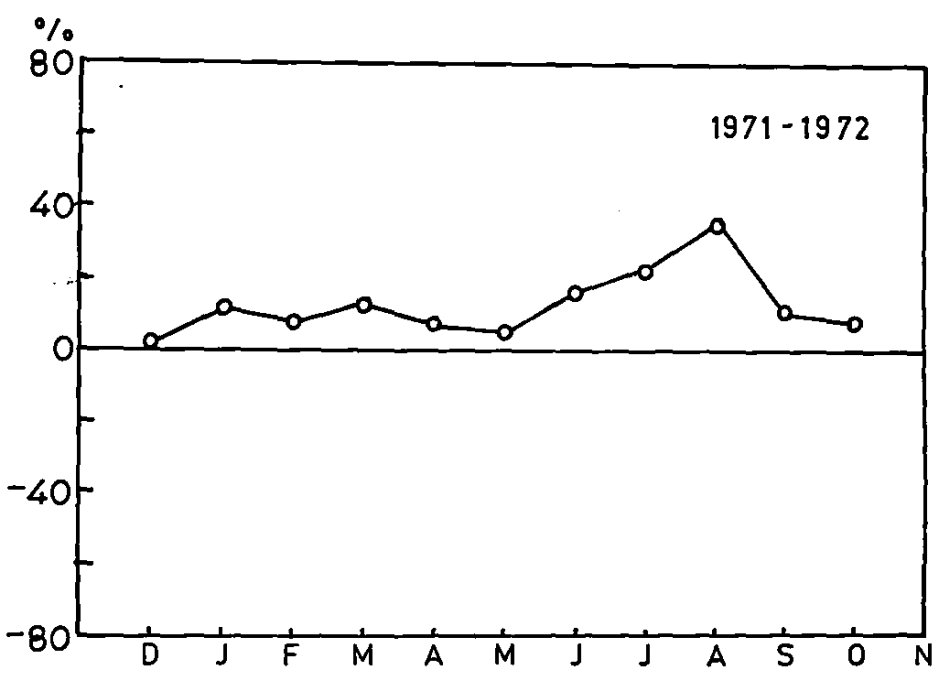


CHART NO.5.60: RETURNS TO STORAGE ( in % )---GUR:  
BARAMATI MARKET, FOR THE YEAR 1971-1972



It appears from the above analysis that because of the uncertain and fluctuating positive returns to storage the postponement of sale of gur by the farmers was not prevalent to an appreciable extent in Baramati market. This corroborates our finding in Chapter III that most of the farmers from the two villages have sold gur almost immediately and did not store for a longer period and could not wait to realize the marginal benefit at the fag end of the season. Besides sugarcane was their main crop which satisfied their cash needs. The average pattern and the pattern for particular four years showed that the returns were positive if the produce (gur) was held in store for a longer period. The advantage of this was taken by a few farmers from the group of large sized holdings who possessed their own storage structures and a capacity to wait. They almost fall in the category of the traders who export gur to other markets. We have seen that the month to month variations in groundnut and gur prices and consequent variations in returns to storage were quite different in different years and they did not strictly conform to the normal seasonal price pattern (sharp rise before harvest and deep trough during peak marketing period) regularly each year. This is mainly because of the added influence of non-seasonal factors. Such a trend was noticed by Jasadanwala in respect of groundnut.<sup>1</sup> The pattern for the latest year showed that the returns were positive and considerable throughout.

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1 Z. Y. Jasadanwala. Marketing Efficiency in Indian Agriculture. Bombay: Allied Publishers Private Ltd., 1966, p. 113.

In our study in Chapter III we have seen that the prices of cotton and gur were not low in the beginning of the season and the majority of the producers have sold their produce immediately after harvesting. However in respect of groundnut the postponement of sales by the farmers for varying periods was prevalent to an appreciable extent as the prices were low in the peak marketing period and improved later on. Our study of returns to storage shows whereas it was profitable for the producer to store groundnut and avail of the off-seasonal rise in price, it was not so in respect of gur as the returns to storage were negative almost till the fag end of the season.

#### Summary and Conclusions

In this chapter with the aid of several Tables and Charts we examined the seasonality in arrivals and prices of the three commodities viz. cotton, groundnut and gur. For the purpose, original data was collected by us from the records of the Agricultural Produce Market Committees at Pachora and Baramati during the period of our survey work. We also worked out the returns to storage in respect of groundnut and gur on the basis of costs of storage collected by us at the time of case studies of storage godowns at both these places and have already discussed these costs in Chapter III.

A high seasonality in arrivals of cotton and groundnut in Pachora market and that of gur in Baramati market was observed by us. The seasonal pattern, however, showed a

slight variation between years in both the markets in respect of these commodities.

The behaviour of prices of cotton and groundnut in Pachora market and gur in Baramati market showed a fairly consistent seasonal pattern. A slight variation was observed in particular years on account of the natural and other factors peculiar to each year.

The study also revealed that the prices in the primary markets exhibited a considerable amount of seasonal fluctuation.

The returns to storage were positive and it was found possible for the cultivator to gain by stocking groundnut for sale later in the season. However, the returns to storage of gur were almost negative and it was beneficial for the producer either to sell in the beginning of the season or at the end of the season only.

In the last Chapter VI, we present a summary of this research work and results of study.

CHAPTER VISUMMARY AND CONCLUSIONS

In the foregoing chapters we have discussed the methods and costs of storage in respect of cotton and groundnut in Pachora Tahsil of Jalgaon District and in regard to gur in Baramati Tahsil of Poona District at the farm, village and primary market levels. We examined in detail the nature and extent of storage and characteristics of sale by producers of these commodities in villages and in the primary markets. We also described the constitution and working of the regulated markets at Pachora and Baramati and studied the pattern of location of storage godowns there and in the villages. Thereafter we examined the seasonality of arrivals and prices of these commodities and worked out the returns to storage of groundnut and gur. In the present chapter we summarize the discussions in the preceding chapters and present the conclusions as suggested by our study.

For the purpose of our study, we selected the important non-food crops viz. cotton, groundnut and gur (from sugarcane), which enter the wholesale trade channel in large quantities and are stored by the cultivators and traders, co-operative societies, processing concerns etc. for varying periods. Further, we purposively selected for our survey the Tahsils of Pachora in Jalgaon District for cotton and groundnut and Baramati in Poona District for gur, in view of the concentration

of production and marketing of these commodities there. Both these Tahsils have primary regulated markets. Two villages each were selected from these tahsils. The villages were distinct from the locational point of view.

We first gave the details regarding the selection of commodities, markets, villages, godowns and cultivators. We also described in detail the procedure adopted for field investigation. Next we presented the statistical information regarding area and outturn of these crops in different districts and tahsils, and arrivals of the commodities cotton, groundnut and gur in different regulated markets, which enabled us to select the areas where there is a concentration of production and marketing. Thereafter we described the physical features, climate, rainfall, and crops in the areas: (i) Poona District and Baramati Tahsil, (ii) Jalgaon District and Pachora Tahsil. Further, we reviewed the land utilization, irrigation facilities and cropping pattern in respect of the areas (districts, tahsils and villages) selected for study on the basis of data. Lastly, we discussed the methods of cultivation of the crops, cotton, groundnut and sugarcane, which provided an essential background for our analysis.

We have studied the pattern, type and cost of storage of the commodities, cotton and groundnut in Pachora regulated market and that of gur in Baramati regulated market. For the purpose we examined the harvesting seasons of cotton, groundnut and sugarcane during the year 1971-72 and pointed out the peculiarities. We observed the different types of storage

and found out the period for which these were stored at different levels. We have also studied the costs of storage in detail and attempted to work out the average costs at the primary market level. We described the characteristics of sales of these commodities particularly the place of sale, agency of sale, mode of transport and the quantity retained by the producers. We also knew the sources of marketing information which were frequently used by them.

We have seen that in the two villages of Pachora Tahsil, the number of pickings of cotton from the second week of September to second week of December 1971 ranged from 3 to 5, but was normally three. The number of days between two pickings varied from 16 to 25. But, on an average, in one village the interval was of 23 days and in the other of 21 days. The bulk of the produce was harvested during the first two pickings. In one village it was 90 per cent and in the other 89 per cent. The picking during the third instalment was below 10 per cent and during subsequent pickings almost negligible.

[As regards cotton, it was mostly stored in loose form in a portion of house and usually for a period of not more than two months in these villages. However, it was seen that most of the houses were very old and lacked proper ventilation. Roofs of many of these houses were required to be repaired during the rainy season so as to prevent leakage. A number of cultivators made use of gunny bags and bhots for the

purpose of packing cotton and transporting to market.] The cost of storing cotton in the villages was worked out to 0.65 per cent per quintal per month. In this connection the problem of accommodation was also examined by us by taking into consideration the family size of each cultivator, the space available with him and his household needs other than storage. The household needs of about 30 per cent cultivators were squeezed to some extent but the period of cotton storage being very short they did not feel the inconvenience. Besides, the male members of their family were used to sleep either in chawadi, temple or on the farm as a convention. There were no village sales at all. About 90 per cent of the cultivators took produce to the regulated market and sold through co-operatives. [Entire produce was sold by them. For seeds they depended upon outside sources which were said to be reliable.]

The harvesting of groundnut during the year was completed in two months of September and October. [In this region the cultivators either like to store groundnut in a loose condition or in gunny bags. The use of earthen vessels is mainly made for storing nuts for the purpose of seeds. Some cultivators had made the use of kanagi and kothi. The period of storage ranged from a fortnight to over six months. It was also observed that in general there was a tendency to sell the cotton immediately after harvesting and postponing the sale of groundnut and store it for some time, which enables them to satisfy the immediate financial needs. Not a single producer

was found making use of the village godown for storing his produce. However, a few cultivators were reported to have made use of the godown of the co-operative society for storing groundnut at Pachora. Most of the cultivators were not willing to part with their produce and preferred to store it in whichever structure was available with them, so as to dispose it whenever they liked for obtaining cash money in their own hands. Although there was some awareness about the losses incurred due to the method of storage adopted by them, they seemed to avoid the use of the common godown facility for the sole reason that they will be obliged to pay off all the dues of different agencies such as Government, co-operative society, traders and moneylenders etc. at the time of the withdrawal of goods from the godown. Some of them with large holdings possessed sufficient accommodation in their houses for storage. The need for common facility was not keenly felt by them. The behaviour of the cultivators in the village without a godown facility was found to be similar.] The cost of storage of groundnut in the villages worked out to 0.94 per cent, 0.76 per cent, and 0.78 per cent per quintal per month when the groundnuts were stored in gunny bags, kanagi and kothi respectively. As the nuts kept in gunny bags were more liable to damage, the use of kanagi and kothi was found effective and cheaper. But hardly 15 per cent cultivators adopted this method.

No records regarding loss in weight and quality of the produce stored in villages were available. However some estimates were given by the cultivators on the basis of their



experience. [ Our study showed that a large number of cultivators had adopted the new technology of farming by using fertilizers, improved seeds and implements, insecticides, etc. Thus they tried to increase the production but did not give much thought to conservation of the produce. Another handicap was the poor quality of their houses. Agricultural extension service seemed to be ineffective. Despite this, storage facilities utilized by them were quite effective and satisfactory. ]

[ There were no village sales at all in respect of groundnut. The pattern of sales was similar to that of cotton. The usual mode of transport for both the commodities was the bullock-cart. The quantity retained by them for seeds was below 15 per cent.

It was found that the producers obtained reliable and accurate information regarding prices and market trends in the nearby markets through radio broadcasts, newspapers and visits to markets. ]

It was seen that the function of storage tends to be concentrated at the primary market level. The godowns of the Maharashtra State Warehousing Corporation, Co-operative Purchase and Sale Union and processing concerns were pakka ones and goods could be stored there properly for a longer period. The facility of loan against the deposits was available from the banks and Co-operative Purchase and Sale Union. Actually, the benefit of this was taken by a number of depositors as is evident from our study. ]

It was seen that the storage facility provided by the Co-operative Union at Pachora market was available to the cultivators at a cheaper rate than that of the Warehousing Corporation. The cost of storage worked out to 1.77 per cent per quintal per month at the warehouse and 1.35 per cent at the Co-operative Union.

The harvesting season of sugarcane in the Baramati Tahsil started in October and lasted till March end. It was seen by us that in the two villages of Hol and Korhale Khurd most of the producers have sold their gur almost immediately and did not store it for a longer period. However, there were a few exceptions. Gur bhelis were kept in houses on dry sugarcane leaves ("Pachat"). Proper care was taken by those who kept it for a longer period. The condition of houses of cultivators in this Tahsil was similar to that of Pachora. The houses were very old and lacked in ventilation. Roofs of these houses needed repairs before the onset of monsoon. The cost of storage of gur in villages worked out to 1.16 per cent per quintal per month. No account of losses were kept by the producers who stored for a longer period but the estimates based on experience were obtained by us.

It was found that none of the producers in the village Hol had taken advantage of the facility of godown (there were 2) for storing their produce during the year. Here, the behaviour of the cultivators was found similar to that in the villages of Pachora Tahsil. They were apathetic towards a common storage facility. The reasons appeared to be different

in each individual case. The problem was related with his size of surplus, period of storage, means of storage and space available, Government levy, recovery of dues, and the last but not least the credit needs and availability of marketing finance.)

A lot of efforts on the part of Government and Panchayat and Co-operative agencies are needed and marketing finance made available, if the existing godowns in villages were to be put to optimum use.)

All the producers from the two villages sold gur only in regulated markets and mostly through traders. The usual mode of transport was bullock-cart. The quantity retained for domestic use by most of the producers was about 1 per cent. The majority of the cultivators relied on market news available through radio broadcasts, newspapers and personal visits to markets.)

At Baramati, ample storage facilities are available with the traders and co-operative society. There were pakka godowns and produce could be stored for longer periods safely. A number of producers had stored gur in the godown of the co-operative society and availed of loan facility. The rate of interest was 9.37 per cent per annum. Advances were also made available by traders but the rate of interest was at 12 per cent per annum i.e. higher than that of the co-operative society. It was found that the storage facility provided by the Co-operative Union at Baramati was cheaper than that of

the trader. The cost of storage worked out to 1.70 per cent per quintal per month at the Co-operative Union and 3.18 per cent in respect of a trader's godown.

During our survey of the four villages and the two places of primary markets, it was found that neither the producers nor the traders had made use of modern<sup>1</sup> metal and concrete bins and silos for the purpose of storage. A few cultivators and traders interviewed by us were aware of these structures but hesitated to go in for them presuming that the initial capital costs were high. They were willing to make use of these bins and silos, if some subsidy was given by Government towards initial expenditure. They wondered if these structures could be demonstrated in tahsil and big villages during agricultural exhibitions and cattle fairs. It should be possible for the Zilla Parishads and Panchayat Samitis to demonstrate and make available these storage structures to the cultivators at subsidized rates.

We have seen that most of the houses of cultivators in all the four villages surveyed by us were very old. The roofs of many of these houses were required to be repaired frequently. It was necessary to accelerate the Rural Housing Programme so as to create better conditions and safety of the agricultural

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1 Please see leaflets: (1) Metal Bins for Storage of Grains [Hapur (U.P.): The Grain Storage Research and Training Centre, Department of Food, etc., Government of India, June 1969]; (2) A Storage Structure to Suit Every Need [New Delhi: Director, Storage and Inspection, Ministry of Food, etc., Government of India, April 1969] which specify the details regarding their dimensions, costs, use, etc.

produce stored by the cultivators in their houses. However, this involves a heavy capital expenditure and can be treated as very long term plan. As an immediate measure, we suggest the use of metal and concrete bins and silos of suitable sizes by the cultivators, which is possible. The authorities of the Zilla Parishads and Panchayat Samitis should not only propagate and demonstrate the use of these structures but provide funds in their budgets towards subsidy.

In respect of methods of storage it was seen by us that there was no difference between the behaviour of the cultivators in the villages where there were godowns of co-operative societies and in the villages without such a facility. Most of the producers told us that they were not willing to part with their produce and preferred to store it in whatever structure which was available with them with the intention of postponing the payment of loans and other dues and securing cash whenever they needed. It was observed by us that a few cultivators with larger holdings of land were having sufficient accommodation to store the produce in their big houses. Hence, the need for having a common structure such as storage godown was not felt by the cultivators in villages. This fact is borne out by our study as none of the producers in the two villages where there were godowns of co-operative societies, were found making use of them for storing their produce during the year. This confirms the finding of the Co-operative Department of the substantial under-utilization, particularly of the small sized

godowns of co-operative societies in villages.<sup>1</sup> It may be pointed out here that one small sized godown in a village in the Baramati Tahsil constructed in the year 1968 has still remained without a roof. The godowns of co-operative societies in villages and tahsils (primary markets) to some extent were mainly being used for storage of inputs e.g. fertilizers, seeds, equipments and procured grains etc. for distribution through Fair Price Shops.

The decision of the cultivators to store in their own houses or godowns was dependent on many factors such as size of surplus, space and means of storage available, period of storage, Government policy of levy, payment of loans, and last but not least credit needs and availability of marketing finance.

As an incidental study of the methods of storage of foodgrains adopted by the cultivators in four villages of the Pachora and Baramati Tahsils, it was found that they made use of earthen vessels, gunny bags, kanagi and kothi for the purpose.

We gave an account of the constitution and working of the Market Committees at Pachora and Baramati and volume of trade in the regulated markets at these places. We knew that

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1 Vaikunth Mehta National Institute of Co-operative Management, "A Note on Sample Survey Regarding Utilisation of Godowns conducted by the Co-operative Department of Maharashtra State during 1966-67," Poona, Co-operative Information Bulletin, Vol. 2, No. 2, July 1967.

both the Pachora and Baramati towns are important centres of commerce and trade. The most important commodities traded in the Pachora market are cotton and groundnut, and in the Baramati market, it is gur. Very good credit and banking facilities are available there to both the cultivators and traders. The market committees there functioned smoothly and efficiently under the uniform provisions of the Maharashtra Agricultural Produce Marketing (Regulation) Act, 1963, Rules 1967 and byelaws made thereunder. The co-operative societies played a dominant role in the marketing of agricultural produce by handling about 70 per cent of arrivals in the Pachora market. On the contrary, in the Baramati market the transactions through co-operatives accounted for hardly 7 per cent of the total arrivals in the market.

Next, we found that the market yard of Pachora is well developed and all the necessary facilities are provided there. The market yard is located on such a site which possessed potentialities for expansion and development. However, the area of the yard at Baramati is too small and there was no scope for future development. It also lacked in many essential requirements of a marketing place. The market yards of both the places are located within the town and in the proximity of the railway station.

A good location of a regulated market helps in efficient marketing of agricultural produce. The existing location of Baramati market which is only a meeting place of sellers and

buyers in a congested area is not proper and it is not capable of handling increased volume of arrivals during the peak marketing period and to promote the efficiency of labour and transport on the yard. Moreover, inadequacy of market yard accompanied by its bad and rough conditions, lack of sheds for produce against weather risks and even common sanitary facilities further add to the lowering of marketing efficiency. A serious thought should, therefore, be given for shifting of Baramati Regulated Market to a proper and better site, urgently.

At both the places (Pachora and Baramati) graders have been appointed for the purpose of maintaining for the use of sellers and buyers a set of sample of standard grades of the commodities. However, it is observed that in practice hardly any use of the grading services has been made either by sellers or buyers.

In Pachora the storage godowns of the Co-operative Marketing Society and the Warehousing Corporation are located on the market yard proper. Besides godowns are located around it and in all processing factories. The storage facility also existed in shops and dwelling places of almost all the wholesale traders.

In Baramati, as the market yard was too small, there was no scope for having storage godowns or adats shops of licensees on it. However, the yard was surrounded by a number of godowns of private traders and the Co-operative Marketing Society. There existed in the market town storage facility in all the



processing concerns and in the shops and dwelling places of traders.

In both the Tahsils of Pachora and Baramati, in some big villages there were godowns built by the co-operative societies.

Our study showed that in the market towns the storage godowns were located on the market yard proper and around it. Besides, the godowns were located in all the processing concerns such as ginning and pressing factories and oil mills. Similarly, all the shops and number of dwelling places were used as storage godowns by the traders. The storage godowns were located in some villages of the Tahsils where there were co-operative societies. Most of these villages were situated below the distance of 25 kms. and were well connected to the market places by pakka roads. These were accessible throughout the year. Most of these villages were big villages from the point of view of area and population.

The considerations of the cost of movement and cost of storage are the major factors in location decisions. The locations of godowns at market places of Pachora and Baramati and also in big villages of these two tahsils do not appear to be improper. The under-utilisation of these facilities at present is on account of other reasons which we have discussed in Chapter II. However, increased agricultural production and the waiting capacity of the cultivators would change the picture gradually. It is not unlikely that the existing

facilities may even fall short of requirements of storage of inputs (mainly fertilizers) for distribution and for keeping procured grains (under levy system) by the State on account of bumper crops in future years. Hence the development of storage facilities should be flexible to meet future requirements also.

We examined the seasonality in arrivals and prices of the three commodities viz. cotton, groundnut and gur. For the purpose, original data was collected by us from the records of the Agricultural Produce Market Committees at Pachora and Baramati during the period of our survey work. We also worked out the returns to storage in respect of groundnut and gur on the basis of costs of storage collected by us at the time of case studies of storage godowns at both these places and have already discussed these costs in Chapter III.

A high seasonality in arrivals of cotton and groundnut in the Pachora market and that of gur in the Baramati market was observed by us. The seasonal pattern, however, showed a slight variation between years in both the markets in respect of these commodities. In respect of cotton and groundnut our study showed a positive relationship with the pattern of arrivals and peak marketing period. The periodicity of harvesting (sugarcane) and storage of gur in the villages also showed a positive relationship with the seasonality of arrivals of gur in the primary market of Baramati.

The behaviour of prices of cotton and groundnut in

Pachora market and gur in Baramati market showed a fairly consistent seasonal pattern. A slight variation was observed in particular years on account of the natural and other factors peculiar to each year. It was seen that the prices of cotton in the main marketing period were favourable to the farmers. This was also confirmed by our finding regarding the pattern of sale of cotton by the farmers in this region. We have seen that during the period of heavy arrivals of groundnut in the markets, the prices showed a declining trend. After that period there was a continuously rising trend. It appears from our analysis of pattern of arrivals in the market and periodicity of storage in the villages that the producers who withheld groundnut from 1 to 2 months were not in a position to avail of the rise in price but a considerable number of farmers who postponed sales further were however benefited by the price rise. The maximum price rise was 23.27 per cent in the last but one month of the season while the cost of storage at the same time worked out to 14.33 per cent. As regards gur the prices were favourable for a short period in the very beginning and at the fag end of the season only. In between there was a declining trend. From our analysis it was seen that the majority of the farmers in the villages surveyed by us were keen in disposing off their produce in the very beginning of the season. The maximum price rise was 21.36 per cent in the last month of the season whereas the storage cost came to 15.40 per cent.

[ The study also revealed that the prices in the primary

markets exhibited a considerable amount of seasonal fluctuation.

The returns to storage were positive and it was found possible for the cultivator to gain by stocking groundnut for sale later in the season. However, the returns to storage of gur were almost negative and it was beneficial for the producer either to sell in the beginning of the season or at the end of the season only.]

Throughout this comprehensive research work a modest attempt has been made to study the pattern, type and cost of storage of agricultural produce at the farm, village and primary (assembling) market levels. It revealed the strengths and weaknesses of the present pattern of location of storage facilities. The study of returns to storage showed that the losses in some years were balanced by gains in others. Generally, the situation seemed to be favourable to the producers. The study brings into focus the various aspects of the problem of storage of agricultural produce at the village and primary market levels, which need to be considered while making improvements in the storage methods and structures.

As an immediate measure for improving the situation, we have to offer the following suggestions:-

(1) The use of anticoagulants for rat control especially in houses have been found quite effective. The anticoagulants are more efficacious than the conventional rat poisons like Zinc Phosphide etc. where though the kill is immediate but subsequently the rat population builds up within a short time

necessitating its re-use. However, in case of anticoagulants not only higher degree of control is obtained but these are safer to use and less expensive. Similarly, the use of Ethylene-di-bromide (EDB) ampoules has been found to be quite suitable for fumigation of rural household storage structures holding small quantities of produce and which can be made reasonably air-tight.

(i) These should be easily available to the farmers at a reasonable cost in the villages through Co-operatives and/or Panchayats.

(ii) The methods of their use should be demonstrated and propagated in villages by Extension Agency. Pamphlets in regional languages should be distributed. Posters should be put up in villages at common places such as temple, chavadi, Panchayat and Society offices etc.

(iii) Under the "Farmers' Functional Literacy Programme" and such other schemes stress should be laid on the aspect of practical training to farmers in this matter.

(iv) Educating the farmers who have already realised the magnitude of the losses is the most important task so as to create awareness for conservation of produce in a satisfactory manner. This programme should be implemented intensively on the lines of Family Planning Programme. At present mass communication media like radio and T.V. give more attention to propagate the importance of higher agricultural production. However, the storing aspect of the agricultural produce may equally be emphasized in these programmes.

(2) The better utilization of the existing godowns in the villages could be achieved by convincing the farmers that undue recoveries will not be effected from their deposits. A small committee consisting of the members of Panchayat, Village Co-operative and an Official, say, Extension Officer, should be formed to supervise the deposits and withdrawals in the village godown and its proper care. This may create a sense of security amongst the depositors. It should be possible for them to have a look at their deposits in the godown off and on.

(3) The Zilla Parishads and Panchayat Samitis should propagate and demonstrate the use of metal/concrete bins and silos and provide subsidy for the purchase of the same. They should also take measures for popularizing fumigation of stored produce and make available to the farmers the necessary equipment on hire basis. The village co-operatives should assist in the matter.

(4) A survey of the locations of Regulated Market Yards in Maharashtra may be undertaken by the Government to find out the inadequacies and the reasons for inefficient operation of these markets. It would enable to taking steps for removal of the causes which lead to lower the marketing efficiency and affect the efficient, competitive and equitable operation of the trade. Government investment and interest in this activity can render a very useful and important service to the economy.

APPENDIX ASCHEDULE FOR CULTIVATORS1. General

1.1 Name of the cultivating household

1.2 Total No. of family members    Female    Male    Children    Total  
(below 15 years)

1.3 No. of those working on the farm

1.4 No. of those literate

2. Size of land holding

Hectares

2.1 Owned land

2.2 Leased out land

2.3 Leased in land

2.4 Cultivated land

2.5 Fallow land

2.6 Net cropped area

2.7 Out of which irrigated

(i) Canal

(ii) Lift (well/stream)

2.8 Do you own a bullock-cart?

2.9 Are you a member of the  
Co-operative Society?Credit/Marketing/Processing/  
Farming/Sugar factory/Others3. Production and Disposal : 1971-72

3.1

Crop Kharif/ Rabi	Area Hec.	Produ- ction Qtls.	Disposal			Balance for sales
			Hent	Consump- tion	Baluta Wages Pro- cure- ment	
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3.2 More information about harvesting of crops:

Crop	Picking/Cutting done		How much cotton picked/ sugarcane cut	
	Week	Month	Qtls.	Kgs.

Cotton

Lot -

Sugarcane

Lot -

3.3 Other crops

	When harvesting was over		How much produce was brought taken kept on home to the market farm		
	Week	Month	Qtls.	Kgs.	Qtls.Kts. Qts.Kgs.

3.4 Did you sell sugarcane to the factory? How much?

4. Nature and Extent of Storage

Commodity	How long stored		How much Qtls.Kgs.(Reason)	Losses* Kgs.	Place‡ - brief description-	Method@	Expen- diture
	Months	Days					

\* Due to birds, mites, rodents, pests, driage, moisture, spoilage, theft, fire etc.

‡ On the farm (open, farm-house, cattleshed). In the house (open, inside, cattleshed), Chavadi, temple, with relative, godown etc.

@ Loose, gunny bag, kangli, kothi, tins, earthen pots etc.



- 4.1 Whether there is a godown in your village or nearby village?
- 4.2 Do you take advantage of it?
- 4.3 If not, why?
- 4.4 If yes, what are the advantages?
- 4.5 Did you sell the produce immediately after taking it to the regulated market?
- 4.6 Or did you wait and store it with the society/trader/warehouse for getting highest possible price?
- 4.7 If you are not using the storage facilities, at the regulated market, why?
- 4.8 Did you get information from the Gram-sevak/Extension Officer/Co-operative/Panchayat reg. scientific storage and use of pesticides and insecticides? Did you read it in the newspapers or hear on the radio?
- 4.9 Did you make use of insecticides or make some other arrangements?
- 4.10 For growing more produce did you make use of irrigated water, fertilizers, hybrid seeds, improved implements etc.?
- 4.11 You grow more produce. Did you take care for storing it properly? How?
- 4.12 Did you know anything about aluminium bin or concrete silo for storage?
- 4.13 Do you think that the present arrangement of storage is adequate?
- 4.14 Don't you think that if produce is stored properly, there will be less losses, and it will not affect the quality and fetch better price?
- 4.15 Do you think it is possible to store the produce properly by making improvements in the present method of storage? If so, how?
- 4.16 Do you think that there are no benefits from storing for after harvest sales? Reasons -

5. Sales - 1971-72

Commodity	When sold Week Month	How much Qtls.Kgs.	Price per Qtl.	Amt. reced. Rs.Ps.	To whom sold (*)	Through whom sold (z)	Place of sale and distance (2)	Mode of trans- port (%)	Expen- diture (e)
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(\*) and (z) - Adatya, Trader, Society.

(2) - Village, village-bazaar, regulated market, processing concern.

(%) - On head, cart, truck.

(e) - Gunny bags, filling, octroi, dalali, commission, storage charges etc.

- 5.1 Did you sell the produce before harvesting?  
If yes, why?
- 5.2 Did you get advance for marketing of the crop?  
If yes, from whom? How much? On what terms  
and conditions?
- 5.3 How long did you keep your produce on the  
field, after harvesting?
- 5.4 Did you bring it home or take it to the market  
directly from the field?
- 5.5 Did you sell the produce immediately after  
harvest? Why?
- 5.6 Do you sell your produce to the same buyer?  
If yes, why?
- 5.7 Or do you sell it to the different buyers?
- 5.8 How many buyers are known to you?
- 5.9 When is the best time to sell?

6. Credit Position (1971-72)

	Loan No.1 Rs.	Loan No.2 Rs.	Loan No.3 Rs.	Loan No.4 Rs.
6.1 Outstanding amount				
6.2 Amount borrowed				
6.3 Month of borrowing				
6.4 Purpose *				
6.5 Agency †				
6.6 Rate of interest				
6.7 Security				
6.8 If from Co-op.Society,type@				
6.9 Amount repaid				

\* Production, consumption, marketing, other (specify)

† Government, credit society, marketing society,  
land bank, trader, cultivator, relative, processing  
concern, mill, factory.

@ Short, medium, long.

- 6.10 Loan never borrowed
- 6.11 Loan borrowed this year only
- 6.12 Whether loan taken from trader/society on the condition that the produce will be sold through them only? If so, done so or not?
- 6.13 Whether loan taken in kind?  
From whom and how much?  
and for what purpose?

## 7. Marketing Information

### 7.1 Source

- |   |            |
|---|------------|
| (1) Newspaper   | own/others |
| (2) Radio   | own/others |
| (3) Telephone   | own/others |
| (4) By letter from trader                                     |            |
| (5) By letter from society, processing concern, mill, factory |            |
| (6) By going to the market                                    |            |
| (7) From buyer visiting the place                             |            |
| (8) From Neighbour  |            |
| (9) From passerby through village                             |            |
| (10) Others   |            |

- 7.2 Did you know about the procurement and support prices fixed by Government?

APPENDIX BNOTE ON MAHARASHTRA STATEIntroduction Maharashtra State

In the peninsular Indian Union, the State of Maharashtra lies between  $16.4^{\circ}$  and  $22.1^{\circ}$  north latitude and  $72.6^{\circ}$  and  $80.9^{\circ}$  east longitude and occupies a near central position (Map in set 2.1 on page 21 ). It is bounded by the Arabian Sea to the west. The States of Madhya Pradesh and Gujarat and Mysore, Goa and Andhra Pradesh lie to north and north-west and south, and south-east of it respectively. The State has an area of 3,07,762 square kilometres and population of 50,412,235 (1971 Census). Historically speaking it is constituted of four main regions viz., Konkan, Western Maharashtra, Vidarbha and Marathwada. The area and population of the State are one-tenth and one-eleventh respectively of the Indian Union. In size as well as in population it ranks third in the country. For the purposes of administration it is divided into 26 districts.

Physical Features, Climate, Rainfall and Crops

The State consists of two major relief divisions: the plateau which is the part of the Deccan table land and the Konkan coastal strip by the side of the Arabian Sea. Nearly nine-tenth of the area consists of the plateau with its local variations in relief. The drainage system is composed of both west flowing rivers draining to the Arabian Sea and east

flowing rivers which drain to the Bay of Bengal after traversing Andhra Pradesh and Mysore States. The climate of the State is typically monsoonal in character with hot (March, April and May), rainy (June to September) and cold (October to February) weather seasons. There is a good deal of variation in the distribution of rainfall monthwise and regionwise. In the coastal strip the average annual rainfall is about 2000 mms. At some places it is more than 3200 mms. In the remaining areas it varies from region to region. While some districts in Western Maharashtra receive 600 to 750 mms. the others hardly get 500 mms. The districts from Marathwada region receive 750 to 1000 mms. of rainfall. In Vidarbha it varies from 750 to 1500 mms. The uncertainty of rainfall in its annual amount, seasonal occurrence, and regional distribution influence agriculture in the State by giving its regional orientation as rice, millet and cotton zones. The major crops mainly dependent on rainfall reflect the local conditions of climate and soil, though irrigation and technological changes and economic demand have introduced significant regional variations. The variations in temperature are not of that sequence as those in rainfall. Tropical conditions are common all over and even "hill stations" are not that cold. But lower winter temperatures on plateau do help the growth of some important crops like wheat, gram, linseed and grapes. The main crops grown are rice, wheat, jowar, bajra, pulses, cotton, groundnut, sugarcane, tobacco and fruits.

Land Utilization, Area and Cultivation  
of Crops, Irrigation Facilities and  
Cropping Patterns in the State

In the Tables A.1 to A.4 is presented the data regarding the land utilization, area and outturn of principal crops in Maharashtra as compared to the Indian Union and the cropping pattern and cropwise irrigated area in the State.<sup>1</sup>

The gross cropped area in Maharashtra is 59.73 per cent of the total geographical area, which is considerably higher than the all-India percentage of 45.72. The outturn of major cash crops viz. cotton, groundnut and sugarcane, is 20.4, 11.6 and 11.8 respectively of the total outturn in the country. As regards the cropping pattern the ratio of area under food crops and non-food crops is 7:3. In the group of food crops sugarcane is the major cash crop. In the non-food crops group cotton and groundnut account for almost three-fourths of the area. "Out of the gross cropped area of 190.4 lakh hectares in Maharashtra only 16.2 lakh hectares i.e. 8.3 per cent gets irrigation water. Out of the total irrigated area 19.4 per cent area gets water from canals built by Government and the remaining area from private wells, tanks and other sources. The percentage of the area under irrigation in Maharashtra is lower than many

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<sup>1</sup> The descriptive account of the State of Maharashtra is based on the material drawn from the sources mentioned below:

(1) G. D. Deshpande, Geography of Maharashtra. National Book Trust of India, November 1971; and

(2) "Maharashtra 1971-72". Government of Maharashtra, Bombay, February 1973.

**Table A.1 : Land Utilization in Maharashtra as Compared with India**

Item	India %	Maharashtra %
1. Area under forests	20.40	17.59
2. Barren and unculturable land	10.64	5.70
3. Land put to non-agricultural uses	5.10	2.26
4. Culturable waste	5.44	2.46
5. Permanent pastures	1.33	0.59
6. Land under miscellaneous tree crops etc.	4.54	4.34
7. Current fallows	3.96	3.52
8. Other fallows	2.87	3.81
9. Gross cropped area	45.72	59.73
<b>Total</b>	<b>100.00</b>	<b>100.00</b>

**Source :** "Maharashtra 1971-72". Government of Maharashtra, Bombay, February 1973.

**Table A.2 : Area and Outturn of Principal Crops (Average for Years 1968-69, 1969-70 and 1970-71) as Compared with India**

Crop	Area 1000 hectares	Comparison of Maharashtra with India %	Outturn of 1000 tonnes	Comparison of Maharashtra with India %
Rice	1332	3.6	1444	3.6
Wheat	844	5.0	413	2.0
Jowar	5710	31.3	2587	28.0
Bajra	2034	16.3	712	12.5
All Cereals	10383	10.3	5430	6.1
All Pulses	2713	12.4	792	7.1
All Foodgrains	13095	10.7	6623	6.2
Groundnut	916	12.8	613	11.6
Sugarcane	209	7.9	1571	11.8
Cotton	2771	36.2	183	20.4

**Source :** Handbook of Basic Statistics of Maharashtra State, Bureau of Economics and Statistics, Government of Maharashtra, Bombay, September 1972.



**Table A.3 : Cropping Pattern in Maharashtra (1970-71)(Percentage)**

	Percentage to total Cropped area
<b>Food Crops</b>	
Cereals and Pulses	67.25
Sugarcane	1.14
Fruits and Vegetables	1.05
Spices	1.00
Other Food Crops	0.03
<b>Total Food Crops</b>	<b>70.47</b>
<b>Non-Food Crops</b>	
Oil seeds (60% groundnut)	8.83
Cotton and Other Fibers	14.92
Medicinal Plants and Narcotics	0.07
Fodder Crops	5.67
Other Miscellaneous Non-Food Crops	0.04
<b>Total Non-Food Crops</b>	<b>29.53</b>
<b>TOTAL</b>	<b>100.00</b>

Source : "Maharashtra 1971-72". Government of Maharashtra, Bombay, February 1973.

**Table A.4 : Cropwise Irrigated Area in Maharashtra (1969-70)**

Crop	Cropwise irrigated area as percentage of total irrigated area	Cropwise irrigated area as percentage to total area under the crop
Rice	19.34	23.71
Wheat	16.20	31.42
Jowar	17.80	5.22
Sugarcane	13.61	100.00
Cotton	4.06	2.35
Groundnut	1.04	1.89
Others	27.95	18.62
<b>Total</b>	<b>100.00</b>	-
	(Gross irrigated area 1,623,000 hectares)	(Total gross cropped area 19,435,000 hectares)

Source : "Handbook of Basic Statistics of Maharashtra State 1972", Bureau of Economics and Statistics, Government of Maharashtra, Bombay, September 1972.

States in India and far below the percentage of 20 for the Indian Union as a whole."<sup>1</sup> Irrigation is mainly used for the foodgrains viz., rice, wheat and jowar, amounting to 53.34 per cent of the total irrigated area. Nearly 14 per cent of the total irrigated area is under sugarcane, which is the most important cash crop from the group of food crops. Cotton and groundnut the important cash crops of the State are mostly rainfed crops.

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1 Maharashtra 1971-72, op.cit., pp. 33 and 70.

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