

**MARKETING OF ARECANUT
IN
MYSORE STATE**

June, 1973

**BY
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**MARKETING OF ARECANUT
IN
MYSORE STATE**

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**FOR THE DEGREE OF
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PREFACE

The present Thesis entitled **MARKETING OF ARECANUT IN MYSORE STATE** embodies an analysis of the marketing of arecanut, examining in detail, its various aspects in the major producing districts of Mysore State. Though the study is essentially on the marketing of one commodity, it also deals with the role and the working of the Regulated Markets. This is particularly important in the light of the various legislative measures introduced to improve the conditions of marketing of the agricultural produce in the primary whole-sale markets.

The present study was undertaken at the Gokhale Institute of Politics and Economics, Poona under the guidance of Prof. N. Rath. I would like to take this opportunity to express my deep sense of gratitude to Prof. N. Rath for his guidance and constant help and encouragement at all stages of this work. I am also indebted to the authorities of the Gokhale Institute of Politics and Economics, especially to Prof. V.M.Dandekar, the Director, for enabling me to carry out the study with a Research Assistantship.

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CHAPTER I

INTRODUCTION

The present study attempts an analysis of marketing of arecanut in Mysore State, examining in detail, its various aspects. It focusses attention on the manner of disposal of the crop by the producers in the primary wholesale markets where the produce changes hands for the first time from the producers to the traders. The study examines the structure and functioning of these markets and the factors determining the pattern of arrivals, sales and the prices in these markets. The study also analyses the effect of a high degree of concentrations in the trade on the price received by the producers. Further, the study also analyses the quantitative flows of the commodity to the primary wholesale markets from the producing areas and from these primary markets to the terminal and consuming markets.

Comprehensive commodity studies involving quantitative analysis are lacking. The present study makes a modest attempt in this direction. Arecanut, like any other plantation crop, is mainly a market oriented crop. While the production of the commodity is mainly confined to the two southern States, Kerala and Mysore and the eastern State of Assam, its consumption is widely spread over the entire country as it is one of the most important 'conventional necessities' of a large mass of the Indian population.

The commercial importance of the crop is thus obvious.

Selection of Mysore State for the study was natural, the State being the biggest producer of arecanut in the country. Within the State its production is heavily concentrated in the four districts of Shimoga, Chikamagalur, North Kanara and South Kanara, the districts covered by the present study. These four districts had six regulated markets, handling most of the district production and for a detailed analysis, three regulated markets, handling about 75 per cent of the quantity traded in these six markets, were selected. These markets are Shimoga market in Shimoga district, Sirsi market in North Kanara district and Mangalore market in South Kanara district. There was no regulated market for Arecanut in Chikamagalur district, this district being served by the markets in Shimoga district.

While the study concentrates on a single commodity, it is pertinent in the context of understanding the working of regulated markets, particularly in the light of the various legislative measures to improve the conditions of marketing of agricultural produce in the primary wholesale markets. Conscious and concerted efforts to control or modify the process of agricultural marketing in India started only after the Royal Commission on Agriculture in India in 1928 made certain observations about the conditions under which the Indian producer marketed his produce. The

Commission recommended the establishment of regulated markets under State legislations. The emphasis laid by the Commission had a salutary effect and led a number of States to take steps in the direction of enacting marketing legislations and set up regulated markets with the object of improving the economic position of the agricultural producers. The various legislative measures aim at improving the marketing organisation by regulating the market procedures, sales practices and providing the needed market information to facilitate informed and free competitive conditions of marketing so that the producer-sellers will be able to get the best possible deals.

The major device by which competition in the buying is fostered or made more effective is by establishing centralized markets (regulated markets) and making the system of sale open and under supervision. With an increase in the distance from the market centre some producers are always confronted with a very small number of buyers in the immediate vicinity of their farms. Consequently, the producers are left at the mercy of a few dealers. The position of the producers is improved by the establishment of centralized markets where the system of sale is open and an opportunity is provided to the producers to sell their produce by a method which ensures the possibility of the presence of several buyers and a competitive bidding for every lot sold. And a more vigorous competition among

buyers would result in higher prices for the producers. Further, the net returns to the producers is also increased by eliminating superfluous charges and minimising the various costs of handling. In essence, the various legislations, regulating the marketing of agricultural produce, do not aim at creating an alternative marketing system but to facilitate free and informed competition in the existing system without its attendant malpractices. The detailed analysis of the functioning of the regulated markets in the present study illustrates the complexity of the task of market regulation implicit in the public programmes.

Further, the study also brings into focus the various factors that need to be considered while attempting to analyse the factors that influence the market arrivals, sales and price structure.

The study is divided into ten chapters. The present introductory chapter is followed by Chapter II which brings out the economic and commercial importance of the commodity arising necessarily out of its localized production and widespread consumption. The extent of concentration in the production of arecanut in the country is also brought out in this chapter. In Chapter III, we further delineate the major producing areas of arecanut within the Mysore State, the important regulated markets for arecanut in these major producing areas and show that arecanut is

largely sold in these regulated markets. This chapter is divided into four broad sections. In the first section the extent of concentration in the production of the crop within the State and the methods of cultivation of the crop are discussed. The second section deals with the nature of available statistics regarding the acreage and production of arecanut and the trends in acreage and production of the crop in the State during the period 1959-60 to 1966-67. Section three brings out the extent of retention of the crop by the producers for home consumption, seed, etc. The volume^{of} arrivals in the various regulated markets vis-a-vis the estimated production in the four major arecanut producing districts is discussed in the fourth section. The discussion in this chapter also justifies the selection of the districts and the markets for the present study. Chapter IV deals with the Marketing Legislation and its operation in the three regulated markets of Sirsi, Mangalore and Shimoga. In view of the fact that the bulk of the produce is sold by the producers in the regulated markets it was thought necessary to know about the organisation and functioning of regulated markets. These regulated markets were governed by three different State legislations as these three markets were in three different States when these markets came to be regulated. The Sirsi market in North Kanara district which was a part of the Bombay State was brought under the fold of the Bombay Agricultural

Produce Markets Act, 1939. Mangalore market in South Kanara district was established under the Madras Commercial Crops Markets Act, 1933, as this district formed a part of the Madras State. Shimoga market in Shimoga district was regulated under the Mysore Agricultural Produce Markets Act, 1939. These markets were governed by the provisions of the above Acts when we studied the working of these markets, as far as arecanut was concerned, in 1965-67. The three markets were brought under a uniform Act only in 1968, however, for our purpose, the provisions of the earlier Acts are relevant. The nature of these markets and their operation discussed in this chapter prepares a base for the detailed study of arecanut marketing in the subsequent chapters.

Chapter V examines the distribution of arrivals into Sirsi market according to the place of production and their intensities. The chapter also deals with the temporal pattern of arrivals in the market, the object being to find out whether the variations in seasonal patterns of arrivals for different places showed any relationship with their distances from the market. In Chapter VI, an attempt is made to examine in detail the extent of concentration in the trade of arecanut and the effect of such a concentration in the prices received by the producer-sellers and the role of the cooperatives in the marketing of arecanut. With the help of the available data for Sirsi

market relating to the trade practices, the volume of trade handled by the various commission agents, the extent of inter-group purchases by the commission agents and the price paid by them for their purchases from different sources, it is attempted to examine the effect of a high concentration in the trade and the existing trade practices, including that of the cooperative marketing society on the price structure of arecanut.

The extent and pattern of seasonal fluctuations in 'arrivals' and 'sales' in the three regulated markets of Sirsi, Shimoga and Mangalore are discussed in Chapter VII. The analysis covers the period from the year 1961-62 to 1966-67. An attempt is also made to examine in this chapter how far the differences in the seasonality in 'arrivals' and 'sales' within the markets and between the markets are due to the differences in the structure of these markets. Against the background of the discussion in the preceding chapters, Chapter VIII examines the behaviour of prices of arecanut in the three primary whole-sale markets of Shimoga, Mangalore and Sirsi and the two terminal markets of Bombay and Bangalore. The analysis refers to the period 1961-62 to 1966-67. The analysis is based on the weekly 'maximum', 'minimum' and 'modal' prices in the terminal markets. Further, the analysis is carried out for each of the varieties of arecanut traded in these markets. The analysis covers the following aspects:-

(1) Seasonalities in prices of the different varieties of arecanut traded in the primary and terminal markets, (2) examination of the weekly prices in the primary and terminal markets for their relationship in their movement by obtaining correlation coefficients between the weekly 'modal' prices in the primary markets and terminal markets for different varieties, (3) returns to storage over the season to the sellers, and (4) examination of the weekly prices in the three regulated markets for the influence of terminal price, total weekly arrivals and total weekly sales, using linear regression technique. An attempt is made to present the quantitative flow of the commodity from the primary whole-sale markets to the various terminal and consuming markets in the country in Chapter IX. Chapter X summarises and presents the conclusions suggested by the analysis of the marketing of arecanut in the major producing districts of this crop.

CHAPTER II

ARECANUT -- ITS IMPORTANCE

Arecanut, more commonly known as 'betelnut', is a popular masticatory in India among all sections of people. India is the biggest producer of arecanut, the other arecanut producing countries being Malaya, the Phillipines and Ceylon. India is also the biggest consumer of arecanut. While chewing of arecanut is spread over the entire country, its production is mainly confined to the two southern States, Kerala and Mysore, and the eastern State of Assam.

The economic importance of arecanut cultivation in India is essentially derived from its being a cultivated crop, while this is not so in the other producing countries. Its cultivation is as important in the States growing the crop as that of any other commercial crop in other parts of the country. It is the main and often the only cash crop in the producing areas. It is estimated that about three million people depend on this crop for their livelihood.¹

Because of its widespread consumption and localized production, the commodity has assumed a great commercial importance. This importance can also be seen from the volume of imports into the country in the past and even currently.

¹ "Report of the Working Group for the Formulation of the Fourth Five Year Plan - Proposals on Arecanut", ICAR, 1965, p. 5.

The extent of concentration in the production of arecanut, its consumption and the volume of imports and exports are discussed briefly in the following sections.

I. Acreage and Production

As stated earlier, the main arecanut producing States are Kerala, Mysore and Assam. Small quantities are also produced in the States of West Bengal, Maharashtra, Madras, Andhra Pradesh and Goa. Reliable statistics relating to the acreage and production of arecanut in the pre-Independence period are lacking. It was only after the establishment of the erstwhile Indian Central Arecanut Committee in 1949 that attempts were made in the arecanut producing States to estimate systematically the acreage and production of arecanut.

The area under and production of arecanut in the various States during the period 1962-63 to 1966-67 are presented in Table 2.1, mainly to bring out the extent of concentration in the production of the commodity. It can be seen from the table that about 94 per cent of the area under and production of arecanut is accounted for by the three States, Kerala, Mysore and Assam. The former two States account for about 75 per cent of both the area and production.

Kerala has the largest share of the area, that is, about 48 per cent of the total, while Mysore accounts for 28 per cent and Assam about 19 per cent. As regards

Table 2.1. Area and Production of Areeanut in India (Statewise) - 1962-63 to 1966-67

(Area in Thousand Hectares, Production in Thousand Tonnes.)

State	1952-63		1963-64		1964-65		1965-66		1966-67	
	Area	Production	Area	Production	Area	Production	Area	Production	Area	Production
1. Kerala	56.74	46.23	56.70	40.79	59.49	37.16	64.50	40.20	71.20	44.30
%	(47.54)	(41.21)	(45.84)	(41.43)	(45.65)	(34.56)	(47.68)	(33.83)	(50.09)	(35.53)
2. Mysore	34.53	44.61	34.25	29.53	38.57	38.49	36.49	46.34	35.95	48.00
%	(28.93)	(39.77)	(27.69)	(29.99)	(29.59)	(35.80)	(26.97)	(38.99)	(25.29)	(38.49)
3. Assam	21.97	14.32	26.22	20.40	25.39	24.05	26.00	26.00	26.20	26.20
%	(18.41)	(12.77)	(21.20)	(20.72)	(19.48)	(22.38)	(19.22)	(21.88)	(18.43)	(21.01)
4. West Bengal	2.20	2.46	2.20	2.46	2.20	2.46	3.10	1.30	3.30	1.30
%	(1.84)	(2.19)	(1.78)	(2.50)	(1.69)	(2.29)	(2.28)	(1.09)	(2.32)	(1.04)
5. Maharashtra	2.05	2.84	1.95	2.43	2.09	2.94	2.30	2.40	2.30	2.20
%	(1.72)	(2.53)	(1.58)	(2.47)	(1.60)	(2.73)	(1.70)	(2.02)	(1.62)	(1.77)
6. Madras	1.72	1.56	2.19	2.62	2.38	2.25	2.70	2.40	3.00	2.50
%	(1.44)	(1.39)	(1.77)	(2.66)	(1.83)	(2.09)	(2.00)	(2.02)	(2.11)	(2.00)
7. Andhra Pradesh	0.14	0.15	0.18	0.23	0.21	0.16	0.20	0.20	0.20	0.20
%	(0.12)	(0.14)	(0.14)	(0.23)	(0.16)	(0.15)	(0.15)	(0.17)	(0.14)	(0.16)
Total	119.35	112.17	123.69	98.46	130.33	107.51	135.29	118.84	142.15	124.70
	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)

Source: Deputy Director (Marketing, Economic Research and Statistics), Regional Office, Arecanut and Spices Development, Government of India, Calicut-5 (Kerala State).

production, till 1963-64 Kerala was the single biggest producer accounting for more than 40 per cent of the country's production. Since 1964-65 Mysore State emerged as the biggest producer with about 38 per cent of the country's production, Kerala being relegated to the second place with about 34 per cent of the production. The share of Assam in the total production of the commodity is around 20 per cent.

During the five year period 1962-63 to 1966-67, the total area under arecanut in the country increased by 22.80 thousand hectares, i.e., by 19.10 per cent. The increase in production during the same period was by 12.53 thousand tonnes, i.e., by 11.17 per cent. It should be pointed out here that the increase in the area under the crop was mainly in the three major areca growing States viz. Kerala, Mysore and Assam. Out of the total increase of 22.80 thousand hectares, the increase in these three States, was 20.11 thousand hectares. Within these three States, the largest extension of area was in Kerala State followed by Assam and Mysore. As regards the production, increase was recorded in the States of Mysore and Assam. The increase in production in these two States was 15.27 thousand tonnes. Kerala, on the other hand, showed a decline of 1.93 thousand tonnes.

II. Consumption

Except for a small quantity of arecanut used as seeds

and for export, the entire production is consumed within the country. Statistics relating to the inter-State movement of arecanut are lacking. In the absence of such data, it is difficult to estimate the consumption of arecanut in the various States. The only information available as regards the consumption is the estimate made by the Directorate of Marketing and Inspection, Government of India, for the year 1957-58. Their estimate was based on the data collected from the trade during their survey of marketing of arecanut in India. Quantities available for consumption in the various producing States was estimated as follows:-

Production in the State + Imports from other States
+ Imports from foreign countries - Retention for seed -
Exports to other Indian States - Exports to foreign
countries = quantity available for consumption in the state.

The per capita consumption of arecanut for the various arecanut producing States and non-producing States estimated on this basis, is presented in Table 2.2.

Although these are rough estimates, they give an idea about the extent of consumption of arecanut in the various parts of the country.

The per capita consumption of arecanut among the producing States was found to be the highest in Assam,¹

¹ The per capita consumption of arecanut in Assam appears to be quite large. There is no other source with which one can compose these estimates. However, from personal enquiries with knowledgeable sources it is known

Table 2.2. Estimated annual per capita consumption of Arecanut in the various States in India during 1957-58

State	Per capita consumption per year (in lb.)
<u>I. Major Producing States</u>	
1. Assam	6.17
2. Kerala	1.46
3. Mysore	1.44
<u>II. Minor Producing States</u>	
1. Madras	1.02
2. West Bengal	0.63
3. Maharashtra and Gujarat	0.58
<u>III. Non-Producing States</u>	0.44
All India	0.74

Source: "Report on the Marketing of Arecanuts (Tamil) and Betelnuts (Supari) in India", Directorate of Marketing and Inspection, Ministry of Food and Agriculture, Government of India, 1962, p. 52.

Footnote continued from previous page.

that in Assam the habit of arecanut consumption is more widely prevalent than in the other States. This is also evident from the National Sample Survey data. The N.S.S. 17th round data show that rural per capita expenditure on pan and supari in Assam was the highest of all States in India - 74 paise per month - the next highest being 48 paise in Mysore and 41 paise in Madras and 29 paise in Kerala. (National Sample Survey, Report No. 184, 17th Round. Indian Statistical Institute, Calcutta, March 1969, Table B.1.9.28, p. 285.

more than 4 times of that of Mysore or Kerala, the other two major arecanut growing States. While the all-India per capita consumption was 0.74, lb for the non-producing States it was found to be only 0.44 lb.

It may be mentioned here that arecanut is consumed both as fresh fruits (unprocessed) and as processed nuts (dried or boiled kernels prepared from ripe and semi-ripe kernels respectively). In Assam and West Bengal it is consumed mainly in the form of fresh fruits. This practice is also prevalent to a lesser extent in Kerala. In the other regions the consumption is in the form of processed nuts. It was estimated that during 1957-58, about 74 per cent of the net available supply was in the form of processed nuts, while the remaining was in the form of fresh fruits.¹

III. Imports

Inspite of the fact that India is the biggest producer of arecanut in the world, domestic production falls short of the country's internal demand. To meet the internal demand large quantities were until recently being imported mainly from Singapore, Malaya and Ceylon. Import of arecanut into India during the period 1911-12 to 1966-67 are presented in Tables 2.3 and 2.4.

¹ Marketing of Arecanut and Betelnut in India, 1962, op.cit., p. 45.

Table 2.3. Average Quinquennial Imports of Arecanut into India During 1911-12 to 1945-46

Period	Quantity (Tonnes)	Value (in lakhs Rs.)
1911-12 to 1915-16 (Average)	59569	107.2
1916-17 to 1920-21 "	56210	146.0
1921-22 to 1925-26 "	59681	188.9
1926-27 to 1930-31 "	61771	220.3
1931-32 to 1935-36 "	60540	113.6
1936-37 to 1940-41 "	82225	177.5
1941-42 to 1945-46 "	17542	80.3

Note: Upto March 1937 Burma formed Part of India.

Source: "Report on the Marketing of Arecanut in India", Agricultural Marketing Adviser, Government of India, 1949, p. 61.

Imports of arecanut from 1911-12 to 1945-46

Table 2.3 gives the average quinquennial imports of arecanut into India for the period 1911-12 to 1945-46. It can be seen from the table that the volume of imports into India remained more or less steady at 60 thousand tonnes a year upto 1935-36. During the years immediately preceding the outbreak of world war II, i.e. during 1936-37 to 1940-41, there was a sudden rise in the imports. During the period 1942-43 to 1945-46, the imports, however, declined considerably as the main exporting countries of Straits Settlements, Java, Sumatra, etc., fell into the enemy hands.

During this period Ceylon was about the only source of import. After the war the imports again started increasing.

Imports of Arecanut from 1947-48 to 1966-67

The quantity and value of arecanut imported annually during the years 1947-48 to 1966-67 are given in Table 2.4. It can be seen from the table that until the year 1958-59 the volume of imports showed no trend but fluctuated around 40 thousand tonnes. There was a steep fall in the imports in 1958-59 and since then the volume of imports has continued to decline. The imports declined from 30,808 tonnes in 1957-58 to 18,363 tonnes in 1958-59 and to only 510 tonnes in 1966-67.

The decline in the imports was the result of a deliberate policy of restricting imports. Though the control on the imports of arecanut started as early as 1947, real decline in imports began only from the year 1958-59. During the period 1947-48 to 1957-58 the policy was to restrict the imports of arecanut. However, from 1958-59 onwards we can see a deliberate policy to curb and eventually eliminate all imports of arecanut. Since April 1963, the entire import trade of arecanut is being handled by the State Trading Corporation of India. In its import policy statement for the year 1966-67 the Government declared that arecanut was not a licensable article.¹

¹ 'Import Trade Control Policy', Ministry of Commerce, Government of India, March 1966.

Table 2.4. Quantity and Value of Imports of Arecanut into India - 1946-47 to 1966-67

Year (April- March)	Quantity (Tonnes)	Value (lakh Rs.)	Year (April- March)	Quantity (Tonnes)	Value (lakh Rs.)
1946-47	36762	305.22	1958-59	18363	83.57
1947-48	4228	285.30	1959-60	14175	71.86
1948-49	39815	245.77	1960-61	11170	64.63
1949-50	39931	240.15	1961-62	10041	45.32
1950-51	45234	343.46	1962-63	8978	34.61
1951-52	45635	465.65	1963-64	2807	13.85
1952-53	35863	326.84	1964-65	2674	19.26
1953-54	36236	301.75	1965-66	3323	20.45
1954-55	30003	220.59	1966-67	510	3.38
1955-56	42428	435.63			
1956-57	40717	544.66			
1957-58	30838	297.66			

Source:

1. Various issues of the "Accounts Relating to the Foreign (Sea, Air and Land) Trade and Navigation of India", issued by the Department of Commercial Intelligence and Statistics, Calcutta, Ministry of Commerce and Industry, Government of India (for the years 1946-47 to 1955-56).
2. Various issues of the 'Monthly Statistics of Foreign Trade of India', issued by the Department of Commercial Intelligence and Statistics, Calcutta, Ministry of Commerce and Industry, Government of India (for the years 1956-57 to 1966-67).

As a result of this new policy, no fresh licence was issued for the import of arecanut since April 1966; the imports during 1966-67 were on the basis of licences issued during the earlier period. A brief account of the import trade policy regarding arecanut is given in Appendix I.

The magnitude of import component in the total supply (domestic production + imports) can be seen from the figures given in Table 2.5.

Table 2.5. Proportion of Imports of Arecanut to Total Supply

Year	Imports as % of Total Supply
1952-53	30.95
1953-54	30.48
1954-55	26.29
1955-56	33.81
1956-57	32.88
1957-58	25.87
1958-59	17.21
1959-60	13.66
1960-61	10.45
1961-62	9.54
1962-63	8.47
1963-64	2.77
1964-65	2.43
1965-66	2.72
1966-67	0.41

Note: Total Supply = Domestic Production + Imports.

It can be seen from this table that during the period 1952-53 to 1957-58 around 30 per cent of the total supply was made up of imports. With the restriction on imports this proportion declined continuously over the years to

0.41 per cent in 1966-67.

Consequent to the decline in imports, the per capita availability decreased during the period 1952-53 to 1966-67 through there was an increase of 50 per cent in the estimated domestic production during the same period. The increased domestic production filled the gap created by reduction of imports. But per capita availability declined. This was because the population recorded even a higher increase. The availability per 100 persons declined by about 24 per cent, from 31.98 kg in 1952-53 to 24.45 kg in 1966-67 (Table 2.6).

The imports of arecanut were mainly through the ports of Calcutta, Bombay and Madras, these being the major ports and important trading centres. The share of the different ports in the import of arecanut is given in Table 2.7.

The imports were only of processed, but unboiled, whole and split nuts, the type of nuts consumed in the non-producing areas of the country.

With the stoppage of almost all import, the entire demand for arecanut has to be met from internal production. As the production in the eastern State, Assam, is largely consumed locally the entire demand for arecanut in the rest of the country is met by the two Southern States - Kerala and Mysore.

The only estimates available of the inter-State movement of arecanut are those made by the Directorate of Marketing and Inspection for the year 1957-58. These

Table 2.5. Availability of arecanut per 100 persons
during 1952-53 to 1966-67

Year	Arecanut - availability (kg) per 100 persons
1952-53	31.98
1953-54	31.20
1954-55	28.89
1955-56	31.57
1956-57	30.48
1957-58	28.73
1958-59	25.17
1959-60	23.93
1960-61	24.11
1961-62	23.20
1962-63	22.83
1963-64	21.89
1964-65	22.59
1965-66	24.41
1966-67	24.45

Note: (a) Availability per 100 persons =

$$\frac{\text{Total availability}}{\text{Estimated mid-year population}} \times 100$$

where, total availability = Production + Imports - Exports.

(b) The quantity used for seed is not taken into account for calculating the 'total availability' as these estimates are not available. However, as the quantity used for seed is very small, its inclusion would not alter the results significantly.

(c) Availability in 1952-53 is with reference to 1953- population and similarly for the subsequent years.

Table 2.7. Share of different ports in the Import of Arecanut into India

Ports	1948-49 to 1950-51		1951-52 to 1955-56	
	Quantity (Tonnes)	% to total	Quantity (Tonnes)	% to total
Calcutta	22039	52.9	18540	48.7
Bombay	9890	23.7	12256	32.2
Madras	9755	23.4	7215	19.0
Saurashtra Okha and Kutch	12	-	34	0.1
Cochin	-	-	-	-
Total	41696	100.0	38045	100.0

Source: 'Marketing of Arecanut in India', 1962, op.cit., p.34.

estimates were based mainly on the information collected from the trading houses during the course of the Marketing Adviser's Survey of Arecanut Marketing. Though these are rough estimates, they nevertheless indicate the broad pattern of the inter-State movement of arecanut. These data are given in Table 2.8. It will be seen from the table that among the three major producing States, exports were highest from Kerala and lowest from Assam. The proportion of exports to total supply in the State was 73 per cent for Kerala, 64 per cent for Mysore and only 14 per cent in the case of Assam. Though Bombay, Bengal and Madras exported as much as 59 per cent, 62 per cent and 22 per cent respectively of their total supply, these

Table 2.8. Estimated Quantities of Arecanut available for consumption and Exports in the Different Producing States in India During 1957-58

(Quantity in Tonnes)

Particulars	Assam	Kerala	Mysore	Bombay	West Bengal	Madras	Total
A. Production in the State	26445	39173	30382	2702	1734	948	101384
Imports from other Indian States	586	-	10007	19894	4652	16606	57745
Imports from foreign countries	-	-	-	13029	15591	2376	30996
Total (A)	27031	39173	40389	35525	21977	19930	164125
B. Deduct							
Seed	47	77	89	27	2	1	243
Exports to Other Indian States	3801	28488	25819	20856	13605	4343	96912
Exports to foreign countries	-	-	-	161	neg.	48	209
Total (B)	3848	28565	25908	21044	13607	4392	97364
C. Total quantities available for consumption (A-B)	23183	10608	14481	14581	8370	15538	86761
Exports to other Indian States as % of total (A)	14.06	72.72	64.15	59.07	61.91	21.79	

Source: "Report on the Marketing of Arecanut (Tamul) and Betelnuts (Supari) in India", Directorate of Marketing and Inspection, Government of India, 1962, p. 177.

were the imports from the other Indian States and foreign countries. These States depended mainly on imports from other States as well as from other countries for their supply as their production formed only about 14 per cent of their requirement.

IV. Exports

Small quantities of arecanut are exported from India. Details of exports of arecanut for the period 1911-12 to 1966-67 are given in Tables 2.9 and 2.10. It can be seen from the tables, that exports remained around the same level of about 200 tonnes annually during the entire period 1911-12 to 1966-67. The only exceptions to this uniform trend were during 1936-37 to 1940-41 and 1941-42 to 1945-46.

Table 2.9. Exports of Arecanut through British Indian Ports - 1911-12 to 1945-46.

	Quantity (Tonnes)	Value (in lakh Rs.)
1911-12 to 1915-16 Average	194	1.10
1916-17 to 1920-21 "	228	1.70
1921-22 to 1925-26 "	175	1.70
1926-27 to 1930-31 "	187	2.00
1931-32 to 1935-36 "	168	1.30
1936-37 to 1940-41 "	6368	13.96
1941-42 to 1945-46 "	855	5.26

Note: Upto March 1937 Burma formed part of India.

Source: "Report on the Marketing of Arecanuts in India",
Agricultural Marketing Adviser, Government of
India, 1949, p. 62.

Table 2.10. Quantity and Value of Exports of Arecanut from India - 1946-47 to 1966-67

Year (April-March)	Quantity (Tonnes)	Value (in lakh Rs.)
1946-47	679	12.64
1947-48	520	7.98
1948-49	309	5.76
1949-50	149	4.68
1950-51	236	5.98
1951-52	170	7.20
1952-53	211	7.48
1953-54	203	8.05
1954-55	171	7.23
1955-56	181	7.75
1956-57	227	10.22
1957-58	210	10.47
1958-59	199	13.88
1959-60	207	12.66
1960-61	151	9.73
1961-62	123	8.61
1962-63	110	8.22
1963-64	87	7.25
1964-65	200	13.65
1965-66	350	28.28
1966-67	208	18.35

Source

1. Various issues of the 'Accounts Relating to the Foreign (Sea, Air and Land) Trade and Navigation of India', issued by the Department of Commercial Intelligence and Statistics, Calcutta, Ministry of Commerce and Industry, Government of India (for the years 1945-47 to 1955-56).
2. Various issues of the 'Monthly Statistics of Foreign Trade of India', Department of Commercial Intelligence and Statistics, Calcutta, Ministry of Commerce and Industry, Government of India (for the years 1956-57 to 1966-67).

The annual average exports during the years 1936-37 to 1940-41 increased from 168 tonnes in the previous period to 6368 tonnes. In the subsequent period it declined to 835 tonnes. This sudden increase in the exports was a result of the imports by Burma. Prior to March 1937, Burma formed part of India. Burma started importing from India in 1937-38 and these imports continued only up to 1942-43. The increased exports during this period were from the port of Bengal. If these exports are excluded, it will be seen that the annual exports were around 200 tonnes.

The major importing countries from India are Singapore and Kenya. Small quantities are also exported to Aden, Ceylon, U.K. and Malaya. The exports are mainly of superior grade arecanuts including scented and specially processed units.

The foregoing discussion reveals that :-

(i) Arecanut cultivation is of great economic importance to the three States of Kerala, Mysore, and Assam which together account for 94 per cent of India's production.

(ii) Because of the localized production and wide-spread consumption the commodity is of considerable commercial importance, and

(iii) the commercial importance is further enhanced by the fact that the imports which earlier constituted nearly a third of the total domestic availability, have been

practically stopped and that the national market is almost entirely dependent on the production from the two southern States of Kerala and Mysore.

Selection of the Mysore State for the present study was natural, the State being the single biggest producer of arecanut in the country. Even within the Mysore State the production of arecanut is largely limited to a few districts. The nature of concentration in the production of the crop within the State, the extent of retention by the producers for home consumption, etc., and the volume of arrivals in the regulated market vis-a-vis the production are discussed in the next chapter.

CHAPTER III

PRODUCTION OF ARECANUT AND ARRIVALS IN THE
REGULATED MARKETS

It was seen in the previous chapter that production of arecanut in India is largely confined to three States and the Mysore State is the single biggest producer of this crop. In this chapter we further delineate the major producing areas of this crop within the Mysore State, the important regulated markets for arecanut in these major producing areas and show that arecanut is largely sold in these regulated markets.

It will be seen from the discussion in this chapter that within the Mysore State production of arecanut is largely confined to the four districts, Shimoga, Chickmagalur, North Kanara and South Kanara. These four districts account for about 75 per cent of the area under the crop and its production. Arecanut, like any other plantation crop, is mainly a market-oriented crop and as such more than 90 per cent of the production is sold. The bulk of the production in these four districts as well as part of the production in the neighbouring districts are primarily marketed in the six regulated markets located in these districts. Sales outside these regulated markets by the producers appears to be prevalent in the Shimoga, Chickmagalur and South Kanara districts, possibly because of the long distance of the regulated markets from some of the

producing centres. It may be pointed out that the produce sold by the producers outside the regulated market in South Kanara district is brought for re-sale in the Mangalore market by the small traders. In the case of Shimoga and Chickamagalur districts this does not seem to be happening which is reflected in the low arrivals in these markets compared with the estimated production for these districts. Judging from the volume of arrival of arecanut in the regulated markets, Mangalore, (in South Kanara district), Shimoga (in Shimoga district) and Sirsi (in North Kanara district) are the major arecanut markets. These three markets handled nearly 75 per cent of the total arrival of arecanut in the six markets serving the four producing districts.

The present chapter is divided into four broad sections. The areas of production and the methods of cultivation are discussed in the first section. This provides justification for concentrating on the four major producing districts in the subsequent discussions. The nature of the available statistics relating to the acreage and production of this crop in the Mysore State and the trends in acreage and production during the period 1959-60 to 1966-67 are discussed in the second section. The extent of retention for home consumption, seed, etc., by the producers is discussed in section three. In the fourth section the production estimates for these four major producing districts are compared with the actual arrivals in the regulated markets

in these districts to bring out the importance of these markets as far as marketing of arecanut is concerned in these districts.

I. REGIONS OF PRODUCTION

Cultivation of arecanut in Mysore State is mainly confined to the two 'malnad' (i.e. hilly tract) districts of Shimoga and Chickamagalur and the closely similar parts of the two coastal districts, South Kanara and North Kanara. These four districts together account for about 75% of the State's acreage and production of arecanut (Table 3.1). In 1966-67 the area under arecanut in these districts was 26,475 hectares as against 35,949 hectares in the State, with an estimated production of 45,215 tonnes against 61,072 tonnes for the State. While South Kanara district accounted for about 23 per cent of the area under arecanut in the State, the largest producer was Shimoga district accounting for about 25 per cent of the State's production.

Within these four districts, the cultivation of the crop is further confined to some taluks. This can be seen from Table 3.2 which gives the taluk-wise area under the crop in these four districts for some years. In Shimoga district, though all the 9 taluks reported some acreage under the crop, 5 taluks accounted for about 92 per cent of the area under the crop in the district, while one taluk alone accounted for as much as 41 per cent. Similarly, in the case of Chickamagalur district also while one taluk

Table 3.1. Area and Production of Arecanut in the Important Arecanut Growing Districts of Mysore State, 1959-60 to 1966-67

(Area in Hectares, Production in Tonnes)

District	1959-60		1960-61		1961-62		1962-63	
	Area	Production	Area	Production	Area	Production	Area	Production
Shimoga	6483 (20.07)	11147 (32.12)	6530 (19.72)	13497 (32.34)	6535 (20.00)	11812 (26.12)	6628 (19.20)	13134 (33.12)
Chickamagalur	5101 (15.79)	3315 (9.55)	5165 (15.60)	3740 (8.96)	5064 (15.50)	4842 (10.71)	4927 (14.27)	5221 (13.17)
South Kanara	6059 (18.76)	5222 (15.05)	6020 (18.18)	6417 (15.37)	5711 (17.49)	9673 (21.39)	7161 (20.74)	6407 (16.16)
North Kanara	6865 (21.25)	7535 (21.71)	6875 (20.76)	8358 (20.03)	6902 (21.13)	9613 (21.26)	6957 (20.15)	8312 (20.96)
Total	24508 (75.87)	27219 (78.43)	24590 (74.26)	32012 (75.70)	24212 (74.12)	35940 (79.48)	25673 (74.36)	33074 (83.41)
Mysore	864* (2.67)	N.R. -	1344* (4.06)	513* (1.23)	1259* (3.85)	461* (1.02)	1368 (3.96)	698 (1.76)
Hassan	1238 (3.83)	N.R. -	1239 (3.74)	1437 (3.45)	1294 (3.96)	1154 (2.55)	1281 (3.71)	802 (2.02)
Chitradurg	1861 (5.76)	N.R. -	1692 (5.10)	2030 (4.86)	1766 (5.41)	1200 (2.65)	1721 (4.99)	920 (2.32)
Tumkur	2744 (8.50)	2032 (5.85)	2922 (8.82)	2154 (5.17)	3011 (9.22)	4583 (10.13)	2592 (7.50)	3661 (9.23)
Total	6707 (20.76)	2032 (5.85)	7197 (21.72)	6134 (14.71)	7330 (22.44)	7398 (16.46)	6962 (20.16)	6081 (15.33)
Other districts	1085 (3.35)	5456 (15.72)	1329 (4.02)	3589 (8.59)	1119 (3.44)	1887 (4.06)	1891 (5.48)	500 (1.26)
Total State	32300 (100.00)	34707 (100.00)	33116 (100.00)	41735 (100.00)	32661 (100.00)	45225 (100.00)	34526 (100.00)	39655 (100.00)

District	1963-64		1964-65		1965-66		1966-67	
	Area	Production	Area	Production	Area	Production	Area	Production
Shimoga	6657 (19.44)	13536 (24.87)	6691 (17.35)	10707 (24.74)	6750 (18.50)	9773 (20.01)	6388 (17.77)	15830 (25.92)
Chickamagalur	5001 (14.60)	4237 (7.78)	5059 (13.12)	5988 (13.84)	4416 (12.10)	7118 (14.57)	5197 (14.46)	8396 (13.75)
South Kanara	7530 (21.99)	7622 (14.00)	9726 (25.22)	7621 (17.61)	8222 (22.53)	6211 (12.71)	8222 (22.87)	8962 (14.67)
North Kanara	6981 (20.38)	16618 (30.53)	6989 (18.12)	6935 (16.02)	7028 (19.26)	8530 (17.46)	6668 (18.55)	12027 (19.69)
Total	26169 (76.41)	42013 (77.18)	28465 (73.81)	31251 (72.21)	26416 (72.39)	31632 (64.75)	26475 (73.65)	45215 (74.03)
Mysore	653 (1.91)	1102 (2.02)	675 (1.75)	1200 (2.77)	578 (1.58)	1686 (3.45)	577 (1.60)	1674 (2.74)
Hassan	1369 (4.00)	1787 (3.28)	1398 (3.62)	1540 (3.56)	1254 (3.44)	1828 (3.74)	1376 (3.83)	1152 (1.89)
Chitradurg	1470 (4.29)	617 (1.14)	3072 (7.95)	856 (1.98)	3225 (8.84)	1325 (2.71)	2801 (7.79)	1381 (2.26)
Tumkur	3291 (9.61)	6453 (11.86)	3285 (8.52)	6477 (14.97)	3521 (9.65)	10174 (20.83)	3232 (8.90)	9275 (15.19)
Total	6783 (19.81)	9959 (18.30)	8430 (21.84)	10073 (23.28)	8578 (23.51)	15013 (30.73)	7986 (22.21)	13482 (22.08)
Other districts	1295 (3.78)	2461 (4.52)	1677 (4.35)	1955 (4.51)	1497 (4.10)	2206 (4.52)	1488 (4.14)	2375 (3.89)
Total State	34247 (100.00)	54433 (100.00)	38572 (100.00)	43279 (100.00)	36491 (100.00)	48851 (100.00)	35949 (100.00)	61072 (100.00)

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* Figures relate to both Mysore and Mandya districts. N.R. = Not Reported.
Percentages to state totals are indicated in parentheses.

Source : Area - Various issues of the 'Annual Season and Crop Report', Department of Statistics, Government of Mysore, Bangalore.
Production - Report on the 'Sample Survey for the Correct Estimation of Area and Yield of Arecanut in Mysore State', Department of Statistics, Government of Mysore, Bangalore for the respective years.

Table 3.2. Talukwise Area under Arecanut in the Four Major Arecanut Producing Districts of Mysore State (1959-60 to 1964-65)

	(Area in Hectares)					
	1959-60	1960-61	1961-62	1962-63	1963-64	1964-65
I. Shimoga District						
1. Tirthahalli	2677 (41.29)	2695 (41.27)	2695 (41.24)	2710 (40.89)	2717 (40.81)	2719 (40.64)
2. Sagar	1460 (22.52)	1749 (26.78)	1749 (26.76)	1749 (26.39)	1749 (26.27)	1558 (23.28)
3. Hosanagara	1040 (16.04)	735 (11.26)	738 (11.28)	749 (11.30)	749 (11.26)	709 (10.60)
4. Chennagiri	404 (6.23)	429 (6.57)	431 (6.60)	431 (6.50)	445 (6.68)	621 (9.28)
5. Soraba	593 (9.15)	604 (9.25)	603 (9.23)	543 (8.13)	543 (8.16)	543 (8.12)
6. Shimoga	31 (0.48)	31 (0.47)	32 (0.49)	159 (2.41)	159 (2.39)	246 (3.68)
7. Bhadravati	162 (2.50)	162 (2.48)	162 (2.48)	162 (2.44)	170 (2.55)	170 (2.54)
8. Honnali	76 (1.17)	73 (1.12)	73 (1.12)	73 (1.10)	73 (1.10)	73 (1.08)
9. Shikaripura	40 (0.62)	52 (0.80)	52 (0.80)	52 (0.78)	52 (0.78)	52 (0.78)
Total District	6483 (100.00)	6530 (100.00)	6535 (100.00)	6628 (100.00)	6657 (100.00)	6691 (100.00)
II. Chickamagalur District						
1. Koppa	2082 (40.82)	2121 (41.06)	2121 (41.88)	2121 (43.05)	2121 (42.41)	2128 (42.06)
2. Tarikere	819 (16.06)	819 (15.86)	686 (13.55)	686 (13.92)	726 (14.52)	726 (14.35)
3. Sringeri	748 (14.66)	769 (14.89)	775 (15.30)	652 (13.23)	686 (13.72)	696 (13.76)
4. Kadur	542 (10.63)	563 (10.90)	567 (11.20)	587 (11.91)	587 (11.74)	595 (11.76)
5. Mudigere	516 (10.12)	509 (9.86)	509 (10.05)	498 (10.11)	498 (9.96)	498 (9.84)
6. N.R. Pura	339 (6.64)	329 (6.37)	351 (6.93)	323 (6.56)	323 (6.46)	354 (7.00)
7. Chickamagalur	55 (1.07)	55 (1.06)	55 (1.09)	60 (1.22)	60 (1.19)	62 (1.23)
Total District	5101 (100.00)	5165 (100.00)	5064 (100.00)	4927 (100.00)	5001 (100.00)	5059 (100.00)
III. South Kanara District						
1. Puttur	2396 (39.54)	2432 (40.40)	1743 (30.52)	2591 (36.18)	2786 (37.00)	4893 (50.32)
2. Bantwal	860 (14.19)	860 (14.28)	1245 (21.80)	1386 (19.35)	1524 (20.24)	1536 (15.78)
3. Belthangady	1100 (18.16)	1134 (18.84)	1134 (19.86)	1139 (15.90)	1174 (15.59)	1255 (12.90)
4. Karkala	609 (10.06)	611 (10.14)	612 (10.72)	642 (8.97)	645 (8.57)	647 (6.66)
5. Mangalore	219 (3.61)	219 (3.64)	204 (3.57)	622 (8.63)	619 (8.22)	611 (6.28)

Continued on next page

Table 3.2 - Contd.

	1959-60	1960-61	1961-62	1962-63	1963-64	1964-65
6. Coondapur	503	503	512	516	516	518
%	(8.30)	(8.36)	(8.96)	(7.21)	(6.85)	(5.33)
7. Udipi	372	261	261	265	266	266
%	(6.14)	(4.34)	(4.57)	(3.70)	(3.53)	(2.73)
Total District	6059	6020	5711	7161	7530	9726
	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)
IV. North Kanara District						
1. Sirsi	2282	2253	2254	2282	2270	2281
%	(33.24)	(32.77)	(32.67)	(32.80)	(32.52)	(32.64)
2. Siddapur	2320	2322	2320	2331	2341	2316
%	(33.79)	(33.77)	(33.61)	(33.51)	(33.53)	(33.14)
3. Yellapur	869	889	894	899	921	924
%	(12.66)	(12.93)	(12.95)	(12.92)	(13.19)	(13.22)
4. Honnavar	619	626	640	643	651	655
%	(9.02)	(9.11)	(9.27)	(9.24)	(9.33)	(9.37)
5. Kunta	296	299	303	304	303	318
%	(4.32)	(4.35)	(4.39)	(4.37)	(4.34)	(4.55)
6. Ankola	217	219	221	221	221	221
%	(3.16)	(3.19)	(3.20)	(3.18)	(3.17)	(3.16)
7. Bhatkal	174	173	175	175	177	178
%	(2.53)	(2.52)	(2.54)	(2.51)	(2.54)	(2.55)
8. Supa	64	68	67	70	68	68
%	(0.93)	(0.98)	(0.97)	(1.01)	(0.97)	(0.97)
9. Karwar	15	17	18	18	18	18
%	(0.22)	(0.25)	(0.26)	(0.26)	(0.26)	(0.26)
10. Mundagod	9	9	10	14	11	10
%	(0.13)	(0.13)	(0.14)	(0.20)	(0.15)	(0.14)
11. Haliyal	-	-	-	-	-	-
Total District	6865	6875	6902	6957	6981	6989
	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)

* Percentages to districts totals are given in parentheses.

Source: Department of Statistics, Government of Mysore, Bangalore.

had 42 per cent of the district's area under the crop, 82 per cent was accounted for by 4 taluks. Of the 10 taluk's reporting area under arecanut in North Kanara district only three taluks accounted for about 79 per cent of the area under the crop in the district. Similar is the case of South Kanara district where three taluks had 78 per cent of the district's area with one taluk accounting for as much as 50 per cent.

Thus 61 per cent of the total area under arecanut in the State was located in 15 taluks of the 4 major producing districts of the State. Further, these 15 taluks also accounted for nearly 83 per cent of the area under arecanut in these four districts viz. Shimoga, Chickamagalur, North Kanara and South Kanara. Being the main and often the only cash crop, cultivation of arecanut is of great economic importance to these regions. This can be seen from the intensive methods of cultivation practised in these regions. This is discussed in the following paragraphs.

Cultivation Methods

The crop is grown mostly in regular gardens. The cultural practices vary considerably between the 'malnad' and closely similar tracts of the coastal districts on the one hand and the 'maidan' (i.e., the plain) region on the other. The cultivation of the crop in these two regions is described below briefly.

In the 'malnad' and coastal districts the predominant soils are the typical reddish-clay or clay soils, spoken of as lateritic, often mottled with light coloured clays with considerable admixture of small rounded nodules of hydrated oxides of iron common in such soils. These soils are not very well suited for the cultivation of areca palms. However, good growth of the palm is made possible by the peculiar and labourious methods of cultivation and manuring which are designed to build up and conserve soil fertility.

The heavy and torrential rainfall during the south-west monsoon and the broken hilly nature of the country, with steep and narrow valleys alternating with jungle-clad upland hills and slopes are the special characteristics of this part of the region, and the cultivation methods are admirably well adapted to meet these conditions.¹

The areca gardens are situated invariably in the narrow widths of the valley. The steep sides of the valley provide the necessary protection from the monsoon winds and beating rains. The valley bottoms are generally made into one level. Long narrow terraces are also made at more than one level depending upon the slopes of the sides. Along the middle of the natural drainage line the main drain is dug. The drain is about 3'-4' deep and 2' wide and is led from the head of the garden to the outlet at the end of the

1 Yegna Narayana Aiyer, A.K., "Field Crops of India", Bangalore Press, Bangalore, 1958, p. 495.

garden. Irrigation channels are laid out higher up the valley side along the margin of the garden.

Banana suckers are planted as a nurse and shade crop to the areca palms. These are kept up throughout the life of the garden by replacements as a part of the routine cultivation every year. Banana is planted at the rate of one per every areca seedling.

Generally, in a fully planted arecanut garden, there are palms of three age groups. After some 10 to 20 years of the planting of one batch of areca palms, a fresh batch of palms is planted, that is, new plantation starts when the first planted are in full bearing stage. After another 10-20 years of the second planting, a third round of palms are planted, so that there are three age groups: the oldest being almost past the age of fruitfulness (i.e. about 40 years), the next one in full bearing stage and the youngest coming up to take the place of the oldest. The gardens are also generally underplanted with pepper, betelvines and cardamom.

The annual cultivation is elaborate, comprising of digging around the base of the trees, turning the soil in the entire garden, application of manure, addition of fresh earth, etc. Great care is also taken to prevent the washing off of the soil by the torrential rains.

On the basis of the practices in carrying out these operations, the four major producing districts can broadly

be classified into two groups.¹

- (1) Shimoga, Chickamagalur and South Kanara, and
- (2) North Kanara.

In the first group, the annual operations excepting irrigation, are carried out only on one-third of the garden, because of the high operational cost. This in effect means that these operations are carried out once in three years on each plot of land. After turning the soil around one-third of the area in the garden, chemical and farmyard manure are applied around the base of the palm. Green leafy twigs, obtained from the adjoining jungles, are spread over the entire garden to a thickness of about three feet and this layer of leaves is covered with fresh earth to a height of one and a half to two feet. The fresh earth is obtained by cutting the hill sides. During summer months the entire garden is irrigated at least once a week. After the onset of monsoon, the arecanut bunches are sprayed with bordeaux mixture to prevent fungus attack.

In North Kanara district the practice is somewhat different and more elaborate. The application of manure, turning of the soil, etc., are done for all the palms in the garden every year. The base of the palm is cleared of weeds and farm-yard and chemical manures are applied. After this, the surface area about two feet around the base

¹ These details were collected from the cultivators in these districts at the time of our survey during 1966-67.

of each palm is covered with dry leafy twigs. These are obtained from the adjoining jungles. Because of their short supply, the leaves are not spread over the entire garden. The leaves are then covered with fresh earth to a height of about one foot. The earth is obtained from the ridges between the rows of palms in the garden. These ridges are formed once in three to four years to a height of three feet by bringing fresh earth from outside. To retain moisture during summer months, the entire garden is covered with dry grass, locally called 'Karada', to a thickness of one foot; a thin layer of earth is spread over the grass.

Besides spraying bordeaux mixture to the arecanut bunch during monsoon, the bunches are covered with areca spathes.¹ This work begins with the collection of areca spathes from the middle of October till the end of May. The spathes are dried and kept in bundles. After the onset of rains, these are cut to make the covers for the arecanut bunches. For tying these covers bamboo pins and banana strips are used. The raw material except the bamboo pins are obtained in the garden. One cultivator's accounts showed that the total expenses incurred for collecting the areca spathes, preparing the covers and tying them round

1 The large sheathing bract, or pair of bracts, enclosing an inflorescence on the same axis, called a spadix.

the arecanut bunches including the cost of bamboo pins, came to about Rs. 317 per acre during 1966-67.

The cultivation practices in the 'maidan' (i.e. plain) districts are markedly different from those followed in the malnad and coastal districts. In the tank irrigated areas in the plains the soil is mainly of clay-loam or clay and the palms grow on these soils with great luxuriance. The areca gardens are situated in the open and flat country near tanks and rivers because of the heavy irrigation required. The gardens are generally mixed with other fruit trees like mango, jack, coconut, plantain, etc., because of the shade and cool atmosphere required by the palms. Plantains are put as a nurse crop and do not form a prominent and permanent feature as in the malnads. In the pure areca gardens the main provision is for irrigation and elaborate arrangements for drainage are not necessary except in heavy soils, liable to water logging. As in the case of malnad and coastal regions, in the plains also a fully planted garden consists of palms of three age groups. The annual operations mainly comprise of application of manure around the base of the palm and irrigation.

As to the size of arecanut holdings, it may be mentioned that in the 'malnad' districts it varies from 1 to 40 acres and in the 'maidan' region $2\frac{1}{2}$ to 15 acres. In Kerala and Assam, the two other important arecanut growing States, the size of arecanut holdings varies between one and two acres.¹ However, it may be mentioned that large

¹ Report on the Marketing of Arecanut in India, 1962, op.cit., pp. 10-12.

arecanut holdings are likely to be few in number and holdings of 40 acres would really be exceptions. It was observed during our survey in the four major producing districts that the average size of arecanut holding was around 5 acres and holders of large arecanut gardens generally leased out a substantial portion of the holding.¹

The areca palm takes about 10-12 years to come to bearing. The flowering season is from December to June and the bulk of the flowering takes place between December and April. Each palm produces three to four bunches at intervals varying from 3 to 4 weeks. The fruits take 9 to 11 months to mature. The harvesting starts generally from early September and continues till March as the bunches are of varying age. Further, the harvesting time also depends upon the quality of nuts required. The nuts are harvested in tender, semi-ripe and ripe condition. In Shimoga and Chickamagalur districts the nuts are harvested mostly when they are tender from which sliced and boiled nuts are prepared. In South Kanara district, the nuts are harvested when they are fully ripe from which sun-dried whole nuts are prepared. In North Kanara district both semi-ripe and ripe nuts are harvested. While from the

1 Referring to the 1961 census data on size groupwise distribution, based on 20 per cent sample, of cultivating households we find that for the important arecanut growing taluks in the malnad and coastal districts very few holdings (inclusive of other crops) exceed 15 acres. Holdings of arecanut garden over 15 acres are thus likely to be very small in number (Census of India, 1961: 'District Census Hand Book' for the respective districts).

ripe nuts, sun-dried whole nuts are prepared, boiled whole nuts are prepared from the semi-ripe nuts.

II. TRENDS IN ACREAGE AND PRODUCTION

Presently statistical information about area under arecanut and production of the nuts is available for the State from two sources - one, the 'official estimates' as reported by the revenue agency, and the other, the result of the sample survey conducted by the State Bureau of Economics and Statistics every year since 1959-1960. Before proceeding to discuss the trends in acreage and production, it is necessary to mention the limitations of these data arising necessarily out of the estimation procedures involved in them. Hence, the methods of estimation adopted in these two estimates and their comparability are discussed first before selecting the series for our purpose. The analysis is confined to the period 1959-60 to 1966-67, for which the two separate estimates are available.

Estimation of area

1. Official estimates

The official estimates are published in the Annual Season and Crop Report by the State Department of Statistics. These estimates are based on the crop registers called the 'PAHANIS' maintained by the revenue officials at the village level. Because of the mixed nature of arecanut gardens a certain degree of subjective element is involved in these

estimates, as the allocation of area to the different crops grown in an areca garden is done by eye estimation of the village revenue officer. Arecanut is classified as a 'non-forecast crop'. The estimates of area under the crops falling in this category are ad hoc estimates and do not have the same degree of accuracy as that of 'forecast' crops.¹

2. Sample Survey

The erstwhile Indian Central Arecanut Committee jointly with the State Government launched in 1959-60 a scheme for the correct estimation of area and production based on sample survey, as the existing official estimates were thought to be defective owing to the subjective element involved and the unscientific method of estimation. Since 1959-60 these sample surveys are being conducted by the State Department of Statistics every year. These surveys cover 8 districts accounting for about 96% of the area under arecanut in the State.

For this survey, the method of stratified multi-stage random sampling is adopted. The villages growing arecanut were classified into two strata: (1) villages growing a mixed crop of arecanut and coconut on the same field, and (2) villages growing only arecanut, on the basis of information supplied by the village revenue agency. The villages in each of these two groups are listed according to the total

¹ "Estimates of Area and Production of Principal Crops in India", 1963-64 and 1964-65 (Summary Tables), Directorate of Economics and Statistics, Ministry of Food and Agriculture, Government of India, P. IV.

area under arecanut in them, as reported by the official revenue agency. Then a random sample of 50 villages from each of these two strata is selected for estimation of the number of palms, area, yield rate and production. In each year the sample is changed by retaining some villages from the previous year's sample and selecting the rest of the 50 afresh. The number of villages retained from the previous year's sample has varied from year to year.

Estimation Procedure

Excepting for the two rounds, 1963-64 and 1964-65, the method adopted in estimating the total number of palms is as follows:

In the sample villages all the arecanut palms, grown in regular gardens and as 'stray' are enumerated. Further, at the time of enumeration the palms are classified as bearing and non-bearing. The total number of palms enumerated in the sample villages is divided by the officially reported area under arecanut in those villages to arrive at the average number of palms per acre. By multiplying this average number of palms per acre with the area reported under the crop in all the villages in the stratum, the total number of palms in the stratum is estimated. A simple addition of the estimates for the two strata gives the estimated number of palms in a district. The sample surveys do not check on the area estimate of the official agency; rather the survey uses this area estimate for estimating the total

number of palms in the districts under survey.

During 1963-64 and 1964-65 the method of estimating the total number of palms was slightly different from the rest of the years. During 1963-64, about 50 percent of the sample villages was retained from the first (1959-60), second (1960-61) and third (1961-62) rounds of the survey and the rest were selected afresh. On the basis of the total number of palms in the selected villages in the first three rounds of the survey and the observed numbers in the newly selected villages, the average number of palms per village was arrived at. Multiplying this average number of palms per village with the number of villages reporting (in official returns) arecanut cultivation in the stratum gave the total number of palms in the stratum. By adding the estimates for the two strata, the number of palms in the district was arrived at. A similar procedure was adopted for the year 1964-65.

The estimate of area under the crop is arrived at by expressing the estimated total number of palms in terms of area. This is done in the following way:

In the sample villages a certain number of gardens having only arecanut palms (Pure gardens) are selected. The total number of palms in these selected gardens is counted and the area under these gardens is obtained by measurement. The total number of palms divided by the total area of these gardens gives the number of palms per acre if the crop is cultivated as a pure crop. The total estimated

number of palms in the district divided by the number of palms per acre in pure gardens, gives the estimated area under the crop in the district.

Estimated Area under the Crop and their Comparability

The estimated area under arecanut according to the official revenue agency and the sample survey and the difference between the two estimates for the State for the period 1959-60 to 1966-67 are given in Table 3.3. It can be seen from the Table that not only do these estimates differ widely in magnitude but also the year to year changes differ in the direction of change. Firstly, the sample survey estimates of area are generally much higher than the official estimates for the state. As the area in the sample survey is estimated by dividing the estimated total number of palms by the number of palms per acre in pure gardens where the density of areca palms is supposed to be greater than in the mixed gardens, one would expect the sample survey estimates of area to be smaller than official estimates of area. But the results (Table 3.3) do not bear this out. The inclusion of area under stray palms (which possibly is omitted in the official estimates) cannot explain this as the area estimated under stray palms is very small.

Though the sample survey estimates are generally higher than the official estimates for the State, they are not so in the case of each individual district (Table 3.4). For example, in the case of Shimoga district, the sample survey

Table 3.3. Official and Sample Survey Estimates of Area under Arecanut in Mysore State - 1959-60 to 1966-67

Year	Official Estimate	Sample Survey Estimate	Change over the previous year				Difference between the Two Estimates (col. 3 - col. 2)	
			Official Estimate		Sample Survey Estimate		(Hectares)	(%)
	(Hectares)	(Hectares)	(Hectares)	(%)	(Hectares)	(%)	(Hectares)	(%)
1	2	3	4	5	6	7	8	9
1959-60	32300	29364					- 2936	- 9.09
1960-61	33116	31940	+ 816	+ 2.53	+ 2576	+ 8.77	- 1176	- 3.55
1961-62	32661	32952	- 475	- 1.43	+ 1012	+ 3.17	+ 291	+ 0.89
1962-63	34526	34458	+ 1865	+ 5.71	+ 1506	+ 4.57	- 68	- 0.19
1963-64	34247	41131	- 279	- 0.81	+ 6673	+ 19.37	+ 6884	+ 20.10
1964-65	38572	40295	+ 4325	+ 12.63	- 836	- 2.03	+ 1723	+ 4.47
1965-66	36491	40574	- 2081	- 5.40	+ 279	+ 0.69	+ 4083	+ 11.19
1966-67	35949	40687	- 542	- 2.02	+ 113	+ 0.28	+ 4738	+ 13.18

estimates are lower than the official estimates in six out of the eight years, while for Chickamagalur district it is lower than the official estimates only in two years. Further, the difference between the two estimates is also quite marked in the individual districts.

Secondly, the annual fluctuations in the area estimated by the sample surveys and to some extent in the estimates of the official agency appear to be rather incompatible with the perennial nature of areca gardens. Though a sudden increase in the area is understandable, a sudden substantial decline in the area is not easily explainable. The official estimates show a much smaller fluctuation from year to year than the sample survey estimates. The magnitude of annual fluctuations can be seen quite clearly from the districtwise figures, while such fluctuations are concealed for the State as a whole because of aggregation. For example, the sample survey estimate of area for Chickamagalur district rise and fall alternatively during the six years from 1959-60 to 1965-66 (Table 3.5).

Further, both these estimates also differ in the direction of change. While one estimate shows an increase in the area under the crop, the other estimate shows a decline. For example, for South Kanara district, while official estimates record an increase of 2196 hectares in 1964-65 from the previous year, the sample survey estimates show a decline of 1,027 hectares; for Chickamagalur district,

Table 3.4. Districtwise Area Under Arecanut in Mysore State According to the Official and Sample Survey Estimates - 1959-60 to 1966-67

(Area in Hectares)

District		1959-60	1960-61	1961-62	1962-63	1963-64	1964-65	1965-66	1966-67
1. Shimoga	A	6483	6530	6535	6628	6657	6891	6750	6388
	B	5597	5939	6836	6867	5371	5573	5799	6122
	C	-886	-591	+301	+239	-1286	-1118	-591	-266
2. Chickamagalur	A	5101	5165	5064	4927	5001	5059	4416	5197
	B	6132	6384	4308	5558	4994	5557	5447	5284
	C	+1031	+1219	-756	+631	- 7	+498	+1031	+ 87
3. South Kanara	A	6059	6020	5711	7161	7530	9726	8222	8222
	B	6056	5820	6177	7091	10595	9568	9858	9756
	C	- 3	-200	+466	- 70	+3065	-158	+1636	+1534
4. North Kanara	A	6865	6875	6902	6957	6981	6989	7028	6668
	B	4967	5603	6116	6169	8646	8332	8096	8610
	C	-1898	-1272	-786	-788	+1665	+1343	+1068	+1942
Total	A	24508	24590	24212	25673	26169	28465	26416	26475
	B	22752	23746	23437	25685	29606	29030	29200	29772
	C	-1756	-844	-775	+ 12	+3437	+565	+2784	+3297
5. Mysore	A	864*	1344*	1259*	1368	653	675	578	577
	B	423*	889*	750*	1010	1472	1573	1459	1328
	C	-441	-455	-509	-358	+819	+898	+881	+751
6. Hassan	A	1238	1239	1294	1281	1369	1398	1254	1376
	B	935	1038	874	1166	1351	1397	1386	1198
	C	-303	-201	-420	-115	- 18	- 1	+132	-178
7. Chitradurg	A	1861	1692	1766	1721	1470	3072	3225	2801
	B	995	1413	1618	1681	1684	1419	1399	1638
	C	-866	-279	-148	- 40	+214	-1653	+1826	-1163
8. Tumkur	A	2744	2922	3011	2592	3291	3285	3521	3232
	B	3050	3172	2892	3636	5159	5054	5298	5013
	C	+306	+250	-119	+1044	+1868	+1769	+1777	+1781
Total	A	6707	7197	7330	6962	6783	8430	8578	7986
	B	5403	6512	6134	7493	9666	9443	9542	9177
	C	-1304	-685	-1196	+531	+2883	+1013	+964	+1191
A. Other Districts	A	1085	1329	1119	1891	1295	1677	1497	1488
	B	1209	1682	3381	1280	1859	1822	1832	1738
	C	+124	+353	+2262	-611	+564	+145	+335	+250
Total State	A	32300	33116	32661	34526	34247	38572	36491	35949
	B	29364	31940	32952	34458	41131	40295	40574	40687
	C	-2936	-1176	+291	- 68	+6884	+1723	+4083	+4738

Note

A = Official Estimate

B = Sample Survey Estimate

C = Difference between the two estimates (B-A)

* Figures relate to both Mysore and Mandya districts.

Table 3.5. Year to Year Changes in Official and Sample Survey Estimates of Area under Arecanut - 1959-60 to 1965-67 (Districtwise)

(Area in Hectares)

District		1960-61	1961-62	1962-63	1963-64	1964-65	1965-66	1966-67
1. Shimoga	A	+ 47	+ 5	+ 93	+ 29	+ 34	+ 59	- 362
	B	+ 342	+ 897	+ 31	- 1496	+ 202	+ 226	+ 323
2. Chickmagalur	A	+ 64	- 101	- 137	+ 74	+ 58	- 643	+ 781
	B	+ 252	- 2076	+ 1250	- 564	+ 563	- 110	- 163
3. South Kanara	A	- 39	- 309	+ 1450	+ 369	+ 2196	- 1504	0
	B	- 236	+ 357	+ 914	+ 3504	- 1027	+ 290	- 102
4. North Kanara	A	+ 10	+ 27	+ 55	+ 24	+ 8	+ 39	- 360
	B	+ 636	+ 513	+ 53	+ 2477	- 314	- 236	+ 514
Total	A	+ 82	- 378	+ 1461	+ 496	+ 2296	+ 2049	+ 59
	B	+ 994	- 309	+ 2248	+ 3921	+ 576	- 170	+ 572
5. Mysore	A	+ 480*	- 85*	- -	715	+ 22	- 97	- 1
	B	+ 466*	- 139*	- +	462	+ 101	- 114	- 131
6. Hassan	A	+ 1	+ 55	- 13	+ 88	+ 29	+ 144	+ 122
	B	+ 103	- 164	+ 292	+ 185	+ 46	- 11	- 188
7. Chitradurg	A	- 169	+ 74	- 45	- 251	+ 1602	+ 153	- 424
	B	+ 418	+ 205	+ 63	+ 3	- 265	+ 20	+ 239
8. Tumkur	A	+ 178	+ 89	- 419	+ 699	- 6	+ 236	- 289
	B	+ 122	- 280	+ 744	+ 1523	- 105	+ 244	- 285
Total	A	+ 490	+ 133	- -	179	+ 1647	+ 148	- 592
	B	+ 1109	- 378	- +	2173	- 223	+ 99	- 365
9. Other districts	A	+ 244	- 210	+ 772	- 596	+ 382	- 180	- 9
	B	+ 473	+ 1699	- 2101	+ 579	- 37	+ 10	- 94
Total State	A	+ 816	- 475	+ 1865	- 279	+ 4325	- 2081	- 542
	B	+ 2576	+ 1012	+ 1506	+ 6673	- 836	+ 279	+ 113

(Change + or - over the preceding year)

* Figures relate to both Mandya and Mysore districts.

A = Official estimates

B = Sample Survey estimates

while the official estimates show a decline of 137 hectares in 1962-63 from the previous years the sample survey shows an increase of 1,250 hectares.

The year to year fluctuations in the sample survey estimates of area are largely due to the fluctuations in the estimated total number of palms and the estimated number of palms per acre in pure gardens. An increase in the estimated area does not necessarily mean an increase in the total number of palms, or vice-versa. For example, while the estimated total number of palms decreased by 1.5 million in 1961-62 from 1960-61, the area estimated increased by 1,012 hectares, for the State. This was because of a decrease in the estimated average stand per acre of pure areca garden from 747 in 1960-61 to 687 in 1961-62.

Similarly, for South Kanara district, while the estimated total number of palms barely changed from 1962-63 to 1963-64 (there was an increase of 1,000 palms) the estimated area increased by 3,504 hectares. This was because the estimated number of palms per acre in pure gardens declined from 647 in 1962-63 to 435 in 1963-64.

Though the changes in the estimated total number of palms can be explained to some extent, the violent fluctuations in the average number of palms per acre in pure gardens, which reflects the cultural practice in the area is not easily explainable. The cultural practice relating to the number of plants per acre in the case of a perennial crop like arecanut, where the life of the plant is around

hundred years, can hardly fluctuate from year to year.

The difference between the two estimates both in terms of magnitude and direction is clear from the above discussion. The wide year-to-year fluctuations in the sample survey estimates are not consistent with the perennial nature of the areca gardens and the cultural practices in pure gardens. Hence, the sample survey estimate of area are not very trustworthy as indicator of trend in area under the crop. Further, while the official estimates give the actual area under the crop, after making some allowance for the other crops grown along with areca, the sample survey estimates give the hypothetical area required for the total estimated number of palms, if they are to be planted as pure crop. In any case, what is of interest is the area that is under arecanut at the time - not the area that would have been under it had the gardens been pure gardens with full stands of the palms. Because of these reasons, official estimates of area despite their known limitations and shortcomings, are used in the discussion below in connection with the variations and trends in area under arecanut.

Trend in Acreage

The area under arecanut in the State showed an increase of 3,649 hectares (11½) from 1959-60 to 1966-67. The four districts, Shimoga, Chickamagalur, South Kanara and North Kanara account for about 75 percent of the area in the

State. The increase in area in these four districts was around 8 per cent during the years 1959-60 to 1966-67; it increased from 24,508 hectares in 1959-60 to 26,475 hectares in 1966-67. About 54 per cent of the increased area in the State was accounted for by these above 4 districts. In fact, the increase was only in Chickamagalur and South Kanara districts, and the other two districts showed a decline. Among these four districts, only South Kanara district showed some year to year fluctuations. The estimated area for 1962-63 showed a sudden increase of 1450 hectares, while the earlier year had registered a decline of 309 hectares. Again in 1964-65, there was a sudden increase of 2,196 hectares, followed by a decline of 1,504 hectares in 1965-66.

The area under arecanut in the other districts of the State increased by 23 percent, from 7,792 hectares in 1959-60 to 9,572 hectares in 1965-67. The increase in area was not uniform in all these districts. While the reported area under arecanut recorded an increase of 50 percent and 17 percent in the case of Chitradurga and Tumkur districts respectively, Mysore district recorded an increase of 8 per cent. Though there was a comparatively larger percentage increase in the area in these districts, in absolute terms the increase was larger in the case of the four major traditionally arecanut growing districts. Of the total increase of 3,649 hectares, the share of the four major producing districts was 1,967 hectares while it was 1,682

hectares in the other districts.

Though there has been a spread of the crop in the other districts of the State in recent years, the four traditionally arecanut producing districts still continue to be the major producers of the crop within the State. This justifies the selection of these districts for the present study.

Estimation of Production

Estimates of production of arecanut are also available from two sources - the official returns and the sample survey, for the years 1958-59 to 1966-67. These estimates of production are discussed below.

1. Official estimates

Prior to 1960-61 the official estimates of production were based on the per acre yield data obtained by making ad hoc enquiries with some garden owners. From 1960-61 onwards these estimates are based on the 'Crop Estimation Surveys for the Estimation of Yield and Production'.¹ In these surveys the method of estimation of average yield and production is generally as follows:

"The design of sampling adopted in the crop estimation surveys in all States, except West Bengal and Orissa is one of stratified multi-stage random sampling with tehsils/

¹ "Area, Production and Yield per hectare of Principal Food and non-food Crops, 1956-57 to 1960-61 (fully revised)", Department of Statistics, Government of Mysore, Bangalore (Mim), p. 2.

revenue inspector circles/sub-divisions as strata (containing 100 to 300 villages), a village as the primary unit of sampling, a field growing the specified crop (pure or mixture with other crops) as the secondary unit of sampling and a plot within the field as the ultimate unit of sampling

"In each stratum a simple arithmetic mean of net yields of the sample plots is obtained. For this, the plot yield from mixed field is divided by the eye estimate of the proportion of the area under the crop in the field and added to the yields of the plots sown with pure crop to obtain an estimate of the stratum average. The district average is obtained by weighing the stratum average in proportion to the net area under the crop in the different strata. The State average is obtained by combining the district averages in proportion to the net area under the crop in the districts. The averages are corrected for driage, the estimates of which are obtained from the results of driage experiments. the total production is got by weighing these averages with the respective areas under the pure sown and mixed sown types of the crop."¹

An allowance of 2 to 5 percent is made for uncropped area of peripheral or interior field bunds which are included

¹ "Guide to Current Agricultural Statistics (revised edition)", Directorate of Economics and Statistics, Ministry of Food and Agriculture, Government of India, 1962, pp. 105-107.

in field areas, and thus in areas under crops, in the production estimates obtained on the basis of the above calculations.¹ The precision aimed at the State level for the principal crops is usually 1 to 3 percent. At the district level, the precision aimed at is 5 to 8 percent for the crops for which the district is important.²

Sample Surveys

The second set of production estimates are based on the sample surveys referred to earlier in connection with area estimates. For estimating yield, crop cutting experiments are conducted in selected gardens. In each sample village originally selected for estimation of total number of areca palms, three gardens are selected at random. From two of these gardens one cluster of 8 bearing palms each is selected. From the third garden, two clusters of 8 bearing palms are selected. On the basis of the yield data collected for these clusters, yield per bearing palm is calculated. The yield per bearing palm multiplied by the total number of bearing palms in the district estimated by the sample survey method gives the total production for that district. The ratio of green nuts to cured nuts collected from these gardens is used in expressing the total production in terms of cured nuts.

1 Ibid., p. 107.

2 Ibid., p. 106.

Estimated Production

The official and sample survey estimates of production and the difference between the two estimates for the State as a whole are given in Table 3.6. The districtwise production estimates are presented in Table 3.7.

It can be seen from Table 3.6 that for all the years except 1962-63, the sample survey estimates of total production in the State are higher than the official estimates. The difference between the two estimates is also quite large, ranging from 2,511 tonnes to 24,902 tonnes (5 per cent to 84 per cent).

The official estimates exhibit a larger year to year fluctuation than the sample survey estimates (Table 3.8). As far as the direction of change is concerned, these estimates move in opposite directions. A similar pattern is seen in the case of the four major producing districts taken together (Table 3.9). Excepting Chickamagalur district, the pattern is also more or less the same for the other three districts when considered individually.

Although two different sampling techniques are adopted for these two estimates of production, since they refer to the same region, a certain amount of uniformity is expected at least in the direction of change. We have already observed that this has not been so in regard to production estimates. Secondly, both these estimates of production can be said to be not very much different from one another, if at least one of the estimates falls within

**Table 3.6. Official and Sample Survey Estimates of Production of Arecanut in Mysore State - 1959-60
- 1966-67**

Year	Official Estimates	Change over the previous year		Sample Survey Esti- mates	Change over the pre- vious year		Difference between the two estimates (col. 4 - col. 1)	
		(Tonnes)	%		(Tonnes)	%	(Tonnes)	%
	1	2	3	4	5	6	7	8
1959-60	27536			34707			+ 7171	+ 26.04
1960-61	35903	+ 8367	+ 30.39	41735	+ 7028	+ 20.25	+ 5832	+ 16.24
1961-62	26704	- 9199	- 25.62	45225	+ 3490	+ 8.36	+ 18521	- 69.36
1962-63	44605	+ 17901	+ 67.03	39655	- 5570	- 12.32	- 4950	- 11.10
1963-64	29531	- 15074	- 33.79	54433	+ 14778	+ 37.27	+ 24902	+ 84.32
1964-65	38490	+ 8599	+ 29.12	43279	- 11154	- 20.49	+ 4789	+ 12.44
1965-65	46340	+ 7850	+ 20.39	48851	+ 5572	+ 12.87	+ 2511	+ 5.42
1966-67	48000	+ 1660	+ 3.58	61072	+ 12221	+ 25.02	+ 13072	+ 27.23

Table 3.7. Districtwise Production of Arecanut in Mysore State According to the Official and Sample Survey Estimates - 1959-60 to 1966-67

(Production in Tonnes)

District		1959-60	1960-61	1961-62	1962-63	1963-64	1964-65	1965-66	1966-67
1. Shimoga	A	5345	12637	6052	14602	9099	10699	10556	9745
	B	11147	13497	11812	13134	13536	10707	9773	15830
	C	+5802	-860	+5760	-1468	=4437	+ 8	-783	+6085
2. Chickamagalur	A	3141	2941	3881	4218	4478	4981	5741	7268
	B	3315	3740	4842	5221	4237	5988	7118	8396
	C	+174	+799	+961	+1003	-241	+1007	+1377	-1128
3. South Kanara	A	6389	5861	4428	6520	4969	6594	7487	5686
	B	5222	6417	9673	6407	7622	7621	6211	8962
	C	-1167	+556	+5245	-113	+2653	+1027	-1276	+3276
4. North Kanara	A	8790	8852	6469	8533	6766	9329	8109	8153
	B	7535	8358	9613	8312	16618	6935	8530	12027
	C	-1255	-494	+3144	-221	+9852	-2394	+421	+3874
Total	A	23665	30291	20830	33873	25312	31603	31893	30852
	B	27219	32012	35940	33074	42013	31251	31632	45215
	C	+3554	+1721	+15110	-799	+16701	+352	-261	+14363
5. Mysore	A	250*	413*	474*	1796	252	847	826	1685
	B	NR	513*	461*	698	1102	1200	1686	1674
	C	-	+100	- 13	-1098	+650	+353	+860	- 11
6. Hassan	A	337	670	1008	1427	706	1317	1751	1803
	B	NR	1437	1154	802	1787	1540	1828	1152
	C	-	+767	+146	-625	+1081	+223	+ 77	-651
7. Chitradurg	A	630	851	769	1375	464	752	3382	1314
	B	NR	2030	1200	920	617	856	1325	1381
	C	-	+1179	+431	-455	+153	+104	-2057	- 67
8. Tumkur	A	1829	3302	2798	4115	1999	2283	6229	10099
	B	2032	2154	4583	3661	6453	6477	10174	9275
	C	+203	-1148	+1785	-454	+4454	+4194	+3945	-824
Total	A	3046	5236	5049	8713	3421	5199	12188	14901
	B	2032	6134	7398	6081	9959	10073	15013	13482
	C	-	+898	+2349	-2632	+6538	+4874	+2825	-1419
9. Other districts	A	825	376	825	2019	798	1688	2259	2247
	B	-	3589	1887	500	2461	1955	2206	2375
	C	-	+3213	+1062	-1519	+1663	+267	- 53	+128
Total State	A	27536	35903	26704	44605	29531	38490	46340	48000
	B	34707	41735	45225	39655	54433	43279	48851	61072
	C	-7171	+5832	+1851	-4950	+24902	+4789	+2511	+13072

* Figures relate to both Mysore and Mandya districts. NR = Not reported.

A = Official estimates.

B = Sample Survey Estimates.

C = Difference between the two estimates (B-A).

Table 3.8. Year to Year Changes in Official and Sample Survey Estimates of Production of Arecanut - 1959-60 to 1966-67 (Districtwise)

(Production in Tonnes)

District		1960-61	1961-62	1962-63	1963-64	1964-65	1965-66	1966-67
1. Shimoga	A	+ 7292	- 6585	+ 8550	- 5503	+ 1600	- 143	- 811
	B	+ 2350	- 1685	+ 1322	+ 402	+ 2829	- 934	+ 6057
2. Chickamagalur	A	- 200	+ 940	+ 337	+ 260	+ 503	+ 760	+ 1527
	B	+ 425	+ 1102	+ 379	- 984	+ 1751	+ 1130	+ 1278
3. South Kanara	A	- 528	- 1433	+ 2092	- 1551	+ 1625	+ 893	- 1801
	B	+ 1195	+ 3256	+ 3266	+ 1215	- 1	- 1410	+ 2751
4. North Kanara	A	+ 60	- 2383	+ 2064	- 1767	+ 2563	- 1220	+ 44
	B	+ 823	+ 1255	- 1301	+ 8306	- 9683	+ 1595	+ 3497
Total	A	+ 6626	- 9461	+ 13043	- 8561	+ 6291	+ 290	- 1041
	B	+ 4793	+ 3928	- 2866	+ 8939	- 10762	+ 381	+ 13583
5. Mysore	A	+ 163*	+ 61*	-	- 1544	+ 595	- 21	+ 859
	B	-	52*	-	+ 404	+ 98	+ 486	- 12
6. Hassan	A	+ 333	+ 338	+ 419	- 721	+ 611	+ 434	+ 52
	B	-	- 283	- 352	+ 985	- 247	+ 288	- 676
7. Chitradurg	A	+ 221	- 82	+ 606	- 911	+ 288	+ 2630	- 2068
	B	-	- 830	- 280	+ 303	+ 239	+ 469	+ 56
8. Tumkur	A	+ 1473	- 504	+ 1317	- 2116	+ 284	+ 3946	+ 3870
	B	+ 122	+ 2429	- 922	+ 2792	+ 24	+ 3697	- 899
Total	A	+ 2190	- 187	-	- 5292	+ 1778	+ 6989	+ 2713
	B	-	+ 1264	-	+ 3878	+ 114	+ 4940	- 1531
9. Other districts	A	- 449	+ 449	+ 1194	- 1221	+ 890	+ 571	- 12
	B	-	- 1702	- 1387	+ 1961	- 506	+ 251	+ 169
Total State	A	+ 8367	- 9199	+ 17901	- 15074	+ 8599	+ 7850	+ 1660
	B	+ 7028	+ 3490	- 5570	+ 14778	- 11154	+ 5572	+ 12221

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(Change + or - over the preceding year)

* Figures relate to both Mysore and Mandya districts.

A = Official Estimates

B = Sample Survey Estimates

Table 3.9. Official and Sample Survey Estimates of Production of Arecanut in the Four Districts - Shimoga, Chicknagalur, South Kanara and North Kanara - 1959-60 to 1966-67

Year	Official Estimates	Change over previous year		Sample survey estimates	Change over previous year		Difference between the two estimates	
		(Tonnes)	%		(Tonnes)	%	(col.4-1) (Tonnes)	%
	1	2	3	4	5	6	7	8
1959-60	23665			27219			+ 3554	+ 15.02
1960-61	30291	+ 6626	+ 27.99	32012	+ 4793	+ 17.61	+ 1721	+ 5.68
1961-62	20830	- 9461	- 31.23	35940	+ 3928	+ 12.27	+15110	+ 72.54
1962-63	33873	+ 13043	+ 62.62	33074	- 2866	- 7.97	- 799	- 2.35
1963-64	25312	- 8561	- 25.27	42013	+ 8939	27.03	+16701	+ 65.98
1964-65	31603	+ 6291	+ 24.85	31251	- 10762	25.62	- 352	- 1.11
1965-66	31893	+ 290	+ 0.92	31632	+ 381	+ 1.22	- 261	- 0.82
1966-67	30852	- 1041	- 3.26	45215	+ 13583	+ 42.94	+14363	+ 46.55

the confidence limit of the other estimate. For this purpose, the difference between the sample survey estimate and the official estimate and the range within which the sample survey estimate varies (as given by the standard error of the estimate) are compared. If the difference between the two estimates is smaller than the standard error, then it can be accepted that the two estimates are not significantly different. This comparison is done only for the four major arecanut producing districts and they are given in Table 3.10. It can be seen from the Table that in a majority of observations, the difference between the two estimates is much larger than the standard error. Hence, they cannot be taken as insignificant.

In the sample surveys, total production is estimated by multiplying the average yield per bearing palm with the estimated total number of bearing palms. This method appears to be superior to the official estimates of production, where the total production is estimated by taking average yield per acre and the total acreage under the crop. Further, the annual fluctuations in the estimates of production are less in the sample survey estimates for the State as well as for the individual districts. Though there may be some fluctuations in the total production from year to year because of factors like weather, etc., the fluctuations to the extent seen in the official estimates seem rather improbable. In this respect also, the sample survey estimates appear to be superior to that of the

**Table 3.10. Difference between the Sample Survey and Official Estimates of Production (in tonnes)
and the Standard Error of the Sample Survey Estimates of Production - 1960-61 to
1966-67**

Year	South Kanara		North Kanara		Shimoga		Chickamagalur	
	Difference between the estimates	Standard Error	Difference between the estimates	Standard Error	Difference between the estimates	Standard Error	Difference between the estimates	Standard Error
1960-61	556	1534	494	665	860	430	799	61
1961-62	5245	1891	3144	1299	5760	805	961	586
1962-63	113	743	221	893	1468	1026	1003	475
1963-64	2653	1875	9852	9162	4437	3890	241	1874
1964-65	1027	*	2394	2302	8	1236	1007	988
1965-66	1276	855	421	499	783	870	1377	593
1966-67	3276	2814	3874	725	6085	329	1128	343

* Standard Error was not calculated for this year as the number of villages was small.

official estimates. Besides the above two considerations an independent check appears to point to the superiority of the sample survey estimates of production. This independent check is the reported arrivals of arecanut for marketing in the regulated markets of the districts every year. The propriety in using the market arrival data as a check on production estimates is that since, as will be seen from the discussion in the later sections, barring a small quantity retained for home consumption, etc., the entire produce is sold and that too largely in the regulated markets, the total market arrivals would certainly reflect trends in production from year to year.

The production estimates according to the official agency and the sample survey, and the arrivals in the regulated markets in the four districts, Shimoga, Chickamagalur, North Kanara and South Kanara are given in Table 3.11. It may be seen from the Table that the arrivals and official estimates of production move in opposite directions, whereas the sample survey estimates are more in agreement with the arrivals in the markets. Hence, the trends in production, discussed below, is based on the production estimates given by the sample surveys.

Trend in Production

As in the case of area under arecanut, the four districts, Shimoga, Chickamagalur, South Kanara and North Kanara, account for about 76 per cent of the production

Table 3.11. Production Estimates and Arrivals of Arecanut in the Regulated Markets of South Kanara, North Kanara, Shimoga and Chickamagalur Districts - 1959-60 to 1966-67.

(in quintals)

	South Kanara		North Kanara		Shimoga		Chickamagalur		Shimoga and Chickamagalur	
	Production Arrivals	Change over the previous year	Production Arrivals	Change over the previous year	Production Arrivals	Change over the previous year	Production Arrivals	Change over the previous year	Production Arrivals	Change over the previous year
1959-60										
1. Sample Survey Estimates of production	5222		7535		11147		3315		14462	
2. Official Estimates of production	6389		8790		5345		3141		8486	
3. Market Arrivals	-		-		-		-		-	
1960-61										
1. Sample Survey Estimates of production	6417	+ 1195	8358	+ 823	13497	+ 2350	3740	+ 425	17237	+ 2775
2. Official Estimates of production	5861	- 528	8852	+ 62	12637	+ 7292	2941	- 200	15578	+ 7092
3. Market Arrivals	13161		7686		10696		-		10696	
1961-62										
1. Sample Survey Estimates of production	9673	+ 3256	9613	+2078	11812	- 1685	4842	+ 1102	16654	- 583
2. Official Estimates of production	4428	- 1433	6469	-2321	6052	- 6585	3881	+ 940	9933	- 5645
3. Market Arrivals	16559	+ 3398	9739	+2053	10578	- 118	-		10578	- 118
1962-63										
1. Sample Survey Estimates of production	6407	- 3266	8312	-1301	13134	+ 1322	5221	+ 379	18355	+ 1701
2. Official Estimates of production	6520	+ 2092	8533	+2064	14602	+ 8550	4218	+ 337	18820	+ 8887
3. Market Arrivals	15381	- 1178	9132	- 607	11514	+ 936	-		11514	+ 936
1963-64										
1. Sample Survey Estimates of production	7622	+ 1215	16618	+8306	13536	+ 402	4237	- 984	17773	- 582
2. Official Estimates of production	4969	- 1551	6766	-1767	9099	- 5503	4478	+ 260	13577	- 5243
3. Market Arrivals	19715	+ 4334	12129	-2997	13437	+ 1923	-		13437	+ 1923
1964-65										
1. Sample Survey Estimates of production	7621	- 1	6935	-9683	10707	- 2829	5988	+ 1751	16695	- 1078
2. Official Estimates of production	6594	+ 1625	9329	+ 2563	10699	+ 1600	4981	+ 503	15680	+ 2103
3. Market Arrivals	16850	- 3210	12131	+ 70	12280	- 1157	-		12280	- 1157
1965-66										
1. Sample Survey Estimates of production	6211	- 1410	8530	+1595	9773	- 934	7118	+ 1130	16891	+ 196
2. Official Estimates of production	7487	+ 533	8109	-1220	10566	- 133	5741	+ 760	16307	+ 627
3. Market Arrivals	16841	- 9	11398	- 733	11625	- 655	-		11625	- 655
1966-67										
1. Sample Survey Estimates of production	8962	+ 2481	12027	+3497	15830	+ 6057	8396	+ 1278	24226	+ 7335
2. Official Estimates of production	5686	- 1801	8153	+ 44	9745	- 821	7268	+ 150	17013	+ 706
3. Market Arrivals	16324	- 517	12965	+1567	13721	+ 1496	-		13121	+ 1496

of arecanut in the State. The largest producer is Shimoga, accounting for about 25 per cent of the State's production, followed by North Kanara (20 per cent), South Kanara (15 per cent) and Chickamagalur (12 per cent). Production in the State increased from 34,707 tonnes in 1959-60 to 61,072 tonnes in 1966-67. While production of arecanut in the State increased by 76 per cent from 1959-60 to 1966-67, the increase in the four major producing districts was 66 per cent during the same period. Production of arecanut in these four districts increased by 17,996 tonnes, from 27,219 tonnes in 1959-60 to 45,215 tonnes in 1966-67. The increase in production in these four districts was about 68 per cent of the total increase in the production of arecanut in the State.

III. RETENTION BY PRODUCERS

It is perhaps necessary, to bring out briefly the extent of retention by the producers for domestic consumption, seed and other purposes. Unfortunately, no detailed and systematic estimates are available regarding these retentions by the producers. The available data regarding the retention by the producers are the various estimates made by the

- (a) Directorate of Marketing and Inspection, Ministry of Food and Agriculture,
- (b) Department of Marketing, Government of Mysore,

during the course of a survey conducted by them independently, and

- (c) Sample Surveys for the correct estimation of Area and Production of Arecanut in Mysore State conducted by the State Bureau of Economics and Statistics every year.

The estimates made by these agencies are discussed briefly below.

(a) The Report on the Marketing of Arecanut in India¹ gives an estimate of the retention by the producers. The information about the extent of retention by the producers in the neighbourhood of market centres for arecanut were collected by personal enquiries with some growers. On the basis of this estimate, the retentions by the producers for the different States were arrived at. According to these estimates, the retention by producers in Mysore State was 7.5 per cent of the total production during 1957-58 and 1958-59.

(b) The Department of Marketing, Government of Mysore, in a survey report on "Marketing of Arecanuts in Mysore State"² estimated the retention by producers at about 5 per cent of the production of the State, for the year 1957-58.

This estimate was also based on the information collected

1 "Report on the Marketing of Arecanut in India" 1962, op.cit., p. 25.

2 "Report on the Marketing of Arecanuts in Mysore State" Department of Marketing, Government of Mysore, Bangalore, 1962, p. 11.

from a few producers in the different arecanut growing districts by personal enquiries.

(c) In the course of the sample survey for the correct estimation of area and production¹ conducted by the State Bureau of Economics and Statistics every year since 1959-60, some information as to the quantity of arecanut retained by the producers for home consumption, seed and other purposes is collected from producers where the gardens are selected for the estimation of yield. In fact, these are the only available estimates of the quantity retained by the producers in the various districts covered by the survey and the State, for every year from 1959-60 to 1966-67. However, these estimates are of a dubious nature, as will be seen from the discussion below.

The estimated quantity retained by the producers in the various districts covered by the survey and the State is given in Table 3.12 for the years 1959-60 to 1966-67. It can be seen from the Table that, for the State, the quantity retained by producers for domestic consumption, seed and other purposes varied from 2,883 tonnes in one year to 10,887 tonnes in another. As a proportion of total production the retentions varied from 5.8 per cent to 24.5 per cent. Similar variation can be seen in the case of the individual districts. The fluctuations in retentions also do not show any definite relationship with the fluctuation in production.

¹ "Sample Survey for the Correct Estimation of Area and Production of Arecanut in Mysore State", Bureau of Economics and Statistics, Government of Mysore, Bangalore.

**Table 3.12. Estimated Quantity Retained by Producers for Home Consumption, Seed and Other Purposes
(Districtwise) 1959-60 to 1966-67.**

District	1959-60			1960-61			1961-62			1962-63					
	No. of gar- dens on which the esti- mate is based	Quantity retained (Tonnes)	Re- ten- tion as % of pro- duc- tion	No. of gar- dens on which the esti- mate is based	Quantity retained (Tonnes)	Re- ten- tion as % of pro- duc- tion	No. of gar- dens on which the esti- mate is based	Quantity retained (Tonnes)	Re- ten- tion as % of pro- duc- tion	No. of gar- dens on which the esti- mate is based	Quantity retained (Tonnes)	Re- ten- tion as % of pro- duc- tion			
Shimoga	42	1449.11	13.0	42	998.78	7.4	42	1547.37	13.1	39	2823.81	21.5			
Chickamagalur	18	212.16	6.4	18	205.70	5.5	18	430.94	8.9	15	1326.13	25.4			
North Kanara	21	791.18	10.5	21	543.27	6.5	21	1557.31	16.2	27	1978.26	23.8			
South Kanara	24	595.31	11.4	24	712.29	11.1	24	1344.55	13.9	24	1358.28	21.2			
Mysore	9	N.R.	6.3	9	32.83*	6.4	9	47.48*	10.3	9	447.42	64.1			
Hassan	NR	NR	-	NR	NR	NR	NR	-	-	3	137.14	17.1			
Chitradurg	6	NR	16.7	6	294.35	14.5	6	174.00	14.5	6	122.36	13.3			
Tumkur	27	245.87	12.1	27	226.17	10.5	27	627.87	13.7	27	772.47	21.1			
State	147	4858.98	14.0	147	3672.68	8.8	150	6828.98	15.1	150	9715.48	24.5			
District	1963-64			1964-65			1965-66**			1965-66**			1966-67**		
Shimoga	39	2829.02	20.9	39	1049.29	9.8	39	654.79	6.7	36	490.73	3.1			
Chickamagalur	15	42.37	1.0	9	826.34	13.8	15	1736.79	24.4	18	629.70	7.5			
North Kanara	27	4835.84	29.1	27	1886.32	27.2	27	1253.91	14.7	6	2225.00	18.5			
South Kanara	21	2439.04	32.0	21	2553.04	33.5	24	99.38	1.6	21	1792.40	20.0			
Mysore	9	340.52	30.9	9	280.80	23.4	6	256.27	15.2	12	475.42	28.4			
Hassan	3	75.05	4.2	3	64.68	4.2	6	14.62	0.8	6	10.37	0.9			
Chitradurg	6	89.47	14.5	3	176.34	20.6	6	66.25	5.0	6	220.96	16.0			
Tumkur	30	542.05	8.4	30	647.70	10.0	30	1841.49	18.1	21	825.48	8.9			
State	150	10886.60	20.0	150	7703.66	17.8	153	2833.36	5.8	126	7878.29	12.9			

* Includes Mandya district also.

** Retentions for home consumption only.

NR = Not reported.

Further, it can be seen from Table 3.13 that the estimated quantity retained only for home consumption (available separately from sample surveys) also varied considerably between years. Retention for home consumption as a proportion of total production varied from 3.3 per cent (1377.26 tonnes) to 18.5 per cent (10,070.11 tonnes) for the State. For the individual districts this variation was quite considerable, varying from 0.6 per cent (25.42 tonnes) to 24.4 per cent (1736.79 tonnes) as in the case of Chickamagalur district.

This wide year-to-year fluctuation in the retention, both in terms of absolute quantity, and as proportion of total production, introduces a large element of doubt about the reliability of these estimates. Firstly, the fluctuations in the estimates are not due to a change in the size of the sample or method of estimation between years. The size of the sample on which these estimates are based has remained almost the same and in each year some villages were retained from the previous year's sample and the rest selected afresh. The method of estimation also remains the same during all the years. Secondly, the commodity is such that with an increase in production the domestic consumption of the producers could not possibly go up to the extent indicated by these estimates. The increase in consumption because of an increased production, if at all, would only be of a marginal nature.

Therefore, though the sample survey provides an estimate

Table 3.13. Estimated quantity Retained by Producers for Home Consumption only (Districtwise)

(Quantity in Tonnes)

	1959-60	1960-61	1961-62	1962-63	1963-64	1964-65	1965-66	1966-67
1. Shimoga	825.14 (3.0)	107.98 (0.8)	188.99 (1.6)	1668.02 (12.7)	2558.30 (18.9)	867.27 (8.1)	654.79 (6.7)	490.73 (3.1)
2. Chickamagalur	62.99 (1.9)	86.02 (2.3)	164.63 (3.4)	830.14 (15.9)	25.42 (0.6)	568.87 (9.5)	1736.79 (24.4)	629.70 (7.5)
3. North Kanara	188.37 (2.5)	117.01 (1.4)	701.75 (7.3)	1055.62 (12.7)	4420.39 (26.6)	825.27 (11.9)	1253.91 (14.7)	2225.00 (18.5)
4. South Kanara	109.66 (2.1)	44.92 (0.9)	299.86 (3.1)	839.32 (13.1)	2286.60 (30.0)	2400.62 (31.5)	99.38 (1.6)	1792.40 (20.0)
5. Mysore	N.R.	13.34* (2.6)	25.82* (5.6)	339.93 (48.7)	340.52 (30.9)	268.80 (22.4)	256.27 (15.2)	475.42 (28.4)
6. Hassan	N.R.	N.R.	N.R.	72.98 (9.1)	57.18 (3.2)	49.28 (3.2)	14.62 (0.8)	10.37 (0.9)
7. Chitradurg	N.R.	186.76 (9.2)	87.60 (7.3)	69.92 (7.6)	83.30 (13.5)	156.65 (18.3)	66.25 (5.0)	220.96 (16.0)
8. Tumkur	162.56 (8.0)	140.01 (6.5)	435.39 (9.5)	468.61 (12.8)	335.56 (5.2)	466.34 (7.2)	1841.49 (18.1)	825.48 (8.9)
State	2498.90 (7.2)	1377.26 (3.3)	3075.30 (6.8)	5908.60 (14.9)	10070.11 (18.5)	6059.06 (14.0)	2833.36 (5.8)	7878.29 (12.9)

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N.R. = Not Reported.

* Includes Mandya district also.

Figures in parentheses are percentage to district production.

of the extent of retention, they do not appear to be trustworthy.

In the light of the above discussion regarding the estimates of retention by the producers, the first two estimates appear to be more probable. Personal enquiries with some growers in the four major producing districts during our survey in 1966-67 revealed that the retention by the producers for home consumption, etc., was between 2 and 3 per cent of their production. The information collected from some growers in the Sirsi market area, checked with the quantity sold by them in Sirsi market, also revealed that these growers sold around 98 per cent of their production.

On the basis of the above the retention by the producers for home consumption, etc., may be taken to be no more than 2 to 7 per cent of their production.

IV. PRODUCTION AND ARRIVALS IN THE REGULATED MARKETS

In the previous sections it was seen that

- (1) the production of arecanut within the State is largely confined to the four districts of Shimoga, Chickamagalur, North Kanara and South Kanara. Within these districts, the production is further limited largely to 15 taluks in these districts;
- (2) the increase in acreage and production during the years 1959-60 to 1965-67 in the State was mainly in the above four districts, and
- (3) retention by producers, for domestic consumption,

seed and other purposes, forms only a small proportion (not more than 2 to 7 per cent) of the total production. But for this small quantity retained, the entire production is sold.

As more than 90 per cent of the production is sold, it would be appropriate at this stage to point out where the farmers sell their produce and to what extent. A modest attempt is made in the following to throw light on the above point. This is done by comparing the arrivals of arecanut for sale in the various regulated markets¹ and the production² of the crop in the producing region covering each of these markets. The discussion is mainly with reference to the four districts, Shimoga, Chickamagalur, North Kanara and South Kanara, as these are the major producing regions.

The markets considered for the purposes are :

- (1) Shimoga, and (2) Sagar in Shimoga district;
- (3) Sirsi, (4) Siddapur, and (5) Kumta in North Kanara district, and (6) Mangalore in South Kanara district.

There are no important markets for arecanut in Chickamagalur district. The produce of this district is sold mainly in the markets of Shimoga district. However, small

1 The 'arrivals' refer to the arrivals in the regulated markets in the four districts to which the production data also relate. The 'arrival' figures are taken from the 'Annual Administration Reports' and the Records of the Regulated Market Committees.

2 Because of the reasons mentioned in Section II of this chapter, the sample survey estimates of production are used in the discussion here.

quantities of arecanut arrive in Kadur market in Chicka-magalur district.¹ Because of the smallness of this market and the paucity of data, this market is excluded from the analysis.

As it is difficult to correctly delimit the feeding area of each of these individual markets, the production of the entire district is compared with the arrivals in the markets within that district. These markets attract the produce mainly from their respective districts, but they also receive produce from villages in the neighbouring districts depending upon the importance and location of the particular market. For example, the Mangalore market receives a sizable quantity of arecanut from the neighbouring districts of Kerala State. Similarly, produce from Dharwar district and parts of Shimoga district flow into the Sirsi market in North Kanara district.

The production of arecanut in the four districts and the annual arrivals in the regulated markets located in these districts are given in Table 3.14. Except for the two years 1960-61 and 1966-67, the annual arrivals in the regulated markets for the four districts taken together are higher than the estimated production of these districts. This was so,

¹ During the 5 years 1962-63 to 1966-67, for which some data were available, the arrival of arecanut into Kadur market was 407;680;476;348 and 87 quintals for these years respectively. (Source: 'Vyavasayothpannagala Vanijya Varthe', a monthly publication of Market Intelligence, Department of Marketing, Government of Mysore, Bangalore).

**Table 3.14. Annual Arrivals in the Regulated Markets and Production of Arecanut
(4 districts) 1960-61 to 1966-67.**

A. South Kanara, North Kanara, Shimoga and Chickamagalur Districts

Year (Sept-August)	Production (Tonnes)	Arrivals (Tonnes)	Production minus arrivals	Arrivals as a % of Produc- tion
1960-61	32012	31543	+ 469	98.53
1961-62	35940	36876	- 936	102.60
1962-63	33074	36027	- 2953	108.93
1963-64	42013	45281	- 3268	107.78
1964-65	31251	41261	- 10010	132.03
1965-66	31632	39864	- 8232	126.02
1966-67	45215	42410	+ 2805	93.97

B. North Kanara, Shimoga and Chickamagalur Districts

Year (Sept.-August)	Production (Tonnes)	Arrivals (Tonnes)	Production minus arrivals	Arrivals as a % of Produc- tion
1960-61	25595	18382	+ 7213	71.82
1961-62	26267	20317	+ 5950	77.35
1962-63	26667	20646	+ 6021	77.42
1963-64	34391	25566	+ 8825	77.34
1964-65	23630	24411	- 781	103.31
1965-66	25421	23023	+ 2398	90.57
1966-67	36253	26086	+ 10167	71.96

because of the large arrivals from the neighbouring Kerala State in the Mangalore market in South Kanara district. Therefore, excluding South Kanara district, it is seen that the arrivals in the markets of the other three districts were around 75 per cent of the production in the districts every year from 1959-60 to 1966-67, except one year (1964-65) where the reported arrivals were about 3 per cent above the estimated production.

For the individual districts, however, the picture is not as clear; the market arrivals were higher than the production of the district in some cases in certain years. The arrivals in these markets along with the production of the districts are given in Table 3.15.

Shimoga and Chickamagalur Districts

The two markets in Shimoga district (Shimoga and Sagar markets) handle around twelve thousand tonnes of arecanut annually. Of these two markets, Shimoga is the major one. During 1966-67 the total arrivals in Shimoga market were 7,732 tonnes, while in Sagar market they were 5,389 tonnes. The share of Shimoga market in the total arrivals in the six regulated markets during 1966-67 was 18 per cent, while it was 13 per cent in the case of Sagar market.

The arrivals in the two regulated markets of Shimoga district are compared with the production of the two districts, Shimoga and Chickamagalur, as a great bulk of the production of Chickamagalur district flows into the markets of Shimoga.

**Table 3.15. Annual Arrivals for the Regulated Markets and Production of Arecanut (4 districts)
1960-61 to 1966-67**

(Production and Arrivals in Tonnes)

	1960-61	1961-62	1962-63	1963-64	1964-65	1965-66	1966-67
I. South Kanara District							
1. Production of South Kanara dist.	6417	9673	6407	7622	7621	6211	8962
2. Arrivals in Mangalore Market	13161	16559	15381	19715	16850	16841	16324
3. Arrivals as a % of the Production of the District	205.10	171.19	240.07	258.66	221.10	271.15	182.15
II. North Kanara District							
A. 1. Production of North Kanara District	8358	9613	8312	16618	6935	8530	12027
2. Arrivals in the Three markets of North Kanara	7686	9739	9132	12129	12131	11398	12965
3. Arrivals as a % of the production of the District	91.96	101.31	109.87	72.99	174.92	133.62	107.79
B. 1. Arrivals in Sirsi market	6449	5762	5538	7240	8101	6308	7287
2. Arrivals in Sirsi market as a % of Production of the District	77.16	59.94	66.63	43.57	116.81	73.95	60.59
1. Arrivals in Siddapur market	1237	1477	1245	1510	1378	1818	2257
2. Arrivals in Siddapur market as a % of the production of the District	14.80	15.36	14.98	9.09	19.87	21.31	18.77
1. Arrivals in Kumta market	-	2500	2349	3379	2652	3272	3421
2. Arrivals in Kumta market as a % of the production of the District	-	101.31	28.26	20.33	38.24	31.10	28.45
III. Shimoga District							
A.1. Production of Shimoga District	13497	11812	13134	13536	10707	9773	15830
2. Arrivals in the two markets of Shimoga district	10696	10578	11514	13437	12280	11625	13121
3. Arrivals as a % of the production of the District	79.25	89.55	87.67	99.27	114.69	118.95	82.89
B.1. Arrivals in Shimoga market	6771	6459	7139	8412	7378	7156	7732
2. Arrivals in Shimoga market as a % of the production of the District	50.17	54.68	54.36	62.15	68.91	73.22	48.84
1. Arrivals in Sagar market	3925	4119	4375	5025	4902	4469	5389
2. Arrivals in Sagar market as a % of the production of the District	29.08	34.87	33.31	37.12	45.78	45.73	34.04
IV.							
1. Production of Shimoga and Chickamagalur Districts	17237	16654	18355	17773	16695	16891	24226
2. Arrivals in the two markets of Shimoga Districts	10696	10578	11514	13437	12280	11625	13121
3. Arrivals in the two markets as a % of the production of the two Districts	62.05	63.52	62.73	75.60	73.55	68.82	54.16
4. Arrivals in Shimoga markets as a % of the production of the two Districts	39.28	38.78	38.89	47.33	44.19	42.37	31.91

There are no regulated markets for arecanut in Chickamagalur district and the jurisdiction of the Agricultural Produce Market Committee at Shimoga extends to parts of Chickamagalur district as well.

The arrivals in the two regulated markets in Shimoga district were around 60 per cent of the production of the two districts. Part of the production of Shimoga district, mainly from Sorab taluk, flows into the markets of North Kanara district. Apart from this, sales outside the regulated markets appear to have been quite prevalent in these two districts, as seen from the low proportion of arrivals to production. One reason for this may be the location of the regulated markets far removed from the producing areas. To attract these outside-the-regulated-market sales, the Malnad Areca Marketing Co-operative Society, Shimoga, has a number of collecting depots in Shimoga and Chickamagalur districts. Around 7 to 8 per cent of the produce of Chickamagalur district is collected through these depots of the Society. The produce collected through these depots are included in the 'arrivals' in Shimoga market as they are brought to Shimoga market for sale. Even though the opening of the collecting depots is for the convenience of the members of the society, it is mainly intended to attract the sales outside the market and the society, as the members are bound to sell their produce through the society. The society has also opened a sales office at Thirthalli in the taluk of the same name in Shimoga district. The produce of this

taluk and the neighbouring taluks of Shimoga and Chickamagalur district, come to be sold at Tirthalli. As Tirthalli does not form the 'Market Proper' of Shimoga market, the arrivals and sales at this place do not enter into the 'arrivals' or 'sales' record of the Shimoga Market Committee.

In the light of the above factors, it is more probable that the location of the regulated markets far removed from the major producing areas has resulted in a low proportion of arrivals to production in these markets. The farthest point of production is beyond 70 miles in the case of Shimoga market. Thus, the two markets Shimoga and Sagar in Shimoga district are able to mop up only about two-thirds of the available production of Shimoga and Chickamagalur districts.

North Kanara District

Of the three markets in North Kanara district, Sirsi is the biggest market. During 1966-67, the arrivals in Sirsi market were 7,287 tonnes, while in Siddapur and Kumta markets they were 2,257 and 3,421 tonnes respectively. As a proportion of the total arrivals in the six regulated markets, the arrivals in Sirsi market was 18 per cent, while it was 5 per cent in Siddapur market and 8 per cent in Kumta market during 1966-67.

The annual arrivals in the three markets of North Kanara district were higher than the production of the district excepting the years 1960-61 and 1963-64. In 1960-61, the arrivals are lower than the estimated production

probably because, only two markets are taken into consideration, as data for Kunta market is not available. In the case of the year 1963-64 the estimated production exceeded the quantum of arrivals although the arrivals reported were the highest over the period 1960-61 to 1966-67. This may be due to a sudden increase in the estimated production of that year. It is interesting to note that in the following year 1964-65, although the level of arrivals is almost the same as for 1963-64, the estimated production is half the production for 1963-64 and of course much less than the market arrivals for that year. This is possible only if there were large carry-over stocks from 1963-64. This would have caused a change in the seasonal pattern of market arrivals with the large carry-over stocks appearing mostly in the initial period of 1964-65 in the market. It may be mentioned here that the seasonal pattern for 1964-65 is not much different from that of the other years. Further, the producers do not seem to carry large stocks into the next year. During a visit to North Kanara district, it was found that producers sold as much as 98 per cent of their production in the same year. (The year referred to being 1966-67). The practice of carrying over large stocks does not seem to be prevalent in the region. The production estimate for the district for 1963-64 therefore seems to be of doubtful accuracy and should be interpreted with great caution.

Apart from the produce of North Kanara district, production from some parts of the neighbouring districts

of Shimoga and Dharwar is also assembled in the markets of North Kanara district. During 1966-67, the arrivals (sales) from outside the district was about 6 per cent of the total sales in Sirsi market alone. Though, Yellapur is an important areca growing taluka in the district, there is no regulated market there, and it does not come under the jurisdiction of the Agricultural Produce Market Committee, Sirsi. The production in this taluk is estimated at around 10,800 quintals to 12,000 quintals. Forty to fortyfive per cent of the production of this taluk is sold in Yellapur market, about 10 per cent in Kunta regulated market and around 50 per cent in Sirsi market.¹ There are 5 commission agents - cum - traders (wholesale), 6 traders, besides a branch of the Totgars' Co-operative Sale Society, Sirsi, in Yellapur. During 1965-66, the Totgars' Sale Society's branch handled 3,340 quintals of arecanut, estimated to be around 42 per cent of the total arrivals into Yellapur town.² On this basis, the total arrivals in Yellapur market works out to be 7,952 quintals, roughly 9.3 per cent of the estimated production of the district. The arrivals in Yellapur market is not included in the total arrivals in the regulated markets of this district. It may be pointed out that the exclusion of the arrivals in Yellapur town from the

¹ From an unpublished report prepared by the Agricultural Produce Market Committee, Sirsi, for the extension of the Bombay Agricultural Produce Markets Act, 1939, to Yellapur market, 1965.

² Annual Administration Report of the Totgar's Co-operative Sale Society, Sirsi, 1965-66, p. 2.

total arrivals in the markets of this district is taken care of by the inclusion of the arrivals from outside the district which are roughly of the same order. Hence the arrivals in these markets are comparable with the estimated production of the district.

It is evident from the above discussion that in the case of North Kanara district, sales outside the regulated markets does not seem to be prevalent to any significant extent. This is because of the location of these markets well within the producing regions unlike in the case of the markets in Shimoga district. While the farthest points of production are beyond 70 miles in the case of the Shimoga markets, no areas of productions are more than 30 miles away from the markets in North Kanara district. Thus the markets in this district are able to attract almost all of the available production within the district as well as some produce from the neighbouring districts of Shimoga and Dharwar.

South Kanara District

Mangalore, in South Kanara district, is the biggest assembling market for sun-dried arecanuts in the State and the only regulated market in the district of South Kanara. The total quantity of arecanut transacted in this market during 1966-67 was 16,324 tonnes, which was around 38 per cent of the total arrivals in the six regulated markets located in the four major arecanut producing districts.

The production of this district rose from 6,417 tonnes in 1960-61 to 8,962 tonnes in 1966-67 and shows a clear increasing trend over the period, barring a slight decline in 1965-66. The arrivals in the Mangalore market also showed an increasing trend. But the magnitude of increase in arrivals was different : the arrivals rose from 13,161 tonnes to 16,324 tonnes over the period. The arrivals exceeded the production of the district by 71 to 171 per cent over these years. Obviously, this means that the produce from other producing areas flows into this market. The flow of the produce from the other producing districts within the State into this market to any appreciable extent is unlikely. This is because firstly, the variety of the produce traded in Mangalore market is different from those prepared in the neighbouring districts of Shimoga and Chickamagalore. While the produce traded in Mangalore market is dried whole nuts, the neighbouring districts of Shimoga and Chickamagalur specialize in sliced and boiled nuts. Secondly, even though part of the variety of the nuts prepared in North Kanara district is the same as the type traded in Mangalore, it is unlikely that the produce from this district flows into Mangalore market as there are well-established markets in North Kanara district nearer to the producers.

As the flow of the produce into Mangalore market from other producing districts within the State is unlikely, it is most likely that the produce from the neighbouring

districts of Kerala State flows into this market. Unfortunately, statistics relating to the arrivals of arecanut from the producing areas of Kerala State into Mangalore market are not available. Data relating to the inter-State movement of arecanut is also lacking.

However, factors like the low arrivals in the regulated market yards of Kerala (particularly ripe nuts, from which sun dried whole nuts are prepared, and cured nuts), sales by producers mainly to the professional curers-cum-traders, etc., broadly indicate that a great bulk of the production of Kerala State is sold in Mangalore market. These factors are briefly discussed below :-

The only regulated market committee in Kerala is the Malbar Market Committee, with its head-quarters in Calicut. The jurisdiction of this Market Committee extends over the districts of Cannanore, Calicut and Palghat and it has six regulated market yards. All these market yards are in Calicut district. Cannanore and Calicut, neighbouring South Kanara district, are the two major arecanut producing districts in Kerala State. Their share in the total production of arecanut in Kerala is around 45 per cent, while the share of Palghat district is around 6 per cent. The arrivals in the Calicut market compared to the production of these three districts are very small (Table 3.16). While the estimated production in these three districts was 197 thousand quintals in 1964-65, the total arrivals in the six regulated market yards were only 55 thousand quintals, i.e. only about

Table 3.16. Production of Arecanut and Arrivals in the Regulated Markets - Cannanore, Calicut and Palghat districts, Kerala State - 1959-60 to 1964-65

(Production and Arrivals in Quintals)

Year	Production	% of State's production	Arrivals	Arrivals as % of production (col. 1)
	1	2	3	4
1959-60	301043	58.47	8390	2.79
1960-61	257516	58.59	30510	11.85
1961-62	372513	57.51	54660	14.67
1962-63	270053	47.28	66141	24.49
1963-64	186204	46.33	80785	43.38
1964-65	196881	46.44	54500	27.68

Note

The production estimates are available in terms of number of Green Nuts with husk. These are expressed in this table in terms of weight of cured nuts by making use of the conversion factors available for South Kanara district (Mysore State), as these are not available for Kerala State.

Source : Production : 'Annual Season and Crop Report', Department of Statistics, Government of Kerala, for the respective years.

Arrivals : Various issues of the 'Arecanut Journal', published by the erstwhile Indian Central Arecanut Committee, Calicut, Kerala.

28 per cent of the production. These three districts of Kerala produce mostly ripe arecanuts, from which sundried whole nuts are prepared. Ripe nuts harvested formed more than 80 per cent of the total production in these districts.¹

However, the arrivals of ripe nuts or cured nuts form only a small proportion of the total quantity of arecanut traded in these regulated market yards. The transactions in these markets are mainly in raw nuts from which sliced sundried and boiled nuts are prepared. During 1964-65, ripe nuts formed only about 4 per cent of the total arrivals in these market yards. There was no transaction in cured nuts in these regulated market yards during the years 1960 to 1965. The quantity of cured nuts sold was only 72 and 165 quintals during 1966 and 1967 respectively.²

Further, even this small quantity of arrivals is mainly assembled by the small traders. It is estimated that the growers account for only 35 to 40 per cent of the total produce assembled in these markets.³ The smaller share of

1 In Cannanore district, which is immediately adjacent to South Kanara district, only ripe nuts were harvested while in Calicut and Palghat districts ripe nuts formed 90 per cent and 66 per cent of the total production in these two districts respectively. (Source: "Comprehensive Report on the Survey for Correct Estimation of Area under and Production of Areca-nut Crop in Kerala", Department of Statistics, Government of Kerala, 1963, Table 4).

2 Secretary, Malbar Market Committee, Calicut (Personal Communication).

3 Report of the Study Team on Cooperative Marketing of Specified Plantation Crops, National Cooperative Development Corporation, New Delhi, 1964, p. 57.

the growers in the total produce assembled in these markets is because of the largely prevalent practice of selling the produce immediately after harvest (i.e. before any curing or processing is done) or even before (i.e. the standing crop) to the professional curers-cum-traders. The production units are very small and these producers do not undertake the curing or processing of the produce before marketing as curing or processing requires time and capital which the producers are always lacking.¹

It is clear from the above account that ripe arecanuts which form a great bulk of the produce harvested in the major arecanut producing districts of Kerala, are not sold to any great extent in the regulated market yards of Kerala either by the producers or by the professional curers-cum-traders. Since Mangalore is the nearby biggest regulated market for sundried whole arecanuts, the type prepared from ripe nuts, it is obvious that arecanut from these regions flow into Mangalore market mainly through the curers-cum-traders. The following account further substantiates the above point :-

(a) The Kasargod Agriculturists' Cooperative Marketing Society (Kasargod taluk, Cannanore district), which acts as a selling agent to its members' produce has its sale depot in Mangalore. The entire produce collected by this

¹ Shamanna, K., "Cooperative Marketing of Arecanuts", Arecanut Journal, Vol.VIII, 1957. (Issued by the Indian Central Arecanut Committee, Calicut), p. 32.

Society is sold on behalf of its members in Mangalore market. During 1966-67 the quantity sold through this society in Mangalore market was 9,484 quintals which was about 4 per cent of the total sales in Mangalore market and about 10 per cent of the production in Cannanore district during that year. Even before the Society opened its own sale office in Mangalore, it was selling through the South Kanara Agriculturists Co-operative Marketing Society, Mangalore.

(b) The Karnataka Vyavasaya Vartaka Sangh, a joint stock company, acting as a selling agent, has a number of collecting depots in Kasargod taluk, Cannanore district. The produce collected through these branches is sold in Mangalore market. During 1966-67 this Company handled about 9 per cent of the total arrivals of arecanut in Mangalore market.

(c) During the period July 1966 to February 1967, the commission agents in Mangalore received 3,613.6 quintals of arecanut by rail for sale. This was around 4 per cent of the arrivals of arecanut in Mangalore market during the same period. The produce came from as far as Trichur, about 340 kms. from Mangalore. But for a small quantity received by the Cooperative Marketing Societies, the entire produce consigned was to be sold through private commission agents.

(d) During our investigation in the Mangalore market,

it was revealed by one of the top six traders that 90 per cent of the produce purchased by him came from Kerala State.

These factors sufficiently indicate that a great bulk of the produce from the neighbouring producing areas in Kerala State flow into Mangalore market.

In the light of the above discussion it may be said that Mangalore market handles the entire produce within the district; besides it also draws considerable proportion of the produce from the adjoining districts of Kerala State. It may be pointed out here that the share of the small traders in the produce assembled in Mangalore is considerable. As far as the arrivals from outside the district of South Kanara are concerned, as pointed out earlier, it is mainly the smaller traders who bring the produce to this market. The effect of a large number of small traders among the sellers in the market on the pattern of arrivals, sales and prices are discussed in the subsequent chapters.

We sum up our discussion covering important aspects touched in this chapter. Cultivation of arecanut within the State of Mysore is largely limited to the four districts, Shimoga, Chickamagalur, North Kanara and South Kanara. These four districts account for about 75 per cent of the area under arecanut and its production in the State. Within these districts, the cultivation of arecanut is further restricted to 15 taluks out of 33 taluks. *These 15 taluks*

out of 15 taluks These 15 taluks account for about 83 per cent of the area under arecanut in these four districts.

The economic importance of the cultivation of this crop in these regions is evident from the peculiar and intensive methods of cultivation adopted to suit the physiographic condition of these regions. These methods are markedly different from the methods followed in the other arecanut growing districts within the State as well as in the other parts of the country.

While the area under arecanut increased by 11 per cent from 1959-60 to 1966-67 in the State, the increase in the area under the crop in the four major areca producing districts was 8 per cent which was about 54 per cent of the increase in the area in the State. Though area under arecanut in the other districts increased by as much as 23 per cent, in absolute terms the increase was larger in the four major arecanut producing districts. Of the total increase of 3,649 hectares, the share of the four districts was 1,967 hectares while it was 1,682 hectares in the rest of the districts. Area under arecanut though show an increase in the other districts, the four traditionally arecanut producing districts continue to be the major producers of the crop.

As in the case of area, the four major districts account for about 75 per cent of the State's production of arecanut. The production of arecanut in the State showed an increase of 76 per cent from 1959-60 to 1966-67 and these

four districts shared 68 per cent of the increase in the State.

As to the retention of the crop by the producers for home consumption, seed etc., the available data indicates that these retentions are of a smaller order varying between 2 and 7 per cent of the production.

Coming to the marketing of arecanut, the arrivals in the six regulated markets located in the four major producing districts clearly indicate that the available production of these districts is primarily sold in these regulated markets. While the markets in North Kanara and Shimoga districts receive about 75 per cent of the production of the three districts, North Kanara, Shimoga and Chickamagalur, the Mangalore market in South Kanara district besides handling the entire produce of that district also draws a considerable proportion of the produce from the adjoining districts of Kerala State. Of the six regulated markets handling arecanut in these four districts, Mangalore, Sirsi and Shimoga are the major markets as evidenced by the volume of trade handled by them. Of the total arrivals of 42,134 tonnes of arecanut in these six regulated markets, the arrivals in these three regulated markets were nearly 75 per cent during 1966-67.

The concentration on the four districts in the present study is justified by the importance of these districts as far as production of arecanut is concerned. Further, the choice of the three regulated markets, Mangalore, Sirsi

and Shimoga, for detailed analysis of marketing proper is also justified, the three markets handling a substantial quantity of the arrivals in these markets.

In view of the fact that bulk of the produce is sold by the producers in these regulated markets, it was thought necessary to know about the organisation and functioning of these regulated markets. The nature of these markets and their operation, discussed in the following chapter provide a basis for the detailed study of arecanut marketing in the subsequent chapters.

CHAPTER IV

MARKETING LEGISLATION AND ITS OPERATION IN THE
THREE REGULATED MARKETS - SIRSI, MANGALORE AND SHIMOGA

In this chapter it is proposed to present the object of agricultural marketing legislation, the major provisions of the Acts under which the regulated markets came to be established and their working in the regulated markets in the three major arecanut growing districts of North Kanara, South Kanara and Shimoga. The three regulated markets in these districts were governed by the provisions of three different State legislations as these three markets were in three different States when the markets came to be regulated. The Sirsi market in North Kanara district which was a part of the Bombay State, was brought under the fold of the Bombay Agricultural Produce Markets Act, 1939. The Mangalore market in South Kanara district was established under the Madras Commercial Crops Markets Act, 1933, as this district formed part of the Madras State. The Shimoga market in Shimoga district was regulated under the Mysore Agricultural Produce Markets Act, 1939. These markets were governed by the provisions of the above Acts when we studied the working of these markets, in so far as arecanut was concerned, in 1966-67. The three markets were brought under an uniform Act in 1968, but for our purposes the provisions of the earlier three Acts are relevant.

1 The salient features and the changes introduced by the uniform Act are presented in Appendix II.

It may be mentioned at the outset, that the various legislative measures designed to control or modify the process of agricultural marketing or to reshape the structure of trade in agricultural produce aim at reforming the primary whole-sale markets where the produce changes hands for the first time from the producer to the trader. The regulatory measures are designed to establish proper institutions and practices in the market so that through open and fair and informed competition, producer-sellers and buyers will be able to get the best possible deals.

The present chapter is divided into two broad sections. The first section presents the scope of marketing legislation and the various provisions made under the three State legislations mentioned above in some detail. The extent to which the various statutory provisions are implemented in the three markets, Sirsi, Mangalore and Shimoga, are discussed in the second section.

I. SCOPE OF MARKETING LEGISLATION

Conscious and concerted efforts to control or modify the process of agricultural marketing in India started only after the Royal Commission on Agriculture in India made certain observations about the conditions under which the Indian producer marketed his produce. The Commission observed "The prosperity of the agriculturists and the success of any policy of general agricultural improvement depend to a very large degree on the facilities which the

agricultural community has at its disposal for marketing to the best advantage as much of its produce as a surplus to its own requirements."¹ The Commission further recommended the establishment of regulated markets under State legislations.

The emphasis laid by the Commission had a salutary effect and led a number of States to take steps in the direction of enacting legislations for the establishment of regulated markets with the object of improving the bargaining position of the agricultural producers.

The various market legislations aim at the regulation of market practices within a given area by establishing regulated markets. The salient features of the various market legislations are as under:

1. Clear definition of market charges and prohibition of unauthorized deductions.
2. Licensing of market functionaries.
3. Use of only standard weights and measures.
4. Sale by open auction or open agreement.
5. Arrangement for the settlement of disputes regarding quality, weightment, etc.
6. Arrangement for the dissemination of market information.

The regulated markets are to be managed by market committees sufficiently armed with powers to implement and

¹ "The Royal Commission on Agriculture in India", 1928, p. 367.

supervise the various statutory provisions to regulate the market practices.

Though the ultimate object of the various State legislations was the same, there were considerable differences in the provisions made under each Act and their implementation. As mentioned earlier, the Sirsi market in North Kanara district was established under the Bombay Agricultural Produce Markets Act, 1939; the Mangalore market in South Kanara district was brought under the Madras Commercial Crops Markets Act, 1933; and the Shimoga market in Shimoga district was regulated under the Mysore Agricultural Produce Markets Act, 1939. The various provisions made under the above three Acts are discussed below. The operation of these three Acts in the three regulated markets, Sirsi, Mangalore and Shimoga are discussed in the second section.

Establishment of Markets and Market Committee

The first step in the administration of the Act is to declare an area as a market for specified agricultural products. Both the Bombay and Madras Acts laid down that the intention of the Government to regulate the sale and purchase of agricultural produce in particular area be notified in the official gazette. It was also made obligatory on the part of the Government to consider such objections and suggestions received within the period specified in the notification, before declaring any area as

'market area' for the purpose of the Act.

The Mysore Act did not provide for any previous notification as to the intention of establishing a regulated market in specified areas for specified commodities as in the Bombay and Madras Acts. Section 4 of the Mysore Act laid down " (1) The Government may, after consulting the district board and such other local authorities as they deem necessary or upon a representation made by such local authorities, by notification in the official Gazette, declare that any place shall be a market place established under this Act for any agricultural produce. (2) Every such notification shall define the limits of the markets so established, and may, for the purpose of this Act, include within such limits such local area as the Government may prescribe."

The area, from which the agricultural produce naturally and abundantly flows to a commercial centre or a market and which would assure adequate income to the Market Committee, is declared as the 'market area'. In practice, the 'market area' generally includes one or more contiguous taluks. When the Madras Act was first introduced, the notified area of the market briefly called 'market area', was confined only to the municipal limits of the market town. Later, the market area was fixed as the whole of a revenue district; the number of 'markets' (i.e. market yards or market proper, as in the other Acts) to be established in a 'market area' was left to the District

Market Committee.

In the Rules framed under the Bombay and Mysore Acts a distinction was made between 'market yard', 'market proper' and 'market area'. While 'market area' refers to the entire area over which the jurisdiction of the Market Committee extends (i.e. the area declared under the Act), 'market yard' referred to any enclosure, building or locality where the actual trading in the notified crops takes place under the supervision of the Market Committee. 'Market proper' includes all lands with buildings thereon within such radius from the centre of the 'market yard' as the Government may prescribe, and trading in the notified crops in the 'market proper' outside the 'market yard' is prohibited.

As to the commodities covered by these legislations, while the Bombay and Mysore Acts permitted the Government to regulate the markets for all agricultural and animal husbandry products, the Madras Act initially covered only commercial crops i.e., cotton, groundnut and tobacco. In 1949 an amendment was made to the Madras Act to include any other crop or product notified by the State Government as a commercial crop for the purpose of this Act. Under this provision, gingelly, cocoanut, arecanut and potato were declared by the Government as commercial crops, and thus regulated markets could be established for these crops.¹

¹ The Madras Act did not visualise regulated markets for crops other than what it called 'commercial crops'.

After the notification of an area, the next step in the administration of the Act is the establishment of a Market Committee duly empowered to enforce the provisions of the Act. As the declared objective of the Act is to regulate the sale and purchase of agricultural produce in specified areas, this regulation is to be exercised through the Market Committees constituted under the Act and as such the Market Committee forms a crucial body on which depends the proper implementation of the various provisions of the Act.

The Committee is empowered to prescribe conditions of fair trading and to take necessary steps for improving the marketing methods and for the provision of market amenities and facilities and to lay down penalties for their contravention.

The composition of the Market Committees displayed considerable variation between these three Acts as can be seen from the following (see next page).

The market committees were to be completely nominated by the Government during the first term and subsequently elected in the manner prescribed. The nominated committee was to be in office for a period of two years under the Bombay and Mysore Acts. Under the Madras Act the nominated committee was to be in office for a period of one year in the first instance and if it became necessary the period was extended by another year by an order of the Government. The term of the elected committee was for three years under all the three Acts.

Composition of Market Committees

	Bombay Act	Madras Act	Mysore Act
1. Total No. of members	Maximum of 15	Maximum of 12	12 to 16
2. Representatives of Local Bodies	1 or 2 (elected)	Such numbers as the State Government may determine (elected).	2 (elected)
3. Government nominees	2 or 3	Such numbers as the State Government may fix, but not to exceed the number of elected members. District Agricultural Officer as the ex-officio member.	1
4. Growers' Representatives	7 (elected)	Such numbers as the State Government may determine (elected)	Not less than half (elected or nominated by the Government)
5. Traders' Representatives	4 (one to represent cooperative sale organisations) (elected)	"	Remainder elected.

As regards the mode of representation, only the Bombay and Madras Acts provided for the election of the growers' and traders' representatives as well as those of the local bodies whereas the Mysore Act left the question to the choice of the Government.

The election of the growers' representatives on the market committee differed in these Acts. Subject to the general qualifications prescribed under the Acts and Rules, under the Madras Rules all growers of the notified commercial crop within the market area were to be on the electoral roll prepared for the agriculturists' constituency. Under the Mysore Rules, the producers' electorate consisted of producers residing in the market area holding or cultivating alienated or inalienated land assessed for payment of land revenue of Rs. 15 or more.

In Bombay, the growers' constituency was equated with the membership of producers' co-operative organisations in that area. The representatives of the growers were to be elected from among the members of the producers' co-operative organisation. Where such organisations did not exist, the growers' electorate was to consist of holders or tenants of the land assessed for payment of land revenue of not less than Rs. 8 and residing in the market area. Though the intention of selecting the growers' representatives from among the members of the cooperative organisations was to foster the development of cooperative movement, it had a limitation in that, it kept out a large number of agriculturists, who had a stake in marketing and had not yet come into the fold of cooperative organisations.

The traders' representatives were elected from among the traders and general commission agents licensed by the market committee. To give adequate representation to the

producers' cooperative sale societies registered as traders, under the Bombay Act, out of the 4 seats one was reserved for such cooperative societies. There was no such provision in the other two State Acts.

The qualifications requirement of the members of the Committee, the procedure for the election of its members, chairman, and vice-chairman, etc., were dealt with in full detail under the 'Rules' and the 'by-laws' of the Market Committees.

The chairman and vice-chairman were to be elected by the members of the market committee among the members elected to represent the agriculturists' and traders' constituencies. In the administrative sphere, the market committee was autonomous, subject to the guidance of the chief marketing officer. The chairman was the chief executive officer and was responsible for the proper functioning of the market in accordance with the provisions of the Act, Rules and By-laws.

The Acts also made provision for the appointment of sub-committees and joint-committees for purposes specified by the market committee.

The Secretary of the market committee was to be appointed by the Government. The Secretary, who was in charge of the day to day administration of the market was to be assisted by the sub-committees.

Market yards

The market committees are required by the Act to build a separate market yard where trading in the notified commo-

modities could take place. The market yards are to be built from the committee's own funds. The common practice was to declare the area where trading in the notified commodity was already taking place as the 'market yard' of the committee, pending the construction of a separate market yard.

Control over Market Functionaries

As the sole object of the legislation was to regulate the market practice, control over the various functionaries operating in the market was essential. This was accomplished by requiring all market functionaries dealing in the notified commodities to become licensees of the committee. The committee could also cancel such licences. This empowered the market committee to regulate the entry of persons into the market, to supervise the operations of the market functionaries and punish those contravening the statutory provisions.

In the Bombay and Mysore Acts there was a provision for licensing not only traders and commission agents but also the brokers, weighmen, etc. The licences were to be granted by the market committee which was also empowered to cancel or suspend them. The market committee could refuse to issue a licence without giving reasons and there was no provision for an appeal.

In the Madras Act, licences were to be obtained in respect of places used for trading and storing, weighing and processing of the notified commercial crops. Under the original Act, all traders (buyers, sellers and buyers and sellers) were required under the Rules to get themselves

registered as traders with the market committee and persons not so registered were not allowed to trade in the notified crops in the 'market area'. In a writ petition filed in 1952 by the traders, the High Court of Madras held this particular rule as void. It was held by the High Court that apart from licensing under Sec. 5 of the Act, the registration was mainly for maintenance of electoral roles of the traders' constituency and registration should not be compulsory for trading. It was stated that this restriction was an infringement on the inherent right of a person to do lawful avocation and as such should be construed as void. An amendment of the relevant rule became necessary and the amended rule provided that any person who desires to have his name registered as trader could do so by applying to the market committee on payment of the prescribed fees. This registration entitled a person to get into the electoral role for purposes of electing the traders' representatives on the market committee. There was a provision for licensing weighmen and brokers in the commercial crop by the market committee.

Sale Methods

Regulation of the method of sale is one of the important aspects of market regulation, as several malpractices had been noticed in the past in this matter. All the three Acts prescribed that the price of the regulated commodities be settled only in open auction or by open agreement and not

by secret signs. (It may be pointed out here that these restrictions were operative only in the market yard.)

After the deals were struck in the 'open auction' or 'open agreement' every buyer was required to sign an agreement to buy the goods at the price agreed upon, in triplicate, a copy of which was to be submitted to the market committee.

All these Acts prohibited the recovery of any 'trade allowance' other than that prescribed under the Rules or by-laws of the market committee. Further, any contravention of the provisions regarding unauthorised trade allowance was punishable with a fine upto Rs. 200.

Weightment

A source of malpractice in the markets had been the system of weightment. The rules under the Acts empowered the market committee to prescribe and enforce the use of standard weights and measures in the regulated market. Provision was also made for the inspection of scales, weights and measures by the market committee.

Weightment was to be done by the weighmen licensed by the market committee. These weighmen were not to take up employment with any trader or commission agent and they were not attached to any particular trader or commission agent. The licensed weighmen were to use only the standard weights and measures certified by the market committee.

Market Charges

The various market charges payable by the sellers were prescribed by the market committee. Charges other than those prescribed were prohibited.

Market Fees

In all the Acts provision was made empowering the market committees to levy and collect 'market fee' on the produce sold or purchased in the regulated market. 'Market fee' was the main source of income of the market committees. Under the Bombay and Mysore Acts, the market fee was payable by the sellers on the goods sold by them in the market. The market fee was collected by the commission agent or the trader from the producer-seller and credited to the market committee. Under the Madras Act, the market fee was payable by the purchaser of the commercial crop. Further, the mode of collection was also different. The market fee was payable by the purchasers when the produce left the market proper. It was presumed, for the purpose of collecting the market fee (unless the contrary was proved) that all notified commercial crops leaving such an area were bought and sold within such area.

Settlement of Disputes

Another feature of the regulated markets was the provision for settlement of disputes arising out of quality differences, weightment, etc. For settling disputes a 'disputes sub-committee' was to be formed comprising of

traders' and producers' representatives on the market committee. The Chairman of the market committee was to act as Chairman of the sub-committees.

Market Intelligence

Another significant service rendered by the market committees was in the field of market intelligence. The prices ruling in the terminal as well as in their own market were to be exhibited by the market committees. Further the market committees were to publish the weekly arrivals, sales and daily prices in the local papers.

The above discussion of the provisions made under the various marketing legislations brings out that the legislations were aimed at regulating the various market practices keeping mainly the agricultural producer in the view. The process through which this regulation was to be implemented was by establishing regulated markets and exercising control over the market functionaries operating in the market. This control was exercised through the licensing of the various functionaries operating in the market and prescribing penalties for the contravention of any of the provisions thus made. The market committee was the crucial body on which the regulation of the market rests and was armed with wide powers in the administration of the market. It may be pointed out here that the influence of the market committee did not extend beyond the 'market proper'. The supervision by the market committee over trading was more specifically

confined to the market yard. Further, none of these Acts took into consideration sales in villages in the 'market area'.

The extent to which the various regulatory measures were implemented by the three market committees of Sirsi, Mangalore and Shimoga markets are dealt with in some detail in the following section.

II. THE ACT IN OPERATION

1. Operation of the Act in the Sirsi Market

Sirsi, one of the important commercial centres in North Kanara, is the biggest assembling centre for arecanut in the district. The Bombay Agricultural Produce Markets Act, 1939, was made applicable to Sirsi market in the year 1948, but the actual functioning of the regulated market started from the year 1954. The jurisdiction (market area) of the Agricultural Produce Market Committee, Sirsi, originally extended to Sirsi taluk only. In 1956 the jurisdiction of this committee was extended to the adjoining taluk of Siddapur and a sub-market-yard was established at Siddapur. Initially arecanut, pepper and cardamum were the regulated commodities. Later, in 1965, paddy (unhusked and husked) and plantains were also brought under regulation. The quantity and value of sales of arecanut, pepper and cardamum in Sirsi and Siddapur markets during the year 1965-66 are given in the table on next page.

It can be seen from this table that arecanut was the

Commodity	Sirsi market		Siddapur sub-market	
	Quantity (quintals)	Value (Rs.)	Quantity (quintals)	Value (Rs.)
1. Arecanut	63,082	33,781,039	18,175	8,127,552
2. Pepper	5,517	2,192,973	1,332	407,078
3. Cardamum	88	304,738	57	210,484

most important commodity traded in these markets both in terms of value and quantity.

The area within five miles from the municipal limits of Sirsi and the town-panchayat limits of Siddapur form the markets-proper of the committee. Trading in the notified commodities in the 'market proper' outside the 'market yard' is prohibited.

Pending the construction of separate market yards in Sirsi and Siddapur, the existing localities in Sirsi and Siddapur where the actual buying and selling of the notified crops is taking place have been declared as the 'market-yard' and 'sub-yard' of the market committee. That is, every traders' place forms a part of the market yard. The functioning of the market committee is confined to the market yards, i.e., the traders' shops.

The market committees are expected to build separate market yards out of their own funds. The Sirsi market committee acquired an area of 36 acres in Sirsi, partly free and partly on payment, to build a separate market yard, godowns,

office, etc., as early as in 1962. But the progress achieved in the construction of the yard is rather slow. Only the Totgars' Cooperative Sale Society has constructed its office building, godowns, etc., in the new market yard. The co-operative society started the transactions in the regulated commodities in the new yard from 1965. The problems faced by the market committee in establishing a separate market yard is clearly brought out in the following extract from a note prepared by the secretary of the Committee on the working of the market committee.

"One of the conditions in the lease deed, form 'H' and 'D', executed already by this Committee in respect of lands is that the land cannot be alienated and partable. Unless this condition is deleted, the Committee cannot take up distribution of plots to the General Commission Agents and Merchants for construction of shops and godowns. The Committee is corresponding with the Deputy Commissioner, Kanara, Karwar, since June 1964, in this connection and requesting him to delete this condition so as to enable us to allot plots to the General Commission Agents and Merchants for construction of shops and godowns in the new market yard. But this has not been done by him. Now it is learnt that the matter has been referred to the Chief Marketing Officer, Mysore State, Bangalore for clarification. Thus the aims and objects of this Committee have not been served so far though the lands have been obtained from the Government for development of Market Yard.

"Another difficulty is that most of the General Commission Agents and Merchants are not ready to construct their shops and godowns in the new market yard at their own cost and expect the market committee to construct shops and godowns from its funds and to give the same to them on rental basis. But the existing provisions of the Rules and By-laws do not permit the Market Committee to spend on shops and godowns of the General Commission agents from the funds. However, the Committee has already moved the department to permit the Committee to construct at least some model shops and godowns so as to give them to some General Commission Agents who are financially poor, on rental basis. The reply from the department is awaited."¹

Constitution of the Market Committee

The first market committee nominated by the Government consisting of 7 members continued in the office for a period of one year. In November 1955, the members of the committee were elected from the different constituencies in accordance with the Rules. The elected committee comprises of 7 members from the agriculturists constituency; 4 members from the traders constituency of which one is to represent the co-operative sale society; 2 representatives from the local

1 Secretary, Agricultural Produce Market Committee, Sirsi, 'A Brief Note on the working of the Agricultural Produce Market Committee, Sirsi, (N. Kanara)' dated 17-10-1956. (Unpublished), pp. 4-5.

bodies (one from Sirsi Municipality and one from Siddapur town-panchayat) and 2 members to represent the Government (the Tahasildar and the District Marketing Inspector). From 1958-59 to 1961-62 the Chairman and the Vice-Chairman of the Committee were elected from among the representatives of the agriculturists. From 1962-63 to 1966-67, the Chairman elected was from the traders' constituency representing the cooperative sale society and the vice chairman from the agriculturists' representatives.

The functions of the chairman, vice-chairman and other employees of the committee, the various procedures to be followed in the day to day administration of the market, etc., are laid down in the by-laws of the market committee.

Settlement of Disputes

Disputes between the purchaser and the seller or his agent arising out of the quality of the produce, weight of the containers used, or foreign matter in the produce are to be settled by the Disputes Sub-Committee when referred to. This Sub-Committee is comprised of one representative of the agriculturists, one of the traders' and one representative of the local body. The members of this Committee are nominated by the Chairman. The Chairman of the Market Committee also acts as the Chairman of the Disputes Sub-Committee.

Market Fee

Market fee is the major source of income of the Market Committee. The market fee is collected from the sellers of the notified crops in the market yard. Though the market fee is payable by the sellers to the market committee, in practice, however, these are collected by the commission agents from the sellers and paid to the market committee at the end of each month. The practice of allowing the commission agents to collect the market fee on behalf of the committee has, however, made the procedure of collection simple and evasion and non-payments are avoided as the market fee is deducted from the sale proceeds before making the payments to the seller.

Till 1962 the 'market fee' was a 'specific' one i.e. was levied on the quantity of the produce sold in the market yard. The rates were different for different commodities. Since 1962 the 'market fee' is ad valorem i.e., it is levied on the value of the produce sold at a uniform rate of 25 paise per Rs. 100. The fixing of the 'market fee' on the basis of the value of the commodity sold resulted in a considerable increase in the income of the Market Committee. During 1961-62 when the 'market fee' was levied on the quantity, the Committee realized an income of Rs. 19,772 from arecanut alone and the quantity of arecanut sold was 98,360 bags. After the basis was changed in 1962, the income of the market committee during 1962-63 from arecanut was Rs. 54,844 and the quantity sold during this year was

less than in the previous year (88,687 bags).

Market Charges

The various market charges, including the market fee, prescribed by the market committee and payable by the sellers of arecanut in the market yard are given below:

Market fee	Rs. 0:25 per Rs. 100 worth produce
Commission	Rs. 1:50 per Rs. 100 worth produce
Hamali	Rs. 0:25 per quintal
Weighment	Rs. 0:08 per bag
Stacking	Rs. 0:01 per bag
Godown rent (for the first four months	Rs.0:02 per bag
Godown rent (be- yond four months	Rs.0:03 per bag

Control over the Market Functionaries

The various functionaries operating in the market are licensed by the market committee. These functionaries are the 'traders', 'general commission agents', 'weighmen' and 'hamals'. The licence fee prescribed by the market committee for the different class of functionaries and the number of such functionaries operating during 1965-66 are given below (see next page).

Traders holding 'A' class licence can buy and sell the notified commodities anywhere in the 'market area', 'B' class licence holders can buy anywhere in the market area excepting in the market yard and sell in the market yard

Class of functionaries	Licence Fee(Rs.)	No. of functionaries operating in	
		Sirsi market	Siddapur market
1. 'A' class traders	100/-	74	22
2. 'B' class traders	50/-	65	63
3. Retail traders	10/-	99	69
4. General Commission Agent	100/-	29	6
5. Weighmen	10/-	21	5
6. Hamals	2/-	92	26

Source: Annual Administration Report for the year 1965-66, Agricultural Produce Market Committee, Sirsi, p.3.

(bye-law 35). It may be pointed out here that the purchases by the 'A' class and 'B' class traders outside the 'market yard' and 'market proper' but within the market area are not controlled by the market committee. The regulation of market practices under the supervision of the market committee is confined only to the market yard and the process of regulation starts only when the produce arrives in the market proper. 'A' class traders can also obtain a licence to operate as general 'commission agents'. Similarly, persons holding licence to operate as general commission agents can obtain a licence to operate as 'A' class traders.

The licensed weighmen are not attached to any particular trader or commission agent. These weighmen are not the employees of the Market Committee. They are not to

accept employment from the traders or commission agents. Further, the commission agents and traders are also prohibited from employing any of the licensed weighmen.

The conditions under which a licence is issued and the duties of the market functionaries are clearly dealt with in the bye-laws.

Sale procedures

As mentioned earlier, the regulation of sale and purchase is operative only in the market yard and the process of regulation starts when the produce arrives in the market.

The produce is sold through the commission agents by the producers (sellers). The commission agents arrange for the sale of the produce brought by the sellers. They also provide storage facilities until the produce is finally sold.

Weightment is done by the licensed weighmen before the sale only if the produce is not sold on the day it is brought to the market. If the produce is sold on the very day it is brought to the market, weightment is done after the sale.

Trading in the regulated commodities takes place only on Tuesdays, Wednesdays, Thursdays and Fridays. Produce arriving on the days when there is no trading or after the sales are over in the particular commission agent's shop, is weighed by the licensed weighmen in the presence of the seller or his representative and the commission agent:

before the latter accepts it for storage. The 'weight slip' is prepared by the commission agent in triplicate duly signed by the weighman. One copy of the weight slip is given to the seller and one to the Market Committee. The weight slips are to be in the forms prescribed by the market committee and are to be duly certified by the market committee before they are used i.e. the market committee secretary's signature is to be obtained. In practice, however, the weight slips are issued in the form ~~of~~ prescribed by the market committee. They are not countersigned by the secretary before they are issued.

The market committee has no check, whatsoever, on the returns submitted by the commission agents as to the 'arrivals'. This is because the market committee does not have any check posts at the entrance into the municipal limits, which is the market proper. It is very difficult, if not impossible, to verify the arrival figures reported to the Market Committee by the commission agents with the information available in the octroi registers, because of the form in which the octroi returns are maintained.

The timing of sale in each commission agent's shop is fixed by the Market Committee. The commission agent is required to keep the produce ready for inspection at least half an hour before the time fixed for sale.

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 buyers move from one lot to another. The by-law of the Market Committee in accordance with Rule 60(4), prescribes that the price should be decided in 'open auction' or 'open agreement' and not by secret signs. In actual practice, however, a compromise is made between the 'hata' (under cover) system and 'open auction' system. The commission agent receives the price quotations from the prospective buyers under the 'cover of cloth'. The highest price offered under the 'cover of cloth' is declared openly and subsequent offers are invited before the bargain is finally struck. It is claimed that under this system, each buyer gives his highest offer as the price offered by others is not known. The declaration of the highest bid, so offered under the cover of cloth, can be raised by other buyers. The final deal is struck only with the consent of the seller

It may be pointed out here, that the buyers in Sirsi market are mainly the commission agents possessing 'A' class trader's licence. During 1966-67, 83 percent of the 'sales' in the market was purchased by the commission agents numbering 24. This has been made possible by a provision in the by-law, [by-law 36(8)], that a commission agent holding an 'A' class trader licence can buy either in his name or in the name of a partner the produce for which he is acting as a commission agent, only in an open auction conducted in the presence of the Market Committee staff, when his bidding is the highest.

After the deal is struck, the buyers are to execute an agreement in favour of the sellers to buy the produce at the price agreed upon. This agreement is prepared in triplicate in forms prescribed by the Committee called agreement slips, copies of which are given to the seller and the Market Committee.

The final 'sale bill', locally called 'Vikri Patti' or 'Asami Patti', is prepared by the commission agent in triplicate, giving the name of the producer (seller), purchaser, quantity, and the rate at which the different lots and varieties were sold, deduction made and the net amount payable to the seller. The various ^{de-}ductions made are:

(1) market fee, (2) commission, (3) weightment, (4) hamali and (5) stacking. All these are payable by the sellers. The 'market fee' collected by the commission agent are paid to the Market Committee at the end of each month. A copy of the 'sale bill' is given to the seller and another copy to the Market Committee for verification.

Though the 'agreement slips' and the 'sale bills' are to be duly certified by the Market Committee, as in the case of 'weightment slips', in actual practice, these are prepared only in the form required by the Committee.

Payments

The by-laws of the Market Committee lays down that the payment to the seller should be made on the day the produce is sold. Because of the long association and lender-borrower

relationship between the commission agent and the seller, how well this provision is effective cannot be said unless there is a specific complaint from the sellers.

Storage

Facilities for the storage of the goods until finally sold are provided by the commission agents. Charges for storage are fixed by the Market Committee. No charges are to be made for storage, if the produce brought to the commission agent is sold within 15 days from the date of arrival. For the period exceeding 15 days a godown rent of Rs. 1.55 per 100 bags per month is allowed for the first four months. For the period exceeding four months the charges are Rs. 3 per 100 bags per month. But in actual practice no godown rent is charged by the commission agents.

Market intelligence

For the information of sellers and buyers, the Market Committee displays the daily prices prevailing in the local market on the notice board kept in the Committee's Office. The daily prices ruling in the market are announced on the loud speakers from the Committee's office twice during the day. Daily and weekly prices of other markets are also announced on the loud speakers. Daily prices are also published in the local newspapers. Further, the Market Committee sends the daily prices of regulated commodities to all the village Panchayats of Sirsi and Siddapur taluks

for exhibiting the same on their notice boards. This is meant to enable producers to decide whether to bring the produce to the market. It may also help the producers selling in the village in settling the price with the trader.

It can be seen from the above discussion, that the Sirsi Market Committee has been able to implement the various provisions made for fair trading. However, it may be pointed out that the Committee has not been able to maintain a check on the arrivals in the market and much reliance is placed on the returns submitted by the commission agents. Similarly the Committee has allowed the initial offer of price to be made 'under cover', particularly during the peak arrival season. How far this and the provision permitting the commission agents to buy the produce for which they are also acting as selling agents, have been in the interest of the sellers is examined in detail in Chapter VI.

2. The Operation of the Act in Mangalore Market

The South Kanara Market Committee was constituted in 1951 under the Madras Commercial Crops Markets Act, 1933 and the Madras Commercial Crops Market Rules, 1948. In exercise of the powers conferred by the Act and the Rules, the South Kanara Market Committee framed its own by-laws for the administration of the provisions of the Act and Rules.

The jurisdiction of the Market Committee extends over the entire district of South Kanara with its headquarters at Mangalore. The Market Committee has established only one regulated market at Mangalore.

Eventhough the Market Committee was first established in 1951, till late 1966 the administration of the Market Committee was performed by the Deputy Commissioner, South Kanara, pending the constitution of an elected Committee. The Deputy Commissioner was assisted in important matters pertaining to the regulation of market practices, by a Market Advisory Committee consisting of 4 growers (producers), 3 traders, one representative from the cooperative marketing society, and the district agricultural officer.

The elected body of the South Kanara Market Committee which came into being in October 1966 comprised of :

- (1) Three grower members (Of the 4 seats one was not filled in).
- (2) Three trader members.
- (3) Three Government nominees.
- (4) One ex-officio member (the District Agricultural Officer).

The whole of South Kanara district was divided into three revenue divisions and the number of members to be elected from each division was as follows:

Division	Traders constituency	Growers constituency
1. Puttur Revenue Division (Puttur and Belthangady Taluks)	1	2
2. Mangalore Revenue Division (Mangalore and Bantwal Taluks)	1	1
3. Coondapur Revenue Division (Coondapur, Udipi and Karkal Taluks)	1	1*

* This was not filled in.

The Chairman of the Market Committee was elected from among the members representing the traders and the Vice-Chairman from among the members representing the growers, unanimously.

The administrative staff of the Market Committee consists of :

- | | |
|-----------------------------|--------------------------|
| 1. Secretary (1) | 5. Clerk cum typist (1) |
| 2. Asstt. Secretary (1) | 6. Supervisors (4) |
| 3. Market Superintendent(1) | 7. Peons (2) |
| 4. Clerks (2) | 8. Watchman cum Peon (1) |

As there was no separate Market Yard, the sale and purchase transactions were allowed to be conducted in the commission agent's premises as in the Sirsi market in North Kanara. The premises where trading in the notified commodities was taking place were declared as the market yard of the Committee.

Under Sections 5(1) and 5(3) of the Act and by-law 2(b) and 21(2)(b) licence had to be obtained in respect of places used for buying and selling and for places used for storing, weighing and processing the notified commodities. These licences were issued by the Collector of the district through the Market Committee. A provision was also made for licensing the weighmen and brokers. These licences were issued by the Market Committee.

The duties of the licencees under Section 5(1) and 5(3) included displaying the licence in a prominent place, notification of working hours, holidays, etc., and the

maximum fee payable according to the by-laws to brokers, commission agents, hamalis, etc., and such other information as notified by the Secretary of the Market Committee. Sub-Section (b) of by-law 25 demanded that the licensee shall maintain regular accounts of all his transactions in each kind of commercial crops in the form or forms approved, and submit reports regarding arrivals and despatches in the form required by the Secretary either daily, weekly or otherwise. It also prescribed that the records themselves shall be produced for inspection by the committee on demand by any employee of the Committee not below the rank of a supervisor. The Market Committee had also drawn the pro-forma in which the traders were to submit their returns.

Commission Agents

The commission agents form an important link between the purchaser and the seller. These commission agents dealing in arecanut are not generally traders. Of the 31 commission agents dealing in arecanut during 1966-67 only four reported purchases of arecanut on their own account. The quantity purchased by these commission agents formed only a very small portion of the total purchases of arecanut by all the traders. The main functions of a commission agent are (1) to arrange for the sale of the produce brought to him by the seller; (b) provide storage facilities until the produce is finally sold; (c) finance the seller on the pledge of the produce brought for sale and (d) finance the

seller during off-season on the assurance that they would sell their produce through him only.

The seller brings the produce to the commission agent's shop. If the produce is sold on the very day of its arrival it is weighed only after the sale takes place. Otherwise, it is required to be weighed within six hours of its arrival and a weighment receipt, signed by the weighman, is to be given to the producer. Weighment is done by the weighmen licensed by the Market Committee.

The weighmen in reality are the employees of the commission agents, but licensed by the Market Committee. By-law 27 permits a licensed weighmen to accept employment of a trader or licensee of the Market Committee. Since these weighmen are the employees of the commission agents, the extent to which they can be impartial is open to question. Even the provision that the produce should be weighed within six hours of their arrival into the market cannot be enforced because the Market Committee has no way of knowing when the produce arrived in the market.

The next step is to put the produce up for sale. The timing of sale in each of the commission agent's shop is fixed by the Market Committee.

A sample of about 10 kg. of arecanuts taken from the sellers' lot is kept in an open basket on raised wooden planks. On each basket the lot number and the total quantity (in bags) are mentioned. Each of the prospective buyer is provided with a list containing the lot numbers. The buyers

inspect the sample by cutting the nuts into two or more pieces. The nuts so cut are put back in the baskets. The buyers, after examining each sample lot, write down the price they are willing to pay for it in the list provided (called the 'tender forms'). These forms are collected in a sealed box. At the appointed hour the Market Committee staff opens the 'tender box', compares the price quoted for each lot by the different buyers and declares the sale to the highest bidder. The seller's consent is necessary before the final deal is struck.

This system of sale was introduced in the year 1961, after about 10 years of the establishment of the regulated market, by an amendment to the original clause (9) of by-law 24 and clause (10) of by-law 25. It is interesting to note that prior to this amendment, sale and purchase transactions could take place by private negotiations without the intervention of the Market Committee. Further, a bargain settled by a commission agent was binding on the seller in such private negotiations. The only condition imposed by the Market Committee was all such transactions should be recorded in the appropriate forms and submitted to the Market Committee within six hours of the contract or settlement.

The modus operandi of the commission agents, however, did not change much inspite of the introduction of the 'tender system', of sale under the supervision of the Market Committee. This is brought by the case study of

A and Co.¹

The case of A and Co.

A and Co. is one of the biggest purchasers of arecanut featuring among the top five purchasers. The top five traders purchased around 46 per cent of the total sales of arecanut in Mangalore market during 1966-67.

A and Co. was also acting as a commission agent to the sellers and the purchases were made directly prior to 1961. The amendment to the by-law 25(10) in 1961 came in the way of the practice of purchasing directly from the sellers under private agreement. The amended by-law laid down that "Every transaction of buying and selling which may take place in a licensed premises shall be conducted by open auction or tender system under the supervision of the Market Committee staff and the settlement of each transaction shall be recorded in the form prescribed by the Market Committee..." It was only when the Market Committee started enforcing this clause of the by-law that A and Co. started the commission agency business separately in the name of its partner. However, it was admitted that A and Co. is managing to buy a greater part of the produce brought for sale directly, i.e. without going into the formality of keeping the produce for open-sale. A small part of the produce brought for sale is, however, put for sale in open auction. This is done only to convince the Market Committee, that no direct purchases from the sellers are made. The Market

1 A and Co. is a disguised name.

Committee also cannot check whether the entire quantity brought for sale is sold in the open auction or not. The Committee does not have a check on the produce entering into the market. The only information as to the arrivals in the market is the weekly returns submitted by the commission agents. Even the establishment of a separate market yard will not remove this malpractice, unless the Market Committee keeps a check on the arrivals at the entrance into the market.

There appears to be no resistance from the seller to the direct purchases by the commission agents. The commission agent decides the price on the basis of the quality of the produce and the price ruling in the market. The seller is also persuaded that the price he receives is the price ruling in the market. This practice suits the seller as it saves him time that would otherwise be spent in waiting for the auction to take place and all the other formalities. Another and more important reason for the seller in not objecting to this practice is that a great majority of them (sellers) consist of small traders who buy the produce in the villages. These sellers (small traders) do not possess a licence from the Market Committee and also are not licensed as dealers under the Commercial Taxes Act. As such these sellers submit to the conditions imposed by the commission agent lest they may be detected by either of the agencies.

Weightment is done only after the sales are completed.

If the produce is not sold on the day it is brought it is weighed before accepting for storage and a 'weightment slip' is given to the sellers.

Regarding the charges payable by the seller, clause (16) of by-law 25 laid down that the commission chargeable in respect of any commercial crop shall not exceed the amount set forth in the schedule, which included remuneration for services rendered, charges for the facilities afforded like godown accommodation, cash credit without interest, use of gunnies loaned, handling and weightment and all other charges incidental to buying and selling. "Clause (18) of by-law 25 laid down "contravention of this by-law shall be punishable with fine which may extend to Rs. 50/-". It may be mentioned that the above clauses had no effect, whatsoever; while the charges fixed for arecanut was Rs.8 per quintal, A and Co. and (many other commission agents) continued to charge Rs. 16 per quintal from the sellers.

The details of each of the transactions and the various charges made are not submitted to the Market Committee. Neither has the Market Committee been able to enforce the submission of the details of each transaction by the commission agents.

Deductions are also made from the weight on account of moisture content in the nuts.

Loans ranging from 60 to 80 per cent of the value of the produce are given to the sellers on the pledge of the produce as and when brought for sale. No interest is

charged on such loans if there are no stipulations by the sellers as to the price at which the produce should be sold. Whenever the seller stipulated the price an interest of 12 per cent is charged on the pledge loans. The minimum period for calculating the interest is three months.

Apart from the pledge loans, loans are also advanced to the sellers on personal security during the off-season. The interest charged on such loans varied from 12 to 15 per cent.

The above illustration of the working of A and Co. is sufficient to bring out the extent to which the Market Committee has been able to translate the various provisions of the Act into practice. This was the condition that prevailed in 1967. The situation was not much different earlier. During 1960, the following malpractices of some of the commission agents were detected by the Market Committee:

- (1) Putting up false purchase bills.
- (2) Charging Rs. 15 to Rs. 20 per quintal of arecanut by way of commission.
- (3) Pledging of produce of growers with the bank.
- (4) Allowing an excess quantity of 4 to 5 kg per quintal to the buyers.
- (5) Inordinate delay varying from 15 days to more than a month in releasing the stocks sold.

Market Fee

Market fee was payable by the purchasers while these

were payable by the sellers in the regulated market in Sirsi and Shimoga markets. Further, the market fee was collected from the purchasers at the rate of Rs. 0.30 per quintal of arecanut when the produce left the market proper.

The South Kanara Market Committee has been facing difficulties at every stage of the implementation of the regulatory measures both from the traders and commission agents. Implementation of some of the regulatory measures were stayed by the Mysore High Court as a result of writ petitions filed by some commission agents in August 1960. There are many instances in which there were strong resistance from the traders to the implementation of the Act on various legal grounds. Perhaps this was the main reason for the non-implementation of the various provisions of the Act. Another important factor coming in the way of the Market Committee in implementing market regulation is the absence of a separate market yard.

3. Operation of the Act in Shimoga Market

Under the Mysore Agricultural Produce Markets Act, 1939, the Shimoga Agricultural Produce Markets Committee, Shimoga, started functioning from the year 1952. The Act in the beginning was made applicable to arecanut only. Later, other agricultural commodities - pepper, paddy, rice, chillies, groundnut, jowar, ragi and soapnut were also brought under regulation. Of all the regulated commodities traded in the market arecanut is the most important. The total value and quantity of arrivals of the notified

commodities in the market during 1966-67 are given below.

Arrivals of Regulated Commodities in Shimoga Market during
1966-67

Commodity	Arrivals	
	Quantity (Quintals)	Value (Rupees)
1. Arecanut	79,165	5,30,10,256
2. Paddy	2,20,467	1,70,70,212
3. Rice	9,739	12,92,478
4. Chillies	16,997	60,44,868
5. Groundnut	6,267	8,15,350
6. Soapnut	1,276	1,40,830
7. Pepper	169	65,911
8. Ragi	13,433	11,11,108
9. Jowar	27,946	23,34,585

Source: Annual Administration Report of the Agricultural Produce Market Committee, Shimoga for the year 1966-67.

Originally, the jurisdiction of this Market Committee extended over 5 taluks in Shimoga district (Shimoga, Thirthalli, Hosanagara, Sagara and Sorab taluks), and 6 taluks in the neighbouring Chickamagalur district (Chickamagalur, Koppa, Mudigeri, Sringeri, Tarikere and Kadur taluks). In the year 1960, a separate regulated market was established at Sagar with its jurisdiction over the 4 taluks of Sagar, Sorab, Shikaripur and Hosanagara, three of which were

originally under the jurisdiction of the Shimoga Market Committee.

The 'market proper' of the Market Committee extends upto five miles from the municipal limits of Shimoga. Since the Market Committee had no separate 'market yard' the premises where the trading in the notified commodities was taking place were declared as the 'market yard'.

The Market Committee had acquired an area of about 63 acres and the construction of office buildings, and auction sheds was under progress in 1967. Besides plots of land had been allotted to the commission agents and the commission agents were expected to build their shops in the market yard.

The Market Committee comprised of 14 members - 7 representatives from the agriculturists constituency, 5 members representing the traders' constituency, one representative of the City Municipal Council, Shimoga, and one nominee of the Government, during 1966-67. The Chairman elected from among these members was from the traders' constituency.

The Chairman is the Chief Executive Officer and is assisted by the two sub-committees [(1) Executive Sub-Committee, (2) Disputes Sub-Committee] in the day to day administration of the market. The Secretary of the Market Committee also functions as Secretary of these two Sub-Committees without being a member thereof.

The Executive Sub-Committee consists of 5 members viz. (1) Chairman of the Market Committee, (2) two representatives

of the traders and (3) two representatives of the producers. The Chairman of the Market Committee will also be the Chairman of the Executive Sub-Committee. Excepting the Chairman, the other members of the Sub-Committee are appointed from among the members of the Market Committee. The functions of this Sub-Committee are to look into the day to day administration of the market, publish market information and make proposals for the improvement of the market.

The Disputes Sub-Committee consists of the following four members:

- (1) One representative of the producers,
- (2) one representative of the traders,
- (3) one representative of the local bodies on
the committee and
- (4) chairman of the Market Committee.

The members of the disputes Sub-Committee are elected from among the members excepting the Chairman.

Disputes relating to the quality of produce, weighment, payments, etc., between the producer (seller) or his agent and the traders are to be settled by this committee. If any member of the dispute sub-committee is a party to a dispute, he shall not take part in the decision of the dispute. In such cases the Chairman will coopt another member from the market committee, suitably, in place of the member.

Licensing

The traders, commission agents, brokers, weighmen and measurers, hamalis and cartmen operating in the market proper are to obtain a licence from the market committee by paying the fee prescribed. However, if the weighmen and measurers are appointed by the market committee they need not have any licences. In fact, in Shimoga market all the weighmen and measurers were the employees of the market committee and were not attached to any particular commission agent or trader nor were they independent operators.

Market fee

The 'market fee' is levied in the 'market proper' at prescribed rates on the agricultural produce brought into the market for sale or processing.¹ The rates were different for different commodities.

The market fee is payable as soon as the commodity is brought into the market. It is collected by the market committee servant at the municipal toll gate. The market committee staff at the municipal toll gate checks the produce, collects the market fee and issues a pass wherein the commodity, the number of bags, the name of the owner or his agent, the commission agent through whom it is to be sold are mentioned. The commission agents are required to accept the

¹ If a person purchases groundnuts outside the market and stores in his own godown for extracting oil this section is not applicable. Ramanarayana Vs. Market Committee; 1963(1) Mys. L.J. 243.

produce brought for sale only after making certain that the market fee is paid. Further, weighment of the produce is done only on the production of the pass issued at the toll-gate.

The process of regulation starts the moment the produce enters the municipal limits starting with the collection of the market fee at the municipal gate. After the arrival of the produce to the commission agent's premise, it is weighed by the licensed weighman on the production of the 'Gate Pass' which is issued after the 'market fee' is paid at the municipal toll-gate. The weighment slip is prepared in triplicate by the commission agent; a copy of it is submitted to the market committee. The 'Gate-pass' number is mentioned in the 'Weighment Slip' for verification by the market committee. The pages of the weighment book are affixed with the seal of the market committee by the secretary. The weighment charge is collected by the commission agent from the sellers and paid to the market committee.

The sales are conducted in each commission agent's shop thrice a week and at the time prescribed by the market committee. The sales take place only in the presence of the sale supervisors of the market committee. The method of sale is through 'tenders'.

The commission agent keeps a sample of one bag of each variety of each producer for inspection by the buyers. Each bag bears a distinct mark for identification and the total number of bags to be sold is marked on each of the sample

bags. The buyers quote the price for each 'sample' in the forms provided by the commission agents. The 'salesman' who is an employee of the market committee collects these 'tender slips', compare the quotations for each lot and announces the highest price quoted. If the seller agrees for this price then the sale of the particular lot is announced in favour of the highest bidder. If the number of lots put for sale is large, then the sales are conducted in lots, 5 to 8 bags at a time. This gives the buyers an opportunity to decide about their total purchases. After the sales are over, the commission agent prepares the final 'sale bill' in triplicate giving details regarding the producer, his village, the purchaser, the rate at which the different varieties are sold and the quantity, the deductions made and the final amount payable to the seller. A copy of this is sent to the market committee for verification.

The weighment after the 'sales' is also done by the market committee weighmen, and weighment is done to the last 100 gm.

The 'bill books' are certified by the market committee. The pages are affixed with the committee's seal and signed by the secretary. The sale bills are to be submitted to the market committee within three days.

The commission agent is not allowed to purchase or bid in his own shop either in his name or in the name of his partners, that is, he is not allowed to purchase the produce put up for sale through him. This restriction on the commission

agents has given rise to a class of market functionaries, who act on behalf of the commission agents. These functionaries (dummy traders) hold a licence from the market committee as traders. As long as they comply with the conditions under which a licence is granted to them there cannot be any restriction on their activities. In actual practice, these 'dummy traders' are the agents of the commission agents. They buy the produce on behalf of the commission agents in the particular commission agent's shop on their instruction. The 'dummy traders' are briefed as to the maximum price they can quote by the commission agent. If the price quoted by the dummy trader is lower than that of any other buyer, then the sellers are advised by the commission agent not to sell. One of the big commission agents in Shimoga who gave this information was himself managing to purchase the entire stock sold through him, through such dummy traders. Further, he as well as other informed people in the market said that this was the general practice of many of the commission agents, except the cooperative society.

The practice of employing dummy traders arises firstly, the commission agent being also a trader is not allowed to buy in his own shop and secondly, a good part of the finance for trading is obtained from the commercial banks on the pledge of the produce brought for sale by the sellers even before the sale takes place. This is possible as the entire produce brought for sale by each seller need not be kept for inspection by the buyers at the time of sale. If the

dummy traders succeed in bidding the account is settled with the sellers. If the dummy traders fail to outbid the other buyers, then the sellers are advised to defer the sales. The commission agent advances loans to the sellers from his borrowing from the banks on the pledge of the produce at a higher rate of interest. The commission agent advances loans to the sellers around 60 to 70 per cent of the market value of the produce pledged with him.

Market charges

The market fee and other charges for arecanut payable by the sellers in the market yard are given below :

Market fee	Rs. 0:19 per bag
Commission	Rs. 1:56 per Rs. 100 worth produce
Weighment	Rs. 0:06 per bag (for two weighments)
Hamali	Rs. 0:09 per bag
Godown rent	Rs. 0:19 per bag (irrespective of the duration of storage)

It may be mentioned here that while the private commission agents charged the sellers at the above rates, the cooperative marketing society did not charge hamali and godown rent. Further, the society charged only Rs. 1:06 as commission against Rs. 1:56 per Rs. 100 worth produce prescribed by the market committee and charged by the private commission agents.

Storage of Agricultural Produce

The produce brought into the market when unsold is

stored with the commission agent or trader. The storage charges are fixed by the market committee at 19 paise per bag irrespective of the duration for which the produce is stored. The places used for storing such agricultural produce are to be registered in the office of the market committee.

On the receipt of the application for registration of a place to be used for storing agricultural produce, the market committee inspects the place and only if it is satisfied that the place is suitable for the storage of agricultural produce a certificate is granted (Bylaw 31).

The Shimoga Agricultural Produce Market Committee has succeeded largely in implementing the various provisions for regulating the market practices as laid down in the Act and the Rules. Right from the time the produce enters the municipal limits of Shimoga until it is finally sold under the supervision of the market committee a constant watch and check at various points are maintained. The 'gate pass' issued at the municipal toll-gate, the 'weighment slip' and the final 'sale bill' are all compared and verified thoroughly. To the extent that proper weighment is assured at various stages, no excessive deductions or charges are made by way of commission etc. and the sales are conducted under the market committee's supervision, the producers are largely benefitted. To say that all provisions made for fair trading as envisaged in the legislation are fully and properly implemented in this market will not be an exaggeration.

Summary

To sum up, the various marketing legislations aimed at regulating the market practices in a given area by constituting regulated markets and were operative only in the market yards. In essence they represented an attempt on the part of the State to establish orderly marketing by rationalizing the market practices with a view to creating confidence between the seller (producer) on the one hand and the buyer on the other so as to give everyone a fair deal.

Though the ultimate object of the State legislations discussed in this chapter was the same, there were differences in the provisions made under them. The extent to which the provisions for fair trading were implemented also varied between the markets. While the Shimoga and Sirsi market committees were able to implement the various statutory provisions, the market committee at Mangalore could not do so.

The marketing legislations did not aim at creating an alternative marketing system but at regulating the existing system to function to a greater advantage. The Acts aimed at subjecting the various operators in the market to a new discipline. When the regulatory measures were not in the interest of the parties concerned naturally there was resistance particularly in the initial stages in accepting the change. This was evident from the resistance from the trading class to the implementation of the Act on various legal grounds. When it was not possible to fight the change on legal grounds, various means were found to make good the

the loss incurred by subjecting themselves to a new order. In his general observations on the intrinsic merits of the legislation Prof. Dantwala aptly pointed out "It must, however, be remembered that it takes time to break the age old customs and usages. The business interests are very powerful and the agriculturists are illiterate, poor and timid, and are, therefore, reluctant to insist on their full rights or resist being cajoled or intimidated into conniving at the Rules and Regulations. The departmental staff has to handle these problems with tact because show of authority does not always help to smoothen differences."¹

How far the various regulative measures as implemented in these markets has set the primary agricultural markets on a competitive footing by strengthening the bargaining power of the producers (sellers) is discussed in the subsequent chapters.

1 "Report of the Enquiry into Regulated Markets in the Bombay State", Government of Bombay, 1951, p. 9.

CHAPTER V

SPATIAL DISTRIBUTION OF ARRIVALS AND MARKETINGINTENSITIES - A CASE STUDY OF SIRSI MARKET

It was seen in Chapter III that :

- (1) the production of arecanut in the State was concentrated in four districts,
- (2) more than 90 per cent of the production was marketed, and
- (3) the bulk of the produce was marketed in the half a dozen regulated markets in the four districts.

The sale of produce in the regulated markets appeared to depend upon the distance of the producing villages from the regulated markets. This was possibly the reason why only about 70 per cent of the produce of Shimoga and Chickamagalur districts were being sold in the regulated markets of the districts, while in North Kanara and South Kanara districts practically all the produce was sold in the regulated markets. It may also be mentioned that while in South Kanara district the produce sold in the villages to traders was brought by the latter to the Mangalore market for resale, the role of the small trader as a seller in the regulated market was the minimal in the Shimoga markets, despite the fact that Shimoga and Chickamagalur districts had many producing villages far away from the regulated markets. This was presumably because of the stricter enforcement of the market regulations in Shimoga than in Mangalore.

It would, therefore, be proper to make a detailed examination of the pattern of marketing of arecanut with respect to the location of the markets. Attention need be given to the following aspects in particular:

(1) The first aspect relates to the location of the regulated primary markets for arecanut in relation to the areas of its production in the four major producing districts of the State. Talukwise distribution of area under arecanut and the location of the regulated markets in the four districts are shown in Map 5.1. It can be seen from the Map that the major producing regions in Chickamagalur and Shimoga districts have no nearby regulated markets and the Mangalore market in South Kanara district is located outside the major arecanut producing regions within that district. Chickamagalur district has no regulated market for arecanut within the district and the only nearby regulated market for the producing regions in this district is the Shimoga market. For instance the arecanut producing villages in Koppa taluk of this district (which account for more than 40 per cent of the area under arecanut in the district) are more than 70 miles from the regulated market of Shimoga. Similarly in the case of Shimoga district, the producing regions in Tirthalli, Hosanagara and Chennagiri taluks also have Shimoga as the nearby regulated market which is about 35-40 miles from these producing regions. Only the Sagar market in this district is located in an important arecanut producing region,

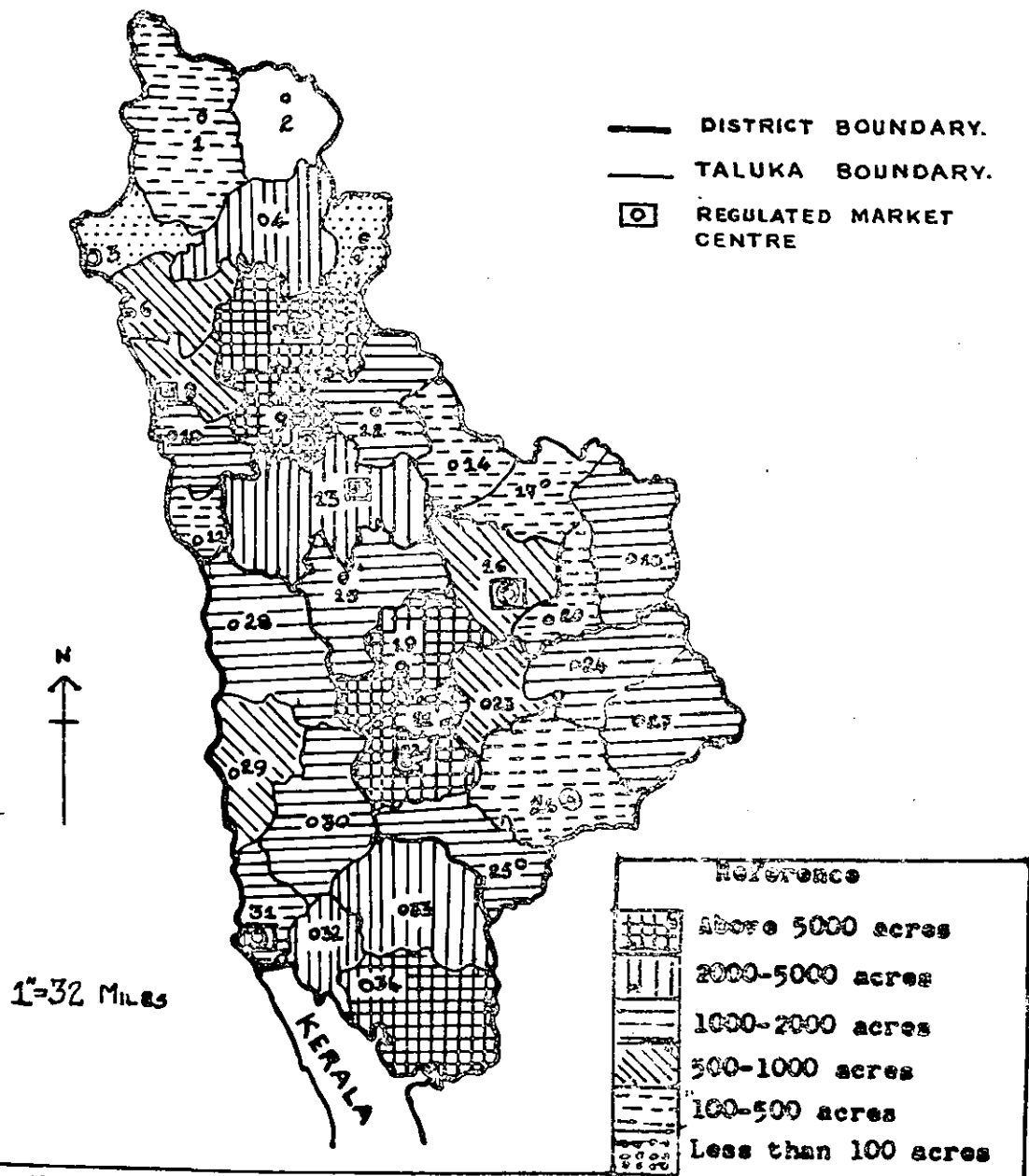
Sagar taluk accounting for nearly 24 per cent of the area under arecanut in the district. The producing regions in Puttur and Belthangady taluks in South Kanara district, accounting for about 63 per cent of the district's area under arecanut are more than 50 miles from the Mangalore market. Only the four markets (three regulated and one unregulated) in North Kanara district, viz. Sirsi, Siddapur, Kumta and Yellapur are located in the important arecanut producing regions. Most arecanut producing villages in North Kanara district are well within 30 miles of one or the other four market centres.

It is sometimes suggested that location of an organised market for a commodity acts as a stimulus to the location of its production in the surrounding regions. Whatever the possibilities of such a development in regard to other agricultural or livestock products, production of arecanut appears to be conditioned by basic physiographic factors. Therefore, except in Sirsi and Sagar, the major producing taluks in the districts of Mangalore, Shimoga and Chickamagalur are located some 35 to 70 miles away from their primary regulated markets. Location of an organised regulated primary market for arecanut in Chickamagalur district for example, might further encourage its cultivation in the area, but that will depend primarily on the physiographic suitability of the land for cultivation of arecanut.

(2) As the location of production is largely ⁱⁿ⁻dependent

MAP 5.1

Talukwise Distribution of Area under Arccesut in North Kanara, Shimoga, Chickmagalur and South Kanara Districts (1965-66).



- 1. NORTH KANARA:** (1) Supa, (2) Haliyal, (3) Karwar, (4) Yellapur, (5) Kundgod, (6) Ankola, (7) Sirsi, (8) Kumta, (9) Siddapur, (10) Honnavar, (11) Bhatkal. **2. SHIMOGA:** (12) Sorab, (13) Sagar, (14) Shikaripur, (15) Hosa Nagar, (16) Shimoga, (17) Konnali, (18) Chennagiri, (19) Tirthhalli, (20) Bhadravathi.
- 3. CHICKMAGALUR:** (21) Koppa, (22) Sringeri, (23) N.R.Pura, (24) Yarikere, (25) Mudigere, (26) Chickmagalur, (27) Kadur.
- 4. SOUTH KANARA:** (28) Coondapur, (29) Udipi, (30) Karkal, (31) Mangalore, (32) Buntwal, (33) Belthangady, (34) Futtur.

of the location of an organized market centre, and as the production of arecanut is mainly for the market, the question of where and how the produce is marketed by the producer becomes important. The producer has a number of alternatives to market his produce. He can choose to sell in the village or sell in one or the other market. We have seen in Chapter III, though Mangalore is the only regulated market in South Kanara district, it handles the entire produce of that district, despite the fact that this market is located far away from the major producing regions within that district. The two markets of Shimoga district handle only 70 per cent of the production in the two districts, Shimoga and Chickamagalur, indicating that the entire produce is not sold in the regulated markets. The markets in North Kanara district handle the entire produce of the district. As there are three regulated and one unregulated markets located in the major producing regions within this district, the producer is left with the choice of selecting one or the other market to sell his produce. Further, the markets like Mangalore and Sirsi also draw their supply from outside the districts in which they are located.

(3) Since the producing regions are wide spread in relation to the location of the regulated markets, the temporal pattern of arrivals in these markets also needs to be examined. For, unlike other annual crops, arecanut is harvested 3 to 4 times during an year extending over a

period of 6 months and the pattern of marketing largely depends upon the timing of harvests and the time taken for processing the nuts, as certain type of nuts like the boiled nuts, take much shorter time to be ready for the market than others like sun-dried whole nuts. Does the producers sell the produce as and when it is ready for the market or depending upon the distance from the market decide upon the frequency of marketing? That is, with an increase in the distance of the place of production from the market centre do the arrivals tend to get concentrated in a fewer months as the sellers would maximise the load during each trip because of a higher transport cost and the time taken for each trip.

It would have been interesting to examine the pattern of marketing in the case of each of the regulated markets as the location, size and the area served by each of these markets vary considerably. However, detailed information relating to the quantity of arecanut arriving from different villages, the type of sellers (i.e. producers or traders), etc., was collected only in the regulated markets in Shimoga and North Kanara districts. The South Kanara Market Committee did not possess any such details regarding the arrivals in Mangalore Market and, therefore, no study of the Mangalore market was possible. It would have been desirable to select Shimoga market for such a study for two reasons - firstly, while a part of the producing region served by it was within a reasonable distance, a large part

was at a considerable distance from the market. The total area served by the market was quite wide. Secondly, the pattern of 'arrivals' and 'sales' in this market was different from that in a market like Sirsi. As will be seen in Chapter VII, while the arrivals in this market show a high seasonality, the pattern in 'sales' is almost uniform over the year. This means that there is a considerable amount of postponement in the sales even after the produce arrives in the market. However, the analysis intended in this chapter could not be attempted in the case of Shimoga market because, for reasons beyond our control, it was not possible to obtain the detailed records from the Market Committee necessary for our purpose. Only the Agricultural Produce Market Committee, Sirsi, made all the detailed data and records available to us. Hence the analysis in this Chapter is restricted to Sirsi market.

The analysis in this chapter and the following chapter is based on the information collected from the final sale bills, locally called 'vikri patti' or 'Assami patti' which the Commission Agents send to the Market Committee each day. These bills give the name of the producer (seller), the name of his village and the quantity sold, along with the variety, price and the name of the purchaser. The information from the sale-bills was collected for one complete marketing year i.e. from September 1966 to August 1967. There were more than 60,000 transactions in arecanut during this year to be considered for our analysis. Since

organizing and tabulating the data of this volume for more than one year was beyond our resources of time, it was decided to carry out the analysis for only one year, 1966-67, though the data were available for the earlier years also. It may be mentioned that the information provided by the sale-bills relate to the actual 'sales' during each day. As data relating to the actual 'arrivals' into the market with all the necessary details were not available, the sales are treated synonymous with arrivals for the purpose of our analysis in this chapter, and are referred to as 'arrivals' in the course of the discussion in this chapter. However, treating 'sales' and 'arrivals' as one and the same does not also affect our results. For, the difference between the total 'arrivals' and 'sales' in this market was quite small and further, as will be seen from Chapter VII, both these exhibited the same pattern with practically no lag between the two.

This chapter is divided into three sections. The first section gives a general description of the market and the sellers in the market. In the second section, the location of production in the supply area to the market, the distribution of arrivals in the market according to their place of production, and the marketing intensities are dealt with. The final section deals with the temporal pattern of deliveries to market, the object being to find out whether the seasonal pattern in arrivals show any change with the increase (or decrease) in the distance of the place of

production from the market centre.

I. The Market and the Sellers

Sirsi is the most prosperous town in North Kanara district and well known for its trade in arecanut, cardamom and pepper. It is situated about 74 miles to the east of Karwar, the district headquarters, and 64 miles to the west of Hubli on the Hubli-Sirsi-Kumta State highway. The traffic between this district and the areas in the hinterland moves on a network of roads. The only other mode of transport is by sea. The coastal steamers plying between Bombay and Cochin call at Karwar port, but this port is completely cut off during the monsoons.

The district is served by three regulated markets and one unregulated market: as far as marketing of arecanut is concerned. Of these, Sirsi is the biggest market for arecanut in the district and the jurisdiction of the Sirsi Market Committee extends over the two taluks of Sirsi and Siddapur. Siddapur market, about 28 miles to the south of Sirsi was regulated in 1956. This market is for administrative purposes a sub-market of the Agricultural Produce Market Committee, Sirsi, for our purposes, it is treated as a separate market yard. The other regulated market for arecanut is the Kumta market, about 38 miles to the west of Sirsi on the coast. This market was regulated in 1961. The jurisdiction of the Market Committee at Kumta extends over the taluks of Kumta, Honnavar, Bhatkal and Ankola.

Even though Yellapur, about 32 miles to the north of Sirsi is one of the important arecanut growing taluks of the district, the existing market in Yellapur has not yet been brought under the Regulation of Markets Act.

The supply area to Sirsi market extends not only beyond the administrative boundary of the taluk but also beyond the 'market area' of the Sirsi Market Committee. The share of different taluks within the district and outside the district in the total arrivals of arecanut in Sirsi market during 1966-67 is given below.

Table 5.1. Arrivals from different taluks as a proportion of the total quantity of arrivals of arecanut in Sirsi market during 1966-67

North Kanara district	% of arrivals
Sirsi Taluk	68.44
Siddapur Taluk	19.85
Yellapur Taluk	5.51
Kunta Taluk	0.45
Mundagod Taluk	0.23
Outside the district	5.52
	100.00

It can be seen from the above Table that more than 68 per cent of the supply to Sirsi market comes from within the taluk. It is also noteworthy that Siddapur and Yellapur taluks contribute as much as 25 per cent of arrivals in the Sirsi market, the three taluks, Sirsi, Siddapur and

Yellapur together accounting for about 94 per cent of the total arrivals in the Sirsi market. As the bulk of the supply to Sirsi market comes from these three contiguous taluks the analysis of the data in the subsequent sections of this chapter is restricted to these three taluks only.

Sellers in the Market

During 1966-67 the total number of sellers in Sirsi market was 6734. These were mainly the producers; village merchants and small traders who buy in the village and sell in the Sirsi market appeared to be quite small in number. It was not easy to estimate the quantity handled by such traders as most of them operated under the guise of producers. This was also the view expressed by the officials of the Market Committee. During 1965-66 the Market Committee detected five such trader-sellers operating without a licence from the Committee; they were prosecuted in a court of law.¹ Motives that discourage these sellers from operating as licensed traders are many. The most common are the evasion of the purchase tax to be paid by the first purchaser under the Mysore Sales Tax Act, obtaining of licence from the market committee and maintenance of regular accounts.

However, some licensed trader-sellers declared part of

¹ Annual Administration Report of the Market Committee, 1965-66, p. 9.

the produce brought by them for sale into the market as purchased by them outside the market yard. The sale of such produce (i.e. the produce declared as purchased outside the market yard or market proper) are recorded as "second sales and purchase tax already paid" in the final sale-bills prepared by the commission agents. An examination of the sale-bills of all the commission agents for the year 1966-67 revealed that there were only 27 such trader-sellers. These trader-sellers came from 13 villages of which 5 villages were from outside the taluk of Sirsi. The total quantity sold by these trader-sellers was about 2.24 per cent of the total quantity sold in the market. Of this the trader-sellers had declared about 1.92 per cent as second sales in the market. Even if the entire quantity handled by these trader-sellers is assumed as second sales, it constituted a very small proportion (i.e. 2.24%) of the total sales in the market. It is obvious from the above that the sellers in the market were predominantly producers and sales outside the market were negligible.

II. Spatial Distribution of Arrivals to Sirsi Market and their Intensities

We have seen in the preceding section that while the Sirsi market draws its supply mainly from within the taluk of Sirsi, a considerable proportion of the supply comes from outside the taluk as well as from outside the 'market area' of the Sirsi Market Committee. Further, we have also seen

that more than 97 per cent of the arrivals in this market is brought by the producers. In this section, we further examine the location of production of arecanut in the three taluks of Sirsi, Siddapur and Yellapur in relation to the location of the three markets in these taluks, the spatial distribution of arrivals to Sirsi market, the marketing intensities and the arrivals per seller in relation to the distance from the market centre.

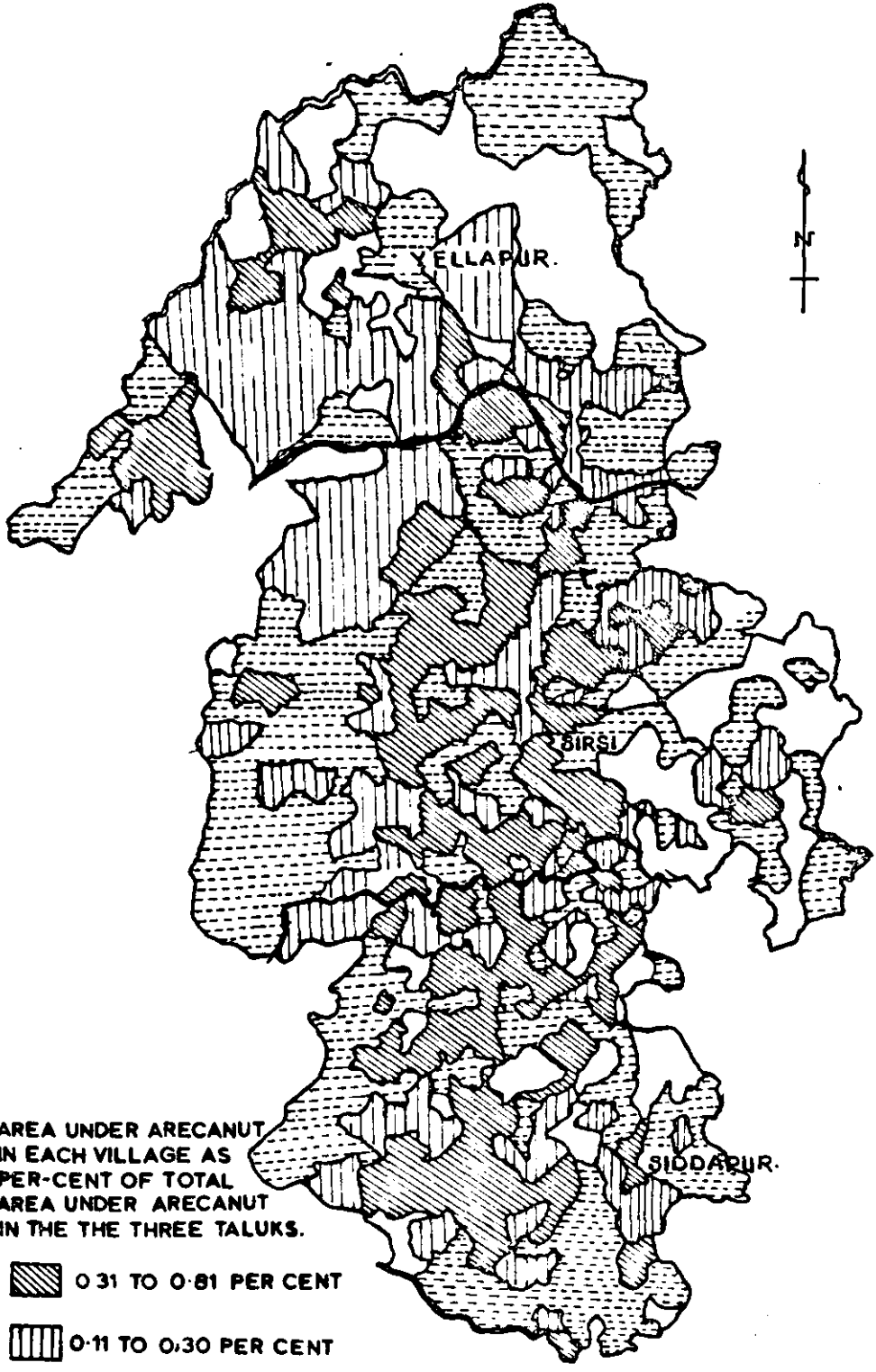
Location of Production

Sirsi, Siddapur and Yellapur are the three major arecanut producing taluks in the district. The share of these three taluks in the total area under arecanut in the district during 1965-66 was about 79 per cent. From Table 5.2 we can see that the share of Sirsi and Siddapur was about 33 per cent each while that of Yellapur was just over 13 per cent. Further, of the 562 villages in these three taluks arecanut is cultivated in as many as 479 villages (about 85 per cent of the villages), which indicates that arecanut cultivation is fairly widespread in these taluks.

The pattern of distribution of the area under arecanut in these three taluks is shown in Map 5.2. This map gives the area under arecanut in each village as a proportion of the total area under arecanut in the three taluks of Sirsi, Siddapur and Yellapur. It can be seen from the map that location of production of arecanut is mainly confined to a narrow strip of 10 mile width extending from the

MAP. 5.2. DISTRIBUTION OF AREA UNDER ARECANUT SIRSI, SIDDAPUR AND YELLAPUR TALUKS.

0 1 2 3 4 MILES



AREA UNDER ARECANUT
IN EACH VILLAGE AS
PER-CENT OF TOTAL
AREA UNDER ARECANUT
IN THE THE THREE TALUKS.






 0.31 TO 0.81 PER CENT
 0.11 TO 0.30 PER CENT
 UP TO 0.10 PER CENT
 NIL
 TALUKA BOUNDARY.

Table 5.2. Number of villages and area under arecanut in the three taluks of Sirsi, Siddapur and Yellapur - 1965-66.

Taluk	Total No. of villages	No. of villages growing arecanut	Area under arecanut (acres)	% of area under arecanut in the district
Sirsi	227	179	5733	32.63
Siddapur	202	183	5862	33.13
Yellapur	133	117	2335	13.22
Total	562	479	13930	78.98

southern tip of Siddapur taluk in the south to the middle of Yellapur taluk in the north. Further, it can be seen from the map that cultivation of arecanut to the east of Sirsi is quite small. Cultivation of the crop is also quite small, in the immediate neighbourhood of Siddapur market and to the north and east of Yellapur market.

Thus, there were three markets for arecanut located in this production region: Yellapur in the north, Sirsi in the middle and Siddapur in the south. It was noted above that very little - no more than 2 per cent of the total produce brought to Sirsi market - was brought by village traders. The rest was marketed by the producers. This also was very likely the situation in Siddapur and Yellapur markets. In view of three competing markets, it would be interesting to examine the regional distribution

of the produce that was brought to the Sirsi market.

Spatial Distribution of Arrivals

So far we have presented the distribution of the production of arecanut in the three taluks, Sirsi, Siddapur and Yellapur, from where Sirsi market draws about 94 per cent of its supply as brought out in Table 5.1. Now we proceed further to examine how this supply to Sirsi market is distributed over this area.

Of the 479 villages growing arecanut in these three taluks, arecanut from as many as 283 villages was brought to Sirsi market during 1966-67. These 283 villages (59 per cent villages growing arecanut) accounted for about 67 per cent of the area under arecanut in these three taluks. Arecanut from all the 179 villages growing arecanut in Sirsi taluk was brought to Sirsi market. This is rather expected. For the villages located in the western part of Sirsi neither Siddapur nor Yellapur market is nearer than Sirsi market. For the producing areas in the north western part of Sirsi taluk bordering Yellapur taluk, though Yellapur market appear to be nearer, because of the hilly terrain Sirsi is the nearest market. Further, for the villages in the west (about 24 miles from Sirsi town) bordering Kumta taluk, Kumta market on the coast is nearer from the point of view of distance. However, because of the steep ghat roads and Sirsi being the bigger market, the produce from these villages is brought into Sirsi market.

This is borne out clearly by the intensity of arrivals from these villages to Sirsi market discussed subsequently in this Section. However, this is not the case of the villages lying beyond 12 miles from Sirsi market to the south or north of Sirsi market. The villages beyond 12 miles from Sirsi market towards Yellapur in the north or towards Siddapur in the south lie nearer to these two markets respectively than to Sirsi market as this twelve mile line forms almost the equi-distant point between Sirsi and Yellapur in the north and Sirsi and Siddapur in the South. Despite this advantage from the point of view of distance between the producing villages and the market, a majority of the villages coming to Sirsi market from these two taluks were located beyond 12 miles. Of the 183 villages growing arecanut in Siddapur taluk, arecanut was brought to Sirsi market from 79 villages. These 79 villages accounted for about 56 per cent of the area under arecanut in Siddapur taluk and only 22 of them were located within 12 miles from Sirsi market. From Yellapur taluk only 25 villages marketed their produce in Sirsi market and these 25 villages accounted for nearly one third of the area under arecanut in Yellapur taluk. However, of these 25 villages only 2 villages were within 12 miles from Sirsi market and the remaining villages were all beyond 14 miles. Further, as will be seen from Map 5.3, the villages coming to Sirsi market from these two taluks were also widely dispersed in these two taluks.

This being the pattern of distribution of the location of production in the supply area to Sirsi market, the distribution of the arrivals to Sirsi market within this supply area is further examined below.

To bring out the spatial distribution of the supply, the villages from where the produce comes to Sirsi market are grouped according to the actual distance from the market centres, the first group of villages falling within 4 miles and the following groups with an interval of two miles. This grouping of villages becomes necessary for two reasons. Firstly, the 'arrivals' refer to the village where the producer or seller resides and not to the village from where the supply originates. It may so happen that a producer residing in one village may have the area in a neighbouring village. Secondly, the village cooperative societies handling the marketing of arecanut have a number of villages under their jurisdiction and the 'arrivals' from these societies refer to the villages where the societies are located. These limitations in the data will lead to an abnormally low or high arrivals in relation to the area under arecanut if individual villages are considered. Hence, to avoid these abnormalities the villages are grouped according to the actual distance from the market centre. The first group of villages falling within four miles from the market centre and the following groups with a two mile interval. Further, as villages falling closer to Siddapur and Yellapur markets might show lower arrivals

to Sirsi because of the influence of these markets, villages falling beyond twelve miles from Sirsi market are made into three groups (i.e. villages within Sirsi taluk, villages from Siddapur taluk and villages from Yellapur taluk) to bring out any such influence. The data are presented in Map 5.3 and Table 5.3.

Of the total arrivals of 71,675 quintals of arecanut in Sirsi market 70.90 per cent (50,821 quintals) came from villages within 12 miles from the market centre which in fact form the effective supply area to the market. Villages lying between 12 and 24 miles accounted for 26.31 per cent and villages located more than 24 miles accounted for 2.79 per cent of the total arrivals in the market.

The amount of arrivals from the villages in Sirsi taluk lying between 12-24 miles was much smaller than the amount of arrivals from the villages in Siddapur taluk falling in the same distance group. While the former was 8.64 per cent, the latter was 13.54 per cent. This was because of the smaller area under arecanut in the zone of 12-24 miles in the Sirsi taluk than in Siddapur taluk. The area under arecanut in the distance group of 12-24 miles in Sirsi taluk was 861 acres and it was 1926 acres - more than double - in Siddapur taluk. However, arrivals originating from this range from Sirsi taluk were 6,198 quintals, they were 9,688 quintals - just over one and half times - from Siddapur taluk, indicating greater intensity (per acre) of arrivals from this zone in Sirsi taluk.

Table 5.3. Area under Arecanut and Total Arrivals in Sirsi Market from Various Distance Groups (1966-67)

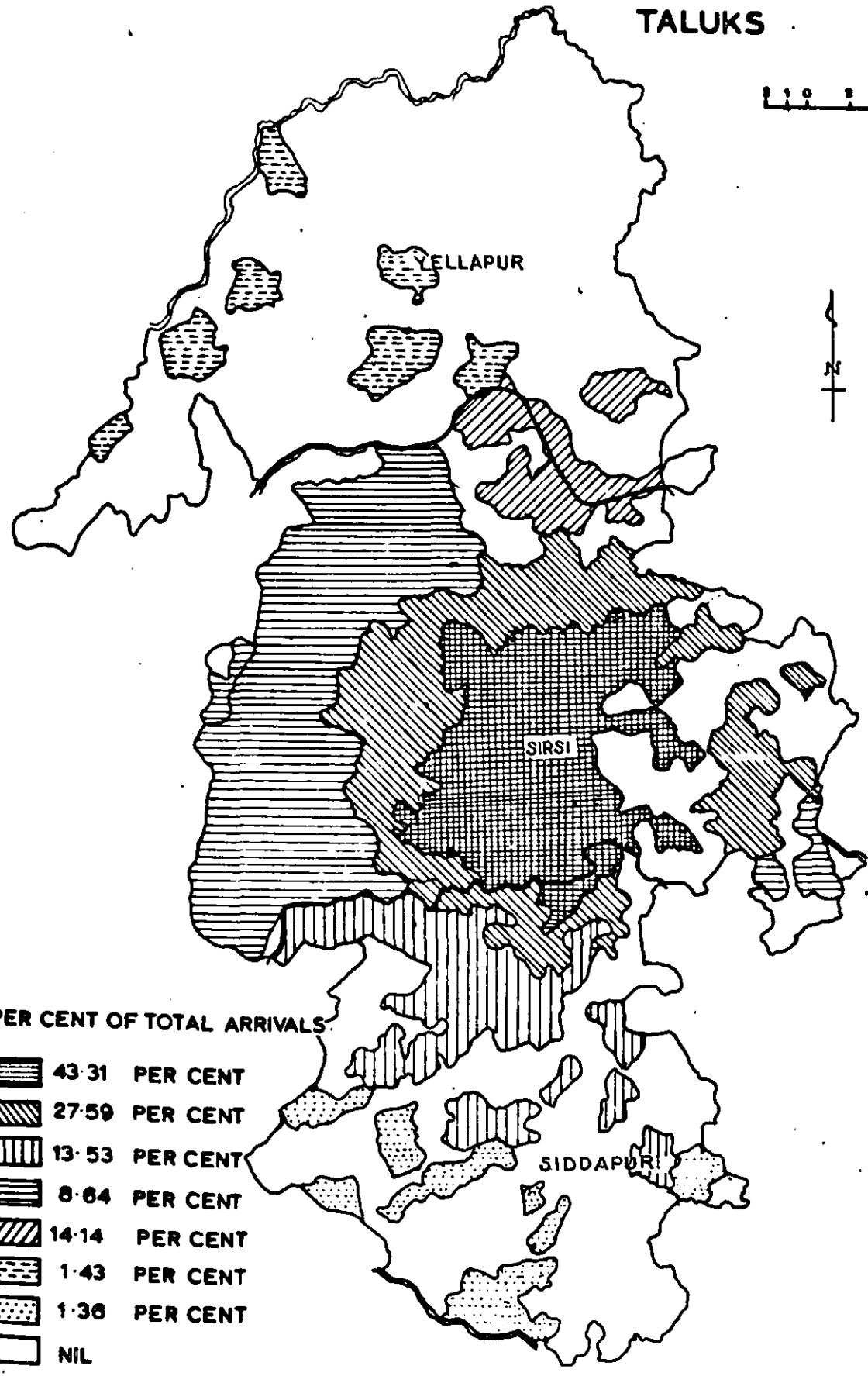
(Area in acres. Arrivals in Quintals)

Distance Group (in miles from Sirsi market)	Sirsi Taluk			Siddapur Taluk			Yellapur Taluk			Total (three Taluks)		
	Area under Areca- nut	Arri- vals	% of to- tal arrivals in the market	Area under Areca- nut	Arri- vals	% of to- tal arrivals in the market	Area under Areca- nut	Arri- vals	% of to- total arrivals in the market	Area under Areca- nut	Arri- vals	% of to- total arrivals in the market
Upto 4 miles	1026.68	10885.03	15.19	-	-	-	-	-	-	1026.68	10885.03	15.19
4 - 6 miles	926.63	10295.92	14.36	-	-	-	-	-	-	926.63	10295.92	14.36
6 - 8 miles	889.70	8965.84	12.51	95.76	900.14	1.25	-	-	-	985.46	9865.98	13.76
8 -10 miles	790.60	6966.28	9.72	342.82	2996.05	4.18	-	-	-	1133.42	9962.33	13.90
10 -12 miles	854.51	7202.70	10.05	313.58	2085.03	2.91	64.55	524.15	0.73	1232.64	9811.88	13.69
12 -14 miles	170.10	1377.81	1.92	221.17	1060.23	1.48	-	-	-	391.27	2438.04	3.40
14 -16 miles	191.77	1217.74	1.70	556.87	2873.31	4.01	120.75	893.18	1.25	869.39	4984.23	6.95
16 -18 miles	198.78	1590.76	2.22	312.94	1796.28	2.51	98.95	618.44	0.86	610.67	4005.48	5.59
18 -20 miles	120.31	920.60	1.28	305.62	1711.47	2.39	150.90	1183.29	1.65	576.83	3815.36	5.32
20 -22 miles	159.91	970.63	1.35	128.41	743.26	1.04	36.63	274.12	0.38	326.95	1988.01	2.77
22 -24 miles	19.83	119.97	0.17	401.04	1503.90	2.11	-	-	-	420.87	1623.87	2.28
24 -26 miles	-	-	-	109.71	349.97	0.49	-	-	-	109.71	349.97	0.49
26 -28 miles	-	-	-	63.11	72.70	0.10	-	-	-	63.11	72.70	0.10
28 -30 miles	-	-	-	129.28	136.35	0.19	-	-	-	129.28	136.35	0.19
Beyond 30 miles	-	-	-	300.52	413.35	0.58	285.58	1026.90	1.43	586.00	1440.25	2.01
All Distance Groups	5348.82	50513.28	70.48	3280.83	16642.04	23.22	757.36	4520.08	6.30	9387.01	71675.40	100.00









MAP.
5-3.

SPATIAL DISTRIBUTION OF ARRIVALS TO SIRSI MARKET FROM SIRSI SIDDAPUR AND YELLAPUR TALUKS

0 1 2 3 4 MILES



PER CENT OF TOTAL ARRIVALS.

-  43.31 PER CENT
-  27.59 PER CENT
-  13.53 PER CENT
-  8.64 PER CENT
-  14.14 PER CENT
-  1.43 PER CENT
-  1.36 PER CENT
-  NIL

 TALUKA BOUNDARY.

This aspect is considered in detail later in this section. The quantum of arrivals was smallest (4.14 per cent) from the villages in Yellapur taluk in this distance group of 12-24 miles. Between 24-30 miles arrivals from villages in Siddapur taluk were 0.78 per cent (There was no village beyond 24 miles in Sirsi taluk and between 24-30 miles from Yellapur taluk). Beyond 30 miles the amount of arrivals from the villages closer to Siddapur market was much smaller than the arrivals from the villages closer to Yellapur market. They were 413 quintals and 1027 quintals respectively. Siddapur being a regulated market must be exerting better influence in the immediate vicinity than the unregulated Yellapur market.

The pattern of distribution of supply to Sirsi market presented above shows that most of the produce arrives from areas closer to Sirsi market. With an increase in the distance from the market centre the quantum of arrivals decreases. Further, it was also brought out that the total amount of arrivals from the villages in Siddapur taluk in the distance group of 12-24 miles was more than the arrivals from the villages in Sirsi or Yellapur taluks in the same distance group of 12-24 miles.

Marketing Intensities

The inverse relationship between the amount of arrivals and the distance from the market centre may be caused by the obvious reason of 'pull' from the other competing markets or by a less obvious reason of unequal area (output)

under the crop. This is examined below by calculating the spatial distribution of 'intensities'.¹

Since villages vary in size (and area under arecanut) the amount of arrivals from different villages are not directly comparable. This makes it necessary to bring them on a comparable basis. The proper method of doing this is to express the arrivals as a proportion of the total production. Production estimates are not available for the individual villages. Using the available yield data for the district to arrive at production estimates for the individual villages would only mean multiplying the area under the crop with a constant yield estimate. Further, as pointed out in Chapter III, the available yield estimates are in themselves of a doubtful accuracy. Instead of using such production estimates, the arrivals are related to the area under arecanut and the intensities are expressed as arrivals per acre. This method obviously does not make any allowance for the differential fertility. It is easy to imagine an extreme case where groups of villages near the market sell almost all their produce in Sirsi market but with very low yield per acre. The intensity of arrivals per acre will be low here indicating lesser importance of Sirsi market for this group of villages when in fact it is 'the' market for the group. But it is safe to assume that the yield may not be widely fluctuating in the contiguous

¹ By 'intensities' we mean the arrivals per acre of area under arecanut.

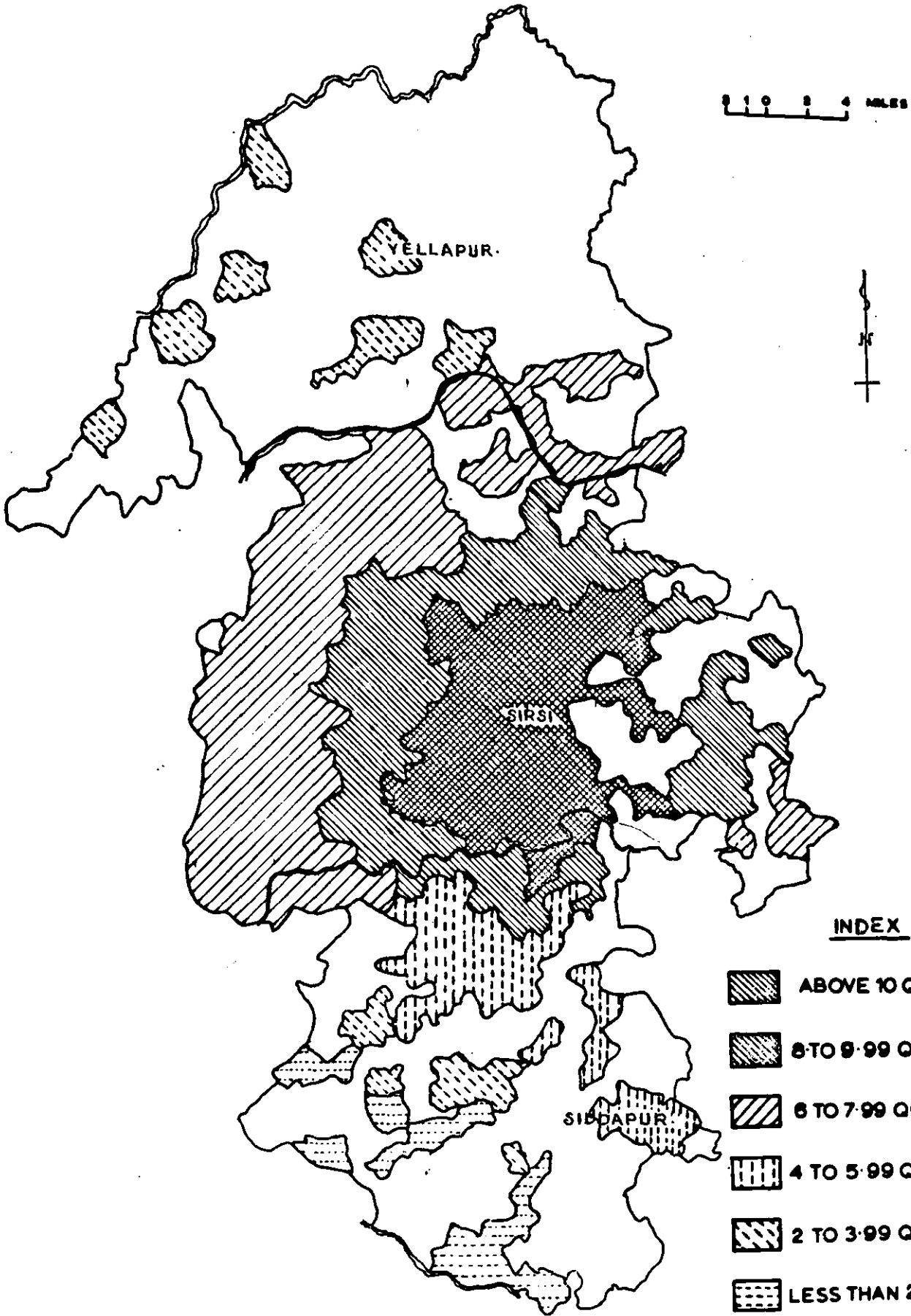
region under consideration. In the following discussion the intensities are calculated for all the villages in each distance group instead of the individual villages. The need for grouping the villages according to the actual distance from the market centre are already explained. The pattern of marketing intensities are presented in Map 5.4 and Table 5.4.

The arrivals per acre are a little over 10 quintals upto 8 miles, which starts declining beyond 8 miles. The intensity in arrivals, however, remain rather stable for Sirsi taluk. Beyond 12 miles from the market centre towards Siddapur market the intensities decline from 6.65 quintals in the 10-12 mile range to 4.79 quintals 12-14 mile range. Between 14-22 miles the intensities remain around 5 quintals. Between 22-24 miles the arrivals per acre is 3.79 quintals. Beyond 30 miles the intensity is a little over 1.50 quintals. While in the north towards Yellapur market, the intensities are of a much higher order than towards the south of Sirsi market. For the 14-22 mile range the intensities remain more or less the same around 7 quintals. Beyond 24 miles the intensities drop down to 3.59 quintals. While for the same distance group the per acre arrivals from the areas nearer to Siddapur market is 1.61 quintals.

The hypothesis of inverse relationship between intensity of arrivals per acre and distance is amply borne out by the figures in Table 5.4, and Map 5.4. Upto the distance of 12 miles from Sirsi it is apparent for all taluks.

MAP.
5.4.

INTENSITY OF ARRIVALS.
QUANTITY MARKETED PER ACRE OF AREA UNDER ARECANUT.



INDEX








-  ABOVE 10 QUINTALS
-  8 TO 9.99 QUINTALS
-  6 TO 7.99 QUINTALS
-  4 TO 5.99 QUINTALS
-  2 TO 3.99 QUINTALS
-  LESS THAN 2 "
-  NIL
- TALUKA BOUNDARY.

Table 5.4. Arrivals per Acre of Area under Arecanut and Per Seller - Sirsi market, 1966-67

(Quantity in quintals)

Distance Group (in miles (from Sirsi Market))	Sirsi Taluk				Siddapur Taluk				
	Arrivals per acre	Arrivals per seller (all sellers)	Arrivals per seller (through cooperative societies)	Arrivals per seller (others)	Arrivals per acre	Arrivals per seller (all sellers)	Arrivals per seller (through cooperative societies)	Arrivals per seller (others)	
Upto 4 miles	10.60	13.96	11.44	15.22	-	-	-	-	
4 - 6 miles	11.11	12.92	8.71	13.89	-	-	-	-	
6 - 8 miles	10.08	12.10	11.73	12.27	9.40	11.25	-	11.25	
8 - 10 miles	8.81	10.31	8.59	10.81	8.74	11.52	11.60	11.51	
10 - 12 miles	8.42	11.24	10.91	11.36	6.65	10.12	-	10.12	
12 - 14 miles	8.10	6.96	-	6.96	4.79	7.68	5.97	8.16	
14 - 16 miles	6.35	8.64	-	8.64	5.16	13.81	12.77	13.84	
16 - 18 miles	8.00	8.20	7.46	8.20	5.74	14.97	-	14.97	
18 - 20 miles	7.65	11.65	-	11.65	5.59	27.60	-	27.60	
20 - 22 miles	6.07	8.09	1.66	8.09	5.79	12.34	-	12.34	
22 - 24 miles	6.05	13.33	-	13.33	3.79	21.18	-	21.18	
Beyond 24 miles	-	-	-	-	1.61	9.44	-	9.44	
All distance groups	9.44	11.54	10.37	11.90	5.07	12.72	8.93	12.91	
Total No. of sellers		4376	1026	3350		1308	61	1247	
Total No. of cooperatives			18				3		
		Yellapur Taluk				Total (Three taluks)			
Upto 4 miles	-	-	-	-	10.60	13.96	11.44	15.22	
4 - 6 miles	-	-	-	-	11.11	12.92	8.71	13.89	
6 - 8 miles	-	-	-	-	10.01	12.02	11.73	12.13	
8 - 10 miles	-	-	-	-	8.79	10.64	9.03	11.03	
10 - 12 miles	8.12	9.36	3.76	10.29	7.96	11.25	10.59	10.03	
12 - 14 miles	-	-	-	-	6.23	7.26	5.97	7.38	
14 - 16 miles	7.40	7.83	6.22	8.97	5.73	10.77	6.85	11.26	
16 - 18 miles	6.25	11.89	-	11.89	6.56	12.29	7.46	11.52	
18 - 20 miles	7.84	8.70	9.37	7.85	6.61	13.77	9.37	15.44	
20 - 22 miles	7.48	8.84	2.45	11.87	6.08	9.42	2.36	9.85	
22 - 24 miles	-	-	-	-	3.86	20.30	-	20.30	
Beyond 24 miles	3.59	13.51	-	13.51	2.25	11.17	-	11.17	
All distance groups	5.97	9.72	7.51	10.68	7.64	11.66	9.97	12.30	
Total No. of sellers		465	141	324		6149	1228	4921	
Total No. of cooperatives			4				25		

Beyond 12 miles it is more apparent in the case of Siddapur where the intensity falls sharply - the pull of the regulated market of Siddapur is apparent here - but for Sirsi the intensities remain rather stable. This is because the western and eastern parts of Sirsi (where production is located) is equally (if not farther) away from the two markets in north and south. The Kumta market to the west of Sirsi, on the coast, also did not seem to wield influence on the producers coming to Sirsi market from the bordering villages of Sirsi taluk. This could be attributed to the fact that these villages were situated on the ghats while the market was located on the coast. The flow of produce from these relatively distant areas to Sirsi is then only expected. In the case of Yellapur the fall is not very sharp as it is an unregulated market.

The decreasing intensity in the arrivals from villages nearer either to Siddapur or Yellapur markets was obviously due to the influence exercised by these markets. However, the extent of pull of these markets did not seem to be sufficient to completely wean away the farmer from the Sirsi market in spite of the longer distance. What motivated these farmers to travel a longer distance was possibly that Sirsi was considered a 'better market' both for selling their produce and purchasing their house-hold and input requirements. The relatively higher intensity around Yellapur than around Siddapur also indicates the above view point that Sirsi was considered a 'better market'. As

mentioned earlier, Yellapur is a much smaller township with an unregulated market while Siddapur is a relatively bigger market town with a regulated market.

Arrivals per seller

The question remains: What type of farmers take their produce such long distances skipping the nearer markets to what is considered a 'better market'? If we assume that it is the relatively bigger producers of arecanut who afford to travel a longer distance preferring what is considered to be a better market, then the arrivals per seller should be higher with a growing distance from Sirsi market. This is partially upheld by our data presented in Table 5.4.

The arrivals per seller from Sirsi taluk in fact shows a gradual decline with an increase in the distance from the market centre. It is only in the last distance group (22-24 miles) that the per seller arrivals are higher than the rest of the distance groups excepting the first. The increase in the arrivals per seller from within Sirsi taluk is also not expected as there is no alternative market for these farmers. The arrivals per seller, however, shows an increase towards Siddapur market up to 24 miles. It increases from 11.25 quintals per seller in the distance group of 6-8 miles to 21.18 quintals in the distance group of 22-24 miles. Beyond 24 miles the arrivals per seller drop down to 9.44 quintals. Towards Yellapur market the arrivals per seller are around 8 quintals upto 22 miles,

while they are a little more than 13 quintals beyond 24 miles. The sellers coming from Siddapur taluk were relatively larger than those coming from Yellapur taluk.

Further, when the quantity arriving through the co-operative societies is excluded, the arrivals per seller come out to be slightly higher (Table 5.4). That is, the arrivals per seller through the cooperative societies are smaller than the arrivals per seller coming directly to the market. There were 25 village cooperative societies in these three taluks bringing arecanut to Sirsi market on behalf of their members. The arrivals through these cooperative societies was around 17 per cent of the total arrivals from these three taluks. The 18 cooperative societies in Sirsi taluk brought 14.83 per cent while the arrival from the three cooperative societies from Siddapur taluk was 0.76 per cent. It was 1.48 per cent for the 4 societies from Yellapur taluk. Of the total quantity arriving from Siddapur taluk, the arrivals through the three societies was only 3.27 per cent while it was 23.44 per cent for Yellapur taluk and 21.0 per cent for Sirsi taluk. Some of these cooperative societies preferred to send their produce to Sirsi market, though they were nearer to Yellapur or Siddapur markets.

Our analysis of the spatial distribution of supply and their intensities has brought out some significant results. The areas of higher intensity of arrivals lie within a circle of 20 miles from where the market receives more than 86 per cent of its supply from about 84 per cent of the

total sellers in the market. This is in contrast to what Christaller¹ found in his investigation of the market places in Southern Germany. He was primarily interested in the area effectively served by a market town and found a radius of 2.5 miles the most effective distance. Walter C. Neale and others² in their study of Kurali market in Northern Punjab found that the area of higher intensity lies within a circle of five miles radius. The large area served by a single market in our present study may be because of the mountainous region where population is sparsely distributed over a generally forbidding landscape. In such regions where the population is sparsely distributed marketing areas must be large in order to encompass enough turnover to assume the dimensions of a market. However, this is also in contrast to what William Skinner found in the case of rural China.³ Skinner found that the average distance travelled by the most disadvantageous villager was 8.4 km (5.25 miles) even in mountainous regions and arid peripheries of agricultural China with very sparsely distributed population.

The relatively higher intensity of arrivals towards Yellapur in the North than towards Siddapur in the South

1 Discussed in R.E. Dickinson, 'City, Region and Regionalism', Kegan Paul, London, 1947, pp. 30-31.

2 Walter C. Neale, Harpal Singh and Jai Pal Singh, 'Kurali Market : A Report on the Economic Geography of Marketing in Northern Punjab' - Economic Development and Cultural Change, Vol. XIII, Number 2, (January 1965), 129-168.

3 G. William Skinner, 'Marketing and Social Structure in Rural China', Part I, The Journal of Asian Studies, Vol. IXIV, No. 1 (November 1964), pp. 32-33.

indicates that the sellers from the former area consider a regulated market a 'better market' than an unregulated one. That the existence of a competitive market does not limit the marketing area can also be seen from the arrivals from the areas closer to Siddapur market. The only point of difference was that it was the relatively bigger farmers that skipped Siddapur market to reach Sirsi while the farmers from Yellapur were relatively smaller. Even the village cooperative societies handling the marketing of arecanut sent their produce to Sirsi for sale despite the fact that they were nearer to these other markets and the Totgars' Cooperative Sale Society, which handles the produce sent by these societies had its branch both at Siddapur and Yellapur.

III. Temporal Pattern of Deliveries to the Market

Having seen the spatial distribution of supply and the marketing intensities we now proceed to the temporal pattern of deliveries to the market. We start with the hypothesis that areas closer to the market will show a more even distribution in the arrivals over the season. That is, with an increase in the distance from market centre, the arrivals would tend to get concentrated in a fewer months as the sellers would maximise the load during each trip in consideration of a higher transport cost and the time taken for each trip. It would be natural to assume that the areas closer to the market have a lower transport cost and have quicker and easier access to market information. That is, they are

in a better position to take advantage of a favourable price. Hence the hypothesis stated above, viz. the areas closer to the market would distribute their supply more evenly over the season.

Monthly arrivals from each distance group during 1966-67 are presented in Table 5.5. The pattern of arrivals shows a very high seasonality, more than 80 per cent of the total arrivals in the market falling in the 6 months, December through May.¹ The quantum of arrivals during the first three months (September to November) of the season was 6.05 per cent. It was 13.48 per cent for the last three months (June to August).

The seasonal index for each distance group was compared with the overall seasonal index (average for all distance groups) to find out whether the seasonal pattern showed any significant change from the average pattern with an increase in the distance from the market centre. Seasonal index was computed by expressing the arrivals during each month as a percent of the total arrivals in the year. This was calculated for each distance group separately and for all distance groups together. The similarity or otherwise between the seasonal pattern of arrivals from various distance groups and the average pattern was determined by

1 As will be seen in Chapter VII, the high seasonality was not peculiar to this particular year and a similar pattern is observed for the years preceding 1965-67.

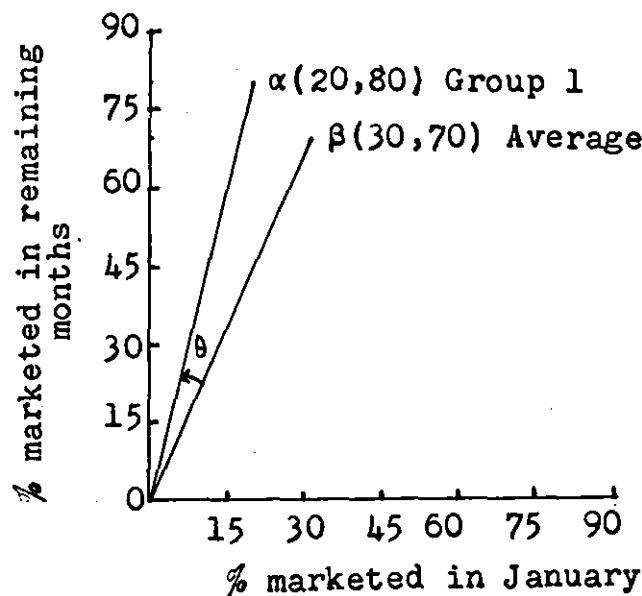
Table 5.5. Monthly Arrivals of Arecanut in Sirsi Market from Various Distance Groups - 1966-67.

(Quantity in quintals)

Distance Group (in miles from Sirsi market)	September	October	November	December	January	February	March
Upto 4 miles	87.08	302.60	170.89	1409.61	2325.04	1290.96	1513.32
4 - 6 miles	126.64	363.44	232.09	1122.24	1905.76	1218.00	1336.40
6 - 8 miles	103.59	440.02	151.94	951.08	1803.50	1042.88	1469.04
8 -10 miles	151.43	239.10	114.57	844.81	2233.55	1027.12	1364.84
10 -12 miles	114.80	193.30	173.30	976.29	2173.35	1075.39	1380.56
12- 14 miles	7.07	27.79	3.42	193.58	499.07	357.66	420.32
14 -16 miles	67.79	113.14	34.89	325.47	1080.58	635.49	809.44
16 -18 miles	95.73	89.32	56.48	361.69	728.60	519.92	461.43
18 -20 miles	70.97	143.08	124.76	217.48	636.78	368.56	782.15
20 -22 miles	48.50	87.07	33.80	111.33	290.85	205.96	317.09
22 -24 miles	-	117.89	5.85	124.06	301.55	211.10	204.93
24 -26 miles	-	-	6.33	31.43	60.89	53.20	54.04
26 -28 miles	4.70	0.13	-	14.15	17.88	0.80	20.62
28 -30 miles	0.74	9.20	0.61	3.44	34.58	17.18	19.21
Beyond 30 miles	73.74	26.36	21.76	130.05	243.83	121.70	222.37
All distance groups	967.62	2150.26	1218.48	6895.17	14378.09	8070.65	10328.43
Distance Group (in miles from Sirsi market)	April	May	June	July	August	Total	% to total
Upto 4 miles	1028.64	1304.25	783.72	156.74	494.18	10885.03	15.19
4 - 6 miles	912.21	1411.57	911.18	210.03	496.26	10295.82	14.36
6 - 8 miles	1252.98	1259.86	820.85	201.27	368.99	9865.98	13.76
8 -10 miles	1183.52	1446.53	810.93	135.48	410.45	9962.33	13.90
10 -12 miles	1262.80	1321.67	657.40	102.04	361.08	9811.98	13.69
12 -14 miles	349.61	399.35	99.96	36.57	33.64	2438.04	3.40
14 -16 miles	484.47	744.64	293.57	100.18	274.07	4984.23	6.95
16 -18 miles	360.49	722.99	331.25	73.70	203.88	4005.48	5.59
18 -20 miles	420.45	537.58	189.24	46.55	277.76	3815.36	5.33
20 -22 miles	230.01	364.20	168.98	51.89	78.33	1988.01	2.77
22 -24 miles	241.47	213.21	117.73	0.34	85.74	1623.87	2.27
24 -26 miles	41.61	50.99	50.29	0.63	0.56	349.97	0.49
26 -28 miles	2.02	9.54	-	2.86	-	72.70	0.10
28 -30 miles	14.42	33.68	1.84	-	1.45	136.35	0.19
Beyond 30 miles	200.48	237.35	102.55	28.37	31.69	1440.25	2.01
All distance groups	7991.81	10013.05	5397.16	1161.14	3103.54	71675.40	100.00

a measure suggested by Sherr¹ which takes into consideration the angle of deviation of a given distance group pattern from the average pattern.

To illustrate this measure geometrically, let us consider the proportion marketed in say January and the proportion marketed during the rest of the eleven months. Here it is possible to present a two dimensional diagram as follows:



The proportion for group 1 and the average for all groups are represented by the points α and β respectively. The angle between the lines $o\alpha$ and $o\beta$ is referred to as the angle of deviation in group 1 from the average pattern. In case of perfect agreement the angle of deviation will be zero. In case of perfect disagreement the two vectors α and β would be perpendicular to each other, the angle being 90° . Thus higher the angle, lesser will be the extent of agreement. The present measure is expressed in the following equation:

¹ Lawrence A. Sherr, 'A note on the Measurement of Regional Homogeneity', Journal of Regional Science, Vol. 6, No. 2, 1966, 49-52.

$$J = 1 - \frac{1}{90^\circ} \text{Cos}^{-1} H$$

H being the cosine of angle $\theta = \frac{\sum xy}{\sqrt{\sum x^2} \sqrt{\sum y^2}}$

where x = seasonal index for group 1, and

y = average seasonal index.

(Summation being over the two proportions mentioned.)

In the equation above, the H itself could be a valid measure as with perfect agreement it is equal to unity and with perfect disagreement it is equal to zero. In between these two extremes the measure assumes positive decreasing values for an increasing θ , i.e. the extent of agreement is inversely related to the angle θ . However, this measure although monotonic (decreasing continuously with increasing value of θ), is not linear between the two extremes. For example, with $\theta = 45^\circ$, one would expect the measure to assume value around .5. However, the H value is approximately .7071 with $\theta = 45^\circ$. The linearity condition is satisfied by the J measure which has $J = .5$ when $\theta = 45^\circ$ (J assuming values 1 and 0 in the extreme cases as for the H measure).

In the present case all the twelve months are considered which is a simple extension of the two months case presented above to twelve months under consideration. And a given vector, say α , will have twelve coordinates instead of only two as in the diagram.

Equation for H is then

$$\frac{\sum_{i=1}^{12} x_i y_i}{\sqrt{\sum_{i=1}^{12} x_i^2} \sqrt{\sum_{i=1}^{12} y_i^2}}$$

the sum being over the twelve months under consideration. It may be noted here that the J (or H) measure assumes only positive values within the range 0 to 1.

The results of our analysis are presented in Table 5.6. It can be seen from the Table that the value of J is above 0.5 for all the distance groups, which means that the temporal pattern in the deliveries to the market in the various distance groups are not very much different from the average pattern. In fact, most of the values range between 0.80 and 0.96, showing a high degree of conformity with the general pattern. The only exceptions are the two groups with distance range of 26 to 28 and 28 to 30 miles. But even here, these are well above 0.5, being 0.65 and 0.77 respectively. It may be noted that the last group of over 30 miles distance has a value as high as 0.88. The hypothesis that the arrivals from the areas closer to the market tend to be more evenly distributed is not upheld by the results of our analysis. Seasonality in the arrivals is mainly a function of the natural factors like the timing of the harvests and factors like availability of transport, etc. and distance from market centre seems to be having little or no influence on this pattern.

Table 5.6. Index of Seasonal Pattern of Arrivals in Sirsi Market - 1966-67

Distance Group (in miles from Sirsi market)	September	October	November	December	January	February	March	April
Upto 4 miles	0.80	2.78	1.57	12.95	21.36	11.86	14.07	9.45
4 - 6 miles	1.23	3.53	2.74	10.90	18.51	11.83	12.98	8.86
6 - 8 miles	1.05	4.46	1.54	9.64	18.28	10.57	14.89	12.70
8 - 10 miles	1.52	2.40	1.15	8.48	22.42	10.31	13.70	11.88
10 - 12 miles	1.17	1.97	1.97	9.95	22.15	10.96	14.07	12.87
12 - 14 miles	0.29	1.14	0.14	7.94	20.47	15.08	17.24	14.34
14 - 16 miles	1.36	2.27	0.70	6.53	21.68	12.75	16.25	9.72
16 - 18 miles	2.39	2.23	1.41	9.03	18.19	12.98	11.52	9.00
18 - 20 miles	1.86	3.75	3.27	5.70	16.69	9.66	20.50	11.02
20 - 22 miles	2.44	4.38	1.70	5.60	14.63	10.36	15.95	11.57
22 - 24 miles	-	7.26	0.36	7.64	18.57	13.00	12.62	14.87
24 - 26 miles	-	-	1.81	8.98	17.40	15.20	15.44	11.89
26 - 28 miles	6.48	0.18	-	19.46	24.59	1.10	28.36	2.78
28 - 30 miles	0.54	6.75	0.45	2.52	25.36	12.60	14.09	10.58
Beyond 30 miles	5.12	1.83	1.51	9.03	16.93	8.45	15.44	13.92
All Distance Groups	1.35	3.00	1.70	9.62	20.06	11.26	14.41	11.15

Distance Group (in miles from Sirsi market)	May	June	July	August	Total	H	J
Upto 4 miles	11.98	7.20	1.44	4.54	(100.00)	0.99311	0.94
4 - 6 miles	13.71	8.85	2.04	4.82	(100.00)	0.99537	0.95
6 - 8 miles	12.77	8.32	2.04	3.74	(100.00)	0.99679	0.96
8 - 10 miles	14.52	8.14	1.36	4.12	(100.00)	0.99753	0.96
10 - 12 miles	13.47	6.70	1.04	3.68	(100.00)	0.99759	0.96
12 - 14 miles	16.38	4.10	1.50	1.38	(100.00)	0.98050	0.88
14 - 16 miles	14.94	5.89	2.01	5.90	(100.00)	0.99120	0.92
16 - 18 miles	18.05	8.27	1.84	5.09	(100.00)	0.98518	0.90
18 - 20 miles	14.09	4.96	1.22	7.28	(100.00)	0.90072	0.84
20 - 22 miles	18.32	8.50	2.61	3.94	(100.00)	0.97133	0.86
22 - 24 miles	13.13	7.25	0.02	5.28	(100.00)	0.97320	0.86
24 - 26 miles	14.57	14.37	0.18	0.16	(100.00)	0.96481	0.83
26 - 28 miles	13.12	-	3.93	-	(100.00)	0.84113	0.65
28 - 30 miles	24.70	1.35	-	1.06	(100.00)	0.92844	0.77
Beyond 30 miles	16.48	7.12	1.97	2.20	(100.00)	0.97955	0.88
All Distance Groups	13.97	7.53	1.62	4.33	(100.00)		

To sum up, the analysis in this chapter has brought some significant results. The location of an organized market does not exert any influence on the location of production in the case of a perennial crop like arecanut where the physiographic factors play a dominant part. This is clearly brought out by an examination of the location of the regulated markets and the major producing regions in the four districts of Shimoga, Chickamagalur, South Kanara and North Kanara, and in the particular case of the three markets, viz. Sirsi, Siddapur and Yellapur in North Kanara district.

Regarding the effective supply area to a market the analysis showed that it would depend upon the pattern of distribution of production. The analysis of the data in the case of Sirsi market shows that the supply area to this market extended much beyond the administrative boundary of the taluk, about one third of the arrivals coming from outside the taluk. Farmers came from even beyond 30 miles skipping the possible markets to what is considered a 'better market' and the existence of competing markets did not seem to limit the market area.

An analysis of the per acre arrivals revealed that they decrease as the distance increases as the distant areas are likely to come under the influence of competing markets. But the decrease is sharper if the competing market is a regulated one was borne out by the case of Siddapur. Further, mere distance would not cause a decline in per acre arrivals

if we move away from the market under consideration towards a zone that is equi-distant (if not more distant) from other competing markets, as evidenced by the higher intensities for relatively distant areas west of Sirsi. Another important fact emerging is that the big farmers are able to differentiate between a smaller and bigger regulated market. The higher per seller arrivals to Sirsi from the vicinity of regulated Siddapur market is sufficient evidence. The small farmers on the other hand, would distinguish between a regulated and unregulated market and would take their produce to the former is evident from low per seller arrivals (but significant per acre arrivals) to Sirsi from areas relatively closer to Yellapur market. However, the advantages of a 'better market' could be availed of only by the relatively bigger farmers. Although the cooperative societies aided the smaller farmers in taking this advantage, distance still acted as a limiting factor. This is more so when the natural factors are more dominant than the proximity to an organized market in the cultivation of the crop.

From the detailed analysis of Sirsi market it appears that the area of higher intensity lies within a radius of 20 miles from where the market receives more than 86 per cent of its supply from about 84 per cent of the total number of sellers. The analysis shows that the supply area to a market dealing in a crop like arecanut, where the production is conditioned by basic physiographic factors, is more extended than in other cases. From some of the other studies

in foreign countries and in the other parts of the country, however, we find a different (generally smaller) supply areas - indicating that apart from the terrain and nature of crop a number of other factors must be determining the effective supply area of a market.

Another important finding of our analysis is the similarity in the distance groups in their temporal pattern of deliveries to the market. The distance from the market does not seem to be affecting the pattern of arrivals, all distance groups more or less conforming with the general pattern.

While the timing of harvests may be the major factor determining the pattern of arrivals in the markets, the other factors that may be affecting this pattern are the behaviour of prices and the factors determining them. These are investigated in the subsequent chapters.

CONCENTRATION IN THE TRADE OF ARECANUT - SIRSI MARKET

The spatial distribution of arrivals and marketing intensities discussed in Chapter V showed that the Sirsi regulated market exerts its influence over a wide supply area. Further, the discussion in that chapter also clearly indicated that the producer-sellers consider a regulated market a 'better market' than an unregulated one and a bigger regulated market is preferred to a smaller one as far as marketing of arecanut is concerned. In this chapter we proceed further to examine the extent and pattern of sales and purchases by the various commission agents and traders and the Totgars' Cooperative Sale Society (hereafter referred to as the Cooperative Society). That is, we attempt to examine in some detail the marketing channels in the Sirsi market area, the extent of concentration in the sale and purchase of arecanut, the effect of such a concentration on the price received by the producer-sellers and the role of the Cooperative Society in the marketing of arecanut.

It may be recalled here that the objective of establishing regulated markets by means of State legislation is to set the markets for agricultural products - where the primary producers are sellers - on a competitive footing. In the words of Prof. Dantwalla, "The best that a market legislation can do under normal circumstances and without trespassing on the sphere of production and fiscal monetary

factors affecting demand is to equalize the bargaining power and create conditions conducive to more perfect competition."¹

The Shirname Committee, appointed in 1955 to review the working of the regulated markets in Bombay State, observed, "We are convinced that the strong link of traders where it operates to the detriment of the primary producers cannot be smashed even by strengthening the Market Committees or by legislative measures, as long as trading is a monopoly of a handful of persons. The legislation can be effective only when a second force is created against such vested interests. The need for creating such a second force is not so much to send the established trade channels to the wall but to foster the growth of fair practices, for which healthy competition among traders is a prerequisite. Such a force capable of neutralizing the superiority of the powerful organized and self-centred body of private commission agents and large-scale buyers can only be had when there is a net work of strong cooperative organisations operating effectively....."²

Sirsi market allows an opportunity to study in some depth the observations made by the Shirname Committee as the market consists of a cooperative society with a substantial

1 "Report of the Enquiry into Regulated Markets in the Bombay State", Government of Bombay, Bombay, 1951, p. 5.

2 "Report of the Expert Committee on the Review of Bombay Agricultural Produce Markets Act, 1939", Government of Bombay, Bombay, 1956, p. 30.

role to play. With the help of the available data relating to the trade practices, the volume of trade handled by the commission agents and traders, the extent and pattern of inter-group purchases, and the price paid by them for their purchases we try here to examine whether the existing trade practices including that of the cooperative society have resulted in the realisation of the objectives of establishing regulated markets.

For convenience of presentation the analysis is presented in four sections. In the first section we present the channels of marketing and the role of the commission agents as a link between the primary producers and purchasers. In the second section we present (1) the extent of concentration in the business of commission agents; (2) the volume and pattern of self-purchases by the commission agents; and (3) the extent of concentration in the buying of arecanut. The price paid by the commission agents and traders for their purchases is examined in section three. In the fourth and final section we present the concluding remarks.

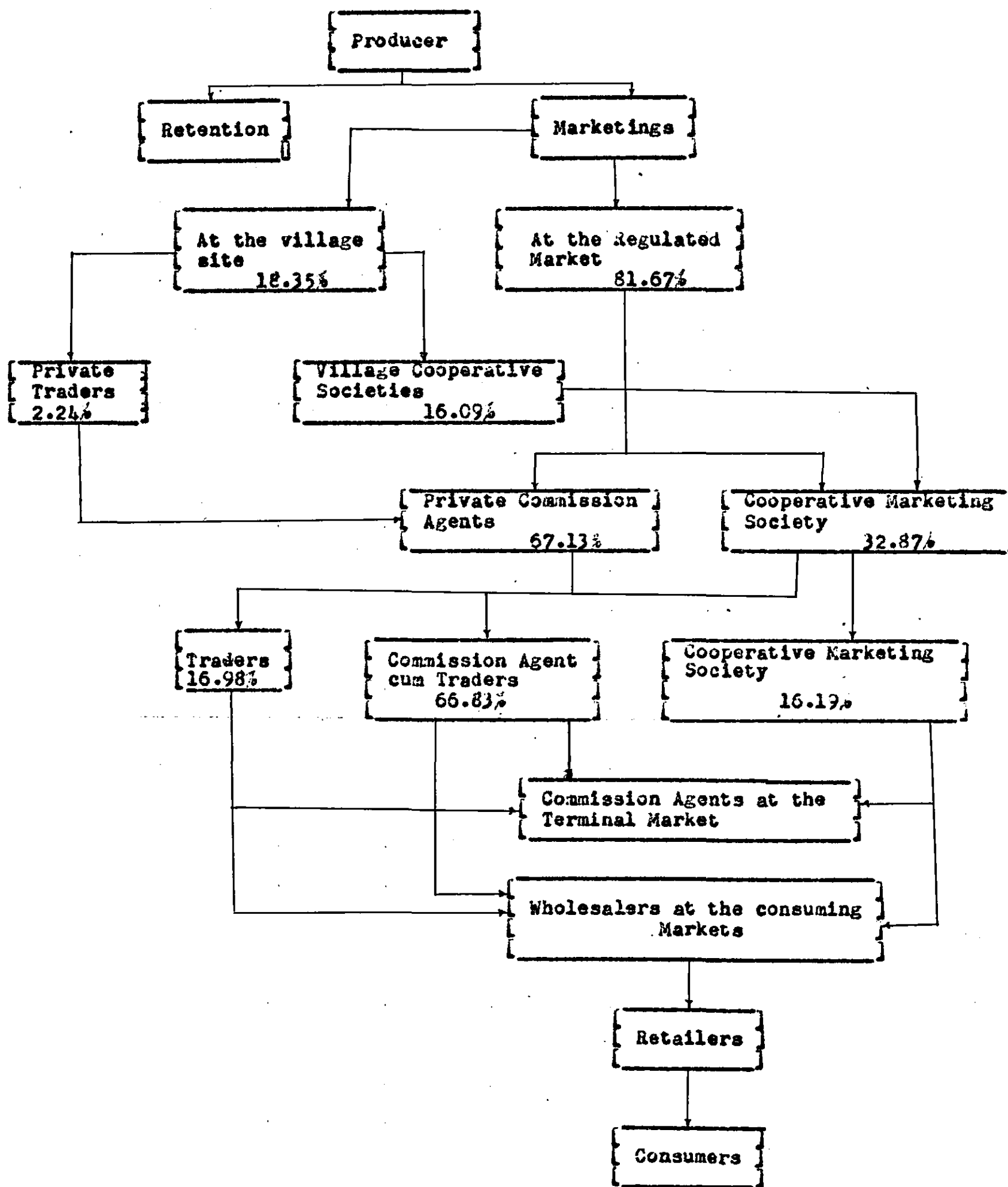
It was seen in the last chapter that the sellers in the Sirsi market were mainly the producers. There were 6,734 sellers in the market coming from as many as 333 villages. Of these, 283 villages were in the three taluks of Sirsi, Siddapur and Yellapur. The average size of area under arecanut per seller from the three taluks of Sirsi, Siddapur and Yellapur was 1.53 acres; it was 1.22 acres per seller

coming from Sirsi taluk alone. It was not possible to make a size-wise assessment of the sellers as organizing and tabulating the data would have involved considerable time. The average quantity per seller was 11.35 quintals. As can be seen from Table 5.4 in Chapter V the arrivals per seller were as high as 28 quintals, however, such sellers were small in number. As mentioned in Chapter III the size of arecanut holdings varied from 1 to 40 acres though the cases of large arecanut holdings could not be many. The fact that there were as many as 6,734 producers selling on an average 11.35 quintals of arecanut per seller spread over an year suggests that there was no concentration of production on the sellers side vis-a-vis the number of commission agents and traders. There were 24 commission agents handling the arrivals and the total number of buyers were 48 including the 24 commission agents. The real concentration, as far as the marketing of arecanut was concerned, was at the buyers end. Hence, the concentration in the trade discussed in this chapter is in relation to the trade handled by the commission agents and traders.

I. Marketing Channels

As observed in Chapter III the producers marketed almost their entire produce save anywhere between 2 and 7 per cent retained for domestic consumption and other purposes. The marketing channels in the Sirsi arecanut market area is presented in diagram 6.1. In the 333 villages served by the

Diagram 6.1. Channels of Marketing Arecanut (Sirsi Market)



Percentages are to the total sales in the market

Sirsi market, the bulk of the produce was taken by the producers to the regulated market for sale, only about 18 per cent of the total quantity marketed was sold in the village. Out of this 18 per cent only 2 per cent was sold to petty traders, the remaining 16 per cent was handed over to the village cooperative marketing societies who in their turn took the produce to Sirsi for sale through the Totgars' Cooperative Marketing Society. There were 25 village cooperative marketing societies in Sirsi market area during 1966-67. The overwhelming proportion (82 per cent) of arecanut arriving from the villages in the Sirsi marketing area was marketed by the producers in Sirsi market through the commission agents. The petty traders who purchased arecanut in the village also took their produce to Sirsi market for sale through the commission agents.

The link between the producer-sellers and the purchasers in the primary wholesale market is the commission agent. These commission agents operate on behalf of the sellers in consideration of a commission which was 1.5 per cent of the value of arecanut sold through the commission agents in Sirsi market during 1966-67. The entire produce brought by the sellers has to pass through the commission agents. The producer has no direct contact with the purchasers and all his transactions are through his agent. This is because of a number of factors operating in favour of the commission agents. Apart from the ignorance of the producers about market condition, this is necessitated by some other circum-

stances in the Sirsi market (indeed in all the other regulated markets for arecanut in the four districts of Mysore). Firstly, there are no alternative storage facilities available to the producer-sellers even for short periods, except the commission agents' godowns in the market proper. The Market Committee had no storage godowns of its own where the produce could be stored by the producer. Besides, the committee did not undertake to sell the produce on behalf of the producers.

The commission agents, besides arranging for the sale of the produce, take the responsibility of storing the produce of the sellers as and when brought into the market until it is finally sold. The Sirsi Market Committee had fixed Rs. 1.56 per month per one hundred bags for the first four months and Rs. 3.00 per month per one hundred bags of arecanut for periods exceeding four months as godown rent. However, for providing warehousing facilities the commission agents did not charge the sellers, even though they were legally allowed to charge at the prescribed rate.

Another important reason for the strong link between the sellers and the commission agents is the credit facilities extended by the latter. The commission agents finance the producers at the various stages of crop production and marketing.

The cooperative society which also operates as any other commission agent, provides transport facilities for bringing the members' produce from the village to the

market in addition to the other services rendered by the commission agents.

Nearly 67 per cent of the produce arriving in Sirsi market was handled by the private commission agents while the cooperative society handled 33 per cent.

The next stage in the marketing channel is the flow of the produce from the commission agents to the buyers. The method of sale by the commission agents and the fixing of price has already been discussed in Section II of Chapter IV. The commission agents acting on behalf of the producer-sellers were also the major buyers in the Sirsi market. There was also an equally large number of traders who, however, did not operate as commission agents. The 23 private commission agents purchased 66.83 per cent of the produce sold in the market; the share of the 24 traders with no commission agency was 16.98 per cent and the cooperative society purchased 16.19 per cent.

The commission agents and traders after purchasing the arecanut grade and sort the produce. The graded produce is then sent to their commission agents in Bombay for further sale. Bombay is the major importing market of the produce from Sirsi; from there it is distributed to the various consuming centres. For other markets within the State and outside the State, where only small quantities are sent, the goods are despatched on receipt of orders. The traders of Sirsi are always faced with a certain amount of uncertainty regarding the price they would realize as the large bulk of

their purchases is sent for sale in the terminal market in Bombay. The Sirsi traders are largely at the mercy of their commission agents in Bombay as their selling price would depend to a large extent upon the judgement of the Bombay commission agents.

Thus, the produce arriving in Sirsi market is channelled through the commission agents to the buyers. The commission agents including the cooperative society, were the major purchasers of arecanut, who purchased nearly 83 per cent of the total sales of arecanut in the Sirsi market. The volume and pattern of sales and purchases by the commission agents are discussed in the following section.

II. Volume and Pattern of Sales and Purchases

1. Extent of concentration in the business of Commission Agents

During 1966-67 there were 24 commission agents, including the cooperative marketing society, dealing in arecanut in Sirsi market. These commission agents handled not only arecanut but also two other plantation crops - pepper and cardamom. The quantity and value of arecanut sold through these commission agents and their relative share is given in Table 6.1. It can be seen from the Table that the quantity handled by these commission agents varied from a little over 6,600 quintals to a mere 41 quintals. The cooperative society handled as much as 25,000 quintals. On the basis of the quantity of arecanut handled the

Table 6.1. Quantity and Value of Arecanut Sold through the Commission Agents - Sirsi Market, 1966-67

S.No.	Commission Agent Code Number	Quantity			Value		
		(in quintals)	Percentage to total	Cumulative percentage	(in Rupees)	Percentage to total	Cumulative percentage
1	20*	25118.90	32.87	32.87	13544614.85	33.21	33.21
2	15	6611.42	8.65	41.52	3542307.94	8.68	41.89
3	3	6260.35	8.19	49.71	3373457.34	8.27	50.16
4	5	5637.60	7.38	57.09	3083208.21	7.56	57.72
5	2	4355.85	5.70	62.79	2186179.33	5.36	63.08
6	6	4123.50	5.40	68.19	2213679.34	5.43	68.51
7	1	3846.98	5.03	73.22	2060800.55	5.05	73.56
8	8	2594.56	3.40	76.62	1323701.88	3.25	76.81
9	25	2273.40	2.98	79.60	1211893.47	2.97	79.78
10	18	2172.65	2.84	82.44	1125173.93	2.76	82.54
11	16	2020.65	2.64	85.08	1049300.20	2.57	85.11
12	9	1668.00	2.19	87.27	909880.31	2.23	87.34
13	23	1657.44	2.17	89.44	919578.44	2.25	89.59
14	14	1507.96	1.97	91.41	828270.64	2.03	91.62
15	11	1248.52	1.63	93.04	622660.15	1.53	93.15
16	24	1231.50	1.61	94.65	630400.05	1.55	94.70
17	4	1157.60	1.52	96.17	581255.18	1.43	96.13
18	19	919.06	1.20	97.37	502304.87	1.23	97.36
19	13	816.20	1.07	98.44	450246.08	1.10	98.46
20	12	384.24	0.50	98.94	210517.71	0.52	98.98
21	22	320.19	0.42	99.36	158023.30	0.38	99.36
22	17	314.66	0.41	99.77	167468.14	0.40	99.76
23	21	127.80	0.18	99.95	72860.78	0.18	99.94
24	10	41.17	0.05	100.00	22811.57	0.06	100.00
Total		76410.20	100.00		40790594.60	100.00	

* Cooperative Society

commission agents were classified into six groups - commission agents handling more than 5,000 quintals in the first group and those handling below 500 quintals in the last group - for the purpose of our analysis here. However, the cooperative society is treated separately. In terms of total commission earned by sale of arecanut (which was 1.50 per cent on the value of sales), it was around Rs. 50,000 in the case of the Group I commission agents while it was between Rs. 3,000 and Rs. 342 in the case of the commission agents in the last group (5 commission agents). The commission earned by the cooperative society was a little over two lakh rupees.

The share of each group of commission agents and the cooperative society in the total volume of trade handled by the commission agents is given in Table 6.2.

It can be seen from the above Table that the cooperative society was the single biggest commission agent handling nearly one-third of the sales of arecanut. The six commission agents in the first two groups handled a little over 40 per cent leaving only about 27 per cent of the trade to be handled by the remaining 17 commission agents. It may be mentioned that the biggest commission agents for arecanut also handled a large bulk of the other two commodities, pepper and cardamom (Table 6.3).

Table 6.2. Percentage share of each Group of Commission Agents and the Cooperative Society in the Total Sale of Arecanut - Sirsi market, 1966-67.

Size group	No. of Commission Agents	Percentage share in the Total Sales	
		Quantity	Value
1. Group I (Above 5000 quintals)	3	24.22	24.29
2. Group II (3500 to 5000 quintals)	3	16.13	15.89
3. Group III (2000 to 3000 quintals)	4	11.86	11.58
4. Group IV (1000 to 2000 quintals)	6	11.08	11.05
5. Group V (500 to 1000 quintals)	2	2.27	2.35
6. Group VI (Below 500 quintals)	5	1.56	1.54
7. Cooperative Society (Above 25000 quintals)	1	32.87	33.30

Table 6.3. Percentage Share of Commission Agents in the Total Sale of Arecanut, Pepper and Cardamom - Sirsi Market, 1965-66 and 1966-67

Sr. No.	Commis- sion Agent Code	Arecanut				Pepper				Cardamom			
		Quantity		Value		Quantity		Value		Quantity		Value	
		1965- 66	1966- 67	1965- 66	1966- 67	1965- 66	1966- 67	1965- 66	1966- 67	1965- 66	1966- 67	1965- 66	1966- 67
1	20*	27.12	32.87	27.68	33.21	22.23	29.26	22.55	29.57	26.80	25.64	26.22	24.82
2	15	9.37	8.65	9.64	8.68	8.89	12.20	9.40	12.65	6.89	9.16	7.21	8.55
3	3	7.74	8.19	8.18	8.27	7.94	6.31	7.61	6.10	5.88	5.13	5.92	5.85
4	5	7.29	7.38	7.93	7.56	7.51	7.01	7.75	7.38	5.01	5.61	5.04	5.56
5	6	5.53	5.40	5.66	5.36	6.85	6.46	7.36	6.86	7.23	8.28	7.87	8.02
6	2	5.30	5.70	5.37	5.43	6.62	5.84	6.74	5.89	3.92	5.65	3.79	5.36
7	1	4.64	5.03	4.45	5.05	5.00	4.29	4.58	3.82	8.02	7.82	8.11	9.29
8	8	4.21	3.40	3.88	3.25	2.12	1.31	1.96	1.23	0.42	2.96	1.60	2.84
9	26	3.91	2.98	3.92	2.97	2.50	3.96	2.37	4.23	3.89	3.25	3.88	3.11
10	18	3.36	2.84	2.77	2.76	2.96	4.27	2.46	4.14	3.90	3.20	3.91	4.04
11	16	3.43	2.64	3.04	2.57	2.77	2.60	2.49	2.19	5.65	4.43	5.93	3.73
12	9	2.67	2.19	2.61	2.23	3.74	2.58	3.84	2.26	2.71	4.09	2.66	4.34
13	14	2.29	1.97	2.32	2.03	3.39	2.09	3.48	2.10	2.44	2.42	2.36	2.23
14	23	2.53	2.17	2.42	2.25	3.38	3.23	3.49	3.25	4.97	3.26	5.06	3.09
15	11	1.67	1.63	1.74	1.53	2.54	1.19	2.79	1.28	2.06	1.45	2.09	1.40
16	24	1.58	1.61	1.51	1.55	2.70	1.49	2.76	1.48	2.18	2.26	0.50	2.62
17	4	1.37	1.51	1.30	1.43	1.24	1.62	1.28	1.70	1.05	1.80	1.04	1.71
18	19	1.26	1.20	1.18	1.23	1.58	1.44	1.58	1.15	0.40	0.38	0.39	0.36
19	13	1.28	1.07	1.31	1.10	1.78	1.45	1.78	1.49	0.72	0.56	0.72	0.54
20	12	0.52	0.50	0.52	0.52	0.60	0.62	0.60	0.63	0.69	0.59	0.75	0.57
21	22	0.52	0.42	0.34	0.38	0.44	0.16	0.36	0.10	0.18	0.22	0.17	0.22
22	17	0.86	0.41	0.86	0.40	0.69	0.52	0.70	0.44	2.06	1.50	1.93	1.41
23	21	0.26	0.18	0.28	0.18	0.23	0.10	0.23	0.06	0.03	0.22	0.03	0.21
24	10	0.10	0.05	0.11	0.06	0.14	-	0.17	-	0.02	0.12	0.02	0.13
25	25*	1.08	-	0.86	-	2.08	-	1.57	-	2.48	-	2.37	-
26	7	0.06	-	0.07	-	0.08	-	0.10	-	0.40	-	0.43	-
27	27	0.05	-	0.05	-	-	-	-	-	-	-	-	-
		100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

* Cooperative Society.

Source: Records of the Agricultural Produce Market Committee, Sirsi.

2. Extent and Pattern of Self-Purchase¹ by the Commission Agents

All the commission agents in arecanut, including the cooperative society, were also traders in arecanut. The purchases by the commission agents including the cooperative society was 63 per cent of the total sales of arecanut. As a consequence of a provision made in the by-law of the Market Committee ('a commission agent can buy the produce for which he is acting as a commission agent only when his bidding is the highest in the open auction') and as all the commission agents were also traders in arecanut, the commission agents purchased largely the produce sold through them. However, the extent of such self-purchase by the commission agents, the pattern of such purchases over the season and the extent of inter-group purchases by the commission agents varied considerably between different groups of commission agents. These are discussed below confining the discussion mainly to the size-class of the commission agents given in Table 6.2.

The extent of self-purchase varied from commission agent to commission agent from 100 per cent to 4.20 per cent of the total sales through them. Of the 76,410 quintals of arecanut sold through all the commission agents, self-purchase was 63.51 per cent for all the commission agents.

1 By 'self-purchase' we mean the purchase of the produce by the commission agents sold through them.

However, for the cooperative society it was 49.26 per cent and for the rest (excluding the cooperative society) it was 70.49 per cent of the total sales.

The extent of self-purchase according to the size of business handled by the commission agents is given in Table 6.4, while the same is presented in Table 6.5 for the individual commission agents in each group.

It can be seen from Table 6.4 that self-purchase as a proportion of total sales was the highest in the first group which was nearly 99 per cent. It was the lowest for the four commission agents in the third group which was about 30 per cent and for the remaining groups it varied between 60 per cent and 70 per cent of their total sales.

As a proportion of total purchases, it can be seen from the Table that for the first two groups self-purchase was about 95 per cent while for Group VI it was only about 8 per cent. For the other groups, self-purchase was about 83 per cent of the total purchases in Group IV and 62 per cent and 43 per cent in Groups III and V respectively. The top two groups purchased mainly from the produce sold through them. The commission agents in the third group whose total purchases were about 48 per cent of the sales through them did not buy entirely from the sales conducted by them. For this group self-purchase formed about 62 per cent of their total purchases and 30 per cent of the sales through them. However, in Group IV self-purchase which was about 70 per cent of the sales formed about 83 per cent of the

Table 6.4. Extent of Self-Purchase by the various groups of Commission Agents - Sirsi Market

Size group	No. of commission agents	Self-Purchase as % of sales	Self-Purchase as % of purchases	Total Purchases as % of sales	% share in the total purchases
1. Group I (Above 5000 quintals)	3	98.96	95.49	103.63	25.10
2. Group II (3500 to 5000 quintals)	3	60.01	95.81	62.64	10.10
3. Group III (2000 to 3000 quintals)	4	29.90	62.41	47.91	5.68
4. Group IV (1000 to 2000 quintals)	6	69.66	83.42	83.51	9.26
5. Group V (500 to 1000 quintals)	2	59.49	43.35	137.24	3.12
6. Group VI (Below 500 quintals)	5	67.16	7.70	872.11	13.56
7. Cooperative Society (Above 25000 quintals)	1	49.26	100.00	49.26	16.19

total purchases. For the last two groups of commission agents while self-purchase as a proportion of sales was 59 per cent and 67 per cent as a proportion of total purchases by these groups, it was 43 per cent and 8 per cent respectively.

It is clear from the above that self-purchase covered almost entirely the total purchases of the top six commission agents. These 6 commission agents also accounted for about 25 per cent of the total purchases in the market. The last two groups of commission agents, though the total sales through them was higher than their total purchases, did not buy the entire produce sold through them which the bigger commission agents were able to do successfully. The third and fourth groups also did not make their entire purchases from the quantity sold through them though their total purchases were smaller than the total sales through them.

The extent of self purchase for the various groups of commission agents presented above, however, showed some variation between the commission agents within each group excepting the top three commission agents in Group I. This can be seen from Table 6.5 which gives the total sales, purchases and the extent of self-purchase for the individual commission agents in each group. For example, it can be seen from Table 6.5 that for commission agent No. 18 in the third group, having a share of 2.84 per cent in the total sales, self-purchase was as low as 5.39 per cent of the sales through him, but it formed nearly 86 per cent of his

Table 6.5. Volume of Sales and Purchases of Arecanut by the Commission Agents - Sirsi Market, 1966-67

(Quantity in quintals)

Commission Agent Group	Commission Agent Code	Percentage share in the total sales	Sales	Total purchases	Self-purchase	Self-purchase as a per cent of sales	Self-purchase as a per cent of total purchases	Total purchases as a per cent of sales
Group I (Commission Agents handling above 5000 quintals)	15	8.65	6611.42	6712.27	6611.42	100.00	98.50	101.52
	3	8.19	6260.35	6625.89	6176.55	98.66	93.22	105.84
	5	7.38	5637.60	5842.59	5528.23	98.06	94.62	103.64
	Total	3	24.22	18509.37	19180.65	18316.20	98.96	95.49
Group II (Commission Agents handling 3500 to 5000 quintals)	2	5.70	4355.85	1996.25	1865.90	42.84	93.46	45.83
	6	5.40	4123.50	2437.45	2319.75	56.26	95.17	59.21
	1	5.03	3846.98	3287.48	3211.78	83.49	97.70	85.46
	Total	3	16.13	12326.33	7721.18	7397.43	60.01	95.81
Group III (Commission Agents handling 2000 to 3000 quintals)	8	3.40	2594.56	335.81	216.32	8.34	64.42	12.94
	26	2.98	2273.40	3416.42	2077.49	91.38	60.81	150.28
	18	2.84	2172.65	122.45	117.20	5.39	95.71	5.64
	16	2.64	2020.65	466.49	298.36	14.77	63.96	23.09
	Total	4	11.86	9061.26	4341.17	2709.37	29.90	62.41
Group IV (Commission Agents handling 1000 to 2000 quintals)	9	2.19	1668.00	1833.92	1659.93	99.52	90.51	109.95
	23	2.17	1657.44	1676.00	1505.31	90.82	89.82	101.12
	14	1.97	1507.96	668.06	660.16	43.78	98.82	44.30
	11	1.63	1248.52	1781.82	1028.36	82.37	57.71	142.71
	24	1.61	1231.50	1041.48	975.33	79.20	93.65	84.57
	4	1.51	1157.60	72.58	71.76	6.20	98.87	6.27
Total	6	11.08	8471.02	7073.86	5900.85	69.66	83.42	83.51
Group V (Commission Agents handling 500 to 1000 quintals)	19	1.20	919.06	1363.33	553.80	60.26	40.62	148.34
	13	1.07	816.20	1018.07	478.57	58.63	47.01	124.73
	Total	2	2.27	1735.26	2381.40	1032.37	59.49	43.35
Group VI (Commission Agents handling less than 500 quintals)	12	0.50	384.24	3114.48	359.99	93.69	11.56	810.56
	22	0.42	320.19	119.81	92.73	28.96	77.40	37.42
	17	0.41	314.66	531.73	215.68	68.54	40.56	168.99
	21	0.18	127.80	6593.40	127.80	100.00	1.94	5159.15
	10	0.05	41.17	1.73	1.73	4.20	100.00	4.20
Total	5	1.56	1188.06	10361.15	797.93	67.16	7.70	872.11
Total (All commission Agents)	23	67.13	51291.30	51059.41	36154.15	70.49	70.81	99.55
Cooperative Society	1	32.87	25118.90	12373.56	12373.56	49.26	100.00	49.26
Traders with no Commission Agency				12977.23				16.98
Grand Total	24	100.00	76410.20	76410.20	48527.71	63.51	63.51	100.00

total purchases. This means that he was mainly a commission agent rather than a trader. At the other extreme is the case of commission agent No. 21 in Group VI. The share of this commission agent in the total sales was 0.18 per cent. While this commission agent purchased the entire produce sold through him, it formed only 1.94 per cent of his total purchases which indicates that he was really a trader and not a commission agent.

As the above classification of the commission agents according to their size of operation includes both types of commission agents - commission agents who are mainly commission agents and commission agents who are mainly purchasers or traders in each group, the extent of self-purchase according to the proportion of self-purchase to their total sales is given in Table 6.6.

It can be seen from the above table that 15 commission agents purchased more than 50 per cent of the produce sold through them while for 9 commission agents, including the cooperative society, self-purchase was less than 50 per cent. Self-purchase formed a little over 95 per cent in the case of the 10 commission agents whose self-purchase was over 80 per cent and for the next group it was 61 per cent of the sales through them. For the 8 commission agents whose self purchase was below 50 per cent, it was 23 per cent of their sales. This proportion, however, varied from 6.83 per cent to 43.08 per cent for the three groups of commission agents whose self purchase was below 50 per cent.

Table 6.6. Number of commission agents and extent of self-buying according to the extent of self-purchases - Sirsi market

Extent of self-purchase	No. of commission agents	Self-purchase as % of sales	Self-purchase as % of total purchases	% share in the total sales	% share in the total purchases
1. 80% to 100%	10	95.20	69.19	38.90	53.51
2. 50% to 80%	5	61.35	71.07	9.69	8.37
3. 30% to 50%	2	43.08	94.81	7.67	3.49
4. 10% to 30%	2	16.71	66.70	3.06	0.77
5. Less than 10%	4	6.83	76.51	7.80	0.70
6. Cooperative Society (49.26%)	1	49.26	100.00	32.87	16.19

As a proportion of total purchases, self-purchase was about 69 per cent for the commission agents (numbering 15) whose self-purchase was above 50 per cent of their sales. This was 69.19 per cent for the top 10 commission agents and 71.08 per cent for the next 5 commission agents. In the case of the commission agents whose self-purchase was below 50 per cent of their sales, self-purchase formed nearly 88 per cent of their total purchases. This proportion, however, varied from 77 per cent to 95 per cent for the three classes of commission agents having below 50 per cent self-purchase of their sales. For the cooperative society, however, self-purchase formed 100 per cent of its total purchases as the society does not buy from other commission agents.

The extent of self-purchase in relation to the total sales by the commission agents and their total purchases clearly indicates that though the extent of self-purchase as a proportion of total sales was as high as 88 per cent it formed only 69 per cent of the total purchases in the case of the 15 commission agents having a share of 49 per cent in the total sales. The share of these commission agents in the total purchases in the market was also the highest (i.e. about 64 per cent). That is, the bigger commission agents not only purchased a great bulk of the produce sold through them, but also purchased from other commission agents. The smaller 8 commission agents who handled nearly 19 per cent of the total sales, purchased only 23 per cent of the

produce sold through them which formed 88 per cent of their total purchases. The smaller commission agents though handled more than their total purchases did not buy entirely from the produce sold through them. The share of these commission agents in the total purchases was also very small (i.e. about 5 per cent).

The above discussion of the extent of self-purchase by the commission agents according to their size of operation and according to the extent of their self-purchase clearly indicates that the purchases of the biggest commission agents were mainly self-purchases while self-purchases formed a smaller proportion of the total purchases in the case of the smaller commission agents. This was so even when the total sales by the smaller commission agents were higher than their total purchases. That is, these commission agents allowed others to buy from them while they purchased from others. This pattern can be clearly seen from Table 6.7 which gives the extent of self-purchase according to the size of purchases by the commission agents.

The biggest four purchasers in the first group, who were also the biggest commission agents (excepting one), purchased almost entirely the produce sold through them. Total purchases of this group was about 40 per cent above self-purchases. For the second group (though it had a share of 13 per cent in the total purchases) total purchases were 74 per cent above its self-purchases and 50 per cent above its total sales. Though for this group self-purchase

Table 6.7. Extent of Self-Purchase according to the Size of Total Purchases by the Commission Agents - Sirsi Market

Size of total purchase	No. of commission agents	Total purchase as % of self purchase	Sales as % of self purchase	Total purchases as % of total sales	% share in total purchases	% share in total sales
1. Group I (Above 5000 quintals)	4	139.74	101.05	138.29	33.73	24.39
2. Group II (3000 to 5000 quintals)	3	173.80	115.14	150.94	12.85	8.51
3. Group III (1500 to 3000 quintals)	5	116.07	155.78	74.51	12.72	17.08
4. Group IV (1000 to 1500 quintals)	3	170.49	147.77	115.37	4.47	3.88
5. Group V (500 to 1000 quintals)	2	136.99	208.10	65.83	1.58	2.39
6. Group VI (Less than 500 quintals)	6	140.11	1040.22	13.47	1.47	10.87
7. Cooperative Society (Above 12000 quintals)	1	100.00	203.00	49.26	16.19	32.87

was nearly 87 per cent of the produce sold, purchases from outside was quite high and the total sales through this group was smaller than its total purchases. Total sales through this group was 15 per cent above its self purchase. While the first two groups of commission agents had a high proportion of self purchase in relation to their total sales, self-purchase as a proportion of total purchases was quite small. This was so because the total quantity sold through them was much smaller than their total purchases. However, this was not so in the case of the group IV. The commission agents in this group were relatively smaller both as purchasers and as commission agents and the proportion of self-purchase to total purchase was much smaller compared to the first two groups. The total purchases of this group were only 15 per cent above its total sales. Total purchases were 70 per cent above their self-purchase while sales were 48 per cent above. The extent of self-purchase as a proportion of total purchases was, however, smaller in the three groups, III, V and VI. These three groups though had a large share in the total sales as commission agents (30 per cent) as purchasers their share was only 16 per cent. However, these commission agents, though their total sales were more than their purchases, did not buy entirely from the produce sold through them. Total purchases were 16 per cent above the self-purchase in group III while it was 37 per cent and 40 per cent in the last two groups.

The volume of trade handled and the extent of self-

purchase presented above brings out three categories of commission agents :-

(1) Those being both commission agents and traders having a substantial share in the total volume of trade handled in the market;

(2) Those being mainly commission agents and trading being incidental; and

(3) Those being mainly traders and commission agency business being incidental.

The extent of self-purchase by the commission agents suggests (1) the bigger and smaller commission agents with a larger share in the total purchases, tried to maximise their purchases out of the sales conducted by them and the bigger commission agents carry out this more successfully than the relatively smaller commission agents. For the commission agents with a smaller share in the total purchases self-purchase was low in relation to their total purchases though the sales through them was higher than their total purchases; (2) the commission agents irrespective of the size of their total purchases or their total sales purchased from others. That is the inter-group purchases by the commission agents was quite prevalent.

The extent of such inter-group purchases by the commission agents is discussed below.

Extent of Inter-group Purchases by the Commission Agents

The total sales and purchases for each group of

commission agents and the extent of purchase by each of the groups from the other groups are presented in Table 6.8. Purchases within the group was the highest in the case of the top three commission agents (First Group) and was the lowest in the third group of commission agents. Within-the-group purchases was 99.57 per cent in the case of Group I and 36.61 per cent in Group III. Within-the-group purchases, however, varied from about 61 per cent to 75 per cent for the other groups.

The top three commission agents purchased from all groups of commission agents excepting the cooperative society and their sales was limited to some groups only. This group purchased 751.65 quintals (3.92 per cent) from outside the group and its sales to others was only 80.37 quintals (0.43 per cent of its sales). While Group II purchased 60.59 per cent from within the group, it formed 96.73 per cent of its total purchases. This group purchased 3.27 per cent of its total purchases from all the other groups and the cooperative society. Within-the-group purchases, however, formed 76 per cent and 86 per cent of the total purchases of groups III and IV. It was only in group V and VI within the group purchases was quite low compared to their total purchases. These two groups purchased mainly from the cooperative society. The smallest group also purchased from all other groups.

The high within the group purchases and purchases from the smaller commission agents by the bigger commission

Table 6.8. Inter-Group Sales and Purchases of Arecanut by the Commission Agents - Sirsi Market
(Quantity in Quintals)

Purchases by	Sales through							
	Commission Agent Group I		Commission Agent Group II		Commission Agent Group III		Commission Agent Group IV	
	Quantity	%	Quantity	%	Quantity	%	Quantity	%
Commission Agent Group I (Above 5000 quintals)	18429.00	99.57	172.34	1.40	247.52	2.73	266.78	3.15
%	96.08		0.90		1.29		1.39	
Commission Agent Group II (3500 to 5000 quintals)	3.53	0.02	7468.43	60.59	104.81	1.16	41.79	0.49
%	0.05		96.73		1.36		0.54	
Commission Agent Group III (2000 to 3000 quintals)	24.89	0.13	340.39	2.76	3317.42	36.61	238.79	2.82
%	0.57		7.84		76.42		5.50	
Commission Agent Group IV (1000 to 2000 quintals)	-	-	54.51	0.44	237.61	2.62	6086.79	71.85
%	-		0.77		3.36		86.05	
Commission Agent Group V (500 to 1000 quintals)	-	-	115.33	0.94	85.41	0.94	128.67	1.52
%	-		4.84		3.59		5.40	
Commission Agent Group VI (Less than 500 quintals)	30.05	0.16	1564.21	12.69	2189.93	24.17	257.06	3.03
%	0.29		15.10		21.14		2.48	
Cooperative Society (Above 25000 quintals)	-	-	-	-	-	-	-	-
%	-		-		-		-	
Total of all Commission Agents	18487.47	99.88	9715.21	78.82	6182.70	68.23	7019.88	82.87
%	29.14		15.32		9.75		11.07	
Purchasers with no commission agency	21.90		2611.12	21.18	2878.56	31.77	1451.44	17.13
%	0.17		20.12		22.18		11.18	
Grand Total	18509.37	100.00	12326.33	100.00	9061.26	100.00	8471.02	100.00
%	24.22		16.13		11.86		11.09	

Purchased by	Commission Agent Group V		Commission Agent Group VI		Cooperative Society		Total	
	Quantity	%	Quantity	%	Quantity	%	Quantity	%
Commission Agent Group I (Above 5000 quintals)	57.54	3.32	7.47	0.63	-	-	19180.65	25.10
%	0.30		0.04		-		100.00	
Commission Agent Group II (3500 to 5000 quintals)	24.51	1.41	5.93	0.50	72.18	0.29	7721.18	10.10
%	0.31		0.08		0.93		100.00	
Commission Agent Group III (2000 to 3000 quintals)	107.99	6.22	24.23	2.04	287.46	1.14	4341.17	5.68
%	2.49		0.56		6.62		100.00	
Commission Agent Group IV (1000 to 2000 quintals)	37.26	2.15	2.53	0.21	655.16	2.61	7073.86	9.26
%	0.53		0.03		9.26		100.00	
Commission Agent Group V (500 to 1000 quintals)	1056.42	60.88	1.93	0.16	993.64	3.96	2381.40	3.12
%	44.36		0.08		41.73		100.00	
Commission Agent Group VI (less than 500 quintals)	67.98	3.92	886.69	74.63	5365.23	21.36	10361.15	13.56
%	0.65		8.56		51.78		100.00	
Cooperative Society (Above 25000 quintals)	-	-	-	-	12373.56	49.26	12373.56	16.19
%	-		-		100.00		100.00	
Total of all Commission Agents	1351.70	77.90	928.78	78.18	19747.23	78.62	63432.97	83.02
%	2.13		1.46		31.13		100.00	
Purchasers with no commission agency	383.56	22.10	259.28	21.82	5371.67	21.38	12977.23	16.98
%	2.96		2.00		41.39		100.00	
Grand Total	1735.26	100.00	1188.06	100.00	25118.90	100.00	76410.20	100.00
%	2.27		1.56		32.67		100.00	

agents resulted in the smaller groups depending largely on the cooperative society for their purchases. Whereas for the second largest group of commission agents purchases from the cooperative society was 0.93 per cent of its total purchases, for the smallest group of commission agents it was 57.87 per cent. In the total sales of the cooperative society the share of the smaller groups of commission agents was higher than of the bigger groups of commission agents. The share of the biggest group of commission agents purchasing from the society was only 0.29 per cent of the total sales by the society and the share of the smallest group of commission agents was 21.36 per cent.

Pattern of self-purchase over the season

The pattern of self-purchase by the commission agents in relation to their total sales and purchases during the early marketing period (September-November), the main marketing period (December-April), and the late marketing period (May-August) are presented in Tables 6.9 and 6.10. Self-purchase as a proportion of sales was maximum during the main marketing period for all the commission agents together. However, this was not uniformly so for all the groups individually. While it was maximum in the case of the three groups, Group I, Group III and Group IV, for the other three groups it was not so. For the cooperative society, however, self-purchase was maximum during the main marketing period. The proportion of self-purchase to total sales was also

Table 6.9. Extent of Self-Purchase and Total Purchase during the Three Marketing Periods by Different Groups of Commission Agents - Sirsi Market

Commission Agent Group	Self-purchase as a percent of total purchases during			Self-purchase as a percent of sales during			Percent of total purchases during			Self-Purchase as a percent of sales	Self-purchase as a percent of total purchases
	Early marketing period (Sept.-Nov.)	Main marketing period (Dec.-April)	Late marketing period (May-August)	Early marketing period (Sept.-Nov.)	Main marketing period (Dec.-April)	Late marketing period (May-August)	Early marketing period (Sept.-Nov.)	Main marketing period (Dec.-April)	Late marketing period (May-August)		
Group I (Above 5000 quintals)	92.03	95.94	95.19	94.55	99.82	97.97	5.82	64.59	29.59	98.96	95.49
Group II (3500 to 5000 quintals)	98.34	94.88	96.81	66.60	62.33	52.04	13.59	62.65	23.76	60.01	95.81
Group III (2000 to 3000 quintals)	45.88	66.06	58.63	24.85	31.20	28.12	7.50	63.90	28.60	29.90	62.41
Group IV (1000 to 2000 quintals)	94.00	83.36	80.83	68.40	71.06	66.40	6.58	68.07	25.35	69.66	83.42
Group V (500 to 1000 quintals)	95.16	35.70	44.68	84.54	46.83	75.44	7.47	56.78	35.75	59.49	43.35
Group VI (Less than 500 quintals)	8.15	7.70	7.48	72.14	68.99	61.41	13.49	58.62	27.69	67.16	7.70
Cooperative Society	100.00	100.00	100.00	49.42	50.21	46.79	9.78	66.00	24.22	100.00	49.26
All Groups (Excluding Cooperative Society)	64.65	72.18	69.66	69.18	71.60	68.38	8.88	63.14	27.98	70.49	70.81

Table 6.10. Volume of Sales, Total Purchases and Self-Purchase by the Different Groups of Commission Agents during the Three Marketing Periods - Sirsi Market

(Quantity in Quintals)

Commission Agent Group	Sales during			Total Purchases during		
	Early marketing period	Main marketing period	Late marketing period	Early marketing period	Main marketing period	Late marketing period
	(Sept.-Nov.)	(Dec. - April)	(May-August)	(Sept.-Nov.)	(Dec. - April)	(May-August)
Group I (Above 5000 quintals)	1087.24	11907.95	5514.18	1116.43	12389.01	5675.21
Group II (3500 to 5000 quintals)	1549.37	7363.55	3413.41	1049.30	4837.11	1834.77
Group III (2000 to 3000 quintals)	600.90	5872.37	2587.89	325.47	2773.93	1241.77
Group IV (1000 to 2000 quintals)	639.43	5648.92	2182.67	465.27	4815.39	1793.20
Group V (500 to 1000 quintals)	200.11	1030.92	504.23	177.78	1352.19	851.43
Group VI (Less than 500 quintals)	157.93	678.16	351.97	1397.54	6073.62	2889.99
Cooperative Society	2449.20	16263.16	6406.11	1210.44	8165.86	2997.26
All Groups (Excepting Cooperative Society)	4234.98	32501.87	14554.35	4531.79	32241.25	14286.37

Commission Agent Group	Self Purchase during			Total sales	Total purchases	Total Self purchases
	Early marketing period	Main marketing period	Late marketing period			
	(Sept.-Nov.)	(Dec.-April)	(May-August)			
Group I (Above 5000 quintals)	1027.96	11886.27	5401.97	18509.37	19180.65	18316.20
Group II (3500 to 5000 quintals)	1031.85	4589.38	1776.20	23326.33	7721.18	7397.43
Group III (2000 to 3000 quintals)	149.31	1832.35	727.71	9061.26	4341.17	2709.37
Group IV (1000 to 2000 quintals)	437.35	4014.12	1449.38	8471.02	7073.86	5900.85
Group V (500 to 1000 quintals)	169.18	482.79	380.40	1735.26	2381.40	1032.37
Group VI (Less than 500 quintals)	113.93	467.85	216.15	1188.06	10361.15	797.93
Cooperative Society	1210.44	8165.86	2997.26	25118.90	12373.56	12373.56
All Groups (Excepting Cooperative Society)	2929.58	23272.76	9951.81	51291.30	51059.41	36154.15

higher in the early marketing period than in the late marketing period for all the groups excepting the first and the third group.

The pattern of self-purchase has to be seen along with the pattern of total purchases, as the extent of self-purchase would largely depend upon the total capacity of the commission agents to trade. It can be seen from Tables 6.9 and 6.10 that total purchases and self-purchases were maximum during the main marketing period and minimum during the early marketing period for all the commission agents together and individually. However, the proportion of self-purchase to total purchases during the three marketing periods varied considerably between the bigger and smaller commission agents. Self-purchase as a proportion of total purchases was maximum during the main marketing period for the first and the third group. However, for Group I self-purchase was as high as 99 per cent of its sales. This group not only purchased 99.82 per cent of its sales during the main marketing period but also purchased from others mainly during this period. Though Group III shows such a pattern it is possibly because of a very low proportion of self-purchase to sales, which formed the bulk of its total purchases. For this group self-purchase during the main marketing period was 31.20 per cent of its sales which formed 66.06 per cent of its total purchases during the same period. The proportion of self-purchase to total purchases in the main marketing period was lower for the

smaller commission agents possibly because of the purchase pattern of the bigger commission agents and traders (purchasers with no commission agency). The bigger commission agents and traders (who could operate with a lower margin because of larger turn-over) by virtue of their relatively bigger size and standing in the market purchase their maximum during the peak months out of their own sales and from other smaller commission agents. Because of this pattern of purchases by the bigger purchasers the smaller commission agents make their purchases mainly during the early and late marketing periods out of their own sales and from other commission agents.

3. Concentration in the Buying of Arecanut¹

The extent of concentration in the trading of arecanut can also be seen from the side of the purchases made by the various traders. The volume and pattern of purchases made by all traders (i.e. both commission agents as well as other traders with no commission agency business) are discussed here. There were in all 48 traders in arecanut of which 24 were commission agents as well as traders, including the cooperative society in Sirsi market during 1966-67. The volume of purchases by the various traders and their relative share in the total purchases is presented

¹ A similar analysis for the Mangalore market based on limited data is presented in the Appendix at the end of this chapter.

Table 6.11. Share of the Different Buyers in total Purchase of Arecanut - Sirsi Market, 1966-67

S.No.	Purchaser Code No.	Volume of Purchase (Quintals)	% to total	Cumulative percentage
1	2	3	4	5
1	20*	12373.56	16.19	16.19
2	15	6712.17	8.78	24.97
3	3	6625.89	8.67	33.64
4	21	6593.40	8.63	42.27
5	5	5842.59	7.65	49.92
6	26	3416.42	4.47	54.39
7	1	3287.48	4.30	58.69
8	12	3114.48	4.08	62.77
9	29 T	2616.38	3.42	66.19
10	6	2437.45	3.19	69.38
11	28 T	2264.34	2.96	72.34
12	2	1996.25	2.61	74.95
13	9	1833.92	2.40	77.35
14	11	1781.82	2.33	79.68
15	32 T	1718.73	2.25	81.93
16	49 T	1706.32	2.23	84.16
17	23	1676.00	2.19	86.35
18	19	1363.33	1.78	88.13
19	34 T	1090.72	1.43	89.56
20	24	1041.48	1.36	90.92
21	13	1018.07	1.33	92.25
22	33 T	794.83	1.04	93.29

Continued/..

Table 6.11 - continued.

1	2	3	4	5
23	27 T	723.64	0.95	94.29
24	14	668.06	0.88	95.12
25	17	531.73	0.70	95.82
26	30 T	468.69	0.61	96.43
27	16	466.49	0.61	97.04
28	47 T	448.73	0.59	97.63
29	45 T	379.05	0.50	98.13
30	8	335.81	0.45	98.58
31	38 T	175.26	0.23	98.81
32	18	122.45	0.16	98.97
33	22	119.81	0.16	99.13
34	42 T	112.27	0.15	99.28
35	20A T	110.59	0.14	99.42
36	35 T	92.63	0.12	99.54
37	46 T	90.93	0.12	99.66
38	4	72.58	0.09	99.75
39	48 T	42.59	0.06	99.81
40	36 T	37.56	0.05	99.86
41	37 T	27.97	0.04	99.90
42	44 T	18.77	0.02	99.92
43	41 T	18.58	0.02	99.94
44	40 T	13.30	0.02	99.96
45	7 T	12.42	0.02	99.98
46	50 T	9.55	0.01	99.99
47	39 T	3.38	0.004	99.99
48	10	1.73	0.002	100.00
	Total	76410.20	100.00	

* = Cooperative Marketing Society

T = Purchasers with no Commission Agency Business

in Table 6.11. Nearly 87 per cent of the purchases were made by 17 of the 48 purchasers including the cooperative society. The cooperative society was the single biggest purchaser of arecanut buying 16.19 per cent of the total sales in the market. Leaving the cooperative society, the top seven traders purchased 46.58 per cent and the next 9 traders 23.58 per cent leaving only 13.65 per cent of the purchases to 31 traders. The share of the purchasers according to the size of their purchases given in Table 6.12 clearly indicates that the degree of concentration was higher in the purchasing than evidenced in the commission agency business.

Further, the small purchasers were not the commission agents with small trading but traders with no commission agency. This is obvious from the share of commission agents-cum-traders and traders with no commission agency in the total purchases. The 24 commission agents purchased 83.02 per cent of the total sales of arecanut leaving only 16.98 per cent to 24 traders who had no commission agency. Even among these traders there was a further concentration, four of the traders having a share of 64 per cent of the purchases made by these 24 traders. Of the 24 traders with no commission agency only 4 had a share of 10.68 per cent in the total purchases. Two traders had a share of 1.43 per cent and 1.04 per cent and four traders with a share of 0.50 per cent to 0.95 per cent. The number of traders with no commission agency was the highest in the smallest

Table 6.12. Percentage share of each group of purchasers and the cooperative society in the Total Sales of Arecanut - Sirsi Market

Size group of purchasers	No. of purchasers	Percentage share in the total purchases	Percentage share of traders with no commission agency	No. of traders *
1	2	3	4	5
1. Group I (5000 quintals and above)	4	33.73	-	-
2. Group II (3000 to 5000 quintals)	3	12.85	-	-
3. Group III (1500 to 3000 quintals)	9	23.58	10.86	4
4. Group IV (1000 to 1500 quintals)	4	5.90	1.43	1
5. Group V (300 to 1000 quintals)	9	6.33	3.69	5
6. Group VI (100 to 300 quintals)	5	0.84	0.52	3
7. Group VII (Less than 100 quintals)	13	0.58	0.48	11
8. Cooperative Society (Above 12000 quintals)	1	16.19	-	-
Total	48	100.00 (76410.20 quintals)	16.98	24

* No. of traders with no commission agency.

group of purchasers having a share of less than 0.50 per cent each in the total purchases. Of the 18 purchasers in the last two groups only 4 were commission agents-cum-traders. The share of these 4 commission agents in the total purchases was 0.42 per cent while the 14 traders had a total share of 1 per cent.

Inter-group Purchasers

The extent of purchases by the various groups of purchasers from the different groups of commission agents and the cooperative society is presented in Table 6.13. It can be seen from the Table that the biggest group, having a share of nearly 34 per cent in the total purchases, purchased from all groups of commission agents. However, the maximum purchases was from the first group of commission agents. This group was also the second biggest purchaser from the cooperative society. While 99.71 per cent of the sales by the first group was purchased by the biggest group of buyers, it formed only 72 per cent of the total purchases of the group. Further, it may be pointed out that these buyers were also the biggest commission agents (excepting one) with a high proportion of self-purchase. Whereas the bigger purchasers bought from all groups of commission agents and the cooperative society, the smaller purchasers relied heavily on the smaller commission agents and the cooperative society.

The largest three groups of buyers took most of the

Table 6.13. Sales and Purchases of Arecanut by the Different Categories of Commission Agents and Purchasers - Sirsi Market

(Quantity in Quintals)

Purchaser Group	Sales through							
	Commission Agent Group I		Commission Agent Group II		Commission Agent Group III		Commission Agent Group IV	
	Quantity	%	Quantity	%	Quantity	%	Quantity	%
Group I (5000 quintals and above) (4)	18454.97	99.71	1357.18	11.01	1638.95	18.09	416.77	4.92
%	71.60		5.27		6.36		1.62	
Group II (3000 to 5000 quintals) (3)	32.22	0.17	3859.26	31.31	3175.98	35.05	177.60	2.10
%	0.33		39.31		32.25		1.81	
Group III (1500 to 3000 quintals) (9)	21.51	0.12	5953.76	48.30	1965.68	21.70	5067.55	59.82
%	0.13		36.33		11.16		21.75	
Group IV (1000 to 1500 quintals) (4)	0.15	neg.	272.74	2.21	361.65	3.99	1724.29	20.36
%	neg.		4.61		8.12		52.26	
Group V (300 to 1000 quintals) (9)	0.52	neg.	790.96	6.42	1658.68	18.30	918.35	10.84
%	0.01		16.43		34.45		19.07	
Group VI (100 to 300 quintals) (5)	-	-	74.37	0.60	169.77	1.87	87.36	1.03
%	-		11.61		26.51		13.64	
Group VII (Below 100 quintals) (13)	-	-	18.06	0.15	90.55	1.00	79.10	0.93
%	-		4.08		20.45		17.87	
Cooperative Society (Above 12000 quintals) (1)	-	-	-	-	-	-	-	-
%	-		-		-		-	
Total	18509.37	100.00	12326.33	100.00	9061.26	100.00	8471.02	100.00
%	24.22		16.13		11.86		11.09	

Purchaser Group	Sales through							
	Commission Agent Group V		Commission Agent Group VI		Cooperative Society		Total	
	Quantity	%	Quantity	%	Quantity	%	Quantity	%
Group I (5000 quintals and above) (4)	101.41	5.84	222.52	18.73	3582.26	14.26	25774.06	33.73
%	0.39		0.86		13.90		100.00	
Group II (3000 to 5000 quintals) (3)	121.99	7.03	385.73	32.47	2065.70	8.22	9818.48	12.85
%	1.24		3.92		21.04		100.00	
Group III (1500 to 3000 quintals) (9)	269.41	15.52	163.87	14.21	4585.06	18.25	18031.84	23.60
%	1.58		1.03		28.03		100.00	
Group IV (1000 to 1500 quintals) (4)	1136.86	65.52	13.97	1.18	1003.97	4.00	4513.63	5.91
%	18.55		0.24		16.22		100.00	
Group V (300 to 1000 quintals) (9)	47.84	2.76	266.34	22.42	1132.81	4.51	4815.50	6.30
%	0.99		5.53		23.52		100.00	
Group VI (100 to 300 quintals) (5)	10.94	0.63	93.55	7.87	204.39	0.82	640.38	0.84
%	1.71		14.61		31.92		100.00	
Group VII (Below 100 quintals) (13)	46.81	2.70	37.08	3.12	171.15	0.68	442.75	0.58
%	10.57		8.37		38.66		100.00	
Cooperative Society (Above 12000 quintals) (1)	-	-	-	-	12373.56	49.26	12373.56	16.19
%	-		-		100.00		100.00	
Total	1735.26	100.00	1188.06	100.00	25118.90	100.00	76410.20	100.00
%	2.27		1.56		32.87		100.00	

* Number of Purchasers in each group is indicated in parentheses under each group.
neg = negligible.

sales of the smaller commission agents and the cooperative society excepting from the fifth group of commission agents. It was the fourth group of purchasers that bought largely from the fifth group of commission agents. This was because, of the four purchasers in group IV only one was a trader with no commission agency and the rest belonged to group V of commission agents with a high proportion of self-purchase.

The smaller purchasers bought mainly from the cooperative society firstly, because of the smaller volume of trade handled by the smaller commission agents and secondly, because of the large scale purchases by the bigger buyers even from the small commission agents. Though the purchases by the two smallest groups of buyers from the cooperative society was about 32 per cent and 39 per cent of their total purchases, these purchases formed only 0.82 per cent and 0.68 per cent of the total sales by the cooperative society.

Pattern of Purchases over the Season

Over the season the purchase pattern of the various groups of purchasers from the different groups of commission agents did not exhibit any conspicuous deviation. That is, the pattern of purchases of the bigger buyers was not much different from that of the smaller purchasers. However, the one conspicuous difference in their purchase pattern was that the purchases of the bigger purchasers as a proportion of their total purchases was higher in the lean months than

it was for the smaller purchasers (Table 6.14).

This is clear from the share of the larger purchasers in the total sales by the different groups of commission agents during the lean and peak marketing periods (Table 6.15). Possibly because of a lower arrival during the lean months and the relatively higher prices the purchases of the smaller buyers were low in the lean months. The bigger purchasers, however, could operate with a smaller margin, while this was not so for the smaller buyers.

Though the smaller purchasers made their maximum purchases during the main marketing period, these purchases as a proportion of the sales by the commission agents (from whom they purchased) were very small. For example, it can be seen from Table 6.14 that though 97.85 per cent of the purchases of the smallest group of buyers from the second group of commission agents was during the main marketing period, it formed only 0.23 per cent of the total sales of this group of commission agents during the main marketing period (Table 6.15). Similarly, while 79.53 per cent of its purchases from the cooperative society was during the main marketing period, as a proportion of the sales by the cooperative society it was only 0.84 per cent.

III. Price offered by the commission agents

It was seen in the previous section that buying of arecanut in Sirsi market showed a high degree of concentra-

Table 6.14. Purchase Pattern of the Various Groups of Purchasers from Different Groups of Commission Agents During the Three Marketing Periods (Purchases as Proportion of Total Purchase) - Sirsi Market

(Quantity in quintals)

Commission Agent Group	Purchaser Group	Early Marketing Period (Sept.-Nov.)		Main Marketing Period (Dec. - April)		Late Marketing Period (May - August)		Total	
		Quantity	%	Quantity	%	Quantity	%	Quantity	%
1	2	3	4	5	6	7	8	9	10
I	I	1046.55	5.67	11904.08	64.50	5504.34	29.83	18454.97	100.00
	II	26.43	82.03	3.53	10.96	2.26	7.01	32.22	100.00
	III	14.09	65.50	0.08	0.37	7.34	34.13	21.51	100.00
	IV	-	-	0.15	100.00	-	-	0.15	100.00
	V	0.13	25.00	0.14	26.92	0.25	48.08	0.52	100.00
	VI	-	-	-	-	-	-	-	-
	VII	-	-	-	-	-	-	-	-
	All Groups		1087.20	5.87	11907.98	64.34	5514.19	29.79	18509.37
II	I	320.82	23.62	711.79	52.41	324.57	23.97	1357.16	100.00
	II	347.90	9.02	2541.11	65.85	970.25	25.13	3859.26	100.00
	III	782.41	13.17	3449.15	58.05	1709.87	28.78	5941.43	100.00
	IV	22.37	7.84	100.96	35.42	161.74	56.74	285.07	100.00
	V	76.07	9.62	469.16	59.31	245.73	31.07	790.96	100.00
	VI	-	-	74.37	100.00	-	-	74.37	100.00
	VII	-	-	17.67	97.85	0.39	2.15	18.06	100.00
	All Groups		1549.57	12.57	7364.21	59.74	3412.55	27.69	12326.33
III	I	214.93	13.11	943.38	57.56	480.64	29.33	1638.95	100.00
	II	217.20	6.84	2010.98	63.31	947.80	29.85	3175.98	100.00
	III	48.96	2.69	1261.95	69.16	513.89	28.15	1824.80	100.00
	IV	52.59	10.47	283.49	56.41	166.45	33.12	502.53	100.00
	V	65.36	3.94	1153.80	69.56	439.52	26.50	1658.68	100.00
	VI	1.82	1.08	156.71	92.30	11.24	6.62	169.77	100.00
	VII	-	-	62.17	69.39	28.38	30.61	90.55	100.00
	All Groups		600.86	6.63	5872.48	64.81	2587.92	28.56	9061.26
IV	I	55.81	13.39	255.70	61.36	105.26	25.25	415.77	100.00
	II	19.72	11.10	93.60	52.71	64.28	36.19	177.60	100.00
	III	254.26	7.15	2441.19	68.62	861.58	24.23	3557.03	100.00
	IV	193.43	5.98	2165.79	66.95	875.59	27.07	3234.81	100.00
	V	105.34	11.47	577.36	62.87	235.65	25.66	918.35	100.00
	VI	-	-	59.39	67.98	27.97	32.02	87.36	100.00
	VII	10.19	12.88	55.92	70.70	12.99	16.42	79.10	100.00
	All Groups		638.75	7.54	5648.95	66.69	2183.32	25.77	8471.02

Continued on next page

Table 6.14 - Continued

1	2	3	4	5	6	7	8	9	10
V	I	10.33	10.19	63.29	62.41	27.79	27.40	101.41	100.00
	II	5.40	4.43	90.01	73.79	26.58	21.78	121.99	100.00
	III	15.18	5.89	195.03	75.65	47.62	18.46	257.83	100.00
	IV	169.18	14.68	589.64	51.37	389.62	33.95	1148.44	100.00
	V	-	-	39.25	82.04	8.59	17.96	47.84	100.00
	VI	-	-	10.94	100.00	-	-	10.94	100.00
	VII	-	-	43.45	92.83	3.36	7.17	46.81	100.00
	All Groups	200.09	11.53	1031.61	59.45	503.56	29.02	1735.26	100.00
VI	I	29.34	13.19	91.12	40.94	102.06	45.87	222.52	100.00
	II	52.81	13.69	223.24	57.88	109.68	28.43	385.73	100.00
	III	9.29	5.53	110.83	65.90	48.07	28.57	168.19	100.00
	IV	-	-	13.87	94.68	0.78	5.32	14.65	100.00
	V	38.45	14.44	176.99	65.44	50.90	19.10	266.34	100.00
	VI	14.89	15.92	61.22	65.44	17.44	18.64	93.55	100.00
	VII	16.75	45.18	0.99	2.66	19.34	52.16	37.08	100.00
	All Groups	161.53	13.60	678.26	57.09	348.27	29.31	1188.06	100.00
Cooperative Society	I	431.82	12.05	2229.65	62.25	920.79	25.70	3582.26	100.00
	II	272.09	13.17	1157.62	56.05	635.99	30.78	2065.70	100.00
	III	416.69	9.09	3007.84	65.61	1160.53	25.30	4585.06	100.00
	IV	15.83	1.58	678.61	67.60	309.53	30.82	1003.97	100.00
	V	86.43	7.63	741.20	65.43	305.18	26.94	1132.81	100.00
	VI	15.90	7.79	146.69	71.77	41.80	20.44	204.39	100.00
	VII	-	-	136.12	79.53	35.03	20.47	171.15	100.00
	Cooperative Society All Groups	1210.44	9.78	8165.86	66.00	2997.26	24.22	12373.56	100.00
All Commission Agents	I	2109.60	8.18	16199.01	62.86	7465.45	28.96	25774.06	100.00
	II	941.55	9.59	6120.09	62.33	2756.84	28.08	9818.48	100.00
	III	1540.88	9.42	10466.07	63.99	4348.90	26.59	16355.85	100.00
	IV	453.40	7.32	3832.51	61.92	1903.71	30.76	6189.62	100.00
	V	371.78	7.72	3157.90	65.58	1285.82	26.70	4815.50	100.00
	VI	32.61	5.09	509.32	79.53	98.45	15.38	640.38	100.00
	VII	26.94	6.08	316.32	71.44	99.49	22.43	442.75	100.00
	Cooperative Society All Groups	1210.44	9.78	8165.86	66.00	2997.26	24.22	12373.56	100.00
All Groups	6687.20	8.75	48767.03	63.82	20955.92	27.43	76410.20	100.00	

Table 6.15. Purchase Pattern of the Various Groups of Purchasers from the Different Groups of Commission Agents During the Three Marketing Periods (Purchase as Proportion of Sales by the Commission Agents)

(Quantity in quintals)

Commis- sion Agent Group	Purchaser Group	Early Marketing Period (Sept. - Nov.)		Main Marketing Period (Dec. - April)		Late Marketing Period (May - August)		Total	
		Quantity	%	Quantity	%	Quantity	%	Quantity	%
I	I	1045.55	96.26	11904.08	99.97	5504.34	99.83	18454.97	99.71
	II	26.43	2.43	3.53	0.03	2.26	0.04	32.22	0.17
	III	14.09	1.30	0.08	neg.	7.34	0.13	21.51	0.12
	IV	0.00	0.00	0.15	neg.	0.00	0.00	0.15	neg.
	V	0.13	0.01	0.14	neg.	0.25	neg.	0.52	neg.
	VI	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	VII	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			1087.20	100.00	11907.98	100.00	5514.19	100.00	18509.37
II	I	320.82	20.70	711.79	9.67	324.57	9.51	1357.18	11.01
	II	347.90	22.45	2541.11	34.51	970.25	28.43	3859.26	31.31
	III	782.41	50.49	3449.15	46.84	1709.87	50.11	5941.43	48.20
	IV	22.37	1.44	100.96	1.37	161.74	4.74	285.07	2.31
	V	76.07	4.92	469.16	6.37	245.73	7.20	790.96	6.42
	VI	0.00	0.00	74.37	1.01	0.00	0.00	74.37	0.60
	VII	0.00	0.00	17.67	0.23	0.39	0.01	18.06	0.15
			1549.57	100.00	7364.21	100.00	3412.55	100.00	12326.33
III	I	214.93	35.77	943.38	16.06	480.64	18.57	1638.95	18.09
	II	217.20	36.15	2010.98	34.24	947.80	36.62	3175.98	35.05
	III	48.96	8.15	1261.95	21.49	513.89	19.86	1824.80	20.14
	IV	52.59	8.75	283.49	4.83	166.45	6.44	502.53	5.55
	V	65.36	10.88	1153.80	19.65	439.52	16.98	1658.68	18.30
	VI	1.82	0.30	156.71	2.67	11.24	0.43	169.77	1.87
	VII	0.00	0.00	62.17	1.06	28.38	1.10	90.55	1.00
			600.86	100.00	5872.48	100.00	2587.92	100.00	9061.26
IV	I	55.81	8.74	255.70	4.53	105.26	4.82	416.77	4.92
	II	19.72	3.09	93.60	1.66	64.28	2.94	177.60	2.10
	III	254.26	39.80	2441.19	43.21	861.58	39.46	3557.03	41.99
	IV	193.43	30.28	2165.79	38.34	875.59	40.11	3234.81	38.19
	V	105.34	16.49	577.36	10.22	235.65	10.79	918.35	10.84
	VI	0.00	0.00	59.39	1.05	27.97	1.29	87.36	1.03
	VII	10.19	1.60	55.92	0.99	12.99	0.59	79.10	0.93
			638.75	100.00	5648.95	100.00	2183.32	100.00	8471.02

Continued/..

Table 6.15 - concluded

Commis- sion Agent Group	Purchaser Group	Early Marketing Period (Sept.-Nov.)		Main Marketing Period (Dec. - April)		Late Marketing (May - August)		Total	
		Quantity	%	Quantity	%	Quantity	%	Quantity	%
V	I	10.33	5.16	63.29	6.14	27.79	5.52	101.41	5.84
	II	5.40	2.70	90.01	8.73	26.58	5.28	121.99	7.03
	III	15.18	7.59	195.03	18.91	47.62	9.46	257.83	14.86
	IV	169.18	84.55	589.64	57.16	389.62	77.37	1148.44	66.18
	V	0.00		39.25	3.80	8.59	1.71	47.84	2.76
	VI	0.00		10.94	1.06	0.00	0.00	10.94	0.63
	VII	0.00		43.45	4.20	3.36	0.66	46.81	2.70
		200.09	100.00	1031.61	100.00	503.56	100.00	1735.26	100.00
VI	I	29.34	18.16	91.12	13.43	102.06	29.30	222.52	18.73
	II	52.81	32.69	223.24	32.92	109.68	31.49	385.73	32.47
	III	9.29	5.75	110.83	16.34	48.07	13.80	168.19	14.16
	IV	0.00	0.00	13.87	2.04	0.78	0.22	14.65	1.23
	V	38.45	23.80	176.99	26.09	50.90	14.62	266.34	22.42
	VI	14.89	9.22	61.22	9.03	17.44	5.02	93.55	7.87
	VII	16.75	10.38	0.99	0.15	19.34	5.55	37.08	3.12
		161.53	100.00	678.26	100.00	348.27	100.00	1188.06	100.00
Coope- rative Society	I	431.82	17.63	2229.65	13.72	920.79	14.37	3582.26	14.26
	II	272.09	11.11	1157.62	7.12	635.99	9.93	2065.70	8.22
	III	416.69	17.01	3007.84	18.49	1160.53	18.12	4585.06	18.25
	IV	15.83	0.65	678.61	4.17	309.53	4.83	1003.97	4.00
	V	86.43	3.53	741.20	4.56	305.18	4.76	1132.81	4.51
	VI	15.90	0.65	146.69	0.90	41.80	0.65	204.39	0.82
	VII	0.00	0.00	136.12	0.84	35.03	0.55	171.15	0.68
	Cooperative Society	1210.44	49.42	8165.86	50.20	2997.26	46.79	12373.56	49.26
		2449.20	100.00	16263.59	100.00	6406.11	100.00	25118.90	100.00
All com- mission agents	I	2109.60	31.55	16199.01	33.22	7465.45	35.62	25174.06	33.73
	II	941.55	14.08	6120.99	12.55	2756.84	13.16	9818.48	12.85
	III	1540.88	23.04	10466.07	21.46	4348.90	20.75	16355.85	21.41
	IV	453.40	6.78	3832.51	7.86	1903.71	9.08	6189.62	8.10
	V	371.78	5.56	3157.90	6.48	1288.82	6.14	4815.50	6.30
	VI	32.61	0.49	509.32	1.04	98.45	0.47	640.38	0.84
	VII	26.94	0.40	316.32	0.65	99.49	0.47	442.75	0.58
	Cooperative Society	1210.44	18.10	8165.86	16.74	2997.26	14.31	12373.56	16.19
		6687.20	100.00	48767.08	100.00	20955.92	100.00	76410.20	100.00

tion, a little over one third of the purchasers buying nearly 87 per cent of the arecanut sold in the market. Further, this high degree of concentration is closely associated with a high proportion of self-purchase by the commission agents. The large-scale self-purchase by the commission agents may lead to a lowering of prices as they are also traders. The Shirname Committee,¹ appointed to review the working of regulated markets in Bombay State, suggested that the practice of allowing the commission agents to buy the produce sold through them is likely to lead to unfair market practices as the commission agents being traders may buy cheap, thereby sacrificing the interest of producer-sellers. In the present section we present the data relating to the price behaviour with a view to analysing the above. While doing this price paid for the two major varieties² - Rashi (boiled wholes) and chaali (unboiled wholes) - of arecanut traded in this market and the price for all the varieties together are considered. For the purpose, the price paid for self-purchase and for purchases from others by the commission agents and the price paid by others in the commission agents' shop are obtained for each commission agent and are presented in the relevant classification, namely, according to the volume of total

1 op.cit., pp.114-115.

2 These two varieties together accounted for about 80 percent of the total sales in the market, the former accounting for 30 per cent and the latter 50 per cent.

purchases by the commission agents in Table 6.16. These are weighted annual average prices, the weights being the quantity of each variety purchased.

Assuming that the practice of self-purchase is detrimental to producers' (sellers') interests, should mean that the price paid by the commission agents for self-purchase should be less than the price others pay in his shop and further it should be less than the price he pays in others' shop. In other words, if P_s , P_o and P_{os} are the prices for self purchase, for purchases from others and for purchases by others in his shop, then one expects the ratio P_s/P_o and P_s/P_{os} to be less than 1 if the pattern of purchases over the season and the qualitywise differences are the same for S, O and OS.

It can be seen from Table 6.16 that the price paid for self-purchases, for all varieties together, is higher than the price paid for purchases from others in the case of all the groups excepting the group IV. The price paid for self-purchases was also more than the price paid by others excepting in the first and fourth groups. However, this was not uniformly so, in the case of the two varieties - Rashi and Chaali - for which the price paid was calculated separately. In the case of variety 1 (Rashi) the price paid for self-purchase was higher than the price paid for purchases from others in three groups; and it was above the price paid by others in the last two groups. In the case of variety 2 (Chaali) self-purchase price was more

Table 6.16. Price Paid for Self-Purchase and for Purchases from Others by the Commission Agents and Others - Sirsi market

(Price in Rupees per quintal)

Commission Agents Group*	All varieties					
	Self-Purchase	Purchases from others	Total purchases	Price paid by others	P _s /P _o	P _s /P _{os}
	P _s	P _o				
	1	2	3	4	5	6
Group I	540	514	533	545	1.0506	0.9908
% of total sales	99.07	(20)				
% of total purchases	71.64	28.36				
Group II	539	514	528	498	1.0486	1.0823
% of total sales	86.85	(15)				
% of total purchases	57.54	42.46		(28)		
Group III	529	524	529	522	1.0095	1.0134
% of total sales	64.19	(16)				
% of total purchases	66.16	13.84		(31)		
Group IV	527	532	523	545	0.9906	0.9670
% of total sales	67.67	(14)				
% of total purchases	58.66	41.34		(29)		
Group V	526	483	512	525	1.0890	1.0019
% of total sales	21.61	(14)				
% of total purchases	69.48	30.52		(34)		
Group VI	536	519	534	522	1.0328	1.0268
% of total sales	76.77	(6)				
% of total purchases	89.53	10.47		(31)		
All commission agents	536	520	528	525	1.0308	1.0210
% of total sales	70.53	(22)				
% of total purchases	70.85	29.15		(43)		
Cooperative Society	547	-	547	532	-	1.0282
% of total sales	49.26					
% of total purchases	100.00			(31)		
Purchases by traders with no commission agency	-	537	537	-	-	-
		(20)				
All Purchasers	540	528	533	528	1.0227	1.0227

	Variety 1 (Rashi)					
	1	2	3	4	5	6
Group I	609	609	609	617	1.0000	0.9870
% of total sales	98.95	(20)				
% of total purchases	75.77	24.23		(9)		
Group II	606	611	607	610	0.9918	0.9934
% of total sales	93.86	(15)				
% of total purchases	82.72	17.57		(15)		
Group III	607	610	607	622	0.9951	0.9759
% of total sales	65.86	(13)				
% of total purchases	90.86	9.14		(26)		
Group IV	602	586	595	604	1.0273	0.9967
% of total sales	60.62	(10)				
% of total purchases	63.29	36.71		(23)		
Group V	607	582	600	603	1.0430	1.0066
% of total sales	21.73	(11)				
% of total purchases	69.54	30.46		(29)		
Group VI	594	587	594	587	1.0119	1.0119
% of total sales	11.81	(2)				
% of total purchases	95.14	4.86		(28)		
All commission agents	607	605	607	610	1.0033	0.9951
% of total sales	73.22	(20)				
% of total purchases	78.95	21.05		(41)		
Cooperative Society	623	-	623	609	-	1.0230
% of total sales	50.76					
% of total purchases	100.00			(22)		
Purchases by traders with no commission agency	-	611	611	-	-	-
All purchasers	611	609	610	609	1.0033	1.0033

Continued/..

Commission Agents Groups	Variety 2 (Chaali)					
	1	2	3	4	5	6
Group I	511	510	511	508	2.0020	1.0059
% of total sales	99.09	(17)				
% of total purchases	73.77	26.23		(9)		
Group II	506	519	513	499	0.9750	1.0140
% of total sales	85.08	(15)				
% of total purchases	47.91	52.09		(19)		
Group III	505	509	506	514	0.9921	0.9825
% of total sales	65.83	(13)				
% of total purchases	81.50	18.50		(23)		
Group IV	487	514	499	489	0.9475	0.9959
% of total sales	74.54	(12)				
% of total purchases	56.06	43.94		(24)		
Group V	515	497	511	510	1.0362	1.0098
% of total sales	21.67	(12)				
% of total purchases	76.31	23.69		(27)		
Group VI	498	496	497	502	1.0040	0.9920
% of total sales	46.17	(4)				
% of total purchases	92.17	7.83		(30)		
All commission agents	508	513	510	508	0.9903	1.0000
% of total sales	71.47	(21)				
% of total purchases	68.58	31.42		(41)		
Cooperative Society	517	-	517	515	-	1.0039
% of total sales	49.26					
% of total purchases	100.00			(27)		
Purchases by traders with no commission agency	-	511	511	-	-	-
All purchasers	510	511	511	511	0.9980	0.9980

* According to the Volume of Purchases by the Commission Agents.

Note

Figures in parentheses in col. 2 relate to the number of commission agents from whom purchased, and in col. 4 they relate to the number of purchasers from each commission agent's group.

than the price paid for purchases from others as well as the price paid by others in three groups. However, though the ratios P_s/P_o and P_s/P_{os} continue to be higher in a majority of cases, it will not be consistent to say that the self-purchase price is higher than the other two prices. This has to be explained by the quality differences that exists within each variety and the proportion of purchases made at higher prices to total purchases. For example, in the case of the first group of commission agents self purchase price for all varieties was nearly 5 per cent above the price paid for purchases from others and self-purchase formed nearly 72 per cent of the total purchases by this group. The average price paid by others for purchases from this group was higher than the self-purchase price of this group. However, it should be noted that the purchases by others from this group was very nominal and the price paid by others varied from Rs. 403 to Rs. 684 per quintal while the average was Rs. 545. In the case of variety 1 (Rashi) while the average price paid for purchases from others was Rs. 609 per quintal, it varied from Rs. 573 to Rs. 711. In fact nearly 55 per cent of the purchases from others was at a price lower than the self-purchase price which was Rs. 609 per quintal. The price paid by others also varied from Rs. 531 to Rs. 711 while the average was Rs. 617. This wide fluctuation in the price paid for a single variety clearly shows the vast variation in the quality of the produce within each variety. A similar variation was observed in the case

of the other varieties.

However, looking at the overall position it will be observed that the price paid by the commission agents for self-purchases is more than either what others pay or what they pay to others. This was also the case with the cooperative society. This shows that at the least the commission agents did not by and large pay a lower price than others to the producers who sold through them. If any thing, they paid a somewhat higher price. This is possibly because the commission agent being a trader himself wants to have an assured supply. Further, it may be observed from Table 6.16 that the price paid for self-purchase is the highest in the first group of commission agents cum purchasers than by any other group for all the varieties together as well as for the two varieties separately. Self-purchase price of this group for all varieties was 2.7 per cent above the self purchase price of other groups. In the case of variety 1, the self purchase price was higher by 1.2 per cent and it was about 5 per cent in the case of variety 2. Self-purchase formed nearly 72 per cent of the total purchases of this group and the share of this group in the total purchases was nearly one third. These over payments are possibly an outcome of the buying competition as indicated by the extent of inter-group purchases by the commission agents and the actual number of purchasers from each commission agent. What is presented in Table 6.16 is the actual number of buyers, and the actual participants at the time of buying were naturally

more than this number. The beneficiaries of higher price paid by the commission agents are obviously the producer-sellers.

IV. Concluding Remarks

The above analysis of the market structure and trade practices suggests several conclusions which are important in the context of agricultural marketing particularly the working of the regulated markets.

The commission agents operating in the regulated market form an important link between the producers on the one hand and the buyers on the other. The entire produce arriving in the market pass through the commission agents to the buyers in the market. While around 18 per cent of the produce arriving in Sirsi market was sold in the village - 2 per cent to petty traders and 16 per cent to the village cooperative societies - these were brought to the Sirsi regulated market and was sold through the commission agents. As such the commission agents form the link between the sellers and buyers. This is because of a number of factors operating in favour of the commission agents. Apart from arranging for the sale of the produce the commission agents provide the warehousing facilities until the produce is finally sold as there are no alternative storage facilities available for the producer-sellers even for short periods. The Market Committee had no storage godowns of its own and besides the Committee did not undertake to sell the produce on behalf

of the producer. Further, the commission agents provide the much needed credit facilities to the producer-sellers at the various stages of crop production and marketing.

An analysis of the volume of trade handled by the commission agents and traders clearly indicate the high degree of concentration in the commission agency business as well as in the buying of arecanut. One third of the commission agents (8) including the cooperative society handled nearly 77 per cent of the arrivals in the market, the cooperative society being the single biggest commission agent handling nearly one third of the total arrivals. However, the concentration in the buying of arecanut was much higher. Out of the 48 buyers in arecanut eight buyers purchased as much as 63 per cent. The cooperative society emerged as the single biggest purchaser buying about 16 per cent. The high degree of concentration in the buying of arecanut was closely associated with the self-purchase by the commission agents who were also traders.

It is the advantages of possessing large capital that has lead to a high degree of concentration in the arecanut trade. The commission agents look upon themselves as financiers both to the producers and traders. This was because of the prevailing trade practices. The commission agents make advances to the producer-sellers much before they actually make the purchase, that is, at the various stages of crop production and marketing. This would give the commission agents an assured business. While the commission

agents pay the sellers immediately after the sales the buyers take two to three weeks to pay the commission agents. This type of trade practice makes it necessary for the commission agents to possess large capital. Since the buyers make their purchases on their own and wait for a favourable price in the terminal market to sell, it has led to heavy inventory trading. This is possible only for traders who have a large capital at their disposal. Further, the traders are also faced with considerable risk because of price fluctuations in the terminal markets. The traders send their produce to the terminal markets for sale and the price they realise largely depends on the judgement of the commission agents operating in the terminal market on behalf of these traders.

How far the high concentration in the trade in the primary markets along with the existing trade practices acts against the interests of the producer-sellers was also examined in some detail. The observations made by the Shirname Committee is of relevance here. The Committee observed that monopoly in trading in the primary markets always works against the interest of the producer-sellers.¹ Further, the Committee also suggested that the commission agents should not be allowed to buy goods as a principle when he is himself the agent of the seller. The reason

1 op.cit., p. 30.

stated for such a recommendation was "when he is an agent of a seller and also a buyer, especially on behalf of a trader, in the same transaction, he may buy cheap and sell high and charge his commission from both the parties. In this respect also, the seller, whose agent he is, is sacrificed. These evils have got to be checked."¹ The results of our analysis of the data relating to Sirsi market does not suggest that the high degree of concentration and the existing trade practices is detrimental to the producer-sellers. The extent of inter-group purchases by the commission agents and traders, and the actual number of buyers from each commission agent clearly indicate the degree of buying competition. Taking that the practice of allowing the commission agents to self-purchase is detrimental to the interest of the producer-sellers should mean that the self-purchase price should be lower than the price the commission agent pays for his purchase from others or what others pay in his shop. The analysis of the prices paid does not bring out that such a condition exists. The commission agents in general pay a higher price for their self-purchases. Competition to maintain the loyalty of the producers who deal with the commission agents and to attract new producers from other commission agents has possibly resulted in the higher price paid by the commission agents for self-purchase.

The practice of not allowing the commission agents to

1 op.cit., pp. 114-115.

buy the produce sold through them has its own disadvantages and adds to the cost of marketing. The practice in Shimoga market, discussed in Chapter IV, is a case in point. In Shimoga market the commission agents employ the 'dummy traders' to overcome the prohibition of the practice of self-purchase.¹

Further, such a prohibition of the practice of self-purchase would have prevented the cooperative society operating as a trader in Sirsi market. The declared objective of the society in making outright purchases is to support the price from declining below a reasonable level. The cooperative society which emerges as a single biggest commission agent handling around one third of the total sales in the market is also the single biggest purchaser of arecanut buying around one sixth of the total sales in the market. That is, the cooperative society buys nearly 50 per cent of the sales through it. Two thirds of the total purchases of the society are during the main marketing period (December-April). That is, the society buys mainly during the peak marketing period to counteract the influence of heavy arrivals on the price. The absence of lag between arrivals and sales to ^{an} appreciable extent suggests that the

1 These dummy traders are paid at the rate of Rs. 2/- for a bag of 60 kg. Further, the practice of not allowing the commission agents to self-purchase involves the movement of goods from one commission agent's shop to the other commission agent who is also a trader and to that extent it increases the cost of handling the produce.

sellers are not withholding their stock in the market because of an unfavourable price. This is possibly because the off-season rise in price does not more than compensate their cost of waiting.¹ This in effect means that the seasonal low price is not below the expectations of the sellers. To a large extent this may be because of the outright purchases made by the society. Since the society is a non-profit making organisation, it would not be wrong to assume that the price at which it buys is on par with the price it expects to realize at the terminal market. However, if the society were ^{not} to be in the picture as a trader, the seller, would possibly have counteracted the dampening influence of arrivals on the price by adjusting the volume of sales as in the case of Shimoga market. (This point is discussed in the following chapter). However, because of the lack of sufficiently detailed data it was not possible to analyse in detail the extent of influence of the operations of the cooperative society as a trader. Nevertheless, the above analysis sufficiently suggests that the operations of the cooperative society has a salutary effect on the marketing system.

Further, looking at the overall position the average price paid for total purchases was highest for the top four buyers, leaving the cooperative society, who had a share of

1 This point is discussed in Chapter VIII.

nearly 34 per cent in the total purchases. This also clearly suggests the prevalence of competition in buying even though there is a high degree of concentration in the trade. The high degree of concentration in the trade in itself does not necessarily mean that it is acting against the interests of the producer-sellers. The principal reason for the predominance of a relatively small number of large firms may be the advantages offered by the possession of large capital. Besides, entrepreneurial abilities and economy of size may be the other relevant factors. The observations of Bauer in his study of concentration in the West African trade is of relevance here. He observes "Distrust of middlemen and traders is widespread in most societies; A large measure of concentration suggests a substantial measure of economic dependence, which is likely to be felt and resented particularly keenly where the predominant firms act both as buyers and sellers.....; and this feeling is largely unaffected by the very real limitations imposed on firms by potential competition, whether from new entry or from the expansion of smaller rivals."¹

¹ Bauer, P.T., "Concentration in Tropical Trade : Aspects and Implications of Oligopoly" in 'Markets, Market Control and Marketing Reforms', Selected Papers by P.T. Bauer, and B.S.Yamey, Weidenfeld and Nicolson, London, 1968, p. 220.

AppendixConcentration in Arecanut Buying - Mangalore Market

An attempt was made to examine the extent of concentration in arecanut buying in Mangalore market with the limited data available for the year 1966-67. These are presented here.

The method of sale by the producer-sellers in the regulated market has already been discussed in Chapter IV. It suffices to mention here that the purchases of the various traders were through the commission agents operating between the sellers and buyers in the regulated market. As such the commission agents formed an important link between the buyers and sellers. It may, however, be mentioned that while in Sirsi as well as in Shimoga markets the commission agents were in fact also the major purchasers, in the case of Mangalore market the commission agents hardly engaged themselves in the buying of arecanut. Out of the 31 commission agents only four commission agents purchased and exported arecanut and their share in the total purchases and exports was only 0.4 per cent.

During the year, there were 65 traders of arecanut. These traders were also the exporters of arecanut outside Mangalore market. However, only seven traders who purchased arecanut in the regulated market did not report any export during the year under consideration. The total purchases of arecanut during this period was 231,812 quintals. The relative share of each trader in the total purchases is

presented in Table A6.1. It can be seen from the Table that only a few big traders purchased the bulk of the arecanut sold in Mangalore market. The top five traders accounted for nearly 45 per cent of the purchases. Around 89 per cent of the purchases were made by 20 traders who constituted 30 per cent of all traders. The remaining 70 per cent of traders purchased only about 11 per cent of the total. The share of the seven non-exporting traders was 1.45 per cent of the total purchases.

The pattern of purchases over the season for the various size groups of traders, however, did not show any marked variation. This is evident from Table A6.2 which gives the monthly purchases as per cent of the total purchases during the year for each group of traders. The similarity in the monthly pattern of purchases indicates that the big purchasers did not concentrate their purchases, relatively to smaller purchasers, more in the months when lower prices prevailed. This can also be seen from the estimates of the weighted average price paid by each group of traders for their purchases during the year 1966-67, the weights used being the quantity of arecanut purchased in each month. That is, by multiplying the quantity purchased during each month and the average price for the month and dividing the sum for the year by the total quantity purchased during the year. (The monthly average 'modal' price of 'new supari' is used in calculating the weighted average price). These weighted

annual average prices paid are also presented in Table A6.2.

It can be seen from the Table that the overall price paid is Rs. 589 per quintal and only the second and fourth size groups of traders covering nearly 30 per cent of the purchases have paid a lower price of Rs. 587 per quintal. It should be noted that the first group of traders sharing 23 per cent of purchases have paid the highest price (along with the smallest group with less than 2 per cent share) of Rs. 594 per quintal. Thus, differences in the price paid by the different groups do not appear to be large enough to warrant any specific gains to the big purchasers. Considering the method of sale (which is by secret tenders), the total number of traders and the uniform pattern of purchases over the season by the different groups, the small difference between the price paid by the bigger and smaller groups suggests the prevalence of competition in the buying of arecanut despite a high degree of concentration in the trade. However, this aspect needs a fuller and closer investigation.

**Table A6.1. Quantity of Arecanut purchased and the Relative Share of Each Purchaser -
Mangalore Market, 1966-67 (October-September)**

S.No.	Purchaser Code No.	Quantity purchased (quintals)	% to total	Cumulative %	S.No.	Purchaser Code No.	Quantity purchased (quintals)	% to total	Cumulative %
1	1	29201	12.60	12.60	34	18	829	0.36	96.91
2	37	24983	10.78	23.38	35	26	776	0.33	97.24
3	23	18291	7.89	31.27	36	77	678	0.29	97.53
4	7	17390	7.76	39.03	37	19	637	0.27	97.80
5	13	14167	6.11	45.14	38	47	589	0.25	98.05
6	15	12503	5.39	50.53	39	36	459	0.20	98.25
7	42	12291	5.30	55.83	40	75	430	0.19	98.44
8	9	11776	5.08	60.91	41	16	402	0.17	98.61
9	11	11385	4.91	65.82	42	46	396	0.17	98.78
10	21	11229	4.84	70.66	43	*54	263	0.11	98.89
11	43	6967	3.01	73.67	44	71	245	0.11	99.00
12	22	5777	2.49	76.16	45	25	211	0.09	99.09
13	60	5649	2.44	78.60	46	50	210	0.09	99.18
14	24	4557	1.97	80.57	47	76	210	0.09	99.27
15	45	4122	1.78	82.35	48	69	197	0.08	99.35
16	41	3789	1.63	83.98	49	*63	172	0.07	99.42
17	35	3065	1.32	85.30	50	64	131	0.06	99.48
18	4	2670	1.15	86.45	51	61	130	0.06	99.54
19	40	2586	1.12	87.57	52	78	127	0.05	99.59
20	27	2533	1.09	88.66	53	*4	110	0.05	99.64
21	3	1936	0.84	89.50	54	34	96	0.04	99.68
22	32	1799	0.78	90.28	55	51	86	0.04	99.72
23	6	1743	0.75	91.03	56	44	77	0.03	99.75
24	14	1685	0.73	91.76	57	30	76	0.03	99.78
25	28	1648	0.71	92.47	58	17	68	0.03	99.81
26	59	1462	0.63	93.10	59	73	64	0.03	99.84
27	*26	1457	0.63	93.73	60	8	63	0.03	99.87
28	10	1356	0.58	94.31	61	39	62	0.03	99.90
29	*57	1233	0.53	94.84	62	20	61	0.03	99.93
30	49	1105	0.48	95.32	63	*6	60	0.03	99.96
31	62	1031	0.44	95.76	64	*9	55	0.02	99.98
32	38	921	0.40	96.16	65	70	17	0.01	99.99
33	65	905	0.39	96.55	66	33	13	0.01	100.00
					Total	66	231812	100.00	

* Non-exporting purchasers.

Table A6.2. Monthly Purchases of Arecanut as per cent of Annual Purchases and the Weighted Annual Average Price Paid (Trader Groupwise) - Mangalore Market, 1966-67

Month	Size Group of Traders*							All Groups	Monthly Average Price (Rs. per quintal)
	I (10% and above)	II (6 to 9.99%)	III (4 to 5.99%)	IV (2 to 3.99%)	V (1 to 1.99%)	VI (Less than 1%)	VII (Less than 1% non-exporting traders)		
October	6.95	4.51	5.14	4.96	6.78	6.41	7.85	5.74	583
November	7.93	7.75	4.98	9.78	7.55	4.76	5.45	6.90	583
December	8.89	11.00	6.76	12.80	7.62	7.29	6.66	8.80	518
January	13.30	12.11	14.30	7.60	7.97	11.25	11.88	12.08	537
February	10.10	12.83	16.56	9.74	10.17	12.17	7.22	12.48	611
March	6.95	7.17	7.34	5.09	6.62	10.33	12.69	7.32	620
April	5.56	7.95	4.88	5.68	8.36	5.66	5.58	5.98	608
May	11.34	10.85	10.90	10.15	13.82	12.65	5.67	11.33	588
June	9.99	10.09	11.01	14.52	10.15	9.36	10.66	10.60	590
July	4.90	4.76	4.88	7.94	7.67	5.80	6.84	5.50	608
August	7.96	5.32	6.39	8.00	7.08	6.70	11.70	6.83	647
September	7.13	5.65	6.85	3.74	6.21	7.62	7.80	6.44	624
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	
Quantity in quintals	54184	50448	59184	18393	23322	22931	3350	231812	
Annual weighted Average Price Per Quintal	594	587	590	587	592	592	594	589	
Percentage share in total purchases	23.38	21.76	25.53	7.93	10.06	9.89	1.45	100.00	
No. of traders	2	3	5	3	7	39	7	66	

* Based on the percentage share of each trader in the total purchases during 1966-67.

CHAPTER VII

SEASONALITY IN ARRIVALS AND SALES

We set forth in this chapter to examine the seasonality in 'arrivals' and 'sales' of arecanut in the three major regulated markets of Sirsi, Shimoga and Mangalore as a prelude to a discussion on the behaviour of prices in the primary and terminal markets.

Seasonality in the marketing of agricultural produce is a well known phenomena. 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 diminish the returns to the producers. We attempt in this chapter to examine (a) the extent of seasonality in the 'arrivals' and 'sales', (b) whether the seasonal pattern differs from market to market, and (c) whether the seasonal pattern in 'arrivals' and 'sales' is associated with the structure and functioning of the marketing organisation.

The 'Arrival and Sale Register' maintained by the Sirsi and Shimoga Market Committees provided the daily arrivals and sales figures. From these daily figures weekly, monthly and annual totals were computed for the present analysis. In the case of Mangalore market, the figures of arrivals and sales were available weekly. The arrivals and sales refer to the quantities brought into the market and sold in the market respectively.

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

I. Extent of Seasonality in Arrivals and Sales

1. Sirsi Market

Seasonality in Arrivals : The percentage arrivals during each month of the season and the average for all the years are presented in Table 7.1 and Chart 7.1. The main marketing period starts in December three months after the beginning of the season and extends over a period of five months, that is, from December to April. On an average a little more than 73 per cent of the annual arrivals are during these five months with the peak in January (17.36 per cent). The arrivals during the first three months, after the commencement of the season, account for 7.45 per cent of the annual total, whereas the arrivals during the last two months is 3.54 per cent of the annual total. In the average seasonal pattern large and conspicuous month to month changes occur in December-January (sudden rise), February-April (a small decline), May-June (a further decline) and July-August (a steep fall).

The seasonal pattern in the individual years, however, showed departures from the average pattern. While the December-January rise and April-August decline is repeated

Table 7.1. Monthly Arrivals of Arecanut as Percentage of Annual Total - Sirsi Market, 1961-62 to 1966-67

Months	1961-62	1962-63	1963-64	1964-65	1965-66	1966-67	Average for all years 1961-62 to 1966-67
September	1.50	0.99	1.03	1.05	1.14	0.23	1.12
October	3.50	1.76	1.16	3.76	2.10	1.97	2.37
November	3.49	4.37	6.73	3.54	3.01	2.60	3.96
December	11.83	13.21	17.35	14.59	8.92	10.73	12.77
January	15.62	19.09	21.25	14.73	16.30	17.19	17.36
February	20.60	16.48	13.94	13.72	20.28	12.36	16.23
March	10.49	13.63	13.03	16.05	20.52	16.69	13.07
April	14.75	14.19	9.67	13.14	9.32	12.14	12.20
May	8.69	11.49	8.66	9.14	8.69	11.87	9.76
June	5.83	2.79	4.16	5.97	5.10	9.89	5.62
July	2.11	0.99	1.47	2.84	2.51	1.59	1.92
August	1.59	1.01	1.55	1.47	2.11	1.99	1.62
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Annual arrivals (quintals)	57620	55380	72400	81010	63080	72870	

in all the years, a forward shift in the peak arrival month from the average pattern is observed in some years. This can be clearly seen from Chart 7.1. The peak arrival month coincides with the average pattern in three out of the six years (1962-63, 1963-64 and 1966-67). In one year (1961-62) the peak is reached in February, a delay of one month and in two years the peak is reached in March (1964-65 and 1965-66).

This sort of shifts in the peak arrival month may be caused by a number of factors peculiar to a particular year. The most important factor causing such a shift is the timing of harvests which depends on the prevailing weather conditions. For example, a prolonged rainy season leads to a forward shift in the harvesting time. As pointed out in Chapter III, the variety of nuts prepared depends on the stage of maturity of the nuts at the time of harvest; postponement of harvest, even for very short periods, may result in the harvesting of fully ripe nuts (from which sundried whole nuts are prepared) the processing of which takes a much longer time than the boiled nuts and thus may result in a forward shift in the peak arrival month.

Deviations of the individual years from the average seasonal course is measured by taking the deviation of each month from the 6-year average for that month. The resulting twelve deviations of a year are summed up regardless of sign and the sums applying to several years are compared.¹

¹ A similar method is employed for comparing the fluctuations in sales between years from the average seasonal course.

The results are shown below expressed as percentages of the sum of deviations in the least variable year.

Table 7.2. Index of variability in Seasonality of Arrivals (Sirsi Market)

Year	Index of Variability	
1961-62	137.97	(17.66)
1962-63	102.34	(13.10)
1963-64	175.63	(22.48) ✓
1964-65	100.00	(12.60)
1965-66	165.63	(21.20)
1966-67	130.78	(16.74)

(Sum of deviations are given in parentheses)

The least variable year according to this measure is 1964-65 (sum of deviation 12.60) and the most variable year is 1963-64 (sum of deviation 22.48).

Seasonality in Sales

The pattern of seasonal movement in sales is the same as that of the arrivals (Table 7.3 and Chart 7.1). The peak sale months coincide with the peak arrival months, though the sales are smaller than the arrivals. On an average 64.55 per cent of the annual sales are effected in the months of December through April. Sales in the early marketing period (September-November) is 10.66 per cent and in the last two months of the season it is only 5.99 per cent.

Table 7.3. Monthly Sales of Arecanut as Percentage of Annual Total - Sirsi Market, 1961-62 to 1966-67

Months	1961-62	1962-63	1963-64	1964-65	1965-66	1966-67	Average for all years 1961-62 to 1966-67
September	3.11	2.18	2.17	1.93	1.73	1.29	2.07
October	4.46	3.37	1.94	4.73	3.14	4.01	3.61
November	5.04	4.44	8.39	5.27	3.68	3.05	4.98
December	11.53	13.20	16.80	13.91	9.52	11.26	12.70
January	14.15	16.74	20.95	14.08	15.25	16.90	16.35
February	19.38	14.38	12.52	13.05	18.90	11.68	15.00
March	9.38	13.03	11.19	14.87	20.62	15.08	14.03
April	13.22	14.48	8.94	12.36	9.60	10.23	11.47
May	6.06	12.36	6.99	8.47	6.14	11.27	8.55
June	5.42	2.30	3.47	6.51	4.75	9.15	5.25
July	4.76	1.60	2.78	2.96	3.15	2.17	2.90
August	3.49	1.92	3.86	1.86	3.52	3.91	3.09
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Annual sales (quintals)	58150	53178	69008	73673	62464	76410	

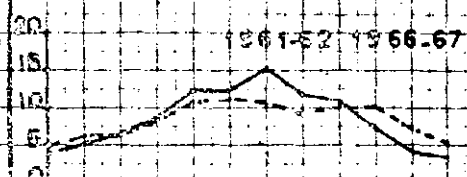
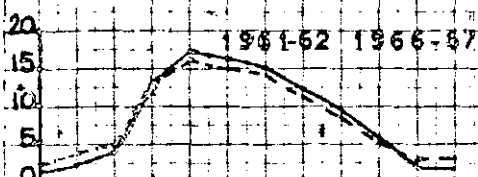
CHART 7-1 MONTHLY ARRIVALS AND SALES AS PERCENTAGE OF ANNUAL TOTALS.

— ARRIVALS. - - - SALES.

SIRSI MARKET

BUNDIA MARKET

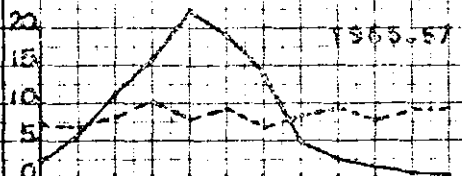
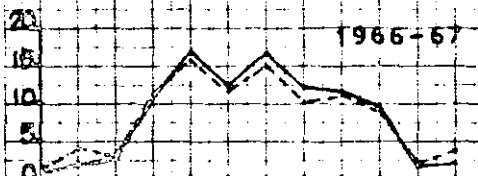
MANGALORE MARKET



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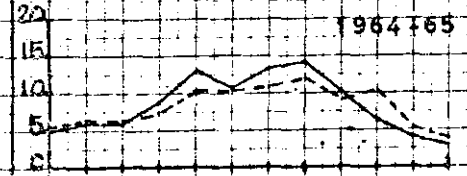
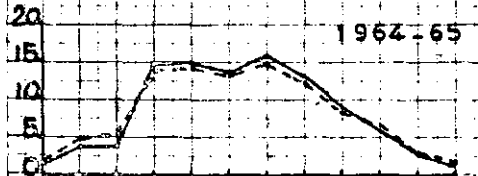
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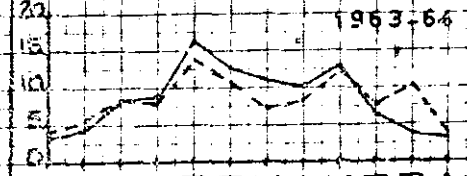
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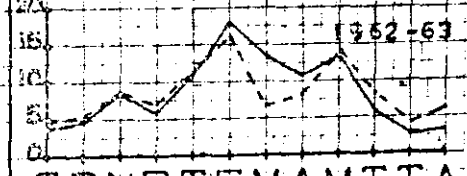
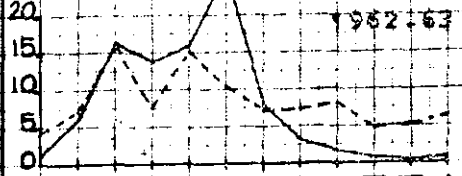
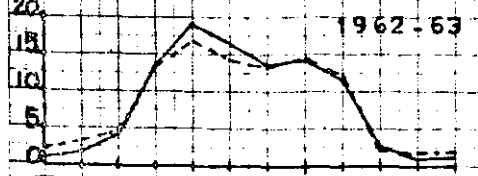
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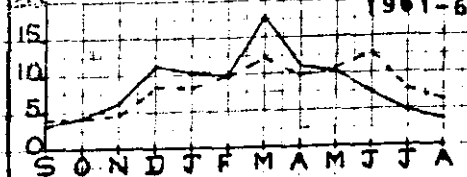
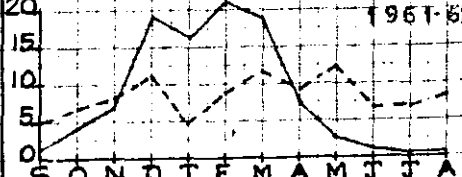
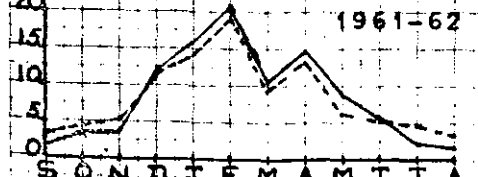
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The deviations of the individual years from the average seasonal course as a percentage of the least variable year is given below.

Table 7.4. Index of Variability in Seasonality of Sales
(Sirsi market)

Year	Index of Variability	
1961-62	203.68	(21.02)
1962-63	151.55	(15.64)
1963-64	251.55	(25.96)
1964-65	100.00	(10.32)
1965-66	206.78	(21.34)
1966-67	182.95	(18.88)

(Sum of deviations is given in parentheses).

The least variable year is 1964-65 (sum of deviation 10.32) and the largest variability is in 1963-64 (sum of deviation (25.96)).

2. Shimoga Market

Seasonality in Arrivals : The percentage arrival during each month of the season and the average for all the years are presented in Table 7.5 and Chart 7.1. November through March is the period of heavy arrivals in the case of Shimoga market. On an average 83.04 per cent of the annual arrivals are during these five months. The peak in arrivals is reached in the month of February in all the

**Table 7.5. Monthly arrivals of Arecanut as Percentage of Annual Total - Shimoga Market,
1961-62 to 1966-67**

Months	1961-62	1962-63	1963-64	1964-65	1965-66	1966-67	Average for all years (1961-62 to 1966-67)
September	1.15	1.34	2.64	0.85	1.88	2.44	1.72
October	4.11	6.31	5.23	4.26	6.21	5.67	5.30
November	6.97	16.23	11.04	10.85	15.49	11.46	12.00
December	19.36	13.82	16.39	18.93	13.84	15.90	16.37
January	16.14	16.90	19.39	17.18	14.14	22.11	17.64
February	21.15	30.94	22.39	22.56	22.44	18.85	23.06
March	18.92	7.93	13.24	14.62	15.44	13.65	13.97
April	7.20	3.15	5.58	5.97	5.74	4.89	5.42
May	2.66	1.67	2.12	2.97	2.22	2.52	2.36
June	1.12	0.68	1.14	0.91	1.22	1.52	1.10
July	0.50	0.34	0.38	0.34	0.33	0.76	0.44
August	0.72	0.69	0.46	0.56	1.05	0.23	0.62
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Annual arrivals (quintals)	64590	71390	84120	73780	71560	77320	

years excepting 1966-67 with the peak in the month of January. On an average about 7 per cent of the arrivals is in the first two months of the marketing season. The last three months of the year account for only 2.16 per cent of the annual arrivals. The two intervening months (April and May) between the rapid marketing season and the tail end of the season receive 7.78 per cent of the annual arrivals.

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 variation between the individual years and the average pattern is observed before the peak month. In three out of the six years (1961-62, 1964-65 and 1965-66) the arrivals exhibit a slight decline before the peak is reached. In 1962-63, this decline appears two months prior to the peak month. The two years that do not show such a decline are 1963-64 and 1966-67. The fluctuations in the early marketing period is perhaps due to a variation in the timing of harvests.

Deviations of the individual years from the average seasonal course expressed as percentages of the deviations in 1963-64, the least variable year, are given in Table 7.6.

The largest variability in the deviations from the average seasonal pattern is in 1962-63 with 1963-64 as the least variable year.

Seasonality in Sales : The average seasonal pattern of sales does not exhibit seasonality of a considerable

**Table 7.6. Index of Variability in Seasonality of Arrivals
(Shimoga market)**

Year	Index of variability	
1961-62	352.94	(20.40)
1962-63	456.40	(26.38)
1963-64	100.00	(5.78)
1964-65	151.21	(8.74)
1965-66	238.75	(13.80)
1966-67	223.18	(12.90)

(Sum of deviations is given in parentheses).

degree. The monthly sales as a percentage of annual sales (average for 1961-62 to 1966-67) vary between 6 and 10 per cent. The peak in sales is reached in February when the arrivals are also at the peak.

Peak in sales is generally observed in three months. The first peak appears just before the peak in arrivals, the second peak coinciding with the peak in arrivals and the third after the arrivals start declining rapidly (Table 7.7 and Chart 7.1).

Deviations of the individual years from the average seasonal pattern expressed as percentage of the least variable year is given in Table 7.8.

The largest variability in the deviations from the average seasonal pattern is in 1962-63 with 1963-64 as the least variable year.

**Table 7.7. Monthly Sales of Arecanut as Percentage of Annual Total - Shimoga Market,
1961-62 to 1966-67**

Months	1961-62	1962-63	1963-64	1964-65	1965-66	1966-67	Average for all years (1961-62 to 1966-67)
September	4.95	4.57	5.73	6.92	7.16	7.07	6.07
October	6.60	7.06	6.92	7.54	7.28	6.89	7.05
November	8.08	16.02	6.93	9.36	13.22	8.18	10.30
December	11.19	7.61	10.74	12.12	10.25	10.11	10.34
January	4.91	15.03	6.71	6.61	7.43	7.89	8.09
February	8.76	10.48	11.28	12.17	11.62	9.23	10.59
March	11.72	7.18	7.68	8.71	11.98	6.72	8.98
April	9.23	7.43	7.06	6.33	5.26	8.38	7.28
May	12.35	8.17	10.32	10.19	9.33	9.44	9.97
June	6.63	4.91	9.43	6.74	6.95	7.70	7.06
July	6.82	5.05	7.31	6.90	6.19	9.05	6.89
August	8.76	6.49	9.89	6.41	3.33	9.34	7.38
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Annual sales (quintals)	76717	61233	72945	74866	65070	81841	

**Table 7.8. Index of Variability in Seasonality of Sales
(Shimoga Market)**

Year	Index of Variability	
1961-62	177.48	(18.60)
1962-63	244.66	(25.64)
1963-64	100.00	(10.48)
1964-65	104.68	(10.97)
1965-66	155.63	(16.31)
1966-67	111.83	(11.72)

(Sum of deviations is given in parentheses).

3. Mangalore Market

Seasonality in Arrivals : The monthly arrivals as a percentage of the annual totals for the years 1961-62 to 1966-67 and the average seasonal pattern are presented in Table 7.9 and Chart 7.1.

The average seasonal pattern, for the years 1961-62 to 1966-67 shows that about 62 per cent of the season's arrivals is in the five months January through May. The arrivals reach the peak in March, two months after the heavy marketing period starts. The arrivals decline sharply after March. The decline in arrivals occur in two stages. A sudden fall from March to April, with May having almost the same amount of arrivals as that of April and the second decline from May to July. Large and conspicuous month to

Table 7.9. Monthly Arrivals of Arecanut as Percentage of Annual Total - Mangalore Market, 1961-62 to 1966-67

Month	1961-62	1962-63	1963-64	1964-65	1965-66	1966-67	Average for all years (1961-62 to 1966-67)
September	3.03	3.57	3.14	4.93	2.64	4.01	3.55
October	4.41	4.71	4.56	5.87	6.25	4.48	5.05
November	6.35	8.24	8.20	5.86	5.79	4.42	6.47
December	11.28	5.70	8.53	8.68	7.07	10.79	8.68
January	10.34	10.88	16.06	13.01	10.79	11.72	12.14
February	9.85	17.99	12.56	10.89	10.74	11.32	12.23
March	17.93	13.30	10.98	13.23	16.38	18.43	15.04
April	11.00	10.89	10.15	14.09	15.53	7.63	11.55
May	10.25	13.09	12.77	10.25	10.08	9.09	10.93
June	7.37	5.60	6.11	6.06	8.21	9.36	7.12
July	4.65	2.76	3.61	3.98	3.94	4.88	3.97
August	3.54	3.27	3.23	3.15	2.58	3.87	3.27
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Annual arrivals (Quintals)	165590	153813	197150	168500	168410	163240	

month changes in the average seasonal pattern are observed in November to January (a continuous rise), February-March (a sudden jump), March-April (a decline), May-July (a further but steep fall).

The deviations from the average seasonal course expressed as percentage of the least variable year is given below.

Table 7.10. Index of Variability in Seasonality of Arrivals
(Mangalore Market)

Year	Index of Variability	
1961-62	120.20	(13.38)
1962-63	182.23	(20.30)
1963-64	140.39	(15.64)
1964-65	100.00	(11.14)
1965-66	136.62	(15.22)
1966-67	174.33	(19.42)

(Sum of deviations is given in parentheses).

1964-65 is the least variable year and the sum of deviation is 11.14. 1962-63 exhibits the largest deviation from the average seasonal pattern.

Seasonality in Sales : Monthly sales as percentage of annual sales for the years 1961-62 to 1966-67 and the average for all the years are presented in Table 7.11 and Chart 7.1. Sales reach the peak in February, a month earlier to the peak in arrivals. Sales between January and June

Table 7.11. Monthly Sales of Arecanut as Percentage of Annual Total - Mangalore Market,
1961-62 to 1966-67

Month	1961-62	1962-63	1963-64	1964-65	1965-66	1966-67	Average for all years (1961-62 to 1966-67)
September	4.13	4.52	4.00	5.47	2.14	8.57	4.80
October	4.35	5.48	5.59	6.32	9.92	6.29	6.32
November	4.58	8.21	8.03	6.26	6.61	4.61	6.38
December	8.50	6.91	7.88	7.47	8.73	10.16	8.27
January	8.38	11.16	13.74	10.47	10.21	9.52	10.58
February	10.00	16.34	10.87	10.46	9.50	9.97	11.19
March	12.31	6.52	7.09	10.90	13.46	12.73	10.50
April	9.96	8.34	8.24	11.84	12.62	4.51	9.25
May	10.78	14.13	12.48	9.15	6.51	8.09	10.19
June	12.74	8.17	7.95	11.42	7.08	12.65	10.00
July	7.80	4.06	10.22	6.33	6.86	7.12	7.06
August	6.47	6.16	3.91	3.91	6.36	5.77	5.46
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Annual sales (Quintals)	155134	158052	198476	168866	150101	188756	

do not exhibit fluctuations of a significant order. On an average, the monthly sales during the six months was 10.28 per cent, and the monthly percentages ranged from 9.25 per cent to 11.19 per cent. The average sales in the first two months of the season (September-October) was 5.56 per cent and it was 6.25 per cent for the last two months (July-August). Over a greater part of the season the sales are more evenly distributed.

The deviations of the individual years from the average seasonal pattern expressed as percentage of the most conforming year from the average pattern is given below.

Table 7.12. Index of Variability in Seasonality of Sales
(Mangalore Market)

Year	Index of Variability	
1961-62	154.13	(15.66)
1962-63	240.16	(24.40)
1963-64	202.07	(20.53)
1964-65	100.00	(10.16)
1965-66	226.77	(23.04)
1966-67	214.96	(21.84)

(Sum of deviations is given in parentheses).

The least variable year is 1964-65 with 10.16 as the sum of deviation from the average seasonal course. The deviation from the average seasonal course is largest in 1962-63.

The fact that seasonality in arrivals and sales in the three major arecanut markets exists is thus established by the above discussion. The seasonal pattern in arrivals and sales, however, exhibited variation between years in all the three markets. It would be interesting to look into the variation in magnitude of this seasonality in arrivals and sales over years. For this purpose, the deviation of per cent monthly arrivals/sales from the hypothetical percentage where zero seasonality exists (that is, the share of each month within a year is uniformly 8.33 per cent) were calculated and added irrespective of their signs. Then rank correlation between the sum of deviations and annual production and arrivals were computed. The results are presented in Table 7.13.

In all the cases the coefficients of correlation were low and statistically not significant. That is, the seasonality in arrivals/sales was independent of the volume of production and the total volume of arrivals during the year. However, it may be noted that in all the instances the coefficients were negative. That is, the arrivals and sales tend to fluctuate less in years of larger production or larger annual arrivals. This perhaps indicates a tendency of the producers to market the increased production in the lean marketing period.

Table 7.13. Rank Correlations of Sum of Deviations in Arrivals and Sales with Annual Production and Total Annual Arrivals

N = number of years = 6

	Sirsi Market		Shinoga Market		Mangalore Market	
	$\Sigma D $ from zero seasonality in		$\Sigma D $ from zero seasonality in		$\Sigma D $ from zero seasonality in	
	Arrivals	Sales	Arrivals	Sales	Arrivals	Sales
Annual Production	- 0.0571	- 0.0571	- 0.1428	- 0.2571	- 0.6000	- 0.6000
Total Annual Arrivals	- 0.4286	- 0.4286	- 0.3714	- 0.7714	- 0.3714	- 0.3714

II. Variations in the seasonal pattern of Arrivals and Sales - A Comparison

In the preceding section we have seen the extent of seasonal fluctuations in 'arrivals' and 'sales' in the three regulated markets and the variation in the individual years from the average seasonal pattern. In the present section we make a comparison of the extent of fluctuations in arrivals and sales within the markets and between markets. For this purpose, we are considering here only the average seasonal pattern (average for 6 years 1961-62 to 1966-67) in arrivals and sales. By considering the average seasonal pattern, we would be eliminating the fluctuation in the individual years due to factors of a purely temporary nature and peculiar to particular years.

If no seasonal fluctuation is present in the series, then the arrivals or sales in each month of the year would be 8.33 per cent of the annual total. Deviations from this average (8.33 per cent) would indicate the extent of seasonal fluctuation in the series. The deviations of the average seasonal pattern of arrivals and sales from this average (8.33 per cent) are presented in Table 7.14.

How close are the seasonal fluctuations in arrivals and sales is shown by expressing the sum of deviations of arrivals as a percentage of the sum of deviations of sales. These are given below:

Sirei Market	118.83
Shimoga Market	486.13
Mangalore Market	175.67

Table 7.14. Deviation of the Average Seasonal Pattern of Arrivals and Sales from Zero Seasonality

Month	Sirsi Market		Shimoga Market		Mangalore Market	
	Arrivals	Sales	Arrivals	Sales	Arrivals	Sales
September	- 7.21	- 6.26	- 6.61	- 2.26	- 4.78	- 3.53
October	- 5.96	- 4.72	- 3.03	- 1.28	- 3.28	- 2.01
November	- 4.37	- 3.35	+ 3.67	+ 1.97	- 1.86	- 1.95
December	+ 4.44	+ 4.37	+ 8.04	+ 2.01	+ 0.35	- 0.06
January	+ 9.03	+ 8.02	+ 9.31	- 0.24	+ 3.81	+ 2.25
February	+ 7.90	+ 6.67	+14.73	+ 2.26	+ 3.90	+ 2.86
March	+ 6.74	+ 5.70	+ 5.64	+ 0.65	+ 6.71	+ 2.17
April	+ 3.87	+ 3.14	- 2.91	- 1.05	+ 3.22	+ 0.92
May	+ 1.43	+ 0.22	- 5.97	+ 1.64	+ 2.60	+ 1.86
June	- 2.71	- 3.08	- 7.23	- 1.27	- 1.21	+ 1.67
July	- 6.41	- 5.43	- 7.89	- 1.44	- 4.36	+ 1.27
August	- 6.71	- 5.24	- 7.71	- 0.95	- 5.06	+ 2.87
Σ	66.78	56.20	82.74	17.02	41.14	23.42
Average	5.56	4.68	6.89	1.42	3.43	1.95

The difference between arrivals and sales is the lowest in Sirsi market and the highest in Shimoga market. It is higher by 18.83 per cent and 75.67 per cent in Sirsi and Mangalore markets respectively; it is as high as 386.13 per cent in Shimoga market.

Further, between the markets, the deviations in arrivals is the largest in Shimoga market and the lowest in Mangalore market. Deviations in Sirsi market stand closer to Shimoga market than to Mangalore market. But the deviations in sales is the largest in Sirsi market and the lowest in Shimoga market. The deviations in sales in Mangalore market is nearer to Shimoga market.

III. Seasonality and the structure of the Marketing Organisation

So far we have discussed the pattern of seasonal variation in arrivals and sales in the three markets and how they compare between markets. From the analysis in the preceding sections three types of situations emerge. At one end is Sirsi market with a high seasonality in arrivals and sales and a minimum difference in the fluctuations between the two series - arrivals and sales. At the other end is Shimoga market with arrivals showing the largest seasonal fluctuation and the smallest seasonal fluctuation in sales of the three markets. Further, the difference in the fluctuations between arrivals and sales is also quite large in this market. In between these two is Mangalore market, where

though the seasonal fluctuations in arrivals is higher than in sales, it is moderately small compared to the other two markets. What is more important than a mere description of the seasonal movement presented above is an examination of the factors leading to such a difference in them. How far these differences are associated with the structure and functioning of the marketing organisation is discussed in the present section.

Fluctuations in arrivals within a season depends largely upon the timing of the harvests, the prevailing climatic conditions, the total quantity available for disposal and factors like availability of transport, etc. But, fluctuations in sales within a season stem mainly from the waiting capacity of the sellers and their price judgements. If the price offered is below the expectation of the sellers they have the choice of postponing the sale.

Before proceeding further to discuss the case of each of the markets, it may be pointed out that each of these three markets has a cooperative marketing society. Though the aim of all the cooperative societies is to get the best price for their members, their sphere of operation is different in these markets, either because of a limitation imposed by themselves or because of a limitation imposed on them from outside. Basically, all these societies act as commission agents in selling their members' produce. Only the Totgars' Cooperative Sale Society, Sirsi, acts as a trader and purchases the goods for which it acts as a

commission agent.

Sirsi market : As observed in Chapter VI, the sellers in this market are predominantly the purchasers; small traders account for a negligible amount of the trade in this market. The cooperative society handles nearly 32 per cent of the arrivals in the market. A major portion of the produce brought for sale through the society is purchased by the cooperative society itself. During 1966-67 the self purchase of the cooperative society was about 50 per cent of its total sales which was around 16 per cent of the total sales in the market. Further, the society is the single biggest purchaser of arecanut.

The important position of the society to enter the market to make purchases can be viewed as to keep the prices scale down. The society as such being a bulk purchaser in the market can ensure a fair price even when the heavy seasonal arrivals have a tendency to pull the prices down in the season. As observed in the previous chapter more than two thirds of the society's total purchases were during the main marketing period. The society being a non-profit making organisation the price obtained in the society will be on par with the terminal market price.

The cooperative society by its outright purchases counteracts the dampening effects of heavy arrivals on the prices. Since the society is the biggest purchaser, the favourable influence of the price obtained in the society on the rest of the market is rather expected. To the extent

the dampening influence of heavy arrivals on prices is mitigated the postponement of sales or withholding of stocks by the sellers is prevented. This has resulted in the seasonality in sales being almost of the same order as that of in arrivals. While the average seasonal pattern of arrivals deviated by 5.56 per cent on an average, the deviations in sales was also 4.68 per cent.

Shimoga market : Shimoga market presents an interesting picture different from the one seen in the case of Sirsi market. The average seasonal pattern of arrivals deviates as much as 6.89 per cent on an average, whereas the deviations of sales is only 1.42 per cent. The operations of the co-operative society in this market is not likely to influence the prices as it does not enter into the trade. The dampening effect of a high seasonality in the arrivals on the price is counteracted by adjusting the quantity sold by the sellers. And this has resulted in a very low seasonality in sales. The heavy seasonality in arrivals is to be explained by the timing of the harvests and other factors like availability of transport, etc. Besides, holding the stock in the market has certain definite advantages to the sellers. Firstly, the sellers can get the necessary financial assistance on the stocks held with the commission agents. Secondly, the sellers can take the advantage of a favourable price by making their stocks available for immediate release. The profitability or otherwise of such a postponement of sales and the influence of such a manipulation

of stocks on the prices are discussed in the following chapter.

Mangalore Market : Mangalore market presents a picture different from the above two. To a certain extent it is nearer to Shimoga market as far as the behaviour in sales is concerned. Whereas the average deviation in sales is 1.95 per cent, the arrivals exhibit a deviation of 3.43 per cent which is not very high when compared to the other markets or for that matter with the deviations in sales within the market. The low seasonality in arrivals as well as sales is perhaps because of a larger trader component among the sellers¹ who try to adjust the arrivals in tune with the market condition, and clear off the quantity brought for sale without much postponement. This point is brought out to some extent when we break up the quantity handled by the cooperative society and the rest to calculate the seasonal index. These are presented in Tables 7.15 and 7.16 and Chart 7.2.

The cooperative society handles around one third of the total arrivals into the market. It would not be wrong to assume that the sellers operating through the cooperative society are mostly the producers, though the society does

¹ No statistics are available as to the extent of the trade handled by small traders in this market. The Market Committee estimates their share around 20-30 per cent of the total quantity arriving in this market.

**Table 7.15. Monthly Arrivals and Sales as Percentage of Annual Totals, Mangalore Market -
For the Cooperative Marketing Society, 1961-62 to 1966-67**

Month	1961-62	1962-63	1963-64	1964-65	1965-66	1966-67	Average for all years (1961-62 to 1966-67)
1. Arrivals							
September	2.71	3.04	3.64	5.23	2.63	2.95	3.37
October	4.45	5.00	4.88	5.66	5.12	4.75	4.97
November	7.56	7.19	5.24	5.45	4.58	6.29	6.05
December	7.98	5.40	6.80	7.74	4.45	7.38	6.63
January	10.27	12.02	13.30	11.32	9.86	12.13	11.49
February	11.83	13.12	13.84	12.81	13.68	14.14	13.24
March	18.12	17.12	14.29	16.02	16.71	16.61	16.48
April	13.95	15.14	13.19	13.99	15.92	13.25	14.21
May	13.77	12.55	12.95	12.80	15.55	11.72	13.25
June	5.13	5.26	8.02	4.12	6.79	6.92	6.04
July	1.97	1.87	1.75	2.12	2.15	1.68	1.92
August	2.26	2.29	2.10	2.74	2.56	2.18	2.35
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Annual Arrivals (Quintals)	35197	39785	50387	45464	46758	52442	
2. Sales							
September	3.96	4.31	4.77	3.66	3.62	10.18	5.09
October	3.79	5.55	7.08	5.54	7.41	8.33	6.28
November	2.71	8.23	4.63	5.73	6.11	6.06	5.38
December	3.34	6.26	4.90	6.26	5.07	6.47	5.38
January	7.38	10.14	8.81	7.52	7.50	8.78	8.35
February	8.07	9.17	8.67	9.27	12.03	9.82	9.51
March	10.12	8.01	8.03	10.99	18.10	8.62	10.64
April	12.58	7.85	8.95	14.25	4.91	5.82	9.06
May	14.80	16.16	11.34	13.99	9.80	9.49	12.59
June	17.31	16.12	14.31	11.07	7.36	15.00	13.53
July	6.80	3.08	13.06	6.45	4.67	4.89	6.49
August	9.14	5.12	5.45	5.27	13.42	6.54	7.50
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Annual Arrivals (Quintals)	33372	40174	50841	44730	39229	59707	

Table 7.16. Monthly Arrivals and Sales as Percentage of Annual Totals, Mangalore Market - The Rest (Excepting the Cooperative Marketing Society) 1961-62 to 1966-67

Month	1961-62	1962-63	1963-64	1964-65	1965-66	1966-67	Average for all years (1961-62 to 1966-67)
1. Arrivals							
September	3.12	3.75	2.98	4.82	2.64	4.49	3.64
October	4.40	4.61	4.58	5.95	6.70	4.36	5.10
November	6.01	8.60	9.19	6.00	6.26	3.58	6.61
December	12.19	5.81	9.11	9.02	8.10	12.33	9.42
January	10.37	10.48	16.98	13.62	11.17	11.54	12.36
February	9.31	19.68	12.13	10.20	9.57	10.04	11.82
March	17.87	11.96	9.87	12.22	16.24	19.26	14.57
April	10.18	9.40	9.14	14.12	15.38	5.09	10.55
May	9.28	13.28	12.70	9.33	7.92	7.90	10.07
June	7.99	5.73	5.48	6.76	8.78	10.46	7.53
July	5.39	3.08	4.24	4.66	4.66	6.33	4.74
August	3.89	3.62	3.60	3.30	2.58	3.62	3.59
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Annual Arrivals (Quintals)	130393	114022	150211	126561	118019	115708	
2. Sales							
September	4.20	4.60	3.73	6.12	1.60	7.80	4.67
October	4.51	5.45	5.08	6.61	10.83	5.33	6.30
November	5.11	8.20	9.20	6.45	6.79	3.93	6.61
December	9.92	7.14	8.91	7.91	10.06	11.90	9.30
January	8.54	11.50	15.44	11.54	11.19	9.87	11.35
February	10.53	18.78	11.63	10.89	8.58	10.04	11.75
March	12.94	6.01	6.77	10.87	11.78	14.67	10.52
April	9.25	8.51	8.00	10.97	15.42	3.90	9.34
May	9.68	13.45	12.87	7.40	5.31	7.43	9.35
June	11.50	5.45	5.76	11.54	6.98	11.54	8.80
July	8.09	4.39	9.25	6.28	7.66	8.17	7.31
August	5.73	6.62	3.36	3.42	3.80	5.42	4.70
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Annual Sales (Quintals)	121762	117878	147635	123786	108148	126435	

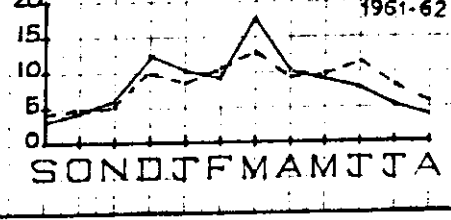
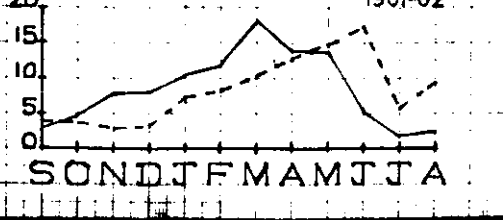
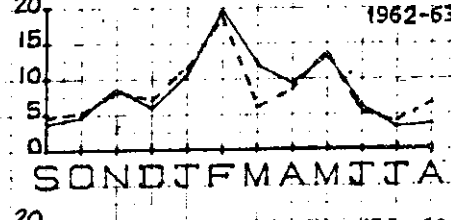
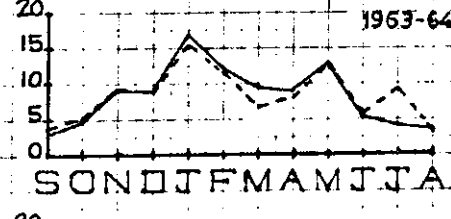
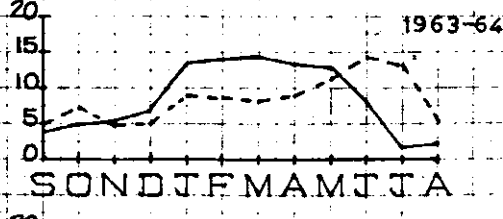
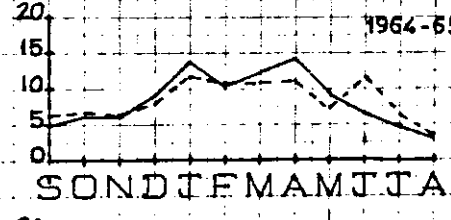
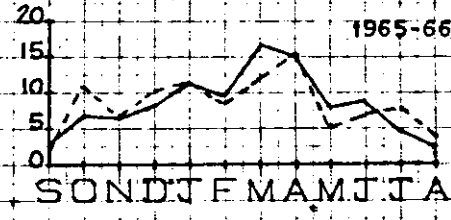
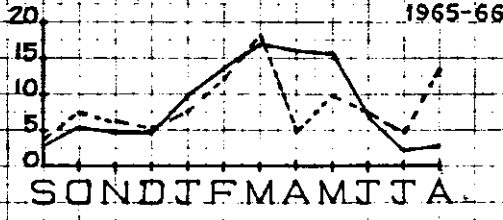
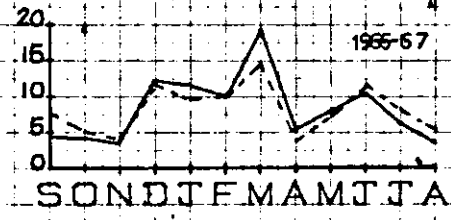
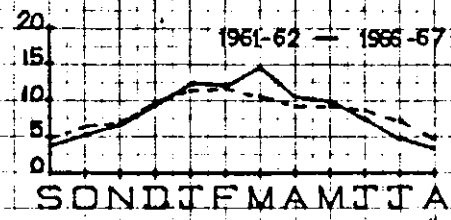
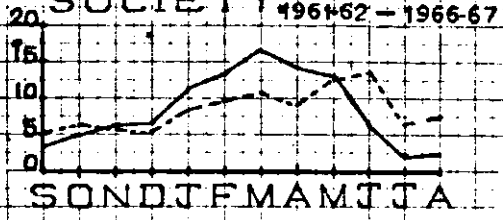
CHART 7.2

MONTHLY ARRIVALS AND SALES AS PERCENTAGES OF ANNUAL TOTALS MANGALORE MARKET «SEPARATELY FOR THE CO-OPERATIVE SOCIETY AND THE REST»

— ARRIVALS. - - - SALES.

CO-OPERATIVE SOCIETY

THE REST.



not restrict its services only to the members. The charts clearly indicate that the postponement of sales is more in the case of the society than in case of the rest of the market.

The average deviation in arrivals for the society is 4.50 per cent, where the sales deviate on an average 2.28 per cent. For the rest of the market while the deviation in arrivals is 3.13 per cent, it is 2.01 per cent in sales. Whereas the deviation in sales for the society and the rest is almost of the same order, the deviations in arrivals is slightly higher for the society. Further, the sales effected through the society in the heavy marketing period is much smaller than the arrivals. The holding of stock by the society in the peak arrival season might be to influence the price in the market, which is directly related to the quantity the society handles, or to wait for the seasonal rise in price.

To sum up the above discussion on the 'Seasonality in arrivals and sales' in the three major regulated markets, there emerges three different types of situations. In one market (Sirsi) we find a high seasonality in arrivals and sales, both almost of the same order; in the second market (Shimoga) we find that while the arrivals show a very high seasonality, the sales exhibit the lowest seasonality; in the third market (Mangalore) we find that though the seasonality in arrivals is higher than in sales, the seasonality in them can hardly be regarded as large. The variation

in magnitude of the seasonality in arrivals and sales over years, however, was independent of the annual production or the total volume of arrivals in the market. Further, the differences in the seasonality in arrivals and sales in these markets appear to be largely due to the differences in the structure of these markets.

This is thus, the background on which we have to consider the behaviour of prices in these markets. This is attempted in the next chapter.

CHAPTER VIIIBEHAVIOUR OF PRICES

In this chapter we make an attempt to analyse the weekly prices of arecanut with a view to study (1) the extent and pattern of seasonal fluctuations in the prices in the primary and terminal markets and (2) the influence of the weekly arrivals, sales and terminal prices on the weekly prices in the primary regulated markets. The analysis is carried out for the period September 1961 to August 1967 (total number of weeks 312).

While doing this we first present the source and nature of price data. The pattern and extent of seasonal fluctuations in the prices in the primary and terminal markets are discussed in section two. The weekly prices in the primary and terminal markets are examined for the relationship in their movement in section three. In section four the extent of rise in price during the marketing season in relation to the estimated costs of storage is examined. The results of the statistical analysis carried out to bring out the extent of influence of the weekly arrivals/sales and terminal prices on the prices in the local market are discussed in section five.

I. Source and nature of the price data

The price data for the various regulated markets

under study are taken from the records of the Market Committees for the period from September 1961 to August 1967. These records provide three price indicators for each day of the transactions, that is, daily 'maximum', 'minimum' and 'modal' prices for each variety. 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. At the time of sale in each commission agents' shop the price for each variety lot-wise is recorded by the staff of the Market Committee. The 'maximum' 'minimum' and 'modal' prices for each variety are compiled later for the market as a whole.

As regards the terminal markets, only Bombay and Bangalore markets are considered here. While Bombay is the major terminal market for Sirsi and Mangalore markets, Bangalore is one of the important markets for Shimoga. The price data for these terminal markets are taken from the various issues of the 'Areca Nut Journal' published by the erstwhile Indian Central Areca Nut Committee, Calicut, Kerala, for the period from September 1961 to August 1965. For the later two years, viz. 1965-66 and 1966-67, they were obtained directly from the office of the Marketing Research Officer of Maharashtra State, Bombay, and Chief Marketing Officer, Mysore State, Bangalore for Bombay and

Bangalore markets respectively. The price quotations for the terminal markets refer to the average week-end prices (week ending Friday) and are collected from the whole-sale traders in these centres.

The different varieties of arecanut traded in the primary and terminal markets for which price data were collected and analysed in the present chapter are given below in the decreasing order of their superiority. Against each variety traded in the primary markets is given the comparable variety traded in the terminal market. The concept of 'comparable' variety is only a rough measure as the quality differences within the variety is considerable in the primary markets, whereas the prices in the terminal markets refer to the finally graded produce.

I	<u>Variety traded in the Primary Markets</u>	<u>Comparable variety in the Terminal Market</u>
	1. <u>Sirsi Market</u>	(Terminal market - Bombay)
	A. <u>Boiled varieties</u>	
	1. Rashi	Motiapi, Dhapapi, Toapi
	2. Tatti Bette	Barada
	3. Kempa gotu	-
	B. <u>Unboiled varieties</u>	
	1. Chaali	Sirsi safed
	2. Bile gotu	-
	2. <u>Mangalore Market</u>	(Terminal market - Bombay)

Unboiled Varieties

- | | |
|--------------------------|------------------------------------|
| 1. Choll supari | Mangalore Choll |
| 2. New supari | Mangalore Moti, Mangalore Vachras. |
| 3. <u>Shimoga Market</u> | (Terminal market - Bangalore) |
| 1. Kadibasa | Nuli |
| 2. Saraku | Rajalu, Nuli |
| 3. Vanthi | Bette |
| 4. Gorabalu | |

II. Variety traded in the Terminal Markets

1. Bombay market

A. Sirsi varieties

Boiled

1. Motiapi
2. Dhapapi
3. Toapi
4. Barada

Unboiled

1. Sirsi safed

B. Mangalore varieties (unboiled)

1. Mangalore Choll
2. Mangalore Moti
3. Mangalore Vachras

2. Bangalore market (Shimoga varieties)

1. Rajalu
2. Nuli
3. Bette

II. Pattern and Extent of Seasonal fluctuations in the Prices

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 is that of relative deviations from a properly centred 52-week moving average.¹ 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 two fold: (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.² 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

1. 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 Croxton F.E. and Cowden, D.J. "Applied General Statistics", Sir Isaac Pitman & Sons, London, 1956, pp.326-334.

2. Kuznets, Simon, *ibid*, p. 27.

year and the average seasonal pattern for all the years, in each of the markets. The pattern and extent of seasonal movement in the price of arecanut in each of the market is discussed below.

Seasonal Pattern in the movement of arecanut prices

A. Primary Wholesale Markets

Sirsi Market

As mentioned earlier, prices of five varieties of arecanut traded by the producer-sellers are analysed in the case of Sirsi market. Of the five varieties three are boiled varieties (Fashi, Tatti Bette and Kempu gotu) and two are unboiled varieties (Cheali and Bilegotu). It may be mentioned that the producers do not sort or grade the produce and as such the varieties traded by the producers contains mixture of different grades. (Indeed this is the case in all the three primary wholesale markets considered here). The traders after making the purchase sort and grade the produce. While the boiled varieties are sorted into some 13 grades, the unboiled varieties are broadly sorted into some 4 grades. Because of the admixture of different grades and quality nuts in the produce sold by the producers, 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 index of seasonal variation in the prices of arecanut is presented in Table 8.1 and Chart 8.1. It can be seen from the Table and the Chart that the price reaches the lowest in the months of November-December in the case of all the varieties of arecanut. The peak in prices occurs generally in the month of May, June or July. The three prices - 'maximum', 'minimum' and 'modal' - move in sympathy with each other. Generally the price starts declining after September till the trough is reached in November-December after which it registers a gradual rise reaching the peak in May-June-July. From the peak the price generally starts declining until the trough is reached in the following year. Though the trough in prices occur around the same month in the case of all the varieties, the prices of the boiled varieties reach the peak slightly earlier than of the unboiled varieties.

The seasonal pattern in the prices, as revealed by the indices, for the individual years, however, showed some variation from the average for all the years. This can be clearly seen from Chart 8.1. (Index of seasonal variation in the prices of arecanut for the individual years are presented in Appendix Table A8.1 at the end of this Chapter). While the prices reached the trough in December in the average pattern, in the individual years, the trough in prices was generally in the months of May-June-July both in the average seasonal pattern and in the pattern for the

Table 8.1. Index of Seasonal Variation in Arecanut Prices

Average for the six years 1961-62 to 1965-67 - Sirsi Market

	September	October	November	December	January	February	March
1. Variety 1 - Rashi							
(a) Maximum Price	92.34	93.49	97.04	96.67	106.98	108.93	104.15
(b) Minimum Price	97.97	98.94	97.95	94.02	97.48	98.64	100.06
(c) Modal Price	96.95	98.51	101.01	96.37	99.75	98.97	99.29
2. Variety 2 - Tatti Bette							
(a) Maximum Price	97.71	98.95	96.50	95.29	98.27	98.87	99.62
(b) Minimum Price	100.87	102.03	97.31	93.84	95.58	96.06	97.14
(c) Modal Price	99.02	100.12	97.19	95.28	97.87	98.06	98.27
3. Variety 3 - Kempu Gotu							
(a) Maximum Price	99.14	100.03	91.02	90.83	97.49	98.21	100.32
(b) Minimum Price	102.17	101.24	89.89	87.34	92.08	95.33	99.86
(c) Modal Price	99.80	100.10	89.21	89.20	95.23	101.14	99.53
4. Variety 4 - Chaali							
(a) Maximum Price	99.59	100.85	93.25	87.48	95.64	97.98	97.95
(b) Minimum Price	104.63	103.13	94.70	84.01	84.78	89.57	94.58
(c) Modal Price	100.94	101.55	94.04	87.65	93.47	94.02	95.68
5. Variety 5 - Bile Gotu							
(a) Maximum Price	97.55	98.74	85.29	84.92	87.34	95.62	102.27
(b) Minimum Price	104.28	102.71	86.33	72.73	77.37	85.68	99.47
(c) Modal Price	99.12	98.47	86.47	80.79	86.36	93.38	100.21
	April	May	June	July	August	Mean Deviation	Peak as % of trough
1. Variety 1 - Rashi							
(a) Maximum Price	103.56	102.85	99.60	97.62	96.77	4.41	117.97
(b) Minimum Price	103.34	105.09	101.93	102.79	101.79	2.50	111.77
(c) Modal Price	102.34	104.22	100.81	100.45	101.33	1.69	108.15
2. Variety 2 - Tatti Bette							
(a) Maximum Price	102.44	105.06	100.97	102.24	104.08	2.47	110.25
(b) Minimum Price	101.05	102.51	102.73	105.03	105.85	3.35	112.80
(c) Modal Price	101.47	104.89	101.69	103.12	103.02	2.39	110.09
3. Variety 3 - Kempu Gotu							
(a) Maximum Price	104.36	106.29	104.48	104.07	103.76	3.89	117.02
(b) Minimum Price	104.48	106.72	106.36	107.66	106.87	5.92	123.27
(c) Modal price	105.13	108.61	103.93	103.94	104.18	4.51	121.76
4. Variety 4 - Chaali							
(a) Maximum Price	97.56	107.50	107.83	108.56	105.81	5.09	124.10
(b) Minimum Price	103.19	107.10	110.57	112.86	110.88	8.73	134.34
(c) Modal Price	101.76	106.85	108.32	108.97	106.75	5.86	124.32
5. Variety 5 - Bile Gotu							
(a) Maximum Price	107.94	112.18	112.53	106.64	108.98	8.42	132.51
(b) Minimum Price	107.52	113.97	116.42	118.17	115.35	13.07	162.48
(c) Modal Price	107.28	112.62	112.64	112.73	109.93	9.84	139.53

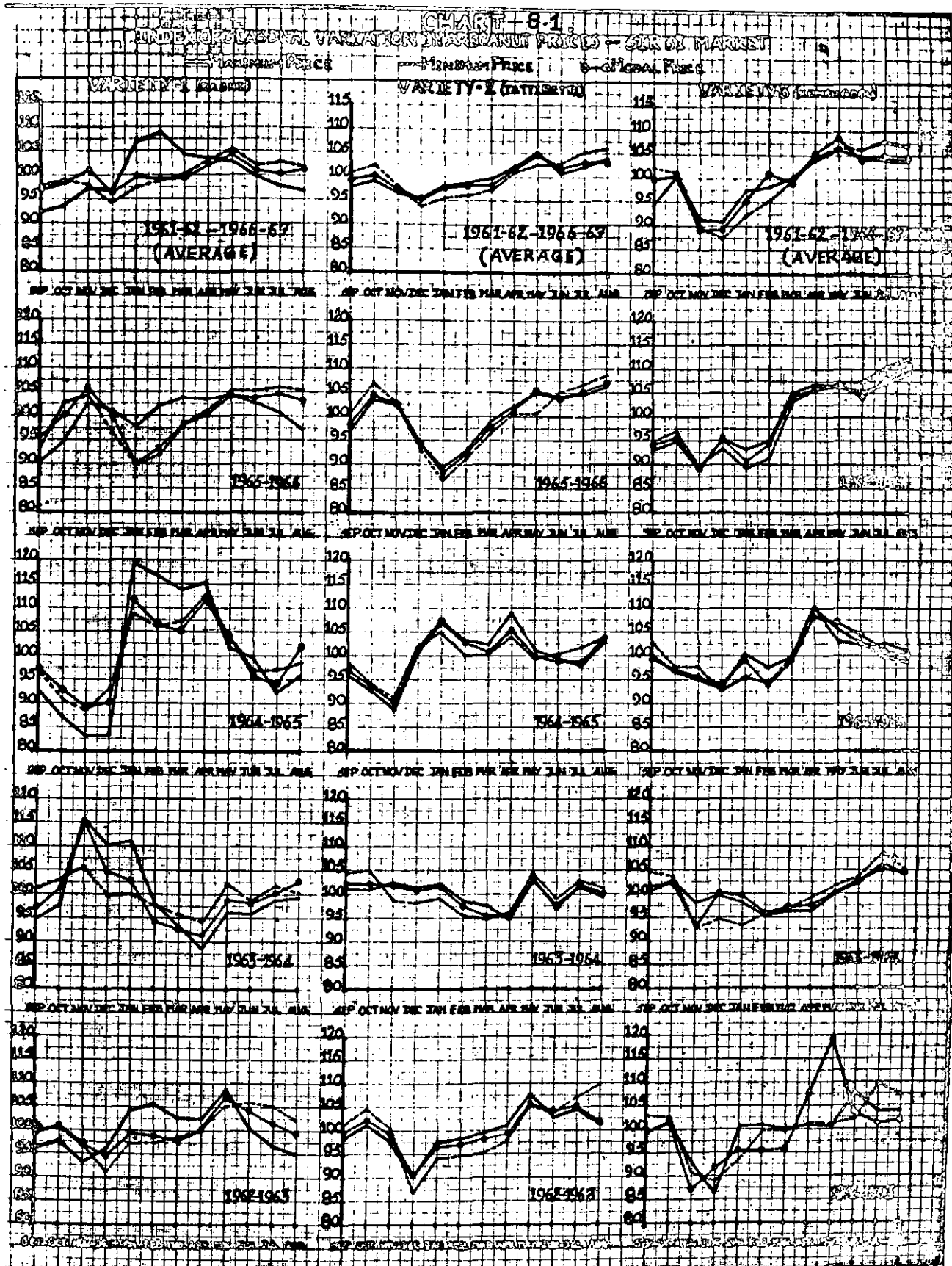
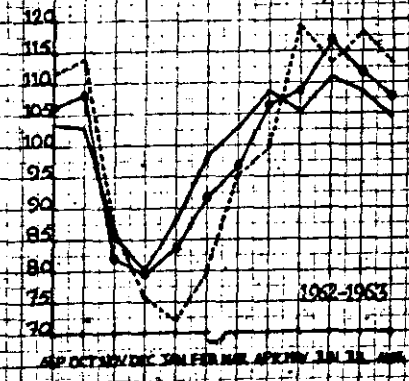
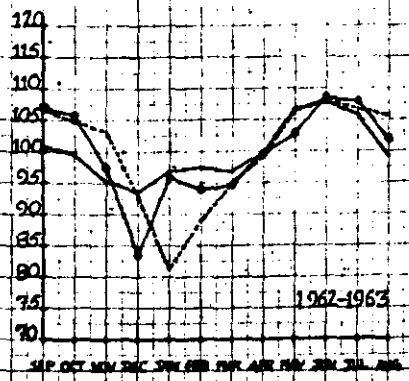
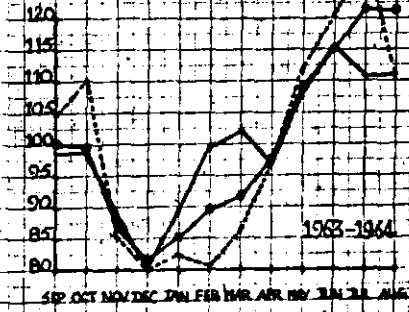
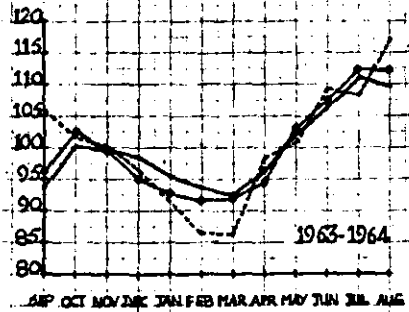
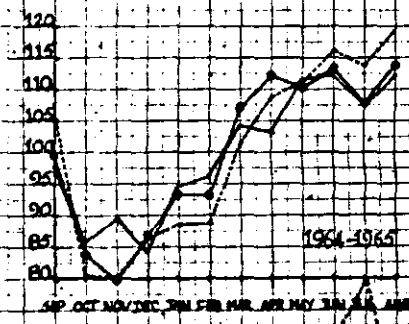
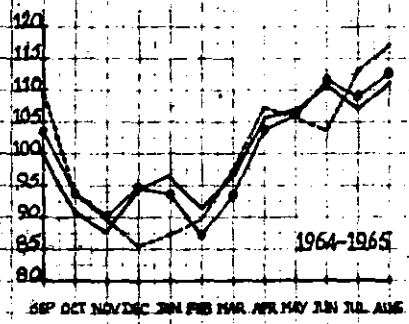
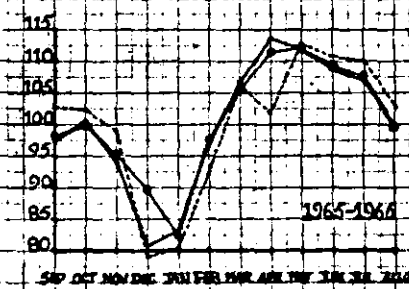
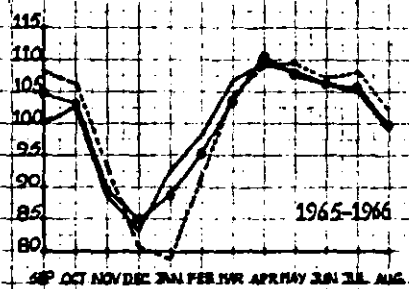
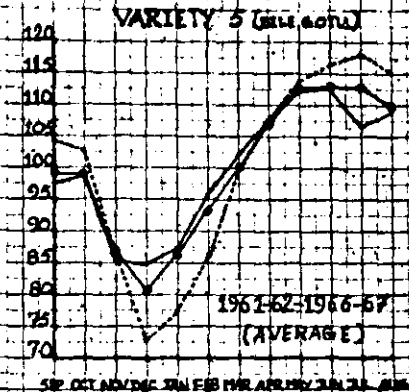
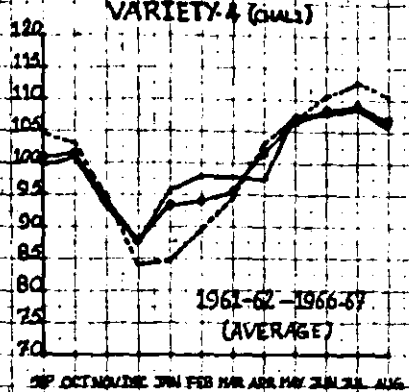


CHART - 8.1
INDEX OF SEASONAL VARIATION IN ASCAUNT PRICES - FIRST FRYSET

— MAXIMUM PRICE — MINIMUM PRICE ← MOBAL PRICE



individual years.

Mangalore Market

Prices of two varieties of arecanut are analysed in the case of Mangalore market, the two varieties being 'New supari' and 'Choll supari'. The difference between the two varieties is the extent of moisture content in the nuts. The 'New supari' has a relatively greater moisture content. The 'New supari' normally fetches a lower price than 'Choll supari' because of a greater moisture content.

The index of seasonality in the prices of these two varieties of arecanut is presented in Table 8.2 and Chart 8.2. It can be seen from the Table that the price of 'New supari', reaches the trough in December after which there is a continuous rise till July when the peak in prices occur. The prices show a slight decline in August. The prices of 'Choll supari' moves almost in an opposite direction. The average seasonal pattern shows that the price gradually rises from September reaching the peak in February, after which it declines gradually reaching the lowest level in August. Only for a brief period of 2-3 months, immediately preceding the occurrence of the peak in the price of 'Choll Supari', the price of both the varieties move in the same direction.

As can be clearly seen from Chart 8.2 the peak and trough months in the prices in the individual years did

Table 8.2. Index of Seasonal Variation in Arecanut Prices - Average for the Six Years 1961-62 to 1966-67 - Mangalore Market

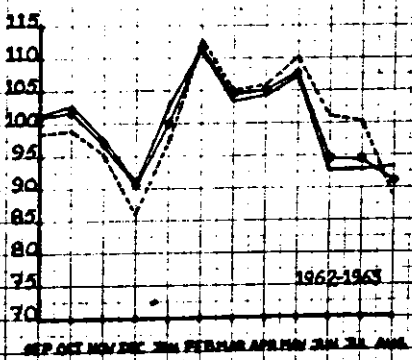
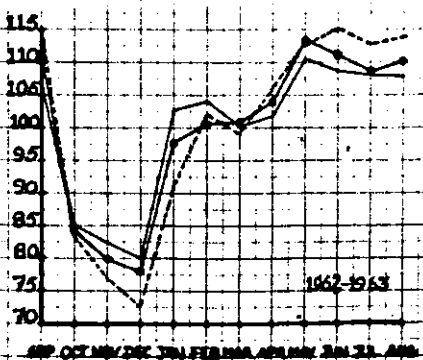
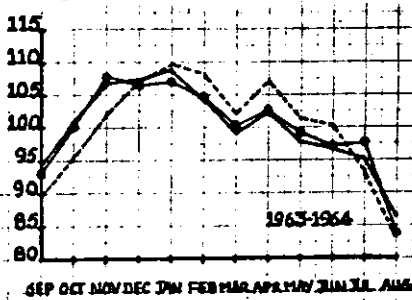
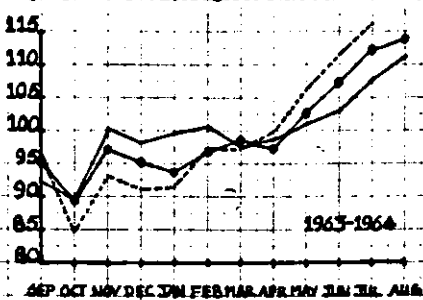
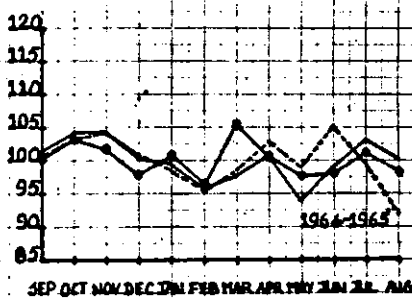
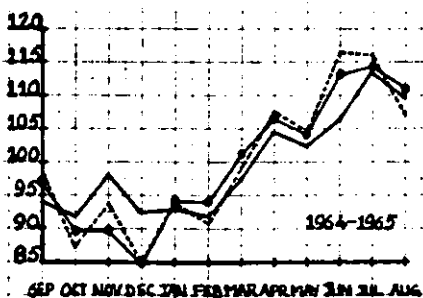
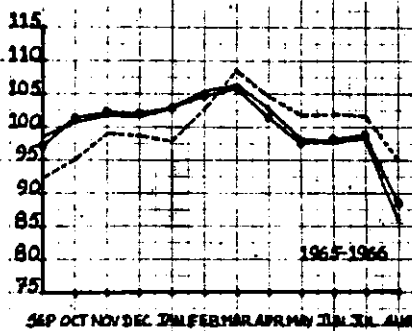
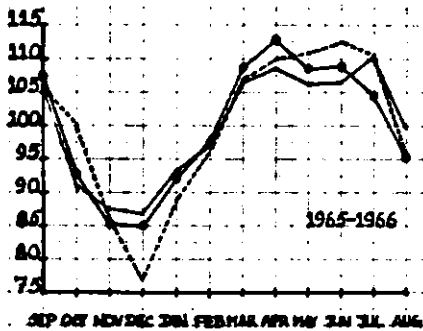
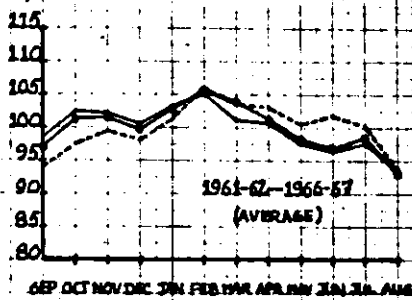
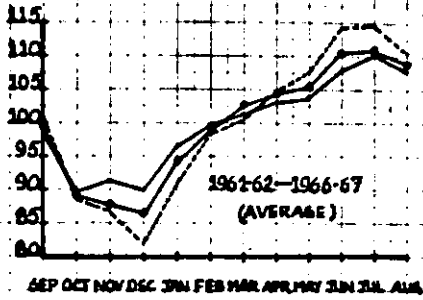
	September	October	November	December	January	February	March	April
1. <u>Variety 1 - New Supari</u>								
(a) Maximum Price	98.27	89.65	91.28	89.77	96.59	99.82	101.23	103.12
(b) Minimum Price	100.90	88.50	86.68	81.92	90.84	98.41	100.70	104.99
(c) Modal Price	99.80	89.53	87.76	86.52	94.29	99.01	102.88	104.45
2. <u>Variety 2 - Choll Supari</u>								
(a) Maximum Price	98.53	102.46	102.31	100.58	103.68	105.29	101.37	100.84
(b) Minimum Price	94.13	97.56	99.59	98.24	101.43	105.73	103.53	103.29
(c) Modal Price	97.02	101.42	101.64	99.90	102.97	105.56	103.71	101.21
	May	June	July	August	Mean Deviation	Peak as % of trough		
1. <u>Variety 1 - New Supari</u>								
(a) Maximum Price	103.73	107.98	110.39	107.97	5.74	123.13		
(b) Minimum Price	107.55	114.29	114.68	110.54	8.94	139.99		
(c) Modal Price	105.58	110.56	111.09	108.65	7.20	128.40		
2. <u>Variety 2 - Choll Supari</u>								
(a) Maximum Price	97.55	96.31	97.62	93.46	2.76	106.86		
(b) Minimum Price	100.71	101.91	100.30	93.58	2.82	112.32		
(c) Modal Price	98.13	96.66	98.55	93.23	2.75	108.80		

CHART B.2. INDEX OF SEASONAL VARIATION IN ARECANUT PRICES—MANGALORE MARKET

— MAXIMUM PRICE --- MINIMUM PRICE ● MODAL PRICE

VARIETY-1 (MEDIUM SIZES)

VARIETY-2 (SMALL SIZES)



not always coincide with the average for all the years. Index of seasonal variation in the prices for the individual years is presented in Table A8.2 at the end of this chapter. The shifts in the peak and trough months may be because of random factors peculiar to particular years. Within these variations it can be observed that seasonality in the prices of arecanut exists.

Shimoga Market

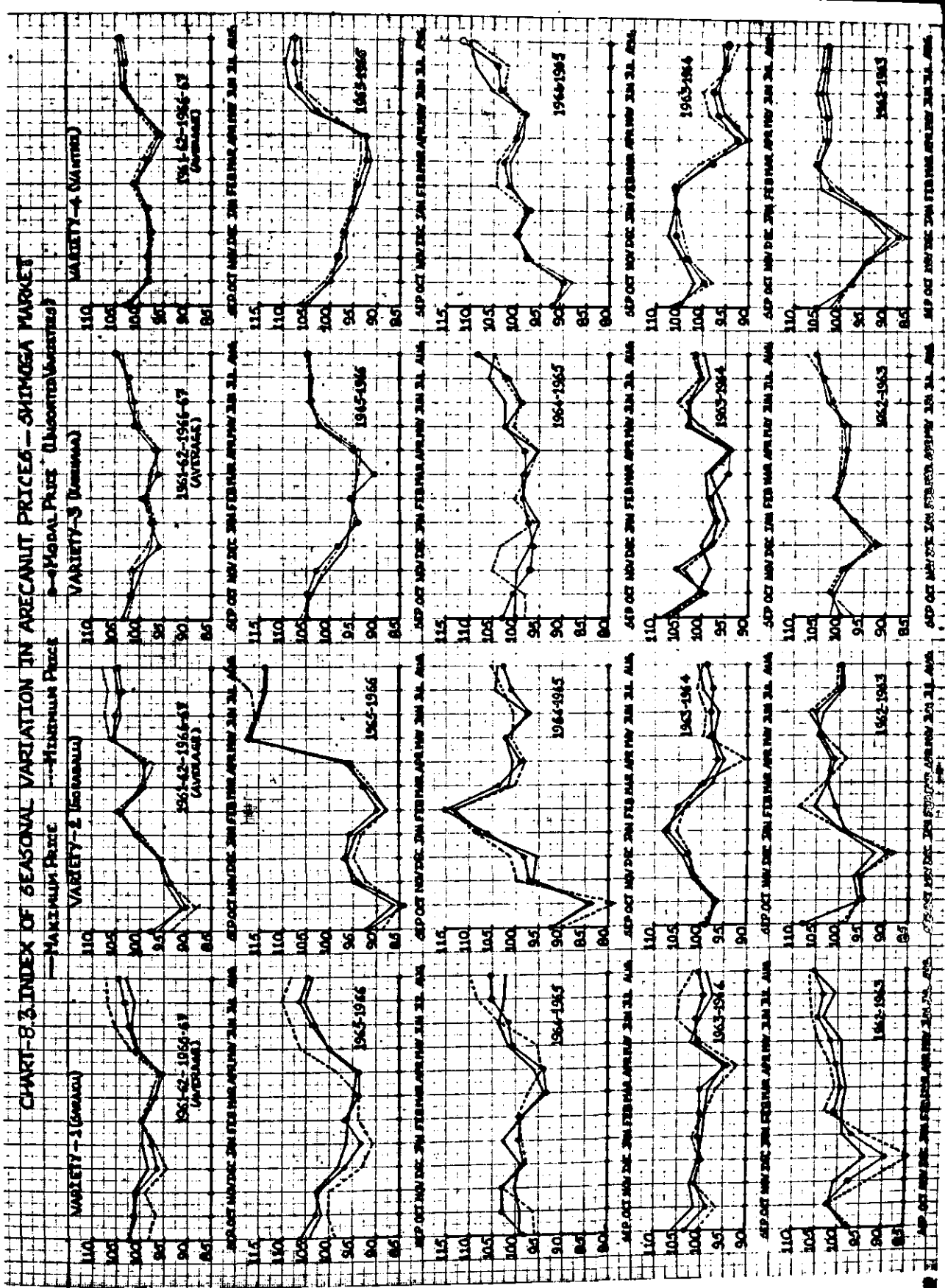
Seasonal movement in the prices of four varieties of arecanut are studied in the case of Shimoga market. As mentioned earlier these prices refer to the ungraded produce as sold by the producers. The four varieties traded by the producers in the decreasing order of their superiority are (1) Kadihasa, (2) Saraku, (3) Vanthi and (4) Gorabalu. Because of the mixture of inferior and superior grade nuts in each of these varieties a great deal of subjective element is involved while fixing the price on the part of the buyers.

The index of seasonal variation in the prices of these varieties are presented in Table 8.3 and chart 8.3. The average seasonal pattern for the years 1961-62 to 1966-67 shows that the price of Kadihasa, Saraku and Vanthi varieties reaches the seasonal low in April. The price starts declining gradually from October through April where it reaches the lowest point, after which there

Table 8.3. Index of Seasonal Variation in Arecanut Prices - Average for the Six Years 1961-62 to 1966-67 - Shimoga Market

	September	October	November	December	January	February	March	April
1. Variety 1 - Saraku								
(a) Maximum Price	102.28	100.92	101.27	98.24	99.51	99.93	96.80	95.62
(b) Minimum Price	98.31	96.77	99.00	94.48	96.84	99.62	97.80	96.16
(c) Modal Price	102.33	101.25	100.58	96.44	97.45	99.58	96.60	95.21
2. Variety 2 - Gorabalu								
(a) Maximum Price	96.32	91.39	94.54	95.57	100.96	103.86	98.84	99.07
(b) Minimum Price	93.68	88.31	93.98	95.47	99.52	105.15	99.06	97.03
(c) Modal Price	97.79	90.41	93.90	95.55	100.77	103.85	99.87	98.83
3. Variety 3 - Kodihasa								
(a) Maximum Price	103.92	101.43	99.46	97.54	97.09	98.51	97.78	95.78
(b) Minimum Price	102.54	101.23	102.21	98.50	96.75	98.27	97.42	95.72
(c) Modal Price	103.79	101.71	101.13	95.98	97.45	99.00	95.94	96.54
4. Variety 4 - Vanthi								
(a) Maximum Price	101.98	98.13	97.90	98.05	98.53	100.78	97.62	94.98
(b) Minimum Price	102.23	97.89	97.96	96.94	98.69	101.51	99.40	96.36
(c) Modal Price	102.72	97.90	98.37	97.33	98.42	100.89	98.19	95.82
	May	June	July	August	Mean Deviation		Peak as % of Trough	
1. Variety 1 - Saraku								
(a) Maximum Price	100.36	101.63	101.12	102.92	1	1.75	107.63	
(b) Minimum Price	101.91	105.11	106.99	107.01		3.50	113.26	
(c) Modal Price	100.78	102.13	103.18	104.47		2.45	109.73	
2. Variety 2 - Gorabalu								
(a) Maximum Price	105.71	104.19	104.49	105.06		4.05	115.57	
(b) Minimum Price	106.18	107.35	106.55	107.72		5.49	121.98	
(c) Modal Price	105.73	105.01	103.77	104.52		3.94	116.95	
3. Variety 3 - Kodihasa								
(a) Maximum Price	100.46	102.07	102.47	103.49		2.31	108.95	
(b) Minimum Price	99.91	101.00	102.19	104.26		2.24	108.92	
(c) Modal Price	100.82	100.91	102.12	104.61		2.52	109.04	
4. Variety 4 - Vanthi								
(a) Maximum Price	99.44	103.84	104.09	104.66		2.56	110.19	
(b) Minimum Price	99.99	103.06	102.54	103.43		2.13	107.34	
(c) Modal Price	99.75	103.03	103.05	104.51		2.37	109.07	

CHART-8.3 INDEX OF SEASONAL VARIATION IN ARECANUT PRICES - SIMGGA MARKET



is a continuous rise in the price till the peak is attained in August. A slight deviation from this general pattern is in the case of the 'minimum' price of Saraku variety. As in the case of other varieties the 'minimum' price registers a seasonal low in April, but the decline in December is slightly larger than that occurring in April. The index for December is 94.48, whereas it is 96.16 for April. Similarly, a slight shift in the peak month is observed in the case of 'modal' price. The 'modal' price of Kadihasa variety shows a slight deviation in the occurrence of the trough month. But for these minor deviations the seasonal pattern in the prices of different varieties compare well with one another.

The seasonal pattern in the price of Gorabalu variety, however, differed from the three superior variety of areca-nuts described above. The price of this variety reached the lowest in October immediately after the start of the marketing season. There is a gradual rise from October to February after which it declines along with the prices of the other varieties. In May there is a sudden spurt in the price. The index shows a sudden rise from 99.07, 97.83 and 98.83 in April to 105.71, 106.18, and 105.73 in May for 'maximum', 'minimum' and 'modal' prices respectively.

Though the peak and trough months in the individual years are not the same always, the average seasonal pattern described above largely reflects the pattern for the

individual years. This can be clearly seen from chart 8.3. Index of seasonal variation in the prices for the individual years is presented in Table A8.3 at the end of this chapter.

B. Terminal Markets

Bombay Market - Sirsi Varieties

Prices of five Sirsi variety arecanuts in Bombay market are considered here. These five varieties in the decreasing order of their superiority are (a) Motiapi, (2) Dhapapi, (3) Toapi, (4) Barada and (5) Safed. The first three varieties are comparable with the 'Rashi' variety in Sirsi market; 'Barada' is comparable with 'Tattibette' and 'Safed' with 'Chaali'. The index of seasonal variation in the prices is presented in Table 8.4 and Chart 8.4. The average seasonal pattern for the three varieties - Dhapapi, Toapi and Barada - reveals that the price generally reaches the lowest in December-January, after which they continue to rise till the peak is reached in April-May or sometimes in June. After the peak the price registers a decline. The price of 'motiapi' is lowest in September, after which with minor fluctuations reaches the peak in April.

The price of 'Safed' shows a pattern different from the above. With a slight rise in October from the September level, the price continues to decline till January and

Table 8.4. Index of Seasonal Variation in Arecanut Prices - Average for the Six Years 1961-62 to 1966-67 Terminal Market Bombay (Sirsi Varieties)

	September	October	November	December	January	February	March
1. <u>Variety 1 - Dhapapi</u>	99.39	101.74	100.49	95.18	97.65	98.17	99.41
2. <u>Variety 2 - Barada</u>	100.14	101.56	102.11	94.38	96.55	96.87	97.37
3. <u>Variety 3 - Toapi</u>	100.11	98.51	96.50	92.54	97.62	100.07	99.95
4. <u>Variety 4 - Motiapi</u>	96.54	99.96	100.49	98.46	100.32	101.58	100.13
5. <u>Variety 5 - Sirsi Safed</u>	103.40	104.72	102.75	97.34	92.59	92.62	92.21
	April	May	June	July	August	Mean Deviation	Peak as % of trough
1. <u>Variety 1 - Dhapapi</u>	104.38	102.36	101.68	100.93	101.62	1.61	106.87
2. <u>Variety 2 - Barada</u>	100.06	103.59	103.36	102.18	101.83	2.47	109.76
3. <u>Variety 3 - Toapi</u>	102.15	102.52	103.16	103.05	103.82	2.48	112.19
4. <u>Variety 4 - Motiapi</u>	103.36	101.76	97.03	99.25	101.12	1.46	107.06
5. <u>Variety 5 - Sirsi Safed</u>	96.83	101.29	105.40	105.37	105.48	4.74	114.39

Table 8.5. Index of Seasonal Variation in Arecanut Prices - Average for the Six Years 1961-62 to 1966-67 Terminal Market Bombay (Mangalore Varieties)

	September	October	November	December	January	February	March
1. <u>Variety 1 - Mangalore Moti</u>	101.87	103.96	103.78	97.68	92.19	95.31	95.33
2. <u>Variety 2 - Mangalore Vachras</u>	102.00	104.06	104.28	98.41	93.05	95.89	95.35
3. <u>Variety 3 - Mangalore Choli</u>	98.37	99.10	99.76	98.81	98.85	101.64	102.61
	April	May	June	July	August	Mean deviation	Peak as % of trough
1. <u>Variety 1 - Mangalore Moti</u>	97.96	101.10	103.49	104.60	102.73	3.59	113.46
2. <u>Variety 2 - Mangalore Vachras</u>	96.63	100.84	102.51	103.93	103.05	3.45	111.69
3. <u>Variety 3 - Mangalore Choli</u>	101.38	101.06	100.43	99.98	98.51	1.19	104.31

Table 8.6. Index of Seasonal Variation in Arecanut Prices - Average for the Six Years 1961-62 to 1966-67 Terminal Market Bangalore (Shimoga Varieties)

	September	October	November	December	January	February	March
1. <u>Variety 1 - Rajalu</u>	101.46	102.24	100.04	100.45	99.78	101.35	100.84
2. <u>Variety 2 - Bette</u>	100.60	99.77	99.44	96.29	97.65	101.33	97.63
3. <u>Variety 3 - Nulli</u>	101.72	102.16	100.87	100.47	98.47	99.13	99.32
	April	May	June	July	August	Mean deviation	Peak as % of trough
1. <u>Variety 1 - Rajalu</u>	98.52	97.61	98.62	98.60	100.49	1.15	101.57
2. <u>Variety 2 - Bette</u>	98.30	98.70	104.33	102.10	103.86	2.04	108.35
3. <u>Variety 3 - Nulli</u>	99.64	100.21	100.10	98.49	99.42	0.92	101.77

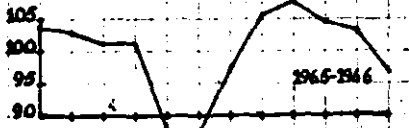
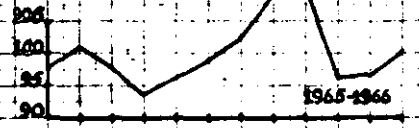
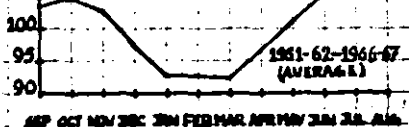
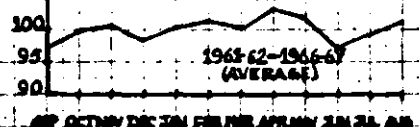
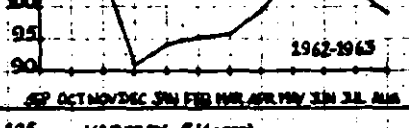
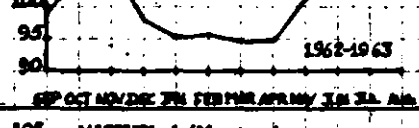
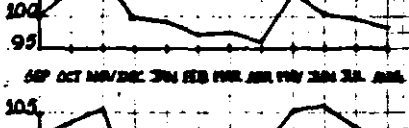
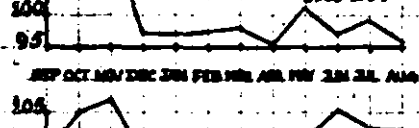
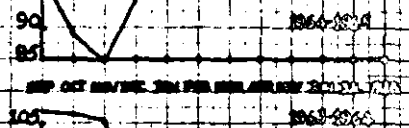
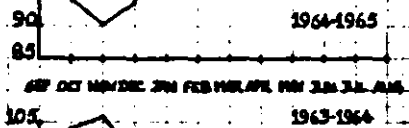
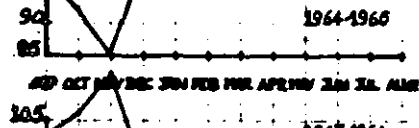
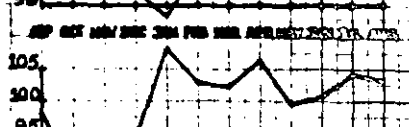
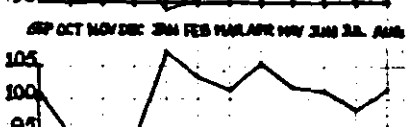
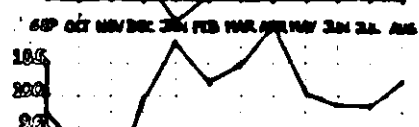
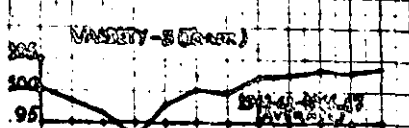
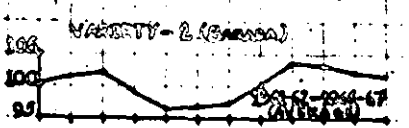
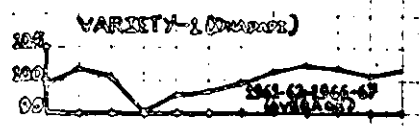
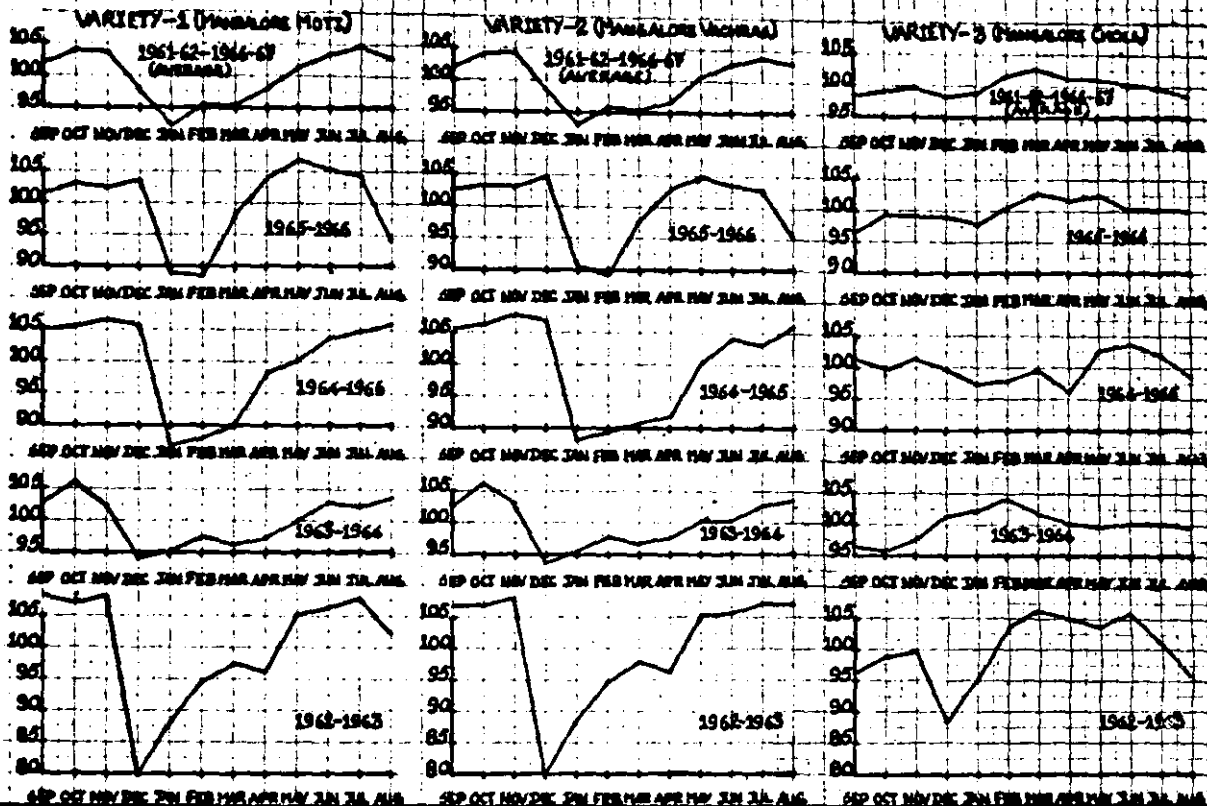


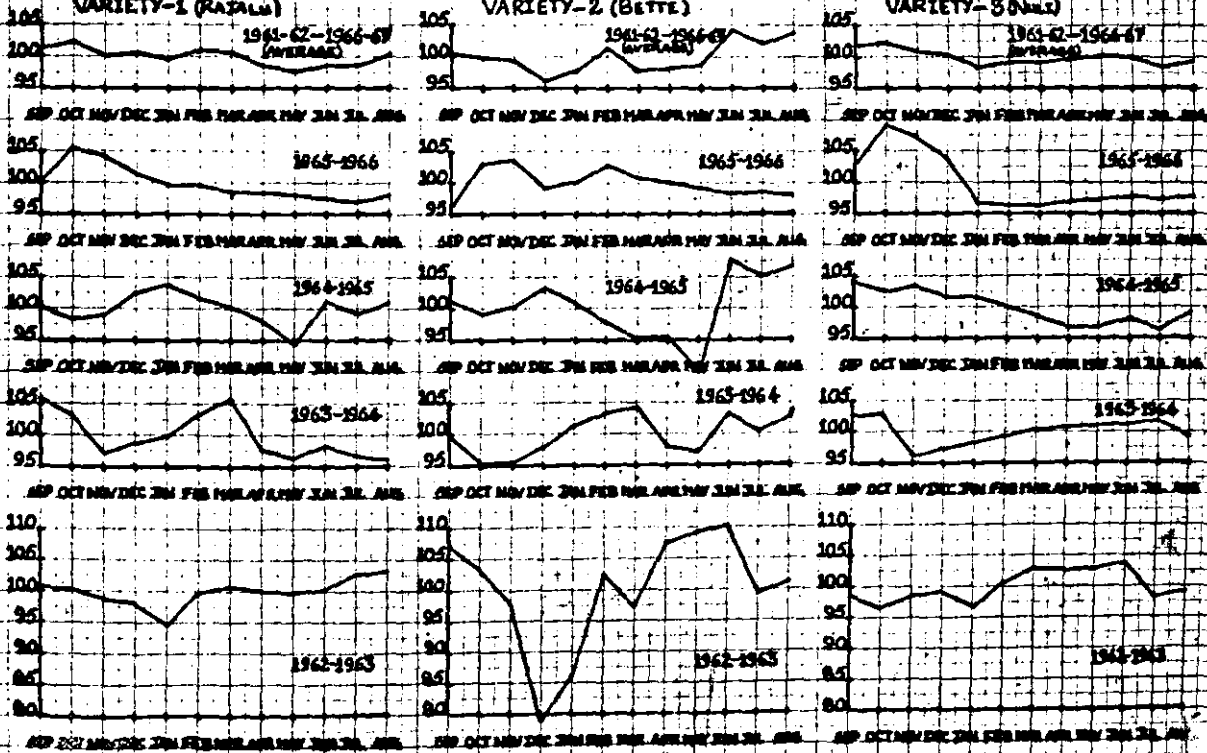
CHART-84 INDEX OF SEASONAL VARIATION IN ARECANUT PRICES- TERMINAL MARKET A. BOMBAY MARKET- SURAT MARKET

CHART-8.5 INDEX OF SEASONAL VARIATION IN ARECANUT PRICES - TERMINAL MARKETS

B. BOMBAY MARKET - MANGALORE VARIETIES



C. BANGALORE MARKET - SHIMOGA VARIETIES



remains at about the same level till March. There is a sudden rise from March to April. With the peak coming in June it continues to be around the same level for the rest of the period.

The annual seasonal pattern is more or less in-keeping with the average pattern as can be seen from Chart 8.4. It may be observed, however, that only the year 1963-64 showed conspicuous deviation from the average pattern with the peak and trough appearing in opposite months (Table A8.4). This is similar to the pattern observed in the case of Sirsi market for the year 1963-64.

The seasonal pattern in the price of 'Sirsi variety' arecanut in Bombay market largely coincides with the pattern observed in Sirsi market. Particularly, the months of peak and trough largely coincide with those of Sirsi market.

Bombay Market - Mangalore varieties

The index of seasonal variation in the price of three varieties of arecanut - 'Mangalore Choll', 'Mangalore Moti' and 'Mangalore Vachras' are presented in Table 8.5 and chart 8.5. The average seasonal pattern in the prices of the two varieties 'Mangalore Moti' and 'Mangalore Vachras' (the varieties comparable with 'New Supari' of Mangalore market) shows that the price gradually rises from September to November after which it declines sharply reaching the lowest in January. Thereafter, it continues to rise till

the peak is reached in July. The price shows a decline in August.

The price of 'Mangalore choll' shows an initial increase during September to November. With the trough in December, the price gradually rises reaching the peak in March. Once again the price starts declining after March till August. The price almost reaches the December level in August. Whereas the prices of the other two varieties show a rise from February to July, the price of 'choll' exhibits a declining trend.

It can be seen from Chart 8.5 and Appendix Table A8.5 that the annual seasonal pattern exhibits a considerable similarity with the average pattern. However, the months of peak and trough were not always the same as those of the average pattern.

Further, the average seasonal pattern of the two varieties 'Mangalore Moti', and 'Mangalore Vachras' compare well with the seasonal pattern of the price of 'New Supari' in Mangalore market. Price of 'Mangalore Choll' exhibits a pattern which is very close to the seasonal pattern in the prices of 'Choll Supari' in Mangalore market.

Bangalore Market (Shimoga varieties)

The average seasonal pattern of the two superior varieties viz. 'Rajalu' and 'Nuli' reveals that the peak in the prices of these two varieties occur in October after

which they continue to decline. The index of seasonal variation is presented in Table 8.6 and Chart 8.5. The price of Rajalu shows a decline in January. With a slight recovery in February it further declines reaching the lowest in May after which it shows a slight improvement. The price of 'Nuli' also exhibits a similar pattern but the decline in January is the largest. It shows a slight recovery afterwards till May-June after which it again shows a downward movement.

The seasonal movement in the price of 'Bette' is slightly different from the above pattern. The lowest level in the price of 'Bette' is reached in December, after which there is a sudden spurt in the price. The price once again declines in March after which it is more or less constant till May. With a sudden rise the price reaches the peak in June.

The average seasonal pattern described above has a close correspondence with the seasonal pattern in the individual years (Table A8.6). Further, the seasonal fluctuations in the prices in Bangalore market coincides with the pattern of prices in Shimoga market.

Extent of Seasonal Fluctuations in the Prices

The fact that seasonality in the prices of arecanut in the primary and terminal markets exists is thus established by the above discussion. It is proper at this stage

to examine the extent of seasonal fluctuations in the prices. The peak in prices after the post-harvest slump is taken into consideration for calculating the range of seasonal fluctuation in the prices.

The seasonal rise in price in the various markets for different varieties is arrived at on the basis of the average seasonal index. The seasonal index for the peak month is expressed as a per cent of the trough to arrive at the percentage rise in the prices over the season. The extent of seasonal fluctuation in the price is discussed below with reference to each of the markets considered in the present study.

Sirsi Market

The extent of seasonal rise in price, the seasonal index of the peak month expressed as a percentage of the trough, for the different varieties, is presented in Table 8.7.

It can be seen from Table 8.7 that the seasonal rise in price is the highest for the two unboiled varieties (Chaali and Bile gotu) which are of a relatively inferior quality. For Rashi variety the percentage rise over the season was 18, 12 and 8 in the 'maximum', 'minimum' and 'modal' prices respectively. For Chaali variety this percentage rise was 24, 34 and 24 in the 'maximum', 'minimum' and 'modal' prices respectively. Among the boiled varieties,

**Table 8.7. The Peaks and Troughs in the Seasonal Index of
Areca nut Prices - Sirsi Market**

	Trough	Peak	Peak as % of trough	No. of inter- vening months
A. Boiled whole nuts				
1. Rashi				
Maximum Price	92.34 (Sept.)	108.93 (Feb.)	117.97	5
Minimum Price	94.02 (Dec.)	105.09 (May)	111.77	5
Modal Price	96.37 (Dec.)	104.22 (May)	108.15	5
2. Tatti Bette				
Maximum Price	95.29 (Dec.)	105.06 (May)	110.25	5
Minimum Price	93.84 (Dec.)	105.85 (Aug.)	112.80	8
Modal Price	95.28 (Dec.)	104.89 (May)	110.09	5
3. Kempu gotu				
Maximum Price	90.83 (Dec.)	106.29 (May)	117.02	5
Minimum Price	87.34 (Dec.)	107.66 (July)	123.27	7
Modal Price	89.20 (Dec.)	108.61 (May)	121.76	5
B. Unboiled whole nuts				
1. Chaali				
Maximum Price	87.48 (Dec.)	108.56 (July)	124.10	7
Minimum Price	84.01 (Dec.)	112.86 (July)	134.34	7
Modal Price	87.65 (Dec.)	108.97 (July)	124.32	7
2. Bile gotu				
Maximum Price	84.92 (Dec.)	112.53 (June)	132.51	6
Minimum Price	72.73 (Dec.)	118.17 (July)	162.48	7
Modal Price	80.79 (Dec.)	112.73 (July)	139.53	7

the maximum fluctuation was seen in the price of 'Kempu gotu' and it was minimum in the case of 'Tatti bette'. Of the two unboiled varieties, the fluctuation was more in the case of 'Bile gotu'. It appears from the above that the inferior quality nuts of both boiled and unboiled varieties (Kempu gotu and Bile gotu) exhibit a larger seasonal fluctuations in the price. These two varieties are to be further processed before they are exported outside or consumed locally and the processing is done by the traders after the purchase. Because of the subjective element involved as to the quality and quantity of the final produce attainable from these varieties, the prices of these two varieties show a larger variation than the superior varieties. Further, within a variety the maximum off seasonal rise in price occurs in the 'minimum' price. The only exception for this is Rashi variety, where the 'maximum' price showed the highest off seasonal rise. While the intervening period between the trough and peak was five months in the case of the boiled varieties, it was 7 months in the case of the two unboiled varieties, Chaali and Bile gotu.

Mangalore Market

The percentage rise over the season in the three prices, 'maximum', 'minimum' and 'modal' are presented in Table 8.8.

Table 8.8. The Peaks and Troughs in the Seasonal Index of Arecanut Prices - Mangalore Market

	Trough	Peak	Peak as % of Trough	No. of intervening months
1. <u>New Supari</u>				
Maximum Price	89.65 (Oct.)	110.39 (July)	123.13	9
Minimum Price	81.92 (Dec.)	114.68 (July)	139.99	7
Modal Price	86.52 (Dec.)	111.09 (July)	128.40	7
2. <u>Choll Supari</u>				
Maximum Price	98.53 (Sept.)	105.29 (Feb.)	106.86	5
Minimum Price	94.13 (Sept.)	105.73 (Feb.)	112.32	5
Modal Price	97.02 (Sept.)	105.56 (Feb.)	108.80	5

It can be seen from the above table that the peak 'maximum', 'minimum' and 'modal' prices of New Supari were about 23, 40 and 28 per cent above the trough. In the case of Choll supari, the rise was 7, 12 and 9 per cent in 'maximum', 'minimum' and 'modal' prices. However, it may be mentioned that the price of Choll supari declined after reaching the peak in February. They reached a second trough in August. The decline in the 'maximum', 'minimum' and 'modal' prices was about 11 per cent.

Shimoga market

The peak and trough in the seasonal price index of

the four varieties of arecanut traded in Shimoga market are given in Table 8.9. It can be seen from the table that the percentage rise over the season is the highest in the inferior variety nut, namely, Gorabalu. The percentage rise in the 'maximum', 'minimum' and 'modal' prices of the three superior varieties, Kadihasa, Saraku and Vanthi, was around 9 per cent, while it was 16, 22 and 17 per cent in the 'maximum', 'minimum' and 'modal' prices respectively of Gorabalu (the inferior variety).

Terminal Markets

Bombay Market - Sirsi Varieties

The percentage rise in the seasonal price index of arecanut in Bombay market for the five Sirsi varieties are given in Table 8.10.

It can be seen from the above table that for the three boiled varieties, Motiapi, Dhapapi and Barada, the peak was about 7, 7 and 10 per cent above the trough. The percentage rise over the trough in the price of Toapi (boiled variety) was about 12. In the case of 'Sirsi safed', which is an unboiled variety, the percentage rise was 14 which was the highest.

It would be proper to compare the seasonal rise in the price of arecanut in the terminal and primary markets. A proper comparison in the range of seasonal rise in price between Bombay and Sirsi markets would be to take the range

Table 8.9. The Peaks and Troughs in the Seasonal Index of Arecanut Prices - Shimoga Market

	Trough	Peak	Peak as % of Trough	No. of intervening months
1. <u>Kadihasa</u>				
Maximum Price	95.78(April)	103.49(Aug.)	108.05	4
Minimum Price	95.72(April)	104.26(Aug.)	108.92	4
Modal Price	95.94(March)	104.61(Aug.)	109.04	5
2. <u>Saraku</u>				
Maximum Price	95.62(April)	102.92(Aug.)	107.63	4
Minimum Price	94.48(Dec.)	107.01(Aug.)	113.26	8
Modal Price	95.21(April)	104.47(Aug.)	109.73	4
3. <u>Vanthi</u>				
Maximum Price	94.98(April)	104.66(Aug.)	110.19	4
Minimum Price	96.36(April)	103.43(Aug.)	107.34	4
Modal Price	95.82(April)	104.51(Aug.)	109.07	4
4. <u>Gorabalu</u>				
Maximum Price	91.39(Oct.)	105.71(May)	115.57	7
Minimum Price	88.31(Oct.)	107.72(Aug.)	121.98	10
Modal Price	90.41(Oct.)	105.73(May)	116.95	7

Table 8.10. The Peaks and Troughs in the Seasonal Index of Arecanut Price - Terminal Market - Bombay (Sirsi Varieties)

	Trough	Peak	Peak as % of Trough	No. of intervening months
1. Notiapi	96.54 (Sept.)	103.36(Apr.)	107.06	7
2. Dhapapi	95.18 (Dec.)	102.36(May)	106.87	5
3. Toapi	92.54 (Dec.)	103.82 (Aug.)	112.19	8
4. Barada	94.38 (Dec.)	103.59 (May)	109.76	5
5. Sirsi safed	92.21 (Mar.)	105.48(Aug.)	114.39	5

of fluctuation in the 'modal' price in Sirsi market for the comparable varieties as the price quotations in the Bombay market refer to the average week end prices. The concept of 'comparable' variety, as mentioned earlier, is only a rough measure as the quality difference within the variety is considerable in the primary markets, whereas the prices in the terminal markets refer to the finally graded and sorted produce. The comparable varieties of arecanut in Bombay and Sirsi markets are given below :-

<u>Bombay Market</u>		<u>Sirsi Market</u>
1. Moti api	}	Rashi
2. Dhapapi		Rashi
3. Toapi		Rashi
4. Barada		Tatti Bette
5. Sirsi Safed Unboiled variety		Chaali

It can be seen from Table 8.10 that the prices of boiled variety arecanut in Bombay Market show a seasonal rise of 7 to 12 per cent. The percentage rise in the 'modal' price of Rashi and Tatti Bette from the trough in Sirsi market is 3 and 10 respectively. While Sirsi Safed in Bombay market show a rise of 14 per cent, the rise in the price of Chaali in Sirsi market is 24 per cent (Table 8.7). Considering the limitations in the price data arising necessarily out of the variations in the quality of the produce, it appears that the range of fluctuations between the peak and trough is not very different between the primary and terminal markets.

Bombay Market - Mangalore varieties

The three Mangalore varieties of Arecanut in Bombay market namely, Mangalore Choll, Mangalore Moti and Mangalore Vachras show an increase of 4, 13, 12 per cent respectively over the trough. Mangalore choll which is of a superior quality shows the smallest rise over the season. The peaks and troughs in the seasonal index of the price of arecanut in Bombay market for the Mangalore varieties are given below :-

Table 8.11. The Peaks and Troughs in the Seasonal Index of Arecanut Prices - Terminal Market - Bombay Mangalore Varieties

	Trough	Peak	Peak as % of trough	No. of intervening months
Mangalore Choll	98.37(Sept.)	102.61(Mar.)	104.31	6
Mangalore Moti	92.19(Jan.)	104.60(July)	113.46	6
Mangalore Vachras	93.05(Jan.)	103.93(July)	111.69	6

As observed in the case of Choll Supari in Mangalore market, the prices of Mangalore Choll in Bombay market also showed a decline after reaching the peak in March. The decline from April to August was of the same order as of the rise from the trough in September to the peak in March.

The two varieties 'Mangalore Moti' and 'Mangalore

vachras' are comparable with the 'New supari' of Mangalore market. While the peak price is about 13 and 12 per cent higher than the trough in Bombay for these two varieties, it is 28 per cent in the 'modal' price of 'New Supari' in Mangalore market. In Mangalore market while 'Choll Supari' shows a rise of 9 per cent, the 'Mangalore choll' in Bombay shows a rise of only 4 per cent. In Mangalore market while the price of Choll Supari exhibits a decline of 12 per cent in August from the peak in February, the decline in the price of 'Mangalore choll' in Bombay market is only 4 per cent.

The seasonal index of the price of arecanut in the two markets exhibit a considerable amount of difference and the fluctuations in the price over the season is much smaller in the terminal market than in the primary market.

Bangalore Market - Shimoga varieties

In Bangalore market, the peak price as a per cent of trough is 2 in the case of Nuli and Rajalu varieties and 8 in the case of Bette variety. The peaks and troughs in the seasonal index of the price of arecanut in Bangalore market are presented in Table 8.12.

It can be seen from the above table that only the price of Bette variety exhibits off-seasonal rise which is about 8 per cent, while the two superior varieties exhibit hardly any seasonal fluctuation. It may be pointed out that the

Table 8.12. The Peaks and Troughs in the Seasonal Index of Arecanut Prices - Terminal Market - Bangalore (Shimoga Varieties)

	Trough	Peak	Peak as % of trough	No. of intervening months
1. Nuli	98.47 (Jan.)	100.21 (May)	101.77	4
2. Rajalu	99.78 (Jan.)	101.35 (Feb.)	101.57	1
3. Bette	96.29 (Dec.)	104.33 (June)	108.35	6

prices in Shimoga market exhibit a larger seasonal fluctuation than the terminal price as far as the superior varieties are concerned. The price of Vanthi variety in Shimoga market (comparable with Bette in Bangalore market) exhibit a seasonal rise almost of the same order as of Bette in Bangalore market.

It is evident from the above discussion of the extent of seasonal fluctuation, that the prices in the primary markets exhibit a relatively larger seasonal fluctuation than the prices in the terminal markets. Further, among the three primary markets the largest seasonal fluctuation is seen in Mangalore market while Shimoga market exhibits the smallest. Of the two terminal markets, Bombay and Bangalore, Bombay exhibits a larger seasonal fluctuation.

The average seasonal pattern described above does not fully reveal the variation in this from year to year. Though the pattern in the seasonal movement of prices remain more or less unchanged from year to year in most of the cases, the magnitude of fluctuation show quite an amount of variation. This can be clearly seen from Charts 8.1 to 8.5 and Appendix Tables A8.1 to A8.6. These variations may be the result of a number of factors peculiar to a particular year. For instance, a slightly prolonged rainy season will not only shift the harvesting season forward but also bring about a change in the proportion of the different varieties of nuts prepared. Similarly, the

size of the carry over of stock from the preceding season is likely to alter the timing and size of the preharvest peaks and troughs in prices. Other random and local factors are also likely to affect this. The moving average method does not help in removing the influence of erratic factors from the annual seasonal index. Consequently, it is not necessary to expect a strict uniformity in the seasonal pattern from year to year. Within these limits, these markets show a fairly consistent seasonal pattern in the prices of arecanut for the different varieties.

Another fact revealed by the analysis of the seasonality in prices is the similarity in the seasonal price pattern in the terminal as well as in the primary markets. This indicates that the price movements in these markets are related. This relationship is examined in the following section.

III. Market Integration

It was brought out in the preceding section that the prices of arecanut in the primary and terminal markets exhibit seasonality of a perceptible order. While the magnitude of fluctuation may differ, the pattern of seasonal movement in the prices was similar for the various markets. This similarity may be due to a high degree of relationship in the prices between these markets. In this section we further examine the weekly prices in the primary and

terminal markets for the relationship in their movement. This is done by obtaining correlation coefficients between the weekly 'modal' prices in the primary markets and the week-end prices in the terminal markets. The correlation coefficients are estimated for all the six years from September 1961 to August 1967 (total number of observations 312). Because of the large number of varieties traded in these markets, the correlation coefficients were estimated between the prices of a selected number of varieties in each of these markets. The results are presented in Table 8.13.

The results presented in Table 8.13 indeed show a very high correlation between the prices in the various markets. The two terminal markets, Bombay and Bangalore also exhibit a high correlation between the prices of the boiled varieties, particularly of the superior quality. It is only Mangalore market that shows a rather lower correlation with the prices in the other markets consistently, whichever variety we take. The magnitude of the correlation coefficient is less than .40 barring a few cases where prices of comparable variety in Bombay shows a correlation just over .60. Further, for all markets, correlations between the price of a superior variety and an inferior variety and also between two inferior varieties are consistently low. These correlations are lower than .40 and often below .20.

Table 8.13. Correlation (r) Between Weekly Wholesale Prices of Arecanut in Various Markets - September 1961 to August 1967 (Number of Observations 312)

Set I

Market	Primary Markets			Terminal Markets	
	Sirsi (Rashi)	Mangalore (New supari)	Shimoga (Kadihasa)	Bombay (Dhapapi)	Bangalore (Rajalu)
Sirsi (Rashi)	1.00	0.38	0.85	0.94	0.83
Mangalore (New Supari)		1.00	0.30	0.34	0.29
Shimoga (Kadihasa)			1.00	0.89	0.96
Bombay (Dhapapi)				1.00	0.89
Bangalore (Rajalu)					1.00

Set II

Market	Primary Markets			Terminal Markets	
	Sirsi (Tatti Bette)	Mangalore (New supari)	Shimoga (Kadihasa)	Bombay (Barada)	Bangalore (Bette)
Sirsi (Tatti Bette)	1.00	0.23	0.77	0.96	0.83
Mangalore (Choll Supari)		1.00	0.17	0.18	0.13
Shimoga (Vanthi)			1.00	0.76	0.73
Bombay (Barada)				1.00	0.83
Bangalore (Bette)					1.00

Set III

Market	Primary Markets			Terminal Markets	
	Sirsi (Kempu Gotu)	Mangalore (New Supari)	Shimoga (Saraku)	Bombay (Toapi)	Bangalore (Nuts)
Sirsi (Kempu gotu)	1.00	0.39	0.58	0.70	0.54
Mangalore (New Supari)		1.00	0.37	0.37	0.37
Shimoga (Saraku)			1.00	0.83	0.97
Bombay (Toapi)				1.00	0.82
Bangalore (Nuts)					1.00

Set IV

Market	Primary Markets			Terminal Markets	
	Sirsi (Chaali)	Mangalore (Choll Supari)	Shimoga (Saraku)	Bombay (Motiapi)	Bangalore (Rajalu)
Sirsi (Chaali)	1.00	0.35	0.24	0.20	0.16
Mangalore (Choll Supari)		1.00	0.30	0.28	0.27
Shimoga (Saraku)			1.00	0.83	0.94
Bombay (Motiapi)				1.00	0.90
Bangalore (Rajalu)					1.00

Continued.

Table 8.13 - continued

Set V

Market	Primary Markets			Terminal Markets	
	Sirsi (Bile gotu)	Mangalore (New Supari)	Shimoga (Gorabalu)	Bombay (Sirsi Safed)	Bangalore (Bette)
Sirsi (Bile gotu)	1.00	0.74	0.40	0.65	0.30
Mangalore (New Supari)		1.00	0.38	0.57	0.21
Shimoga (Gorabalu)			1.00	0.33	0.68
Bombay (Sirsi Safed)				1.00	0.28
Bangalore (Bette)					1.00

Set VI

Market	Primary Markets			Terminal Markets	
	Sirsi (Rashi)	Mangalore (New Supari)	Shimoga (Kadihasa)	Bombay (Mangalore Moti)	Bangalore (Nuli)
Sirsi (Rashi)	1.00	0.38	0.86	0.51	0.80
Mangalore (New Supari)		1.00	0.32	0.61	0.37
Shimoga (Kadihasa)			1.00	0.47	0.91
Bombay (Mangalore Moti)				1.00	0.53
Bangalore (Nuli)					1.00

Set VII

Market	Primary Markets			Terminal markets	
	Sirsi (Tatti Bette)	Mangalore (Choll Supari)	Shimoga (Vanthi)	Bombay (Mangalore vachras)	Bangalore (Bette)
Sirsi (Tatti Bette)	1.00	0.23	0.79	0.53	0.83
Mangalore (Choll Supari)		1.00	0.17	0.63	0.13
Shimoga (Vanthi)			1.00	0.32	0.73
Bombay (Mangalore Vachras)				1.00	0.33
Bangalore (Bette)					1.00

Set VIII

Market	Primary Markets			Terminal Markets	
	Sirsi (Chaali)	Mangalore (New Supari)	Shimoga (Vanthi)	Bombay (Mangalore choll)	Bangalore (Bette)
Sirsi (Chaali)	1.00	0.54	0.20	0.34	0.12
Mangalore (New Supari)		1.00	0.37	0.53	0.21
Shimoga (Vanthi)			1.00	0.41	0.73
Bombay (Mangalore Choll)				1.00	0.43
Bangalore (Bette)					1.00

Note: The variety to which the price relates to is indicated in the parentheses.

The correlation coefficients reflect the extent to which the prices in these markets are inter-related. There may not be actual movement of the commodity between the markets because of the varietal difference in the commodity traded and demanded in these markets and the prices may still show a very high correlation. The prices of the boiled Sirsi varieties in Bombay market and the prices of Shinoga varieties in Bangalore market show a high correlation (the correlation coefficient varying between .82 and .90) even though the supply centres for these markets and the varieties supplied are different. This high correlation is because of the closer relationship in these prices between the two primary markets.

Low correlation between price movements in different markets may result from lack of homogeneity of produce. As a result of this lack of homogeneity of produce, there appears to be a larger regional difference in the prices where the differences between the varieties tend to be considerable. An examination of the correlation coefficients between the prices of the different varieties in the primary and terminal markets reveals that the prices of the superior varieties show a higher correlation than the relatively inferior varieties.

The low correlation between Bangalore and Mangalore prices may be due to, firstly, the large difference in the quality of the nuts traded in these markets and secondly,

the lack of demand for the Mangalore varieties in Bangalore market. The demand for the Mangalore varieties is largely from the markets of upper and northern India. Evidently, the prices in Mangalore market show a very low or no correlation with Bangalore price. This is true in the case of many of other varieties.

IV. Returns to Storage

The extent and pattern of fluctuations in the prices of arecanut over the season discussed in the preceding sections clearly indicate that arecanut prices exhibit seasonal fluctuation of a perceptible order and of varying magnitude in the primary markets. It is important to examine the relation between the extent of price rise during the marketing season and storage costs. In particular, whether a price rise in the later marketing period is excessive, in the sense that it is able to leave a margin over and above the storage cost; if such a margin exists then are the producers able to take advantage of it. It is attempted to examine this problem with the available data for the three primary wholesale regulated markets.

Before moving on to the method of analysis and an examination of the results, it is perhaps necessary to recapitulate the harvesting seasons of arecanut already discussed in Chapter III. Unlike other annual crops arecanut harvesting extends over a period of about six months starting

from middle or late September; a great bulk of the produce is, however, harvested in the initial 3-4 months. After the harvest it takes anywhere around 2 to 6 weeks for the produce to arrive in the market depending upon the variety of nuts prepared. Generally the heavy arrivals into the market start from December.

While fluctuations in arrivals within a season depend largely upon the timing of the harvests, the prevailing climatic conditions, etc., fluctuations in sales within a season stem mainly from the waiting capacity of the seller, his judgement about price changes and consequently profitability in storage. If the price offered at any given point of time is below their expectation, the sellers have the choice of postponing the sale. It was seen in Chapter VII that the seasonality in arrivals and sales in the three major primary wholesale markets were of varying magnitude and pattern. Sirsi market exhibited a high seasonality in arrivals and sales, both almost of the same order, indicating that postponement of sales by the sellers, after the produce arrives in the market, was not prevalent to an appreciable extent. In Shimoga market we found that while the arrivals exhibited a very high seasonality, the sales showed very low seasonality. The low seasonality in sales shows a deliberate postponement of sales by the sellers obviously with the expectation of taking advantage of seasonal rise in price. In Mangalore market we found

that while the seasonality in arrivals was higher than in sales, the seasonality in either of these could hardly be regarded as large. With this background we examine below the extent of seasonal rise in prices and the costs of storing the produce for the requisite period after harvest.

To study the profitability in postponing the sales from the peak season to the off season, with a view to availing the seasonal rise in prices, requires the estimation of the storage charges and the interest that should be allowed for on the value of the produce in the peak season. Taking December or January as the base month, the estimated price of one quintal of arecanut for subsequent months upto August are calculated by adding the storage cost (inclusive of interest) to the base month price.¹ It may be noted that if these estimated prices prevailed, the returns to storage is zero. The difference between the actual price prevailing and the estimated price in different months would give an estimate of returns to storage. In other words, if P_0 is the price in the base month, P_t is the price at any subsequent month and C_t is the cost of storage for the period t ,

¹ December or January is taken as the base month since the heavy marketing season commences at this time and the prices are also generally the lowest. December is taken as the base month in the case of Sirsi and Mangalore markets and January as the base month in the case of Shimoga market. The analysis is based on the 'modal' prices of the major varieties of arecanut traded in these markets.

then $P_t - (P_0 + C_t)$ would give the returns to storage for the period t . Returns to storage are positive if $P_t > (P_0 + C_t)$ and negative if $P_t < (P_0 + C_t)$. In the former case the producer gains by the postponement of sale while in the latter case he loses.

Storage Costs

Storage costs are expenses incurred on account of commodity physically held in store for sale in the future. The major constituents of storage cost are the interest on the price of arecanut in the base month, godown rent, depreciation on the bags, the loss in weight in storage and any improvement or deterioration of the quality of the nuts due to storage. By and large, interest on the value of arecanut is the major constituent of the costs. In our present analysis we have taken interest cost at 12 per cent per annum (i.e. one per cent per month) since the commission agents charged 12 per cent to 15 per cent interest on the borrowings by the sellers.

Godown rent as prescribed by the Regulated Market Committees are used. Godown rent prescribed by the Sirsi Market Committee was Rs. 1.56 per month per one hundred bags of arecanut for the first four months and Rs. 3.00 per month per one hundred bags for periods beyond four months. However, as no godown rent was charged by the commission agents and the cooperative society in Sirsi market

it was not included as an item of cost while calculating the costs of storage. In the case of Shimoga market godown rent was Rs. 0.19 per bag irrespective of the period of storage (one bag weighing approximately 60 kg.). In the case of Mangalore market godown rent was included in the commission payable by the sellers to the commission agents. Hence in this case godown rent is not considered in estimating the costs of storage.

The next item of cost is depreciation of the bags. Arecanut is stored in gunny bags. Any depreciation of the bag will have to be arbitrary as it will depend upon the length of the storage period and the condition of the bag at the beginning of the season. We have assumed depreciation of the bag to be Re. 0.06 per month for storing one quintal of arecanut. As a bag of arecanut contains roughly 60 kg. the depreciation charges per bag works out to be Re. 0.036.

Changes in the quality of the nuts and loss in weight due to storage is another item to be considered in estimating storage costs. It is difficult to estimate these gains or losses in value terms as such data were not available. In the absence of any precise information on these details, any estimate would be arbitrary and it was decided not to include these factors while estimating the costs of storage. The results of our analysis in the case of each of the market are discussed below.¹

¹ Since the harvesting of arecanut extends even upto April, returns to storage upto April were calculated to cover

Sirsi Market

Returns to storage were calculated for the two major varieties of arecanut, Rashi and Chaali. Returns to storage for each month from January through August for the six years 1961-62 to 1966-67 is presented in Table 8.14.

It can be seen from Table 8.14 that for Rashi variety returns to storage were positive for storage periods upto May and were negative beyond May on an average during the six years 1961-62 to 1966-67. The positive returns to storage varied from 0.39 per cent to 2.27 per cent and the negative returns from 0.02 per cent to 3.05 per cent. That is, the positive returns ranged from Rs. 1.97 to Rs. 11.85 per quintal and the negative returns from Rs. 0.06 to Rs. 16.21 per quintal. For Chaali variety of arecanut returns to storage on an average were negative in the months of January and February, and positive beyond February. The positive returns increased from January through August. While the negative returns to storage were Rs. 4.70 (1 per cent) per quintal for January and Rs. 1.40 (0.30 per cent) per quintal for February, the positive returns increased from Rs. 14.90 (3.12 per cent) per quintal in March to Rs. 66.40 (13.24 per cent) per quintal in August.

Yearwise, however, returns to storage fluctuated considerably. The actual price, the estimated price, (that

late harvesting using the price in the different months upto April as the base price. These are presented in Appendix Tables A8.7, A8.8 and A8.9 for the three markets, Sirsi, Shimoga and Mangalore respectively at the end of this chapter. As may be seen from these tables, the pattern of returns is generally in agreement with the returns calculated with the December or January price as the base month price used in the present discussion.

Table 8.14. Returns to Storage - Average for all years (1961-62 to 1966-67) - Sirsi Market

Month	Variety - Rashi				Variety - Chaali			
	Monthly Average price (Rs. per quintal)	December price + storage cost (Rs. per quintal)	Return to Storage (Rs. per quintal, (col. 3 + 2) x 100)		Monthly Average price (Rs. per quintal)	December price + storage cost (Rs. per quintal)	Return to Storage (Rs. per quintal, (col. 3 ÷ 2) x 100)	
	1	2	3	4	1	2	3	4
December	497.00	-	-	-	464.00	-	-	-
January	504.00	502.03	+ 1.97	+ 0.39	464.00	468.70	- 4.70	- 1.00
February	507.00	507.06	- 0.06	- 0.02	472.00	473.40	- 1.40	- 0.30
March	515.00	512.09	+ 2.91	+ 0.57	493.00	478.10	+14.90	+ 3.12
April	526.00	517.12	+ 8.88	+ 1.72	517.00	482.80	+34.20	+ 7.08
May	534.00	522.15	+11.85	+ 2.27	533.00	487.50	+45.50	+ 9.33
June	525.00	527.18	- 2.18	- 0.41	541.00	492.20	+48.80	+ 9.91
July	516.00	532.21	-16.21	- 3.05	552.00	496.90	+25.10	+ 5.06
August	525.00	537.24	-12.24	- 2.28	568.00	501.60	+66.40	+13.24

is, the base month price + storage cost) and the returns to storage for each month from January through August for each year from 1961-62 to 1966-67 are presented in Table 8.15. Returns to storage (in per cent) for each year and for all the years together is presented in Chart 8.6.

Returns to storage were positive and considerable in 1961-62 for Rashi variety. The positive returns increased from Rs. 50.70 per quintal (11.84 per cent) in January to Rs. 87.80 per quintal (19.90 per cent) in April. However, it declined from May onwards reaching Rs. 22.60 per quintal (4.93 per cent) in August. The year 1963-64 was a bad year, in that, the returns to storage were consistently negative and considerable. The negative returns to storage varied from Rs. 67.76 per quintal (13.78 per cent) to Rs. 109.16 per quintal (21.15 per cent) for storage periods beyond January. The loss due to storage was the lowest in January which was Rs. 20.88 per quintal (4.29 per cent). In the remaining four years, i.e. 1962-63, 1964-65, 1965-66 and 1966-67, the returns to storage were both positive and negative. In these years while the positive returns ranged from Rs. 1.20 per quintal (0.25 per cent) to Rs. 59.65 per quintal (9.77 per cent), negative returns ranged from Rs. 1.20 per quintal (0.27 per cent) to Rs. 46.87 per quintal (8 per cent). Out of the 32 months in these four years, returns to storage were positive in 21 months and they were negative in 11 months. In the case of Chaali variety,

returns to storage were consistently positive and considerable in two years, namely, 1965-66 and 1966-67. Positive returns to storage were as high as 20.43 per cent (Rs.105.88 per quintal) in April 1966 and 16.93 per cent (Rs. 81.08 per quintal) in August 1967. In the other years while returns to storage were positive beyond March or April, they were negative in the initial 3-4 months. In terms of percentages the negative returns varied from 0.99 per cent to 9.38 per cent (i.e. Rs. 4.44 to Rs. 45.66 per quintal) and the positive returns from 3 per cent to 16 per cent (i.e. Rs. 14.12 to Rs. 83.02 per quintal). Returns to storage were negative in 14 months while they were positive in 18 months.

The behaviour of arecanut prices during the six years: 1961-62 to 1966-67 does not conclusively show that withholding of stocks by the farmers will always result in positive gains. Returns to storage were positive and considerable in some years, but they were also negative in the rest. Even within a year the returns were negative or marginally positive in the initial months. Beyond May the positive returns generally showed a declining trend. It appears from the above analysis that because of the uncertain and fluctuating positive returns to storage the postponement of sales by the farmers was not prevalent to an appreciable extent in Sirsi market.

Table 8.15. Returns to Storage 1961-62 to 1965-67.Sirsi market

Month	Monthly Average Price (Rs. per quintal)	December Price + Storage cost (Rs. per quintal)	Returns to Storage	
			Rs. per quintal (Col.1-2)	Per cent (Col.3 ÷ Col.2) × 100
	1	2	3	4
<u>1. Variety Rashi</u>				
<u>1961-62</u>				
December	424.00			
January	479.00	428.30	+50.70	+ 11.84
February	491.00	432.60	+ 58.40	+ 13.50
March	492.00	436.90	+ 55.10	+ 12.61
April	529.00	441.20	+ 87.80	+ 19.90
May	523.00	445.50	+ 77.50	+ 17.40
June	497.00	449.80	+ 47.20	+ 10.49
July	498.00	454.10	+ 43.90	+ 9.67
August	481.00	458.40	+ 22.60	+ 4.93
<u>1962-63</u>				
December	434.00			
January	455.00	438.40	+ 16.60	+ 3.79
February	450.00	442.80	+ 7.20	+ 1.63
March	446.00	447.20	- 1.20	- 0.27
April	455.00	451.60	+ 3.40	+ 0.75
May	489.00	456.00	+ 33.00	+ 7.24
June	484.00	460.40	+ 23.60	+ 5.12
July	474.00	464.80	+ 9.20	+ 1.98
August	463.00	469.20	- 6.20	- 1.32

Continued/..

Table 8.15 - continued

Month	Monthly Average Price (Rs. per quintal)	December Price + Storage cost (Rs. per quintal)	Returns to Storage	
			Rs. per quintal (Col.1-2)	Per cent (Col. 3 ÷ Col. 2) X100
	1	2	3	4
<u>1963-64</u>				
December	482.00			
January	465.00	486.88	- 20.88	- 4.29
February	424.00	491.76	- 67.76	- 13.78
March	412.00	496.64	- 84.64	- 17.04
April	400.00	501.52	-101.52	- 20.24
May	420.00	506.40	- 86.40	- 17.06
June	406.00	511.28	-105.28	- 20.59
July	407.00	516.16	-109.16	- 21.15
August	420.00	521.04	-101.04	- 19.39
<u>1964-65</u>				
December	450.00			
January	462.00	454.56	+ 7.44	+ 1.64
February	446.00	459.12	- 13.12	- 2.86
March	450.00	463.68	- 13.68	- 2.95
April	493.00	468.24	+ 24.76	+ 5.29
May	474.00	472.80	+ 1.20	+ 0.25
June	455.00	477.36	- 22.36	- 4.68
July	459.00	481.92	- 22.92	- 4.76
August	505.00	486.48	+ 18.52	+ 3.81

Continued/..

Table 8.15 - continued

Month	Monthly Average Price (Rs. per quintal)	December Price + Storage Cost (Rs. per quintal)	Returns to Storage	
			Rs. per quintal (Col. 1-2)	Per cent (Col. 3 ÷ Col. 2) X 100)
	1	2	3	4
<u>1965-66</u>				
December	581.00			
January	540.00	586.87	- 46.87	- 7.99
February	574.00	592.74	- 18.74	- 3.16
March	616.00	598.61	+ 17.39	+ 2.91
April	638.00	604.48	+ 33.52	+ 5.55
May	670.00	610.35	+ 59.65	+ 9.77
June	664.00	616.22	+ 47.78	+ 7.76
July	679.00	622.09	+ 56.91	+ 9.15
August	675.00	627.96	+ 47.04	+ 7.49
<u>1966-67</u>				
December	602.00			
January	619.00	608.08	+ 10.92	+ 1.80
February	655.00	614.16	+ 40.84	+ 6.65
March	654.00	620.24	+ 33.76	+ 5.44
April	640.00	626.32	+ 13.68	+ 2.18
May	634.00	632.40	+ 1.60	+ 0.25
June	619.00	638.48	- 19.48	- 3.05
July	622.00	644.56	- 22.56	- 3.50
August	642.00	650.64	- 8.64	- 1.33

Continued/...

Table 8.15 - continued

Month	Monthly Average Price (Rs. per quintal)	December Price + Storage Cost (Rs. per quintal)	Returns to Storage	
			Rs. per quintal (Col.1-2)	Per cent (Col. 3 ÷ Col. Col.2) x 100)
	1	2	3	4
<u>2. Variety Chaali</u>				
<u>1961-62</u>				
December	444.00			
January	417.00	448.50	- 31.50	- 7.02
February	424.00	453.00	- 29.00	- 6.40
March	452.00	457.50	- 5.50	- 1.20
April	480.00	462.00	+ 18.00	+ 3.90
May	493.00	466.50	+ 26.50	+ 5.68
June	486.00	471.00	+ 15.00	+ 3.18
July	489.00	475.50	+ 13.50	+ 2.95
August	495.00	480.00	+ 15.00	+ 3.13
<u>1962-63</u>				
December	430.00			
January	426.00	434.36	- 8.36	- 1.72
February	417.00	438.72	- 21.72	- 4.95
March	420.00	443.08	- 23.08	- 5.21
April	443.00	447.44	- 4.44	- 0.99
May	498.00	451.80	+ 46.20	+ 10.23
June	498.00	456.16	+ 41.84	+ 9.17
July	503.00	460.52	+ 42.48	+ 9.22
August	679.00	464.88	+ 14.12	+ 3.04

Continued/..

Table 8.15 - continued

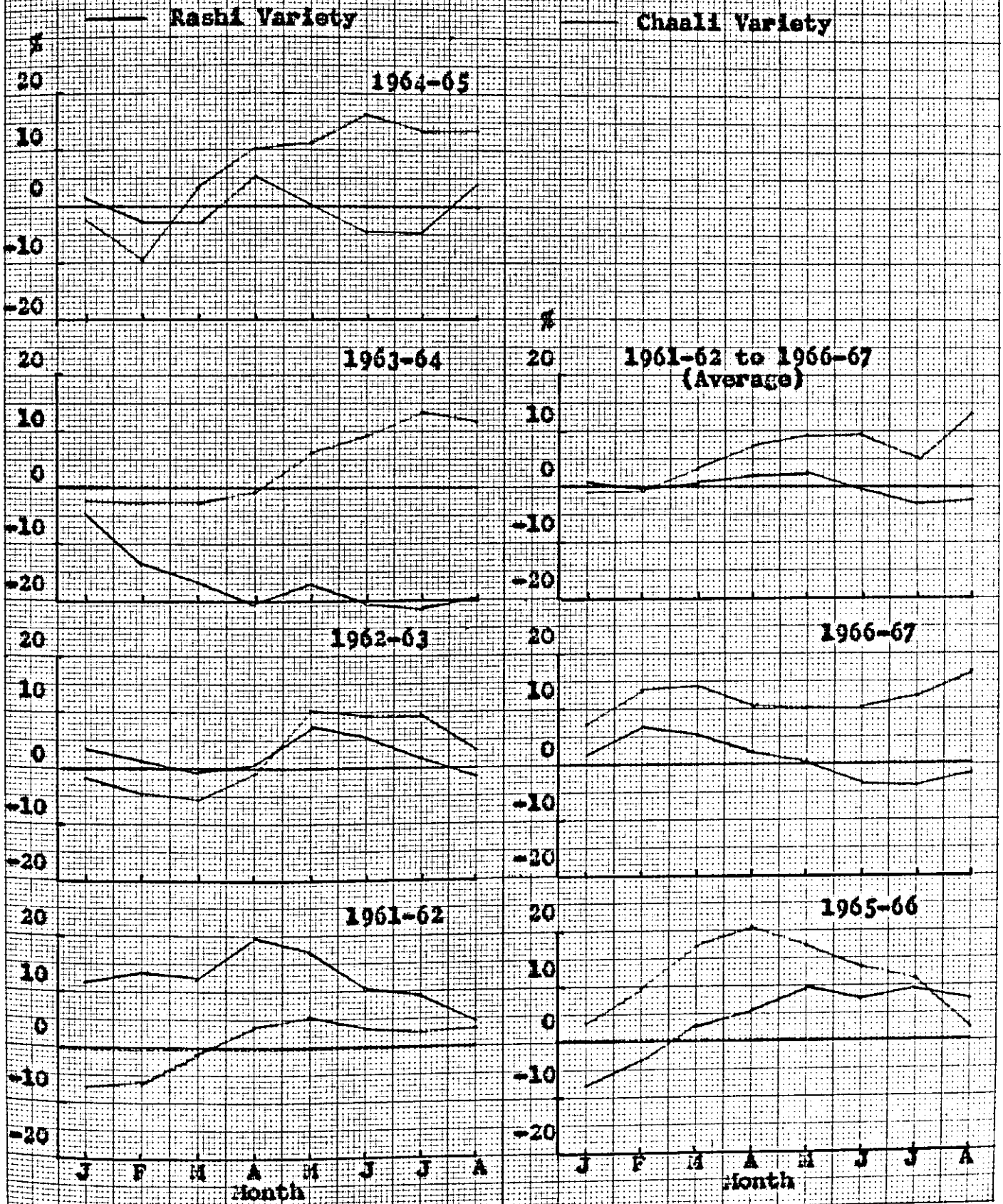
Month	Monthly Average Price (Rs. per quintal)	December Price + Storage Cost (Rs. per quintal)	Returns to Storage	
			Rs. per quintal (Col. 1-2)	Per cent (Col. 3 ÷ Col. 2) X 100)
	1	2	3	4
<u>1963-64</u>				
December	483.00			
January	478.00	487.89	- 9.89	- 2.03
February	479.00	492.78	- 13.78	- 2.80
March	486.00	497.67	- 11.67	- 2.34
April	500.00	502.56	- 2.56	- 0.50
May	540.00	507.45	+ 32.55	+ 6.41
June	562.00	512.34	+ 49.66	+ 9.69
July	587.00	517.23	+ 69.77	+ 13.49
August	584.00	522.12	+ 61.88	+ 11.85
<u>1964-65</u>				
December	477.00			
January	472.00	481.83	- 9.83	- 2.04
February	441.00	486.66	- 45.66	- 9.38
March	476.00	491.49	- 15.49	- 3.15
April	546.00	496.32	+ 49.68	+ 10.01
May	558.00	501.15	+ 56.85	+ 11.34
June	589.00	505.98	+ 83.02	+ 16.41
July	578.00	510.81	+ 67.19	+ 13.15
August	585.00	515.64	+ 69.36	+ 13.45

Continued/..

Table 8.15 - Concluded

Month	Monthly Average Price (Rs.per quintal)	December Price + Storage Cost (Rs.per quintal)	Returns to Storage	
			Rs.per quintal (Col.1-2)	Per cent (Col. 3 ÷ Col. 2) × 100
	1	2	3	4
<u>1965-66</u>				
December	497.00			
January	521.00	502.03	+ 18.97	+ 3.78
February	557.00	507.06	+ 49.94	+ 9.85
March	600.00	512.09	+ 87.91	+ 17.17
April	623.00	517.12	+105.88	+ 20.48
May	612.00	522.15	+ 89.85	+ 17.21
June	593.00	527.18	+ 70.82	+ 13.43
July	591.00	532.21	+ 58.79	+ 11.05
August	550.00	537.24	+ 12.76	+ 2.38
<u>1966-67</u>				
December	443.00			
January	480.00	447.49	+ 32.51	+ 7.26
February	514.00	451.98	+ 62.02	+ 13.72
March	520.00	456.47	+ 63.53	+ 13.92
April	508.00	460.96	+ 47.04	+ 10.20
May	512.00	465.45	+ 46.55	+ 10.00
June	518.00	469.94	+ 48.06	+ 10.23
July	534.00	474.43	+ 59.57	+ 12.56
August	560.00	478.92	+ 81.08	+ 16.93

CHART 8.6. RETURNS TO STORAGE (IN PERCENT) - SISSI MARKET



Shimoga market

Returns to storage were calculated for two major varieties of arecanut, viz. Kadihasa and Saraku, traded in Shimoga market. January was taken as the base month for calculating the costs of storage as the price was generally the lowest in this month. Returns to storage for Kadihasa and Saraku varieties of arecanut for each of the months from February through August, averaged for the six years 1961-62 to 1966-67, are given in Table 8.16.

It can be seen from the table that while returns to storage were positive in 6 of the 7 months in the case of Kadihasa, they were positive in 5 of the 7 months for Saraku. The negative returns were in the months of April in the case of Kadihasa and March and April in the case of Saraku. Loss due to storage was Rs. 9.36 per quintal for Kadihasa in April and Rs. 5.54 and Rs. 9.65 per quintal for Saraku in the months of March and April respectively. In terms of percentages they were 1.19 for Kadihasa and 0.77 and 1.33 for Saraku respectively. The positive gains to storage ranged from Rs. 1.32 (0.17 per cent) to Rs. 50.92 (6.24 per cent) per quintal for Kadihasa and Rs. 12.57 (1.76 per cent) to Rs. 35.02 (4.68 per cent) per quintal for Saraku.

Yearwise (Table 8.17 and Chart 8.7) barring the two years, 1963-64 and 1965-67, the returns to storage were positive for Kadihasa. Loss due to storage varied between

Table 8.16. Returns to Storage-Average for all years (1951-62 to 1956-67) - Shimoga Market

Month	Variety - Kadihasa				Variety - Saraku			
	Monthly average price (Rs. per quintal)	January price+ storage cost (Rs. per quintal)	Returns to Storage Rs. per quintal (col.1-2)	Per cent (col.3÷2) X 100	Monthly average price (Rs. per quintal)	January price+ storage cost (Rs. per quintal)	Returns to Storage Rs. per quintal (Col.1-2)	Per cent (col.3÷2) X 100
	1	2	3	4	1	2	3	4
January	762.00	-	-	-	705.00	-	-	-
February	781.00	770.00	+ 11.00	+ 1.43	725.00	712.43	+ 12.57	+ 1.76
March	770.00	777.68	+ 1.32	+ 0.17	714.00	719.54	- 5.54	- 0.77
April	776.00	785.36	- 9.36	- 1.19	717.00	726.65	- 9.65	- 1.33
May	808.00	793.04	+ 14.96	+ 1.89	751.00	733.76	+ 17.24	+ 2.35
June	819.00	800.72	+ 18.28	+ 2.28	770.00	740.87	+ 30.87	+ 3.93
July	839.00	808.40	+ 30.60	+ 3.79	783.00	747.98	+ 35.02	+ 4.68
August	867.00	816.08	+ 50.92	+ 6.24	786.00	755.09	+ 30.91	+ 4.09

1.76 per cent and 12.55 per cent (Rs. 12.27 to Rs. 90.97 per quintal) in 1963-64 and 0.74 per cent to 7.37 per cent (Rs. 7.58 to Rs. 77.36 per quintal) in 1966-67.

For the other years the returns were positive and considerable. The positive returns in 1964-65 ranged from 2.41 per cent (Rs. 15.32 per quintal) in February to 26.10 per cent (Rs. 176.16 per quintal) in August.

In the case of Saraku variety the returns to storage were positive and generally considerable in all the years excepting 1963-64. The negative returns in 1963-64 ranged from 3.66 per cent (Rs. 23.83 per quintal) in February to 14.17 per cent (Rs. 97.89 per quintal) in August. In the following year (1964-65) the positive returns ranged from 0.86 per cent (Rs. 5.40 per quintal) in February to 21.42 per cent (Rs. 142.72 per quintal) in August. The remaining years showed positive and high returns to storage.

The behaviour of arecanut prices in Shimoga market during the years 1961-62 to 1966-67 clearly indicates that the farmers profit by postponing their sales for the requisite period after harvest. Though returns were negative in some years, the overall pattern shows a positive gain. The pattern of arrivals and sales over the season clearly shows that the farmers by and large took advantage of the off season rise in prices and runs counter to the generally held view that farmers fail to take advantage of the seasonal rise in prices.

Table 8.17. Returns to Storage, 1961-62 to 1966-67Shimoga Market

Month	Monthly Average Price (Rs.per quintal)	January Price + Storage Cost (Rs.per quintal)	Returns to Storage	
			Rs. per quintal (Col.1-2)	Per cent (Col. 3 ÷ Col. 2) X 100)
	1	2	3	4
<u>1. Variety - Kadihasa</u>				
<u>1961-62</u>				
January	602.00			
February	623.00	608.40	+ 14.60	+ 2.40
March	629.00	614.48	+ 14.52	+ 2.36
April	630.00	620.56	+ 9.44	+ 1.52
May	641.00	626.64	+ 14.36	+ 2.29
June	641.00	632.72	+ 8.28	+ 1.31
July	670.00	638.80	+ 31.20	+ 4.88
August	711.00	644.88	+ 66.12	+ 10.25
<u>1962-63</u>				
January	759.00			
February	800.00	766.97	+ 33.03	+ 4.31
March	798.00	774.62	+ 23.38	+ 3.02
April	796.00	782.27	+ 13.73	+ 1.76
May	798.00	789.92	+ 8.08	+ 1.02
June	822.00	797.57	+ 24.43	+ 3.06
July	832.00	805.22	+ 26.78	+ 3.33
August	838.00	812.87	+ 25.13	+ 3.09

Continued/...

Table 8.17 - continued

Month	Monthly Average Price (Rs. per quintal)	January Price + Storage Cost (Rs. per quintal)	Returns to Storage	
			Rs. per quintal (Col.1-2)	Per cent (Col. 3 ÷ Col. 2) X 100)
	1	2	3	4
<u>1953-64</u>				
January	689.00			
February	684.00	696.27	- 12.27	- 1.76
March	667.00	703.22	- 36.22	- 5.15
April	628.00	710.17	- 82.17	- 11.57
May	678.00	717.12	- 39.12	- 5.46
June	665.00	724.07	- 59.07	- 8.16
July	642.00	731.02	- 89.02	- 12.18
August	647.00	737.97	- 90.97	- 12.33
<u>1964-65</u>				
January	630.00			
February	652.00	636.68	+ 15.32	+ 2.41
March	664.00	643.04	+ 20.96	+ 3.26
April	688.00	649.40	+ 38.60	+ 5.94
May	739.00	655.76	+ 83.24	+ 12.69
June	739.00	662.12	+ 76.88	+ 11.61
July	788.00	668.48	+119.52	+ 17.88
August	851.00	674.84	+176.16	+ 26.10

Continued/....

Table 8.17 - continued

Month	Monthly Average Price (Rs. per quintal)	January Price + Storage Cost (Rs. per quintal)	Returns to Storage	
			Rs. per quintal (Col.1-2)	Per cent (Col. 3 ÷ 2) X 100) Col.
	1	2	3	4
<u>1965-66</u>				
January	872.00			
February	901.00	881.10	+ 19.90	+ 2.26
March	909.00	889.88	+ 19.12	+ 2.15
April	924.00	898.66	+ 25.34	+ 2.82
May	1008.00	907.44	+100.56	+11.11
June	1033.00	916.22	+116.78	+12.75
July	1040.00	925.00	+115.00	+12.43
August	1057.00	933.78	+123.22	+13.20
<u>1966-67</u>				
January	1020.00			
February	1023.00	1030.58	- 7.58	- 0.74
March	1006.00	1040.84	- 34.84	- 3.35
April	991.00	1051.10	- 60.10	- 5.72
May	984.00	1061.36	- 77.36	- 7.29
June	1012.00	1071.62	- 59.62	- 5.56
July	1065.00	1081.88	- 16.88	- 1.56
August	1100.00	1092.14	+ 7.86	+ 0.72

Continued/....

Table 8.17 - continued

Month	Monthly Average Price (Rs. per quintal)	January Price + Storage Cost (Rs. per quintal)	Return to Storage	
			Rs. per quintal (Col. 1-2)	Per cent (Col. 3 \div Col. 2) X 100)
	1	2	3	4
<u>2. Variety - Saraku</u>				
<u>1961-62</u>				
January	558.00			
February	579.00	563.96	+ 15.04	+ 2.67
March	571.00	569.60	+ 1.40	+ 0.25
April	576.00	575.24	+ 0.76	+ 0.13
May	597.00	580.88	+ 16.12	+ 2.78
June	598.00	586.52	+ 11.48	+ 1.96
July	628.00	592.16	+ 33.84	+ 5.71
August	665.00	597.80	+ 67.20	+ 11.24
<u>1962-63</u>				
January	707.00			
February	747.00	714.45	+ 32.55	+ 4.56
March	744.00	721.58	+ 22.42	+ 3.11
April	753.00	728.71	+ 24.29	+ 3.33
May	760.00	735.84	+ 24.16	+ 3.28
June	782.00	742.97	+ 39.03	+ 5.25
July	770.00	750.10	+ 19.90	+ 2.65
August	779.00	757.23	+ 21.77	+ 2.87

Continued/....

Table 8.17 - continued

Month	Monthly Average Price (Rs. per quintal)	January Price + Storage Cost (Rs. per quintal)	Return to Storage	
			Rs. per quintal (Col.1-2)	Per cent (Col. 3 ÷ Col. 2) X 100)
	1	2	3	4
<u>1963-64</u>				
January	645.00			
February	628.00	651.83	- 23.83	- 3.66
March	613.00	658.34	- 45.34	- 6.89
April	570.00	664.85	- 94.85	- 14.27
May	604.00	671.36	- 67.36	- 10.03
June	600.00	677.87	- 77.87	- 11.49
July	587.00	684.38	- 97.38	- 14.23
August	593.00	690.89	- 97.89	- 14.17
<u>1964-65</u>				
January	622.00			
February	634.00	628.60	+ 5.40	+ 0.86
March	620.00	634.88	- 14.88	- 2.34
April	647.00	641.16	+ 5.84	+ 0.91
May	715.00	647.44	+ 67.56	+ 10.44
June	741.00	653.72	+ 87.28	+ 13.35
July	788.00	660.00	+128.00	+ 19.39
August	809.00	666.28	+142.72	+ 21.42

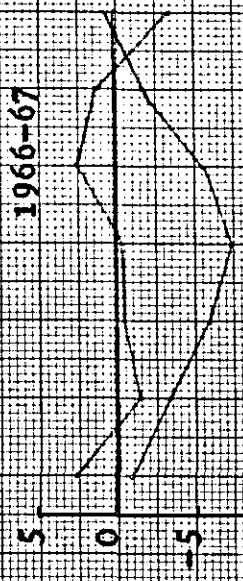
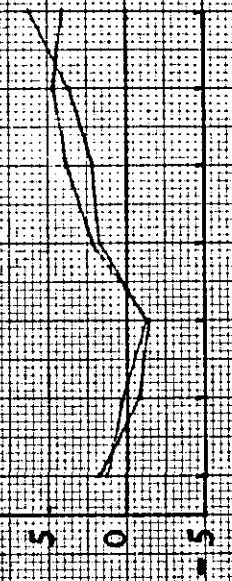
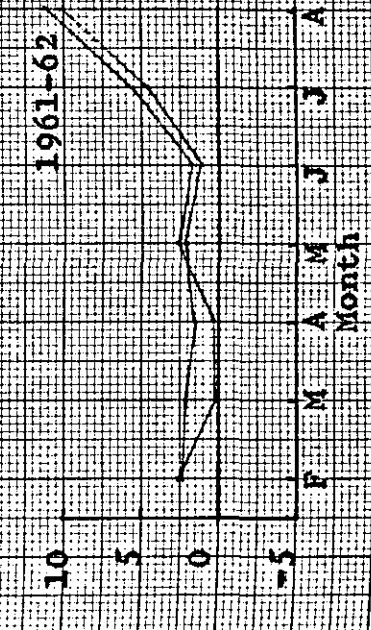
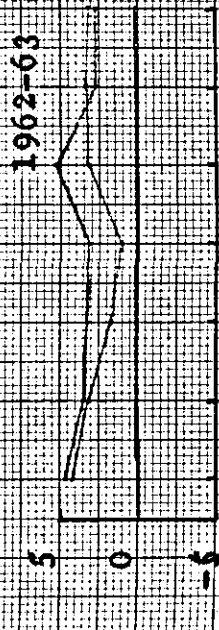
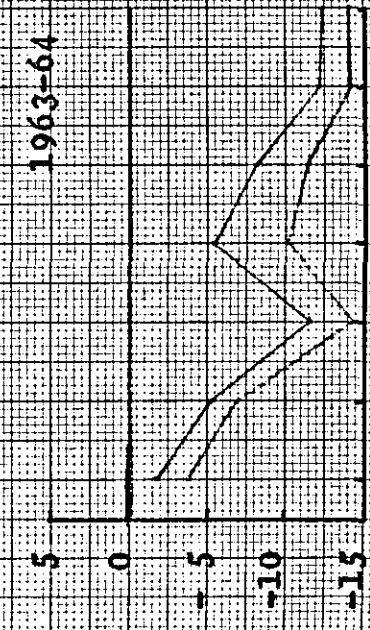
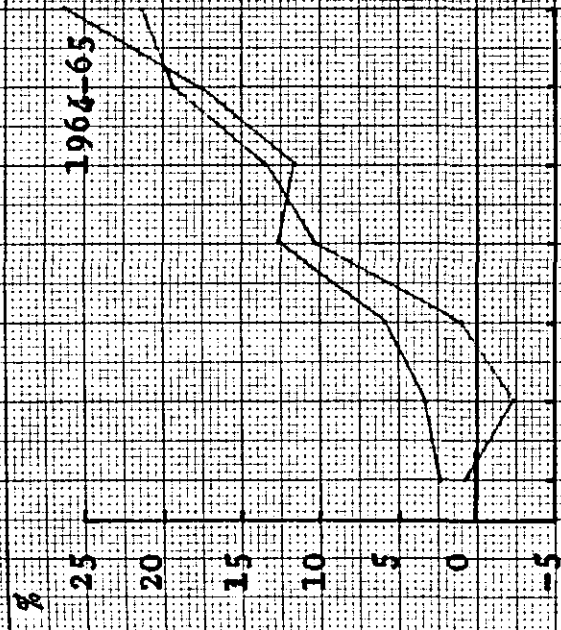
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Table 8.17 - concluded

Month	Monthly Average Price (Rs. per quintal)	January Price + Storage Cost (Rs. per quintal)	Return to Storage	
			Rs. per quintal (Col.1-2)	Per cent (Col. 3 ÷ Col. 2) X 100)
	1	2	3	4
<u>1965-66</u>				
January	840.00			
February	883.00	848.78	+ 39.22	+ 4.62
March	870.00	857.24	+ 12.76	+ 1.49
April	875.00	865.70	+ 9.30	+ 1.07
May	936.00	874.16	+ 61.84	+ 7.07
June	973.00	882.62	+ 90.38	+ 10.24
July	1000.00	891.08	+108.92	+ 12.22
August	982.00	899.54	+ 82.46	+ 9.17
<u>1966-67</u>				
January	859.00			
February	893.00	867.97	+ 25.03	+ 2.88
March	864.00	876.62	- 12.62	- 1.44
April	881.00	885.27	- 4.27	- 0.48
May	893.00	893.92	- 0.92	- 0.10
June	927.00	902.57	+ 24.43	+ 2.71
July	924.00	911.22	+ 12.78	+ 1.40
August	890.00	919.87	- 29.87	- 3.25

CHART 8.7. RETURNS TO STORAGE (IN PERCENT) SHIMOGA MARKET

— KADIHASA Variety —
 — SARAKU Variety —



Mangalore market

Returns to storage were calculated for the variety 'New Supari' with December as the base month in the case of Mangalore market. Returns to storage for each of the month from January through August for all the years together is presented in Table 8.18.

The average for the six years presented in Table 8.18 shows that returns to storage were positive and considerable. The positive returns were the smallest in January 0.31 per cent (Rs. 1.63 per quintal). For the other months the positive returns ranged from 7.03 per cent (Rs. 37.36 per quintal) to 13.62 per cent (Rs. 75.28 per quintal).

Returns to storage for each of the years from 1961-62 to 1966-67 are presented in Table 8.19 and Chart 8.8. Out of the 48 months returns to storage were positive in 45 months and they were negative in only three months. The negative returns varied between 1.59 per cent (Rs. 8.38 per quintal) to 5.43 per cent (Rs. 34.22 per quintal).

The prices of arecanut in Mangalore market also clearly show that the returns to storage were positive and considerable during the period 1961-62 to 1966-67. It appears from the seasonal pattern of arrivals and sales in this market (discussed in the previous chapter) that the sellers largely took advantage of the seasonal rise in price by timing the arrivals and sales.

As it is, it appears from the above analysis that the

Table 8.13. Returns to Storage — Average for All Years (1961-62 to 1966-67)
- Mangalore Market

Month	Monthly average price (Rs. per quintal)	December Price + Storage cost (Rs. per quintal)	Returns to storage	
			Rs. per quintal (Col. 1-2)	Per cent (col. 3 ÷ 2) x 100
	1	2	3	4
December	521.00	-	-	-
January	528.00	526.37	+ 1.63	+ 0.31
February	569.00	531.64	+37.36	+ 7.03
March	598.00	536.91	+ 60.09	+ 11.38
April	599.00	542.18	+ 56.82	+ 10.48
May	595.00	547.45	+ 47.55	+ 8.69
June	628.00	552.72	+ 75.28	+ 13.62
July	627.00	557.99	+ 69.01	+ 12.37
August	622.00	563.26	+ 58.74	+ 10.43

Table 8.19. Returns to Storage - 1961-62 to 1966-67
- Mangalore Market

Month	Monthly Average Price (Rs. per quintal)	December Price + Storage Cost (Rs. per quintal)	Returns to Storage	
			Rs. per quintal (Col. 1-2)	Per cent (Col. 3 ÷ Col. 2) X 100
	1	2	3	4
<u>Variety - New Supari</u>				
<u>1961-62</u>				
December	497.00			
January	490.00	502.13	- 12.13	- 2.42
February	560.00	507.16	+ 52.84	+ 10.42
March	563.00	512.19	+ 50.81	+ 9.92
April	544.00	517.22	+ 26.78	+ 5.18
May	525.00	522.25	+ 2.75	+ 0.53
June	572.00	527.28	+ 44.72	+ 8.48
July	591.00	532.31	+ 58.69	+ 11.03
August	568.00	537.34	+ 30.66	+ 5.71
<u>1962-63</u>				
December	380.00			
January	475.00	383.96	+ 91.04	+ 23.71
February	486.00	387.82	+ 98.18	+ 25.32
March	486.00	391.68	+ 94.32	+ 24.08
April	504.00	395.54	+108.46	+ 27.42
May	557.00	399.40	+157.60	+39.61
June	563.00	403.26	+159.74	+ 39.61
July	556.00	407.12	+148.88	+ 36.57
August	569.00	410.98	+ 158.02	+ 38.45

Continued/....

Table 8.19 - continued

Month	Monthly Average Price (Rs. per quintal)	December Price + Storage Cost (Rs. per quintal)	Returns to Storage	
			Rs. per quintal (Col. 1-2)	Per cent (Col. 3 ÷ Col. 2) X 100)
	1	2	3	4
<u>1963-64</u>				
December	522.00			
January	519.00	527.38	- 8.38	- 1.59
February	545.00	532.66	+ 12.34	+ 2.32
March	558.00	537.94	+ 20.06	+ 3.73
April	553.00	543.22	+ 9.78	+ 1.80
May	583.00	548.50	+ 34.50	+ 6.29
June	608.00	553.78	+ 54.22	+ 9.79
July	634.00	559.06	+ 74.94	+ 13.40
August	644.00	564.34	+ 79.66	+ 14.12
<u>1964-65</u>				
December	488.00			
January	547.00	493.04	+ 53.96	+ 10.94
February	554.00	497.98	+ 56.02	+ 11.25
March	606.00	502.92	+103.98	+ 20.50
April	654.00	507.86	+146.14	+ 28.78
May	648.00	512.80	+135.20	+ 26.37
June	708.00	517.74	+190.26	+36.75
July	728.00	522.68	+205.32	+ 39.28
August	714.00	527.62	+186.38	+ 35.32

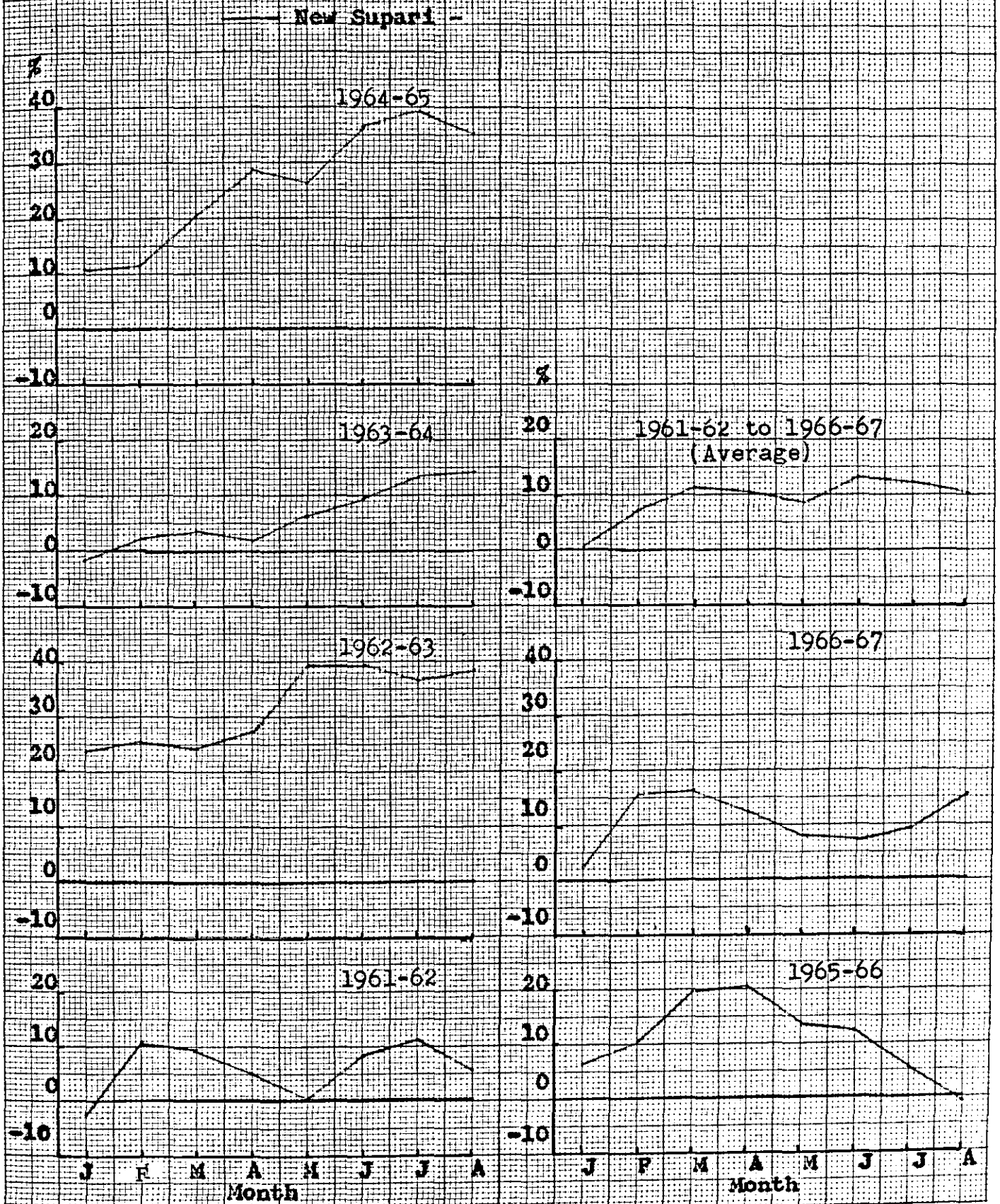
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Table 8.19 - Continued

Month	Monthly Average Price (Rs. per quintal)	December Price + Storage Cost (Rs. per quintal)	Returns to Storage	
			Rs. per quintal (Col.1-2)	Per cent (Col. 3 ÷ 2) X 100)
	1	2	3	4
<u>1965-65</u>				
December	583.00			
January	628.00	588.99	+ 39.01	+ 6.62
February	656.00	594.88	+ 61.12	+ 10.27
March	720.00	600.77	+119.23	+ 19.85
April	731.00	606.66	+124.34	+ 20.50
May	697.00	612.55	+ 84.45	+ 13.79
June	694.00	618.44	+ 75.56	+ 12.22
July	660.00	624.33	+ 35.67	+ 5.71
August	596.00	630.22	- 34.22	- 5.43
<u>1966-67</u>				
December	518.00			
January	537.00	523.34	+ 13.66	+ 2.61
February	611.00	528.58	+ 82.42	+ 15.59
March	620.00	533.82	+ 86.18	+ 16.14
April	608.00	539.06	+ 68.94	+ 12.79
May	588.00	544.30	+ 43.70	+ 8.03
June	590.00	549.54	+ 40.46	+ 7.36
July	608.00	554.78	+ 53.22	+ 9.59
August	647.00	560.02	+ 86.98	+ 15.53

Continued/..

CHART 8.8. RETURNS TO STORAGE (IN PERCENT) MANGALORE MARKET



producers and sellers by and large took advantage of the seasonal rise in price. This was so in the case of the two primary wholesale markets, Shimoga and Mangalore, where during the six years 1961-62 to 1966-67 the estimated returns to storage were positive. However, it is only in the case of Sirsi market the average returns to storage were uncertain and fluctuating. The pattern of sales in these markets seen along with the behaviour of prices sufficiently indicates that the producer-sellers generally took advantage of the seasonal price rise.

V. Influence of Weekly Arrivals, Sales and Terminal Prices

Now it is of interest to examine the weekly prices in these regulated markets for the influence of (1) total weekly arrivals, (2) total weekly sales and (3) weekly price in the terminal market. All the three price indicators - 'maximum', 'minimum' and 'modal' - for the different varieties are studied for the influence of the above factors. The prices of the comparable varieties in the primary and terminal market are considered because of the lack of direct correspondence in the varieties for which the prices are quoted in the terminal markets and the varieties traded in the primary markets.

Linear regression equations were fitted to the weekly data to measure the influence of these various factors for the period September 1961 to August 1967 (total number of

observations 312). To bring out the influence of weekly arrivals or sales on weekly prices the following regression equation was used

$$Y = a + bX$$

where Y = weekly price (maximum, minimum or modal) of a specific variety in the primary market (local market),

X = weekly arrivals (X_1) or weekly sales (X_2) in the primary market (local market)

The influence of weekly terminal price on local prices is brought out by the equation

$$Y = a + bZ$$

where Z denotes price in terminal market, while the influence of weekly arrivals or sales along with the terminal price on the local price is examined by the equation

$$Y = a + bX + cZ$$

where X denotes weekly arrivals (X_1) or sales (X_2) and Z denotes weekly terminal price as in the first two equations.

The influence of these factors on the local price is discussed below.

It may be mentioned at the outset that commodity prices and price variations are complex functions of many independent determinants affecting supply and demand, their elasticities and expectations about them. Quantitative measurement of any one price determinant, is therefore, virtually impossible, for other price determining forces operating

simultaneously remain constant nor can be readily quantified. The quantitative and statistical measures made use of are intended to assist in passing a qualitative judgement rather than determining the precise quantitative influence.

1. Influence of total weekly arrivals/sales

The results of the regression analysis are presented in Table 8.20. As to the influence of the weekly 'arrivals'/'sales' the analysis brings out interesting results. Neither the 'arrivals' nor the 'sales' explain the variation in the local prices to any appreciable extent - rather their influence appear negligible. When the local price is taken as a function of the 'arrivals' or 'sales' the regression coefficients are not statistically significant. This is so in the case of all the three markets. This can be clearly seen from the results presented in Table 8.20.

2. Influence of terminal market price

It appears from the results presented in Tables 8.21, 8.22 and 8.23 that the terminal price exerts a dominant influence on the prices in the primary markets. However, the extent of influence of the terminal price varied from market to market and within a market from variety to variety. The influence of the terminal price on the prices in each of the primary markets is discussed below.

Sirsi Market : A large part of the variation in the

**Table 8.20. Results of the Regression Analysis showing the Extent of Influence of Local Arrivals/
Sales on the Local Price (Based on weekly data)**

Simple Regression Equations are of the type $Y = a + bX_1$ and $Y = a + bX_2$ where Y = local price (Maximum, Minimum or Modal) of a specific variety, X_1 = local arrivals and X_2 = local sales. Number of observations = 312 (September 1961 to August 1967).

Market/Variety	Dependent Variable - Local Price (in Rs. quintal)	Independent Variable - Arrivals (X_1) (in quintals)			Independent Variable - Sales (X_2) (in quintals)		
		Constant Term	Regression coefficient (standard error in parentheses)	% of variance explained $r^2 \times 100$	Constant Term	Regression coefficient (standard error in parentheses)	% of variance explained $r^2 \times 100$
	Y	a	b		a	b	
I. Sirsi Market							
1. Rashi	Max.Price	511.9749	0.026074 (0.557973)	6.56	508.9170	0.028374 (0.510843)	6.51
	Min.Price	496.2868	-0.006814 (0.404704)	0.24	498.0707	-0.008201 (0.370561)	0.29
	Mod.Price	504.9018	0.003952 (0.673329)	0.22	504.9062	0.00927 (0.616523)	0.18
2. Tatti Bette	Max.Price	481.1813	0.000436 (0.746024)	0.003	481.6326	0.000073 (0.683086)	0.0001
	Min.Price	463.8484	-0.007934 (0.770887)	1.16	464.3488	-0.008290 (0.705851)	1.06
	Mod.Price	474.9687	-0.002058 (0.763611)	0.08	475.4802	-0.002455 (0.619989)	0.09
3. Kempu Gota	Max.Price	416.0915	-0.002095 (0.904719)	0.11	416.8472	-0.002687 (0.828391)	0.15
	Min.Price	405.8147	-0.009717 (0.795136)	1.85	407.6049	-0.011094 (0.728054)	2.02
	Mod.Price	416.7116	-0.005941 (0.803716)	0.71	418.5738	-0.007396 (0.735910)	0.92
4. Chaali	Max.Price	552.1422	-0.014980 (0.369274)	0.95	553.2830	-0.019800 (0.338119)	1.39
	Min.Price	512.8123	-0.029596 (0.596433)	9.66	517.4959	-0.033175 (0.546113)	10.18
	Mod.Price	536.6163	-0.017973 (0.603801)	3.65	540.3771	-0.020878 (0.552861)	4.13
5. Bilegotu	Max.Price	428.3993	-0.011251 (0.885748)	3.08	429.9761	-0.012449 (0.811021)	3.16
	Min.Price	399.8149	-0.024750 (0.746120)	10.58	402.2721	-0.026578 (0.683173)	10.22
	Mod.Price	419.6727	-0.013371 (0.868807)	4.18	421.4277	-0.014699 (0.795509)	4.24
II. Shimoga Market							
1. Kadihasa	Max.Price	846.0047	-0.012134 (0.526141)	1.26	845.7959	-0.012070 (0.216042)	0.21
	Min.Price	775.3677	-0.010154 (0.521252)	0.87	773.8617	-0.009138 (0.214035)	0.12
	Mod.Price	809.4066	-0.012160 (0.517461)	1.23	810.3063	-0.012898 (0.212478)	0.23
2. Saraku	Max.Price	809.9300	-0.007032 (0.558177)	0.48	806.2906	-0.004452 (0.229198)	0.03
	Min.Price	641.5521	-0.011975 (0.783528)	2.73	661.7992	-0.026695 (0.321727)	2.29
	Mod.Price	752.7231	-0.012316 (0.590805)	1.64	757.1088	-0.015574 (0.242594)	0.44
3. Vanthi	Max.Price	571.7000	-0.005887 (0.719295)	0.56	609.4148	-0.033188 (0.295350)	2.98
	Min.Price	532.7815	-0.004185 (0.707179)	0.27	569.9366	-0.031070 (0.290375)	2.52
	Mod.Price	552.2666	-0.005093 (0.718105)	0.41	588.3232	-0.031190 (0.294862)	2.62

Continued/..

Table 8.20 - concluded

	Y	a	b	r ² x 100	a	b	r ² x 100
4. Gorabalu	Max.Price	351.6545	-0.003444 (1.119152)	0.46	352.9495	-0.004404 (0.459544)	0.13
	Min.Price	318.3942	-0.003832 (1.200243)	0.66	328.7765	-0.011363 (0.492841)	0.97
	Mod.Price	338.1610	-0.002965 (1.121842)	0.34	346.6252	-0.009104 (0.460649)	0.55
<u>III. Mangalore Market</u>							
1. New Supari	Max.Price	608.8613	-0.000822 (1.333654)	0.04	603.3903	0.000848 (1.040508)	0.02
	Min.Price	519.8570	-0.003603 (1.289917)	0.67	506.8798	0.000350 (1.006385)	0.004
	Mod.Price	577.6162	-0.001736 (1.282166)	0.15	570.7439	0.003580 (1.000337)	0.004
2. Choll Supari	Max.Price	646.2483	-0.006804 (1.565669)	3.52	640.3578	0.003464 (1.222337)	0.36
	Min.Price	579.3059	0.009099 (1.581147)	6.42	587.7182	0.006573 (1.233600)	2.04
	Mod.Price	627.4775	0.008091 (1.561975)	4.95	640.4893	0.004151 (1.218643)	0.79

•• Significant at one percent level.

• Significant at five percent level.

weekly prices in Sirsi market is attributable to the changes in the price in Bombay market (Table 8.21). It is only in the case of Chaali variety the variation in the local prices explained by the terminal prices is very small. Bombay price of 'Sirsi safed' explains around 11, 31 and 28 per cent of the variation in the 'maximum', 'minimum' and 'modal' prices respectively of 'Chaali' prices in Sirsi market and the regression coefficients are positive and statistically significant. For the remaining varieties, the variations in the local prices explained by the terminal price varies from 60 to 90 per cent. Further, for a unit increase in the terminal price the increase in the 'maximum' price in the local market is the largest for any of the varieties. A unit increase in the price of Barada in Bombay market brings about a more than unit increase in the 'maximum' and 'minimum' price of Rashi. The increase is less than unity in the price of the other varieties. The low correlation between the terminal price and the prices of inferior quality nuts in Sirsi market is possibly due to the wide difference in the quality of the nuts for which the prices are quoted. This is also suggested by the lower rate of change in the 'modal' price with a change in the Bombay price. The variations in the 'modal' price is higher because of a wide variation in the quality of nuts within a variety.

Shimoga market : The terminal price (Bangalore market) shows a dominating influence on the prices in Shimoga market

Table 8.21. Results of the Regression Analysis showing the Extent of Influence of Terminal Price (Bombay Market, Sirsi varieties) on the Local Prices in Sirsi market (Based on weekly data)

Simple Regression Equations are of the type $Y = a + bZ$ where
 Y = local price (maximum, minimum or modal) of a specific variety
 Z = terminal price of a specific variety
 Number of observations = 312 (September 1961 to August 1967)

Sr.No. of Equation	Dependent variable - Local price (in Rs. per quintal)	Independent variable - Terminal price (Rs. per quintal)	Constant term	Regression coefficient (Standard error in parentheses)	% of variance explained
	Y	Z	a	b	$r^2 \times 100$
1	Max. Price (Rashi)	Motiapi	64.5347	0.655009** (0.066905)	77.94
2	"	Dhapapi	92.6808	0.786782** (0.046243)	79.36
3	"	Toapi	114.9852	0.756144** (0.049861)	76.76
4	"	Barada	13.0682	1.046638** (0.037140)	73.16
5	"	Sirsi Safed	276.3454	0.449952** (0.024741)	7.94
6	Min. Price (Rashi)	Motiapi	73.9690	0.564786** (0.045328)	30.49
7	"	Dhapapi	60.9082	0.743418** (0.019828)	37.28
8	"	Toapi	76.7034	0.723764** (0.024266)	37.00
9	"	Barada	74.3459	1.055282** (0.049585)	39.13
10	"	Sirsi Safed	154.6550	0.559061** (0.018505)	6.45
11	Mod. Price (Rashi)	Motiapi	107.4243	0.549196** (0.086964)	79.81
12	"	Dhapapi	115.2721	0.687112** (0.067084)	88.16
13	"	Toapi	134.1289	0.661451** (0.069972)	85.55
14	"	Barada	2.9634	0.951512** (0.014739)	88.07
15	"	Sirsi Safed	209.1503	0.504583** (0.031961)	14.55
16	Max. Price (Tatti Betta)	Barada	24.3776	0.858557** (0.038394)	88.02
17	Min. Price (Tatti Betta)	Barada	8.3632	0.836502** (0.043078)	89.22
18	Mod. Price (Tatti Bette)	Barada	17.4253	0.854111** (0.041017)	91.27
19	Max. Price (Kempu gotu)	Toapi	168.4202	0.431451** (0.103861)	65.71
20	Min. Price (Kempu gotu)	Toapi	132.4041	0.460044** (0.090074)	57.71
21	Mod. Price (Kempu gotu)	Toapi	170.6117	0.420246** (0.091745)	49.20

Continued/....

Table 6.21. Concluded

1	Y	Z	a	b	r² x 100
22	Max. Price (Chaali)	Motiapi	408.1073	0.171100** (0.049728)	2.33
23	"	Dhapapi	411.8494	0.211808** (0.040828)	2.52
24	"	Toapi	409.1291	0.218921** (0.041744)	2.82
25	"	Barada	367.6645	0.311267** (0.025124)	2.83
26	"	Sirsi Safed	65.8198	0.784798** (0.037848)	10.58
27	Min. Price (Chaali)	Motiapi	377.5933	0.134208 (0.081482)	3.74
28	"	Dhapapi	358.9470	0.203723** (0.067766)	6.08
29	"	Toapi	358.4206	0.206885** (0.069362)	6.57
30	"	Barada	299.1639	0.331834** (0.045900)	8.40
31	"	Sirsi Safed	17.9824	0.828862** (0.027752)	30.80
32	Mod. Price (Chaali)	Motiapi	412.6246	0.138653 (0.082474)	4.09
33	"	Dhapapi	406.6465	0.187334** (0.068777)	5.27
34	"	Toapi	406.8635	0.189007** (0.070405)	5.62
35	"	Barada	365.7338	0.278742** (0.047672)	6.08
36	"	Sirsi Safed	48.8355	0.780985** (0.022036)	28.02
37	Max. Price (Bilegotu)	Sirsi Safed	50.8873	0.609995** (0.044595)	36.79
38	Min. Price (Bilegotu)	Sirsi Safed	88.2260	0.767249** (0.019076)	41.29
39	Mod. Price (Bilegotu)	Sirsi Safed	7.5496	0.663644** (0.040589)	41.89

** Significant at one per cent level.

* Significant at five per cent level.

and a large portion of the variation in the prices in Shimoga market is explained by the terminal price (Table 8.22). It is only in the price of the inferior variety - Gorabalu - the variation explained by the terminal price is rather small, which is around 50 per cent. Further, excepting this variety, in a majority of cases a unit increase in the terminal price brings about a more than unit increase in the local price.

Mangalore Market : The influence of the terminal price (Bombay market) on the price in Mangalore market is not as dominant as seen in the case of Sirsi or Shimoga market (Table 8.23). In none of the case the terminal price explain more than 50 per cent of the variation in the prices in Mangalore market.

The price in the primary regulated markets were further examined for the influence of these factors by taking the arrivals/sales together with the terminal price.¹ The results of the multiple linear regressions are presented in Tables 8.24, 8.25 and 8.26. The results are discussed with reference to each of the three markets.

Sirsi market : The explanation offered by the terminal price does not improve much by the introduction of arrivals/

1 The regressions were tested for the presence of multicollinearity and serial correlation. Simple correlation between the independent variables nowhere exceeds a value of 0.3, hence multicollinearity seems to be absent. The later was tested by Durbin-Watson test and was found to be free of serial correlation.

Table 8.22. Results of the Regression Analysis showing the Extent of Influence of Terminal Price (Bangalore Market) on the Local Prices in Shimoga Market (Based on weekly data)

Simple Regression Equations are of the type $Y = a + bZ$ where
 Y = local price (maximum, minimum or modal) of a specific variety
 Z = terminal price of a specific variety
 Number of observations = 312 (September 1961 to August 1967)

Sr. No. of Equation	Dependent Variable - Local Price (in Rs. per quintal)	Independent variable - Terminal price (in Rs. per quintal)	Constant term	Regression coefficient (Standard error in parentheses)	% of variance explained
	Y	Z	a	b	$r^2 \times 100$
1	Max. Price (Kadihasa)	Null	-156.9481	1.192444** (0.051057)	87.28
2	Min. Price (Kadihasa)	Null	-225.4512	1.193199** (0.051471)	85.77
3	Mod. Price (Kadihasa)	Null	-186.6355	1.184042** (0.051061)	83.24
4	Max. Price (Saraku)	Null	139.9364	1.136843** (0.044052)	89.28
5	"	Rajalu	38.6797	0.969266** (0.012790)	93.03
6	"	Bette	218.0004	1.142913** (0.047841)	77.95
7	Min. Price (Saraku)	Null	62.4168	0.680180** (0.053839)	62.98
8	"	Rajalu	161.7640	0.589490** (0.071923)	67.80
9	"	Bette	262.8058	0.710841** (0.046506)	59.41
10	Mod. Price (Saraku)	Null	138.8666	1.057463** (0.033325)	86.54
11	"	Rajalu	33.5700	0.893577** (0.031666)	88.58
12	"	Bette	200.4263	1.050643** (0.037474)	73.79
13	Max. Price (Vanthi)	Bette	155.6820	0.800673** (0.033592)	63.52
14	Min. Price (Vanthi)	Bette	103.1577	0.832039** (0.029265)	66.31
15	Mod. Price	Bette	128.6447	0.817774** (0.032072)	66.05
16	Max. Price (Gorabalu)	Bette	108.7050	0.467567** (0.083862)	52.44
17	Min. Price (Gorabalu)	Bette	133.7665	0.352000** (0.092197)	34.19
18	Mod. Price (Gorabalu)	Bette	111.1783	0.437528** (0.084603)	46.14

* Significant at five per cent level.

** Significant at one per cent level.

Table 8.23. Results of the Regression Analysis Showing the Extent of Influence of Terminal Price (Bombay market - Mangalore varieties) on the Local Prices in Mangalore market (Based on weekly data)

Simple Regression Equations are of the type $Y = a + bZ$ where
 Y = local price (maximum, minimum or modal) of a specific variety,
 Z = terminal price of a specific variety
 Number of observations = 312 (September 1961 to August 1967)

Sr.No. of Equation	Dependent Variable - Local Price (in Rs. per quintal)	Independent Variable - Terminal Price (in Rs. per quintal)	Constant term	Regression coefficient (Standard error in parentheses)	% of Variance explained
	Y	Z	a	b	$r^2 \times 100$
1	Max. Price (New Supari)	Mangalore Moti	186.9688	0.603682** (0.051133)	42.82
2	"	Mangalore Vachras	183.1068	0.615755** (0.045191)	38.43
3	Min. Price (New Supari)	Mangalore Moti	161.3375	0.499264** (0.052360)	27.40
4	"	Mangalore Vachras	164.6334	0.499803** (0.047422)	23.66
5	Mod. Price (New Supari)	Mangalore Moti	166.8131	0.583389** (0.049044)	36.96
6	"	Mangalore Vachras	169.3890	0.585875** (0.043712)	32.11
7	Max. Price (Choll Supari)	Mangalore Choll	207.0596	0.604267** (0.053015)	45.15
8	Min. Price (Choll Supari)	Mangalore Choll	201.2889	0.534048** (0.056104)	35.96
9	Mod. Price (Choll Supari)	Mangalore Choll	206.5653	0.585871** (0.053501)	42.24

** Significant at one per cent level.

* Significant at five per cent level.

sales in the equation (Table 8.24). However, in a number of cases the regression coefficients of arrivals/sales become statistically significant. The maximum price of Rashi shows a positive relationship with arrivals/sales and the regression coefficients are significant statistically at 1 per cent level. The weekly arrivals/sales taken along with the terminal price of Motiapi, Dhapapi or Toapi while show a negative influence on the 'minimum' price of Rashi variety (equations 6, 7, 8, 21, 22 and 23, Table 8.24), the influence of weekly arrivals/sales along with the terminal price of Barada or Sirsi Safed is positive (equations 9, 10, 24 and 25). However, the regression coefficients of arrivals/sales are not statistically significant excepting in equations 6 and 21 where they are significant at 5 per cent level. The weekly arrivals/sales taken along with the terminal price of Motiapi show negative correlation with the 'modal' price and the regression coefficient of only sales is significant at 5 per cent level (equation 26). In the rest of the cases the 'modal' price shows a positive relationship with arrivals/sales. The positive regression coefficients are significant at 1 per cent level only when the arrivals/sales are taken along with the terminal price of Barada or Sirsi Safed (equations 14, 15, 29 and 30).

The 'maximum' and 'modal' prices of Tatti Bette show a positive correlation with both arrivals and sales, whereas the 'minimum' price shows a negative relationship. while

Table 8.24. Results of the Regression Analysis Showing the Extent of Influence of Local Arrivals/Sales (in Sirsi market) and Terminal Price (Bombay market, Sirsi varieties) on the Local Prices in Sirsi market (based on weekly data)

Multiple Regression Equations are of the type $Y = a + bX + cZ$ where

Y = local price (maximum, minimum or modal) of a specific variety,

X = local arrivals/sales and Z = Terminal price of a specific variety.

Sr.No. of equation	Number of observations = 312 (Sept. 1961 to August 1967)							
	Dependent Variable- Local Price (in Rs. per quintal)	Independent Variables		Constant term	Regression coefficients (Standard error in parentheses)			% of variance explained
	Y	Local arrivals/sales (in quintals)	Terminal Price (in Rs. per quintal)	a	b	c	R ² x 100	
1	Max.Price (Rashi)	Arrivals	Motiapi	52.6719	0.017014** (0.002557)	0.642262** (0.018637)	80.71	
2	"	"	Dhapapi	63.2212	0.024916** (0.002217)	0.784013** (0.019235)	85.35	
3	"	"	Toapi	85.2698	0.025006** (0.002403)	0.753597** (0.020371)	82.79	
4	"	"	Barada	-78.3107	0.034888** (0.002269)	1.087496** (0.027277)	84.79	
5	"	"	Sirsi Safed	68.9246	0.043223** (0.005481)	0.707644** (0.085972)	23.36	
6	Min.Price (Rashi)	"	Motiapi	84.3850	-0.014939* (0.006637)	0.575979** (0.048373)	31.61	
7	"	"	Dhapapi	70.2648	-0.007913 (0.006307)	0.744298** (0.054720)	37.60	
8	"	"	Toapi	86.0216	-0.007841 (0.006321)	0.724563** (0.053593)	37.32	
9	"	"	Barada	-77.6296	0.001756 (0.006258)	1.057339** (0.075217)	39.15	
10	"	"	Sirsi Safed	116.8812	0.007871 (0.008336)	0.605990** (0.130756)	6.72	
11	Mod.Price (Rashi)	"	Motiapi	110.0984	-0.003835 (0.002157)	0.552070** (0.015717)	80.01	
12	"	"	Dhapapi	111.7986	0.002938 (0.001643)	0.636786** (0.014255)	88.28	
13	"	"	Toapi	130.5457	0.003015 (0.001816)	0.661144** (0.015398)	85.68	
14	"	"	Barada	-19.0587	0.011776** (0.001525)	0.965304** (0.018328)	90.00	
15	"	"	Sirsi Safed	118.3901	0.018913** (0.004574)	0.617340** (0.073305)	18.85	
16	Max.Price (Rashi)	Sales	Motiapi	51.6783	0.017874** (0.002810)	0.641992** (0.018751)	80.50	
17	"	"	Dhapapi	58.9679	0.027647** (0.002405)	0.723167** (0.019106)	85.54	
18	"	"	Toapi	81.5774	0.027517** (0.002617)	0.754261** (0.020315)	82.88	
19	"	"	Barada	-82.2198	0.037958** (0.002485)	1.087173** (0.027354)	84.70	
20	"	"	Sirsi Safed	83.2431	0.045107** (0.005960)	0.679166** (0.085585)	22.34	

Continued/..

Table 8.24 - concluded

	Y	X	Z	a	b	c	R ² x 100
21	Min. Price (Rashi)	Sales	Motiapi	86.6638	-0.017649* (0.007244)	0.577641** (0.048339)	31.80
22	"	"	Dhapapi	71.7487	-0.008890 (0.006886)	0.743937** (0.054708)	37.62
23	"	"	Toapi	87.6597	-0.009024 (0.006901)	0.724381** (0.053576)	37.35
24	"	"	Barada	-76.3717	0.001112 (0.006834)	1.056469** (0.075220)	39.14
25	"	"	Sirsi Safed	127.3861	0.006369 (0.009009)	0.591430** (0.129388)	6.60
26	Mod. Price (Rashi)	"	Motiapi	111.1042	-0.005116* (0.002351)	0.552922** (0.015688)	80.12
27	"	"	Dhapapi	111.2586	0.003291 (0.001793)	0.686920** (0.014250)	88.28
28	"	"	Toapi	130.2726	0.003176 (0.001984)	0.661234** (0.015401)	85.67
29	"	"	Barada	-19.6859	0.012432** (0.001675)	0.964788** (0.018442)	89.87
30	"	"	Sirsi Safed	129.0954	0.018700** (0.005069)	0.599608** (0.072802)	18.15
31	Max. Price (Rashi)	Arrivals	Barada	10.4169	0.007465** (0.001445)	0.867299** (0.017370)	88.97
32	Min. Price (Tatti Bette)	"	"	10.5407	-0.001164 (0.001381)	0.835138** (0.016602)	89.24
33	Mod. Price (Tatti Bette)	"	"	8.240620	0.004911** (0.001224)	0.859863** (0.014724)	91.70
34	Max. Price (Tatti Bette)	Sales	"	10.3236	0.007146** (0.001585)	0.866794** (0.017448)	88.87
35	Min. Price (Tatti Bette)	"	"	10.0479	-0.000924 (0.001509)	0.835514** (0.016611)	89.23
36	Mod. Price (Tatti Bette)	"	"	8.0933	0.005122** (0.001340)	0.859581** (0.014751)	91.66
37	Max. Price (Kempu gotu)	Arrivals	Toapi	171.6368	-0.002706 (0.002085)	0.431727** (0.017682)	65.90
38	Min. Price (Kempu gotu)	"	"	144.7280	-0.010370** (0.002576)	0.461101** (0.021839)	59.82
39	Mod. Price (Kempu gotu)	"	"	178.3810	-0.006537* (0.002841)	0.420911** (0.024087)	50.06
40	Max. Price (Kempu gotu)	Sales	"	172.2774	-0.003177 (0.002276)	0.431669** (0.017673)	65.93
41	Min. Price (Kempu gotu)	"	"	146.5081	-0.011617** (0.002809)	0.460840** (0.021808)	59.93
42	Mod. Price (Kempu gotu)	"	"	180.1709	-0.007873* (0.003097)	0.420784** (0.024042)	50.24
43	Max. Price (Chaali)	"	Sirsi Safed	43.1631	0.004721 (0.008941)	0.812946** (0.140239)	10.66
44	Min. Price (Chaali)	Arrivals	"	35.3604	-0.011115* (0.004831)	0.762591** (0.075774)	31.96
45	Mod. Price (Chaali)	"	"	43.4889	0.001114 (0.004907)	0.787628** (0.076980)	28.03
46	Max. Price (Chaali)	Sales	"	68.0958	-0.000531 (0.009660)	0.782097** (0.138746)	10.58
47	Min. Price (Chaali)	"	"	44.4337	-0.014579** (0.005196)	0.754774** (0.074628)	32.51
48	Mod. Price (Chaali)	"	"	56.8461	-0.001871 (0.005300)	0.771477** (0.076118)	28.05

** Significant at one per cent level.

* Significant at five per cent level.

Table 8.24 - concluded

	Y	X	Z	a	b	c	R ² x 100
49	Max. Price (Bile gotu)	Arrivals	Sirsi Safed	31.0779	0.004128 (0.003126)	0.634605** (0.049043)	37.14
50	Min. Price (Bile gotu)	"	"	-53.6914	-0.007196* (0.003563)	0.724345** (0.055897)	42.06
51	Mod. Price (Bile gotu)	"	"	7.6611	0.003169 (0.003059)	0.682542** (0.047990)	42.09
52	Max. Price (Bile gotu)	Sales	"	38.2645	0.002948 (0.003382)	0.624978** (0.048577)	36.94
53	Min. Price (Bile gotu)	"	"	-50.6652	-0.008773* (0.003842)	0.722664** (0.055177)	42.27
54	Mod. Price (Bile gotu)	"	"	-0.5269	0.001886 (0.003308)	0.673231** (0.047515)	41.95

** Significant at one per cent level.

* Significant at five per cent level.

the positive regression coefficients are statistically significant at 1 per cent level, the negative regression coefficients are not.

The three prices of 'Kempu Gotu' exhibit negative correlation with both arrivals and sales and the regression coefficients are significant excepting in the case of 'maximum' price.

In the case of Chaali and Bile Gotu varieties the negative influence of arrivals/sales is seen only in the 'minimum' price.

Shimoga market : As observed in the case of Sirsi market the explanation offered by the terminal price does not improve much by the introduction of arrivals/sales in the equation (Table 8.25).

The 'maximum' price do not show statistically significant variation with the variations in either arrivals or sales in the case of all the varieties excepting in three instances. In all the equations the coefficients are negative. While the 'maximum' price of Saraku shows a significant negative relationship with arrivals (Equation 8), the 'maximum' price of Vanthi show such a relationship with sales (Equation 28). In both the cases the regression coefficients are significant at 1 per cent level. The 'maximum' price of Kadihasa show a negative correlation with arrivals/sales and the regression coefficients are significant at one per cent and five per cent level respectively (equations 1 and 4).

**Table 8.25. Results of the Regression Analysis Showing the Extent of Influence of Local Arrivals/
Sales (in Shimoga market) and Terminal Price (Bangalore market) on the local prices
in Shimoga market (Based on weekly data)**

Multiple Regression Equations are of the type $Y = a + bX + cZ$ where
 Y = local price (maximum, minimum or modal) of a specific variety
 X = local arrivals/sales and Z = terminal price of a specific variety
 Number of observations = 312 (September 1961 to August 1967)

Sr.No. of Equation	Dependent Variable (Rs. per quintal)	Independent Variables		Constant term a	Regression coeffi- cients (Standard error in paren- theses)		% of Vari- ance ex- plained $R^2 \times 100$
		Local Arrivals/ Sales (in quintals) X	Terminal Price (in Rs. per quintal) Z		b	c	
1	Max. Price (Kadihasa)	Arrivals	Null	-144.2015	-0.006598** (0.002161)	1.188148** (0.025556)	87.65
2	Min. Price (Kadihasa)	"	"	-216.5465	-0.004608* (0.002326)	1.190197** (0.027514)	85.95
3	Mod. Price (Kadihasa)	"	"	-173.7602	-0.006663** (0.002532)	1.179701** (0.029940)	83.60
4	Max. Price (Kadihasa)	Sales	"	-140.3556	-0.011981* (0.005290)	1.192425** (0.025686)	87.49
5	Min. Price (Kadihasa)	"	"	-212.9176	-0.009049 (0.005670)	1.193184** (0.027532)	85.89
6	Mod. Price (Kadihasa)	"	"	-168.8939	-0.012809* (0.006183)	1.184020** (0.030020)	83.47
7	Max. Price (Saraku)	Arrivals	"	-136.5742	-0.001740 (0.001895)	1.135710** (0.022410)	89.31
8	"	"	Rajalu	47.6262	-0.006095** (0.001488)	0.968698** (0.014704)	93.38
9	"	"	Bette	218.8477	-0.000453 (0.002725)	1.142490** (0.034677)	77.95
10	Min. Price (Saraku)	"	Null	79.4826	-0.008832** (0.002462)	0.674426** (0.029113)	64.46
11	"	"	Rajalu	178.5038	-0.011406** (0.002248)	0.588413** (0.022204)	70.28
12	"	"	Bette	277.6101	-0.007924** (0.002595)	0.703455** (0.033019)	60.60
13	Mod. Price (Saraku)	"	Null	-124.5463	-0.007411** (0.001964)	1.052635** (0.023227)	87.14
14	"	"	Rajalu	50.3796	-0.011453** (0.001729)	0.892495** (0.017082)	90.00
15	"	"	Bette	212.1968	-0.006300 (0.002784)	1.044771 (0.035422)	74.22
16	Max. Price (Saraku)	Sales	Null	-133.8878	-0.004367 (0.004608)	1.136836** (0.022374)	89.31
17	"	"	Rajalu	33.3202	0.003595 (0.003719)	0.959755** (0.015083)	93.05
18	"	"	Bette	219.2434	-0.000871 (0.006621)	1.142838** (0.034589)	77.95
19	Min. Price (Saraku)	"	Null	99.3191	-0.026643	0.680134	65.25
20	"	"	Rajalu	194.3045	-0.021827** (0.005649)	0.586510** (0.022568)	69.33
21	"	"	Bette	297.7328	-0.024473** (0.006245)	0.708748** (0.032627)	61.33

Continued/....

Table 8.25 - concluded

	Y	X	Z	a	b	c	R ² x 100
22	Mod. Price (Saraku)	Sales	Nuli	-386.4680	0.559018** (0.055007)	0.421558** (0.065856)	89.92
23	"	"	Rajalu	45.7476	-0.008167 (0.004479)	0.892460** (0.018166)	88.70
24	"	"	Bette	217.9591	-0.012285 (0.006783)	1.049593** (0.035435)	74.07
25	Max. Price (Vanthi)	Arrivals	Bette	158.0803	-0.001283 (0.002719)	0.799476** (0.034595)	63.55
26	Min. Price (Vanthi)	"	Bette	102.0218	0.000608 (0.002658)	0.832606** (0.033828)	66.31
27	Mod. Price (Vanthi)	"	Bette	129.3664	-0.000336 (0.002628)	0.817415** (0.033443)	66.05
28	Max. Price (Vanthi)	Sales	Bette	199.4770	-0.030687** (0.006372)	0.798049** (0.033292)	66.07
29	Min. Price (Vanthi)	"	Bette	143.7894	-0.028471** (0.006253)	0.829604** (0.032666)	68.43
30	Mod. Price (Vanthi)	"	Bette	169.5104	-0.028635** (0.006174)	0.815326** (0.032255)	68.26
31	Max. Price (Gorabalu)	Arrivals	Bette	110.1167	-0.000755 (0.001995)	0.466863** (0.025392)	52.46
32	Min. Price (Gorabalu)	"	Bette	137.1570	-0.001814 (0.002167)	0.350309** (0.027828)	34.33
33	Mod. Price (Gorabalu)	"	Bette	112.0165	-0.000448 (0.002119)	0.437109** (0.026961)	46.15
34	Max. Price (Gorabalu)	Sales	Bette	112.9008	-0.002940 (0.004846)	0.467316** (0.025318)	52.50
35	Min. Price (Gorabalu)	"	Bette	148.4134	-0.010263 (0.005287)	0.351123** (0.027620)	34.98
36	Mod. Price (Gorabalu)	"	Bette	122.2178	-0.007735 (0.005129)	0.436866** (0.026796)	46.54

** Significant at one per cent level.

* Significant at five per cent level.

The influence (negative) of sales appear to be more pronounced on the 'minimum' prices than the arrivals in the case of Saraku, Kadihasa and Vanthi varieties. The 'minimum' price of only Vanthi variety show a positive correlation with arrivals. All the negative coefficients are statistically significant.

The 'modal' price of all the varieties is negatively correlated with both arrivals and sales. The regression coefficients are significant in all the cases excepting in the case of Vanthi and Gorabalu. It is only in the case of Gorabalu variety even though all the three prices - 'maximum', 'minimum' and 'modal' - show a negative correlation with both arrivals and sales the regression coefficients are not significant. Further, the variations in the price of this variety explained by the terminal price is also very small.

Mangalore market : As observed in the case of Sirsi and Shimoga markets in a number of cases the regression coefficient of the variables arrivals/sales become significant when taken together with terminal price, while independently they are not (Table 8.26). However, it may be pointed out that the total explanation offered by the arrivals/sales and terminal price in the local market price is itself quite small compared with the other two markets.

The prices of New Supari and Choll Supari exhibit a positive correlation with both arrivals and sales. In the case of New Supari only the relationship between 'maximum'

Table 8.26. Results of the Regression Analysis Showing the Extent of Influence of Local Arrivals/Sales (in Mangalore market) and Terminal Price (Bombay market - Mangalore Varieties) on the Local Prices in Mangalore market (Based on weekly data)

Multiple Regression Equations are of the type $Y = a + bX + cZ$ where

Y = Local price (maximum, minimum or modal) of a specific variety

X = Local arrivals/sales and Z = terminal price of a specific variety

Number of observations = 312 (September 1961 to August 1967)

Sr.No. of Equation	Dependent Variable - Local Price (in Rs. per quintal)	Independent Variables		Constant term	Regression Coefficients (Standard error in parentheses)		% of variance explained
		Local Arrivals/Sales (in quintals)	Terminal Price (in Rs. per quintal)		b	c	
	Y	X	Z	a	b	c	R ² x 100
1	Max. Price (New Supari)	Arrivals	Mangalore Moti	161.9965	0.004210* (0.001845)	0.619729** (0.039978)	43.77
2	"	"	Mangalore Vachras	154.8842	0.004427* (0.001921)	0.635669** (0.044849)	39.42
3	Min.*Price (New Supari)	"	Mangalore Moti	158.5748	0.000465 (0.002167)	0.501039** (0.046962)	27.41
4	"	"	Mangalore Vachras	161.1663	0.000544 (0.002230)	0.502247** (0.052050)	23.67
5	Mod. Price (New Supari)	"	Mangalore Moti	148.4427	0.003097 (0.002024)	0.595194** (0.043862)	37.44
6	"	"	Mangalore Vachras	148.8511	0.003221 (0.002107)	0.600367** (0.049197)	32.62
7	Max. Price (New Supari)	Sales	Mangalore Moti	143.7502	0.007879** (0.002348)	0.628847** (0.039697)	44.83
8	"	"	Mangalore Vachras	134.6813	0.008246** (0.002447)	0.647021** (0.044568)	40.56
9	Min. Price (New Supari)	"	Mangalore Moti	127.5931	0.006152* (0.002763)	0.518913** (0.046709)	28.54
10	"	"	Mangalore Vachras	127.4077	0.006339* (0.002845)	0.523835** (0.051809)	24.86
11	Mod. Price (New Supari)	"	Mangalore Moti	127.6713	0.007136** (0.002579)	0.606181** (0.043600)	38.48
12	"	"	Mangalore Vachras	126.0674	0.007377** (0.002688)	0.613947** (0.048950)	33.73
13	Max. Price (Choll Supari)	Arrivals	Mangalore Choll	205.5531	0.003245* (0.001534)	0.592282** (0.038043)	45.93
14	Min. Price (Choll Supari)	"	"	198.4927	0.006024** (0.001617)	0.511802** (0.040106)	38.72
15	Mod. Price (Choll Supari)	"	"	204.3956	0.004675** (0.001567)	0.568610** (0.038858)	43.85
16	Max. Price (Choll Supari)	Sales	"	206.1344	0.000430 (0.001964)	0.603638** (0.037996)	45.16
17	Min. Price (Choll Supari)	"	"	191.5896	0.004510* (0.002086)	0.527452** (0.040351)	36.92
18	Mod. Price (Choll Supari)	"	"	202.5412	0.001871 (0.002017)	0.583135** (0.039031)	42.40

** Significant at one percent level.

* Significant at five percent level.

price and arrivals is statistically significant. All the three prices show a positive correlation with sales and the regression coefficients are significant at 5 per cent level.

The positive correlation of the price of Choll Supari with arrivals is statistically significant. Only the 'minimum' price shows a statistically significant relation with sales.

The above statistical analysis of the influence of weekly arrivals, sales and terminal price on the prices in the local markets suggests certain important conclusions.

Firstly, the terminal price exerts a dominant influence on the prices in the primary markets, particularly when the two prices relate to a closely comparable variety and when the quality differences within the variety are at the minimum. This dominating influence of the terminal price emerges from the fact that almost the entire quantity of arecanut traded in these primary markets are exported and the terminal markets considered here receive a great bulk of the produce. Prices in the terminal markets are therefore of a prime importance for these markets. The low correlation between Bombay and Mangalore market is possibly because of a greater direct contact of the traders in Mangalore market with other terminal and consuming centres.

A second and more interesting conclusion suggested by the above analysis is the extent and type of influence

exerted by the arrivals/sales on the prices. From the above analysis there emerges evidences of price effects that seem legitimately attributable to the variations in the rate of marketing in the primary markets. The effects are so small they are barely within the powers of the present analysis to detect. Nevertheless, though small these effects, the extent and type of the influence exerted by the variations in marketing on the price is of importance particularly in the context of these three regulated markets with different patterns of arrivals and sales and market structure.

We have seen in Chapter VII that both arrivals and sales exhibit seasonal fluctuations with varying magnitude in these markets. The extent of seasonal fluctuation in arrivals and sales in these markets can be clearly seen from Table 8.27 giving the monthly arrivals and sales as per cent of annual totals (average for September 1961 to August 1967). Around 80 per cent of the annual arrivals and sales in Sirsi market is during the six months December to May, whereas in Shimoga market though the arrivals show a heavy seasonality the sales are almost evenly regulated. While more than 88 per cent of the annual arrivals in Shimoga market is during the six months November to April, only about 55 per cent of the annual sales are carried out during this period. In Mangalore market the arrivals during the six months December to May is around 70 per cent.

Table 8.27. Monthly Arrivals and Sales as per cent of Annual Totals
 (Average for six years, 1961-62 to 1966-67)
 Sirsi, Shimoga and Mangalore Markets

Months	Sirsi		Shimoga		Mangalore	
	Arri- vals	Sales	Arri- vals	Sales	Arri- vals	Sales
September	1.12	2.07	1.72	6.07	3.66	4.94
October	2.37	3.61	5.30	7.05	5.18	6.72
November	3.96	4.98	12.00	10.30	6.50	6.74
December	12.77	12.70	16.37	10.34	8.16	8.23
January	17.36	16.35	17.64	8.09	12.50	11.02
February	16.23	15.00	23.06	10.59	12.70	11.43
March	15.07	14.03	13.97	8.98	14.46	10.14
April	12.20	11.47	5.42	7.28	11.66	9.11
May	9.76	8.55	2.36	9.97	11.06	10.07
June	5.62	5.25	1.10	7.06	7.07	9.46
July	1.92	2.90	0.44	6.89	3.83	6.92
August	1.62	3.09	0.62	7.38	3.22	5.22

while the sales are 60 per cent. Though the arrivals and sales show a great variation in these markets their influence on the prices in these market is not felt. The forces operating against the depressing influence of arrivals/sales on the price in these markets are obviously different. In Sirsi market the trading operations of the cooperative marketing society has largely counteracted the negative influence of arrivals/sales on prices which has possibly resulted in a positive influence of arrivals/sales on the prices. Whereas in Shimoga market the sellers themselves try to regulate the supply by manipulating the quantity sold. The small or negligible influence of arrivals on the prices is largely an outcome of the regulated sales.

A similar situation can be observed in the case of Mangalore market. The seasonality in arrivals though is slightly greater than in sales, both show a much smaller fluctuation compared with the other two markets. The negative influence of arrivals/sales on the price is largely counteracted firstly by adjusting the 'arrivals' itself and secondly through the quantity sold. The more of evenness in the rate of arrivals is possibly because the small traders account for a considerable proportion of the sellers in the market, who are in the better know of the market conditions. The pattern of arrivals in the market is largely induced by the prevailing prices rather than the timing of production. This can be seen from the pattern

of arrivals and sales when considered separately for the cooperative marketing society and the private commission agents. As observed in Chapter VII, the arrivals into the cooperative society is concentrated in a few months than for the rest of the market. The sellers through the society are the producers of the crop and as such the produce flows into the market as and when it is ready. The lower concentration in the arrivals for the rest of the commission agents is because of the presence of the traders among the sellers.

Thus to conclude :

(i) The weekly wholesale prices of arecanut in the various primary and terminal markets exhibit a persistent seasonal pattern in their movement. The seasonal pattern in the movement of the prices between years does not deviate largely, though the magnitude of seasonal fluctuation in the prices varies between years. The analysis of the seasonality in prices further reveals that the seasonal price pattern in any one year is similar in these various markets.

(ii) The range of fluctuation in the prices, as revealed by the seasonal indices, shows that the fluctuation in the prices over the season is higher in the case of the inferior variety nuts; and within a variety the 'minimum' price exhibits the largest fluctuation. All the markets experience a moderate or excessive price rise in the off season simultaneously.

(iii) The weekly prices in the various markets exhibit a high correlation. The prices of the superior variety nuts show a high correlation whereas the correlation between superior and inferior varieties, and between inferior varieties was rather low.

(iv) The rise in price during the marketing season was generally higher than the rise necessitated by costs of storing the produce for the requisite period after harvest. While the returns to storage for farmers were positive and considerable in the case of Shimoga and Mangalore markets, they were uncertain and fluctuating in the case of Sirsi market. It appears from the analysis that in the case of Sirsi market because of the trading operations of the cooperative society and the uncertain and fluctuating positive returns to storage the postponement of sales by the farmers was prevalent to any appreciable extent. The pattern of sales over the season in the case of Mangalore and Shimoga markets clearly show that the sellers by and large took advantage of the seasonal rise in price and runs counter to the generally held view that the farmers fail to take advantage of the seasonal rise in prices.

(v) The price in the regulated markets are mainly determined by the terminal price. The quality of the produce affects appreciably the influence of the terminal price. This is evidenced by the low correlation between the terminal price and the price of the inferior quality

nuts in the primary market.

(vi) In spite of a high seasonality the influence of arrivals/sales on the local price is not felt to any appreciable extent. Possible explanations of the small or negligible influence of the rate of marketing on prices may be offered tentatively. The mechanism through which the depressing influence of the rate of marketing on prices is arrested is different in these markets - different because of the structure of these markets.

In Sirsi market the cooperative marketing society through its buying operations counteracts the depressing influence of arrivals/sales on the prices. While in Shimoga market the producers (sellers) by regulating the sales try to achieve it. In Mangalore market the negative influence of arrivals/sales is largely counteracted firstly, by adjusting the arrivals and secondly, through the quantity sold. These explanations are tentative and merit further investigation.

As almost the entire quantity of arecanut traded in these primary markets are exported to the terminal markets, the prices in these terminal markets are of prime importance for these markets. Hence, the influences operating in the terminal markets tend to affect largely the course of price in the primary markets. Thus the seasonality in the price in the local markets is largely a function of the terminal price rather than the rate of marketing in the primary markets.

Table A8.1. Index of Seasonal Variation in Arecanut Prices, 1961-62 to 1966-67 - Sirsi Market

		Sept.	Oct.	Nov.	Dec.	Jan.	Feb.		
Variety 1 - Rashi									
Maximum Price	1962-63	96.28	97.38	<u>93.24</u>	96.15	104.45	105.68		
	1963-64	<u>94.94</u>	97.66	<u>115.65</u>	110.26	110.92	98.13		
	1964-65	92.30	87.28	<u>83.03</u>	83.32	<u>119.15</u>	116.63		
	1965-66	90.09	94.87	102.54	110.15	97.60	102.17		
	Average (1961-62 to 1966-67)	92.34	93.49	97.04	96.67	106.98	108.93		
Minimum Price	1962-63	100.26	100.31	96.74	91.09	97.08	97.46		
	1963-64	101.22	102.95	105.90	99.63	99.84	97.16		
	1964-65	96.90	90.79	<u>88.57</u>	93.19	108.73	106.02		
	1965-66	93.30	102.78	104.19	96.53	<u>89.58</u>	91.88		
	Average (1961-62 to 1966-67)	97.97	98.94	97.95	<u>94.02</u>	97.48	98.64		
Modal Price	1962-63	99.19	100.82	96.98	<u>94.56</u>	99.57	98.85		
	1963-64	97.13	101.07	<u>115.19</u>	104.83	102.84	94.46		
	1964-65	97.33	92.80	<u>83.27</u>	90.17	<u>111.64</u>	106.27		
	1965-66	95.51	100.39	<u>105.99</u>	100.23	<u>89.98</u>	93.86		
	Average (1961-62 to 1966-67)	96.95	98.51	101.01	<u>96.37</u>	99.75	98.97		

		March	April	May	June	July	Aug.	Mean deviation	Peak as % of trough
Maximum Price	1962-63	102.96	102.69	<u>108.67</u>	100.58	96.91	95.01	4.17	116.55
	1963-64	93.28	88.70	96.16	96.00	98.96	99.34	6.14	121.81
	1964-65	113.84	115.36	101.38	99.52	92.32	95.93	11.06	143.50
	1965-66	103.72	103.05	<u>104.27</u>	102.76	100.62	97.16	3.38	115.74
	Average (1961-62 to 1966-67)	104.15	103.56	102.85	99.50	97.62	96.77	4.41	117.97
Minimum Price	1962-63	98.53	100.06	105.28	105.78	<u>105.14</u>	102.27	3.38	116.13
	1963-64	95.87	94.47	102.46	98.54	101.61	100.35	2.42	108.46
	1964-65	107.19	<u>112.80</u>	103.64	96.64	96.96	98.57	6.40	127.36
	1965-66	98.14	102.24	105.21	105.06	<u>105.75</u>	105.34	5.10	118.05
	Average (1961-62 to 1966-67)	100.06	103.34	105.09	101.93	102.79	101.79	2.50	111.77
Modal Price	1962-63	98.00	100.05	<u>106.82</u>	104.27	101.50	99.39	2.24	112.97
	1963-64	<u>92.77</u>	91.49	98.76	98.36	100.11	102.99	4.51	124.17
	1964-65	105.10	111.62	103.95	95.84	94.12	101.89	6.75	125.06
	1965-66	98.20	100.42	104.21	103.81	104.69	103.31	3.84	117.79
	Average (1961-62 to 1966-67)	99.29	102.34	<u>104.22</u>	100.81	100.45	101.33	1.69	108.15

Continued/....

Table A8.1 - continued

		Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March
Variety 2 - Tatti Sette								
Maximum Price	1962-63	98.52	101.02	97.33	<u>90.22</u>	97.71	98.24	99.51
	1963-64	101.26	100.99	102.47	101.46	102.99	98.69	97.55
	1964-65	95.78	92.61	<u>88.60</u>	100.83	106.99	103.46	102.46
	1965-66	96.94	103.48	102.56	94.25	<u>89.43</u>	92.76	98.86
	Average (1961-62 to 1966-67)	97.71	98.95	96.50	<u>95.29</u>	98.27	98.87	99.62
Minimum Price	1962-63	101.06	104.57	100.37	<u>86.75</u>	94.35	94.82	95.20
	1963-64	104.44	104.99	98.83	98.29	99.07	95.52	<u>94.58</u>
	1964-65	98.49	94.04	91.49	101.80	<u>104.98</u>	100.21	100.14
	1965-66	100.64	106.75	102.88	93.23	<u>86.86</u>	91.27	96.48
	Average (1961-62 to 1966-67)	100.87	102.03	97.31	<u>93.84</u>	<u>95.58</u>	96.06	97.14
Modal Price	1962-63	99.87	102.25	99.34	<u>90.36</u>	96.57	96.99	98.35
	1963-64	102.33	102.08	101.72	100.73	101.66	97.57	<u>95.27</u>
	1964-65	96.87	93.73	<u>90.35</u>	101.29	<u>107.39</u>	102.82	100.68
	1965-66	98.40	104.48	102.55	94.33	<u>88.43</u>	92.21	97.86
	Average (1961-62 to 1966-67)	99.02	100.12	97.19	95.28	97.87	98.06	98.27
		April	May	June	July	August	Mean devia- tion	Peak as % of trough
Maximum Price	1962-63	101.27	107.68	102.79	104.58	101.13	3.08	119.35
	1963-64	<u>94.60</u>	<u>102.67</u>	97.35	101.45	99.42	2.07	108.53
	1964-65	<u>107.92</u>	101.23	99.59	97.99	102.74	4.24	121.81
	1965-66	102.04	104.84	104.14	104.47	<u>106.23</u>	4.63	118.79
	Average (1961-62 to 1966-67)	102.44	<u>105.06</u>	100.97	102.24	104.08	2.47	110.25
Minimum Price	1962-63	97.36	105.07	103.76	107.06	<u>109.63</u>	5.25	126.37
	1963-64	96.19	<u>104.60</u>	99.05	102.92	101.42	3.06	110.59
	1964-65	103.83	99.31	100.20	101.72	103.79	2.76	114.74
	1965-66	100.68	100.64	105.02	106.85	<u>108.70</u>	5.36	125.14
	Average (1961-62 to 1966-67)	101.05	102.51	102.73	105.03	<u>105.85</u>	3.35	112.80
Modal Price	1962-63	99.35	<u>105.79</u>	104.03	105.40	101.70	3.20	117.08
	1963-64	95.61	<u>102.88</u>	97.94	102.18	100.03	2.27	107.99
	1964-65	105.30	99.97	98.94	98.89	103.77	3.54	118.86
	1965-66	101.15	105.12	103.62	105.07	<u>106.78</u>	4.80	120.75
	Average (1961-62 to 1966-67)	101.47	<u>104.89</u>	101.69	103.12	103.02	2.39	110.09

Continued/....

Table A8.1 - continued

		Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March
Variety 3 - Kempu gotu								
Maximum Price	1962-63	99.80	102.40	92.55	<u>86.42</u>	100.58	100.70	100.07
	1963-64	100.42	102.86	97.61	99.87	98.26	<u>95.26</u>	96.21
	1964-65	100.20	96.57	95.11	<u>93.03</u>	100.59	97.50	99.70
	1965-66	92.93	94.74	<u>89.02</u>	95.26	93.01	94.25	105.09
	Average (1961-62 to 1966-67)	99.14	100.03	91.02	90.83	97.49	98.21	100.32
Minimum Price	1962-63	103.14	102.95	90.99	88.98	93.63	98.95	99.81
	1963-64	104.94	103.77	92.81	94.69	93.47	95.92	96.88
	1964-65	102.65	97.59	97.73	<u>92.68</u>	95.67	94.42	99.70
	1965-66	94.87	96.82	<u>89.82</u>	93.20	89.13	91.39	103.00
	Average (1961-62 to 1966-67)	102.17	101.24	89.89	<u>87.34</u>	92.08	95.33	99.86
Modal Price	1962-63	99.76	101.25	<u>87.12</u>	91.60	95.56	95.42	95.75
	1963-64	101.56	102.16	93.29	100.08	99.62	98.87	97.11
	1964-65	99.45	97.13	95.80	<u>94.07</u>	99.10	94.12	99.17
	1965-66	94.00	95.59	<u>89.12</u>	95.37	91.68	94.47	104.40
	Average (1961-62 to 1966-67)	99.80	100.10	89.21	<u>89.20</u>	95.23	101.14	99.53
		April	May	June	July	August	Mean devia- tion	Peak as % of trough
Maximum Price	1962-63	100.99	100.94	<u>107.86</u>	103.73	103.96	3.54	124.81
	1963-64	96.32	100.18	102.33	<u>106.57</u>	104.11	2.75	111.87
	1964-65	<u>110.06</u>	105.63	102.83	99.87	98.90	3.22	118.31
	1965-66	106.75	106.33	105.41	107.19	<u>109.32</u>	6.68	122.80
	Average (1961-62 to 1966-67)	104.36	<u>106.29</u>	104.48	104.07	103.76	3.89	117.02
Minimum Price	1962-63	101.06	101.01	102.36	<u>109.97</u>	107.15	4.61	123.59
	1963-64	98.18	101.71	103.70	<u>108.84</u>	105.09	4.68	117.27
	1964-65	<u>110.26</u>	103.21	102.38	102.66	101.05	3.70	118.97
	1965-66	105.48	106.62	107.11	110.23	<u>112.33</u>	7.46	125.06
	Average (1961-62 to 1966-67)	104.48	106.72	106.36	<u>107.66</u>	106.87	5.92	123.27
Modal Price	1962-63	107.70	<u>119.30</u>	103.67	101.25	101.62	5.80	136.94
	1963-64	97.63	103.31	102.67	<u>105.36</u>	104.34	2.75	112.94
	1964-65	<u>108.43</u>	107.01	104.53	101.17	100.02	3.53	115.27
	1965-66	105.84	106.76	104.34	107.82	<u>110.54</u>	6.63	124.04
	Average (1961-62 to 1966-67)	105.13	<u>108.61</u>	103.93	103.94	104.18	4.51	121.76

Continued/....

Table A8.1 - continued

		Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March
Variety 4 - Chaali								
Maximum Price	1962-63	100.88	99.89	95.32	<u>93.53</u>	96.93	97.31	96.86
	1963-64	93.52	100.27	99.76	98.65	95.49	93.72	<u>92.76</u>
	1964-65	99.79	90.84	<u>87.88</u>	94.47	96.57	91.58	96.89
	1965-66	100.07	102.52	88.58	<u>83.28</u>	92.56	98.09	106.77
	Average (1961-62 to 1966-67)	99.59	100.85	93.25	87.48	95.64	97.98	97.95
Minimum Price	1962-63	106.66	104.71	103.25	93.00	<u>81.33</u>	89.04	95.37
	1963-64	106.07	101.72	100.42	96.59	88.38	86.58	<u>86.46</u>
	1964-65	109.52	93.81	89.86	<u>85.52</u>	87.38	88.77	97.39
	1965-66	100.26	106.36	93.16	80.83	<u>78.87</u>	91.09	104.53
	Average (1961-62 to 1966-67)	104.63	103.13	94.70	84.01	84.78	89.57	94.58
Modal Price	1962-63	106.94	105.92	97.53	<u>83.61</u>	96.05	94.15	94.85
	1963-64	96.29	102.51	99.56	95.18	92.97	<u>91.68</u>	91.98
	1964-65	103.53	93.85	90.25	94.69	93.62	<u>87.34</u>	93.51
	1965-66	104.93	103.07	89.85	<u>84.99</u>	88.82	<u>95.29</u>	103.71
	Average (1961-62 to 1966-67)	100.94	101.55	94.04	<u>87.65</u>	93.47	94.02	95.68
		April	May	June	July	August	Mean deviation	Peak as % of trough
Maximum Price	1962-63	99.86	106.81	<u>107.62</u>	105.83	99.16	3.11	115.06
	1963-64	96.47	102.25	106.40	<u>111.06</u>	109.65	4.94	119.73
	1964-65	105.65	106.80	110.83	107.38	<u>111.32</u>	6.99	126.67
	1965-66	<u>109.55</u>	108.29	106.02	105.01	99.26	6.37	131.54
	Average (1961-62 to 1966-67)	97.56	107.50	107.83	<u>108.56</u>	105.81	5.09	124.10
Minimum Price	1962-63	99.26	106.60	<u>108.23</u>	106.67	105.88	7.00	133.07
	1963-64	98.32	100.68	109.36	108.30	<u>117.07</u>	7.27	135.40
	1964-65	107.37	105.79	103.73	113.44	<u>117.36</u>	9.54	137.23
	1965-66	109.21	<u>109.50</u>	107.35	108.38	102.46	9.34	138.84
	Average (1961-62 to 1966-67)	103.19	107.10	110.57	<u>112.86</u>	110.88	8.73	134.34
Modal Price	1962-63	99.73	102.88	<u>108.52</u>	107.99	101.88	5.69	129.95
	1963-64	94.54	103.04	107.49	112.39	<u>112.31</u>	6.30	122.59
	1964-65	103.91	106.03	111.55	109.02	<u>112.67</u>	7.79	129.00
	1965-66	<u>110.56</u>	107.90	106.18	105.72	98.98	7.02	130.09
	Average (1961-62 to 1966-67)	101.75	106.85	108.32	<u>108.97</u>	106.75	5.86	124.32

Continued/....

Table A8.1 - concluded

		Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March
Variety 5 - Bile gotu								
Maximum Price	1962-63	103.60	102.84	85.87	<u>80.10</u>	88.32	98.31	102.93
	1963-64	98.64	98.72	89.03	<u>80.17</u>	89.42	99.48	102.00
	1964-65	97.77	85.85	89.66	<u>84.31</u>	94.83	96.34	104.13
	1965-66	97.38	100.42	94.00	<u>80.87</u>	83.12	96.95	106.50
	Average (1961-62 to 1966-67)	97.55	98.74	85.29	<u>84.92</u>	87.34	95.62	102.27
Minimum Price	1962-63	112.84	113.89	86.68	75.98	<u>71.96</u>	79.92	95.04
	1963-64	104.68	110.36	85.46	<u>80.17</u>	82.41	80.65	86.57
	1964-65	105.40	80.57	<u>80.37</u>	86.28	88.48	88.53	101.09
	1965-66	102.89	102.47	98.88	<u>78.74</u>	80.48	92.14	105.95
	Average (1961-62 to 1966-67)	104.28	102.71	86.33	<u>72.73</u>	77.37	85.68	99.47
Modal Price	1962-63	106.26	108.33	81.97	<u>79.71</u>	83.79	91.70	96.61
	1963-64	100.69	99.60	86.91	<u>81.69</u>	85.19	89.68	91.83
	1964-65	99.48	83.71	<u>79.93</u>	86.87	93.43	93.23	107.05
	1965-66	98.32	99.76	95.39	<u>80.95</u>	82.43	97.42	105.43
	Average (1961-62 to 1966-67)	99.12	98.47	86.47	<u>80.79</u>	86.36	93.38	100.21
		April	May	June	July	August	Mean deviation	Peak as % of trough
Maximum Price	1962-63	108.78	105.14	<u>110.96</u>	108.63	104.52	7.90	138.53
	1963-64	96.88	108.47	<u>115.66</u>	110.62	110.91	7.94	144.27
	1964-65	103.44	111.65	<u>112.37</u>	107.46	112.19	8.54	133.28
	1965-66	<u>113.66</u>	111.75	108.60	107.15	99.60	8.01	140.55
	Average (1961-62 to 1966-67)	107.94	112.18	<u>112.53</u>	106.64	108.98	8.42	132.51
Minimum Price	1962-63	99.61	<u>119.39</u>	113.30	118.01	113.38	15.13	165.91
	1963-64	96.87	112.05	120.72	<u>129.77</u>	110.29	14.65	161.87
	1964-65	108.87	111.27	116.04	113.82	<u>119.28</u>	12.63	148.41
	1965-66	101.83	<u>112.77</u>	110.85	110.09	102.91	8.29	143.22
	Average (1961-62 to 1966-67)	107.52	113.97	116.42	<u>118.17</u>	115.35	13.07	162.48
Modal Price	1962-63	106.51	108.89	<u>116.79</u>	111.70	107.74	11.04	146.52
	1963-64	97.43	108.80	115.34	<u>121.51</u>	121.26	11.27	148.75
	1964-65	112.34	110.34	113.21	107.62	<u>113.79</u>	10.64	142.36
	1965-66	111.45	<u>112.15</u>	109.25	107.81	99.64	7.68	138.54
	Average (1961-62 to 1966-67)	107.28	112.62	112.64	<u>112.73</u>	109.93	9.84	139.53

Table A8.2. Index of Seasonal Variation in Arecanut Prices, 1961-62 to 1966-67 - Mangalore Market

		Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March
Variety 1 - New Supari								
Maximum Price	1962-63	106.58	85.06	82.48	<u>82.01</u>	102.62	104.19	100.10
	1963-64	92.34	<u>89.82</u>	100.23	98.06	99.56	100.73	97.64
	1964-65	94.11	<u>91.87</u>	98.07	92.46	92.86	90.87	97.51
	1965-66	105.81	91.33	87.58	<u>86.92</u>	93.15	97.02	106.57
	Average (1961-62 to 1966-67)	98.27	89.65	91.28	89.97	96.59	99.82	101.23
Minimum Price	1962-63	114.81	83.47	76.98	<u>72.38</u>	91.04	101.95	99.08
	1963-64	96.42	<u>84.89</u>	93.05	91.19	91.42	97.25	97.23
	1964-65	98.88	97.24	93.64	<u>84.80</u>	93.37	90.82	99.37
	1965-66	105.72	100.26	86.20	<u>76.96</u>	88.76	96.17	106.65
	Average (1961-62 to 1966-67)	100.90	88.50	86.68	81.92	90.84	98.41	100.70
Modal Price	1962-63	111.28	84.42	79.98	<u>78.00</u>	97.85	100.64	100.70
	1963-64	95.34	<u>89.47</u>	97.07	95.13	93.77	97.01	98.58
	1964-65	97.00	89.65	89.72	<u>84.99</u>	93.81	94.00	101.25
	1965-66	107.47	92.96	85.36	<u>85.18</u>	92.23	97.49	108.93
	Average (1961-62 to 1966-67)	99.80	89.33	87.76	86.52	94.29	99.09	102.88
		April	May	June	July	Aug.	Mean Devia- tion	Peak as % of trough
Maximum Price	1962-63	101.72	<u>110.61</u>	108.61	108.07	107.95	8.41	134.87
	1963-64	98.73	101.03	102.96	107.73	<u>111.17</u>	3.98	123.77
	1964-65	104.50	102.41	111.23	<u>113.33</u>	109.78	6.88	123.36
	1965-66	108.51	106.35	106.47	<u>110.34</u>	99.95	7.26	126.94
	Average (1961-62 to 1966-67)	103.12	103.73	107.98	<u>110.39</u>	107.97	5.74	123.13
Minimum Price	1962-63	105.97	112.63	<u>115.08</u>	112.61	113.98	12.84	158.99
	1963-64	99.84	106.17	111.57	<u>116.04</u>	114.93	8.12	136.69
	1964-65	107.59	104.57	<u>116.40</u>	116.33	106.99	8.65	137.26
	1965-66	110.08	110.90	<u>112.50</u>	110.55	95.25	9.44	146.18
	Average (1961-62 to 1966-67)	104.99	107.55	114.29	<u>114.68</u>	110.54	8.94	139.99
Modal Price	1962-63	103.92	<u>113.23</u>	111.20	108.76	110.02	9.96	145.17
	1963-64	97.45	102.77	107.42	112.21	<u>113.78</u>	6.03	127.17
	1964-65	106.51	104.28	113.33	<u>114.45</u>	111.01	8.47	134.66
	1965-66	<u>112.79</u>	108.55	108.96	104.69	95.39	8.57	132.41
	Average (1961-62 to 1966-67)	104.45	105.58	110.56	<u>111.09</u>	108.65	7.20	128.40

Continued/..

Table A8.2 - concluded

		Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March
Variety 2 - Choll Supari								
Maximum Price	1962-63	101.08	102.59	97.55	<u>90.96</u>	102.67	<u>111.29</u>	103.44
	1963-64	<u>94.19</u>	100.94	106.68	107.27	<u>108.96</u>	104.36	99.15
	1964-65	101.45	104.28	104.24	100.43	99.50	95.71	97.65
	1965-66	<u>98.58</u>	100.86	101.83	101.58	102.87	105.24	<u>106.37</u>
	Average (1961-62 to 1966-67)	<u>98.53</u>	102.46	102.31	100.58	103.68	<u>105.29</u>	101.37
Minimum Price	1962-63	98.47	98.87	95.32	<u>85.95</u>	97.25	<u>112.88</u>	105.08
	1963-64	<u>89.54</u>	95.53	102.05	107.15	109.61	108.26	102.29
	1964-65	100.53	103.25	104.37	100.64	98.64	<u>95.48</u>	98.61
	1965-66	<u>92.24</u>	95.07	99.07	98.88	98.00	102.77	<u>108.49</u>
	Average (1961-62 to 1966-67)	<u>94.13</u>	97.56	99.59	98.24	101.43	105.73	103.53
Modal Price	1962-63	101.15	101.72	97.05	<u>90.75</u>	100.09	<u>111.47</u>	104.66
	1963-64	<u>93.14</u>	100.13	107.69	106.69	<u>106.98</u>	104.63	100.26
	1964-65	100.47	103.25	101.76	<u>97.97</u>	100.70	96.43	<u>105.41</u>
	1965-66	<u>96.86</u>	101.40	102.00	101.78	102.77	104.73	105.99
	Average (1961-62 to 1966-67)	97.02	101.42	101.64	99.90	102.97	<u>105.56</u>	103.71
		April	May	June	July	Aug.	Mean Deviation	Peak as % of trough
Maximum Price	1962-63	104.26	107.25	92.80	92.89	93.22	5.43	122.35
	1963-64	102.14	97.92	96.73	95.32	86.34	5.06	115.68
	1964-65	100.54	<u>93.85</u>	98.95	<u>103.05</u>	100.35	2.39	109.80
	1965-66	102.62	98.02	97.61	98.27	86.15	3.56	107.90
	Average (1961-62 to 1966-67)	100.84	97.55	96.31	97.62	93.46	2.76	106.86
Minimum Price	1962-63	105.89	110.03	101.03	100.26	88.97	5.86	131.33
	1963-64	107.18	101.46	100.28	93.36	83.22	6.38	122.41
	1964-65	102.95	99.06	<u>105.01</u>	99.52	91.94	8.79	109.98
	1965-66	104.67	101.87	101.93	101.77	95.24	3.58	117.62
	Average (1961-62 to 1966-67)	103.29	100.71	101.91	100.30	93.58	2.82	112.32
Modal Price	1962-63	105.15	107.64	94.64	94.57	91.31	5.30	122.83
	1963-64	102.54	99.21	97.16	27.74	83.83	4.82	114.86
	1964-65	100.59	95.73	98.28	101.18	98.23	2.23	107.59
	1965-66	101.62	97.80	97.92	98.63	88.50	3.38	109.43
	\pm Average (1961-62 to 1966-67)	101.21	98.13	96.66	98.55	93.23	8.75	108.80

Table A8.3. Index of Seasonal Variation in Arecanut Prices, 1961-62 to 1966-67, Shimoga Market

		Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March
Variety 1 - Saraku								
Maximum Price	1962-63	98.39	101.94	100.84	94.21	99.06	99.19	98.27
	1963-64	106.05	101.22	102.03	100.59	99.52	98.99	98.13
	1964-65	99.36	99.22	100.21	99.03	102.88	98.69	<u>94.40</u>
	1965-66	104.27	101.73	102.82	98.23	96.48	96.03	94.85
	Average (1961-62 to 1966-67)	102.28	100.92	101.27	98.24	99.51	99.33	96.80
Minimum Price	1962-63	96.97	102.34	93.56	<u>84.03</u>	94.58	103.00	100.74
	1963-64	100.65	96.56	101.16	100.34	101.85	99.19	96.80
	1964-65	95.87	96.21	102.97	97.62	98.85	99.58	97.46
	1965-66	98.64	100.16	100.05	93.38	<u>90.71</u>	93.88	93.70
	Average (1961-62 to 1966-67)	98.31	96.77	99.00	<u>94.48</u>	96.84	99.62	97.80
Modal Price	1962-63	97.81	102.18	97.50	<u>89.56</u>	97.02	100.95	99.45
	1963-64	103.40	98.74	101.09	99.83	100.59	100.32	100.07
	1964-65	97.92	102.95	102.93	98.08	99.20	98.73	<u>93.43</u>
	1965-66	106.12	102.89	102.40	96.65	<u>93.10</u>	96.61	93.60
	Average (1961-62 to 1966-67)	102.33	101.25	100.58	96.44	97.45	99.58	96.60
		April	May	June	July	Aug.	Mean de- viation	Peak as of trough
Variety 1 - Saraku								
Maximum Price	1962-63	99.35	99.25	103.28	100.80	<u>105.42</u>	2.05	111.90
	1963-64	<u>94.90</u>	<u>102.09</u>	100.17	97.47	98.84	2.03	107.58
	1964-65	96.07	101.60	<u>103.55</u>	102.58	102.41	2.21	109.69
	1965-66	<u>94.18</u>	100.25	102.64	<u>105.01</u>	103.51	3.37	111.50
	Average (1961-62 to 1966-67)	<u>95.62</u>	100.36	101.63	101.12	<u>102.92</u>	1.75	107.63
Minimum Price	1962-63	102.00	104.40	105.96	106.18	<u>106.24</u>	4.15	126.43
	1963-64	<u>92.80</u>	99.69	<u>105.09</u>	104.79	101.68	2.59	113.98
	1964-65	<u>94.37</u>	95.32	103.77	108.07	<u>109.91</u>	4.12	116.47
	1965-66	98.16	106.09	107.52	<u>110.14</u>	107.57	5.26	121.42
	Average (1961-62 to 1966-67)	96.16	101.91	105.11	106.99	<u>107.01</u>	3.50	113.26
Modal Price	1962-63	100.56	101.63	104.53	103.18	105.63	3.11	117.94
	1963-64	<u>94.35</u>	<u>100.83</u>	100.91	99.36	100.51	1.29	106.87
	1964-65	94.09	100.87	101.53	105.02	<u>105.25</u>	3.09	112.65
	1965-66	93.64	100.03	103.89	<u>106.47</u>	104.60	4.40	114.36
	Average (1961-62 to 1966-67)	<u>95.21</u>	100.78	102.13	103.18	104.47	2.45	109.73

Continued/....

Table A8.3 - continued

		Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March
Variety 2 - Gorabalu								
Maximum Price	1962-63	98.58	<u>95.98</u>	96.90	92.14	99.93	105.48	102.73
	1963-64	98.10	<u>97.08</u>	101.56	104.34	<u>108.20</u>	103.31	97.69
	1964-65	92.09	<u>84.16</u>	96.12	95.51	107.77	<u>113.65</u>	101.54
	1965-66	92.44	<u>86.39</u>	95.01	96.34	94.40	87.66	92.11
	Average (1961-62 to 1966-67)	96.32	<u>94.39</u>	94.54	95.57	100.96	103.86	98.84
Minimum Price	1962-63	99.48	95.16	95.86	<u>87.96</u>	99.82	108.91	103.09
	1963-64	99.97	<u>96.32</u>	101.73	102.39	105.40	103.55	100.40
	1964-65	90.10	<u>78.47</u>	99.88	101.18	108.53	113.76	100.40
	1965-66	88.76	<u>84.85</u>	92.30	94.62	93.18	87.61	91.17
	Average (1961-62 to 1966-67)	93.68	<u>88.31</u>	93.98	95.47	99.52	105.15	99.06
Modal Price	1962-63	107.89	94.91	95.65	<u>89.58</u>	99.12	100.95	102.55
	1963-64	98.96	<u>96.47</u>	101.18	102.84	107.30	105.19	99.46
	1964-65	92.22	<u>83.70</u>	97.99	98.33	106.36	<u>115.09</u>	103.94
	1965-66	91.65	<u>83.99</u>	94.12	96.55	95.66	89.80	92.75
	Average (1961-62 to 1966-67)	97.79	<u>90.41</u>	93.90	95.55	100.77	103.85	99.87
		April	May	June	July	Aug.	Mean de- viation	Peak as % of trough
Maximum Price	1962-63	101.80	104.71	103.52	99.08	99.17	3.04	109.90
	1963-64	95.30	97.42	96.42	99.82	100.76	3.03	111.45
	1964-65	100.73	102.37	97.57	104.45	104.04	5.76	135.04
	1965-66	96.73	<u>116.92</u>	115.09	113.59	113.32	9.82	135.34
	Average (1961-62 to 1966-67)	99.07	<u>105.71</u>	104.19	104.49	105.06	4.05	115.57
Minimum Price	1962-63	98.49	103.49	<u>106.74</u>	100.61	100.30	3.86	121.35
	1963-64	90.71	99.73	99.08	100.94	99.78	2.40	109.43
	1964-65	98.01	100.91	100.51	102.96	105.29	5.59	144.97
	1965-66	95.40	117.58	115.74	116.76	<u>122.03</u>	12.02	143.82
	Average (1961-62 to 1966-67)	97.03	106.18	107.35	106.55	107.72	5.49	121.98
Modal Price	1962-63	100.90	104.12	<u>105.11</u>	99.79	99.43	3.59	117.34
	1963-64	96.56	97.92	97.85	97.51	98.76	8.75	111.23
	1964-65	98.95	102.35	97.38	101.01	102.68	5.25	137.50
	1965-66	95.69	<u>116.81</u>	115.42	113.97	113.59	9.96	139.08
	Average (1961-62 to 1966-67)	98.83	<u>105.73</u>	105.01	103.77	104.52	3.94	116.95

Continued/....

Table A8.3 - continued.

		Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March
Variety 3 - Kadihasa								
Maximum Price	1962-63	102.24	101.19	98.45	<u>93.30</u>	97.03	100.68	98.83
	1963-64	108.23	100.71	98.27	100.39	97.41	98.95	99.08
	1964-65	100.29	100.16	99.88	96.99	<u>95.00</u>	98.20	98.74
	1965-66	105.23	104.07	100.59	96.42	95.57	94.57	<u>94.28</u>
	Average (1961-62 to 1966-67)	103.92	101.43	99.46	97.54	97.09	98.51	97.78
Minimum Price	1962-63	97.08	102.85	99.95	<u>91.01</u>	97.24	100.95	99.91
	1963-64	107.70	100.01	104.00	97.72	94.60	96.46	98.01
	1964-65	97.97	98.06	105.09	103.55	96.11	100.33	97.44
	1965-66	106.29	103.94	101.42	97.97	94.69	94.98	93.96
	Average (1961-62 to 1966-67)	102.54	101.23	102.21	98.50	96.75	98.27	97.42
Modal Price	1962-63	99.90	102.17	99.33	<u>92.31</u>	97.22	101.00	99.52
	1963-64	106.72	99.39	105.41	97.89	96.74	98.34	94.24
	1964-65	102.72	100.69	96.80	<u>96.24</u>	97.23	98.48	97.60
	1965-66	104.71	104.83	102.79	98.13	93.96	85.31	<u>90.44</u>
	Average (1961-62 to 1966-67)	103.79	101.71	101.13	95.98	97.45	99.00	95.94
		April	May	June	July	August	Mean deviation	Peak as % of trough
Maximum Price	1962-63	97.99	98.72	102.91	103.86	104.80	2.61	112.33
	1963-64	<u>93.91</u>	102.45	<u>102.51</u>	98.48	99.61	2.38	109.16
	1964-65	95.20	102.48	102.48	<u>105.82</u>	104.76	2.67	111.39
	1965-66	94.33	101.84	<u>104.45</u>	104.33	104.32	4.14	110.79
	Average (1961-62 to 1966-67)	95.78	100.46	102.07	102.47	103.49	2.31	108.05
Minimum Price	1962-63	99.61	99.58	101.10	103.68	<u>107.04</u>	2.60	117.61
	1963-64	<u>93.24</u>	100.50	<u>105.03</u>	100.68	102.05	3.33	112.64
	1964-65	<u>95.46</u>	100.59	98.16	102.65	<u>104.59</u>	4.16	109.56
	1965-66	93.45	100.67	<u>104.54</u>	103.56	104.53	4.16	111.86
	Average (1961-62 to 1966-67)	<u>95.72</u>	99.91	101.00	102.19	<u>104.26</u>	2.24	108.92
Modal Price	1962-63	98.91	99.06	101.81	103.42	<u>105.35</u>	1.99	114.13
	1963-64	<u>93.88</u>	<u>103.00</u>	102.68	100.12	101.59	3.25	109.71
	1964-65	98.10	102.32	98.97	102.62	<u>108.23</u>	2.76	112.46
	1965-66	94.88	102.45	103.99	103.97	<u>104.54</u>	4.55	115.59
	Average (1961-62 to 1966-67)	96.54	100.82	100.91	102.12	<u>104.61</u>	2.52	109.04

Continued/....

Table 8A.3 - concluded

		Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March
Variety 4 - Vanthi								
Maximum Price	1962-63	102.11	98.03	94.09	<u>89.42</u>	94.40	104.49	<u>104.74</u>
	1963-64	104.81	101.75	104.42	107.23	106.13	105.14	98.00
	1964-65	92.08	<u>88.26</u>	97.24	100.03	97.77	101.34	101.43
	1965-66	104.77	100.21	96.59	96.93	94.76	92.93	<u>91.27</u>
	Average (1961-62 to 1966-67)	101.98	98.13	97.90	98.05	98.53	100.78	97.62
Minimum Price	1962-63	101.28	97.77	94.30	<u>85.36</u>	93.83	100.46	<u>105.63</u>
	1963-64	106.59	<u>97.74</u>	102.68	104.00	105.15	<u>106.59</u>	100.51
	1964-65	90.88	<u>90.42</u>	97.81	99.90	98.28	104.41	104.28
	1965-66	106.96	101.15	97.63	97.62	95.59	94.63	93.55
	Average (1961-62 to 1966-67)	102.23	97.89	97.96	96.94	98.69	101.51	99.40
Modal Price	1962-63	105.24	97.41	93.72	<u>87.10</u>	93.69	102.02	<u>104.80</u>
	1963-64	105.70	<u>99.87</u>	103.48	105.57	105.51	<u>105.82</u>	97.88
	1964-65	92.10	<u>89.80</u>	97.93	99.78	97.28	101.66	102.65
	1965-66	105.72	99.67	98.52	97.02	95.56	94.04	92.47
	Average (1961-62 to 1966-67)	102.72	97.90	98.37	97.33	98.42	100.89	98.19
		April	May	June	July	August	Mean deviation	Peak as % of trough
Maximum Price	1962-63	102.42	102.19	103.34	102.76	102.01	4.01	117.13
	1963-64	<u>90.45</u>	95.10	<u>95.48</u>	95.08	95.41	4.91	106.67
	1964-65	98.85	98.39	105.48	108.96	<u>110.17</u>	4.57	124.82
	1965-66	92.16	103.98	108.65	<u>109.59</u>	108.16	5.89	120.07
	Average (1961-62 to 1966-67)	<u>94.98</u>	99.44	103.84	104.09	<u>104.66</u>	8.56	110.19
Minimum Price	1962-63	103.97	104.15	105.43	104.96	103.76	4.80	123.75
	1963-64	92.03	98.31	99.59	94.42	92.39	4.25	109.05
	1964-65	100.48	99.32	102.79	101.91	<u>109.52</u>	3.90	121.12
	1965-66	<u>93.44</u>	100.60	<u>106.37</u>	106.13	106.33	4.67	113.84
	Average (1961-62 to 1966-67)	<u>96.36</u>	99.99	103.06	102.54	<u>103.43</u>	2.13	107.34
Modal Price	1962-63	102.98	103.12	104.10	103.15	102.67	4.63	120.52
	1963-64	92.37	96.63	97.69	94.99	94.49	4.35	105.96
	1964-65	100.12	98.71	103.61	104.42	<u>111.94</u>	4.07	124.65
	1965-66	<u>92.27</u>	102.83	106.79	<u>107.60</u>	107.51	5.07	116.61
	Average (1961-62 to 1966-67)	<u>95.82</u>	99.75	103.03	103.05	<u>104.51</u>	6.37	109.07

Table A8.4. Index of Seasonal Variation in Arecanut Prices - Terminal Market - Bombay - Sirsi Varieties, 1961-62 to 1966-67

	September	October	November	December	January	February	March
Variety 1 - Dhapapi							
1962-63	98.73	105.00	106.93	98.08	95.32	95.66	<u>94.63</u>
1963-64	102.75	106.33	112.39	97.18	97.00	97.49	97.96
1964-65	97.45	91.83	<u>85.17</u>	99.30	108.20	102.46	104.57
1965-66	100.05	103.44	99.28	93.77	86.47	90.47	95.09
Average (1961-62 to 1966-67)	99.39	101.74	100.49	95.78	97.65	98.17	99.41
Varie	April	May	June	July	August	Mean deviation	Peak as % of trough
1962-63	94.80	101.02	<u>105.21</u>	102.57	102.05	3.80	111.18
1963-64	<u>95.54</u>	<u>101.19</u>	97.21	99.13	95.93	3.78	105.91
1964-65	<u>110.90</u>	100.55	98.61	98.57	102.37	4.84	130.21
1965-66	105.92	<u>108.04</u>	106.02	104.27	106.18	5.65	124.95
Average (1961-62 to 1966-67)	101.38	<u>102.36</u>	101.68	100.93	101.62	1.61	106.87
	September	October	November	December	January	February	March
Variety 2 - Barada							
1962-63	101.34	103.66	105.56	<u>90.81</u>	94.21	95.31	95.81
1963-64	100.00	101.22	105.85	99.91	99.39	97.21	97.45
1964-65	100.96	94.36	<u>90.14</u>	93.53	<u>107.12</u>	103.53	101.55
1965-66	99.04	106.18	105.44	95.33	<u>88.92</u>	90.31	94.05
Average (1961-62 to 1966-67)	100.14	101.56	102.11	<u>94.38</u>	96.55	96.87	97.37
	April	May	June	July	August	Mean deviation	Peak as % of trough
1962-63	99.53	105.45	<u>106.17</u>	102.99	99.16	4.80	116.91
1963-64	<u>96.39</u>	<u>103.84</u>	100.54	99.72	98.47	1.91	107.80
1964-65	105.70	101.68	101.33	98.25	101.85	3.95	118.84
1965-66	102.14	<u>108.09</u>	103.60	103.32	103.58	5.39	121.56
Average (1961-62 to 1966-67)	100.06	<u>103.59</u>	103.36	102.18	101.83	8.47	109.76

Continued/...

Table A8.4 - concluded

	September	October	November	December	January	February	March
Variety 3 - Toapi							
1962-63	96.79	95.14	99.91	<u>91.81</u>	99.51	99.11	98.42
1963-64	106.05	106.45	105.42	<u>92.94</u>	98.23	98.79	98.07
1964-65	98.05	89.92	<u>84.98</u>	99.45	108.13	102.91	102.32
1965-66	100.08	98.20	95.22	92.42	<u>88.37</u>	93.36	98.24
Average (1961-62 to 1966-67)	100.11	98.51	96.50	<u>92.54</u>	97.62	100.07	99.95
	April	May	June	July	August	Mean deviation	Peak as % of trough
1962-63	98.11	103.04	<u>107.35</u>	105.37	105.44	3.53	116.93
1963-64	97.65	<u>102.49</u>	97.91	97.76	97.34	3.55	110.28
1964-65	106.25	99.67	100.84	104.12	103.36	4.66	127.24
1965-66	108.16	105.49	105.84	105.67	<u>108.97</u>	5.70	123.31
Average (1961-62 to 1966-67)	102.15	102.52	103.16	103.05	<u>103.82</u>	2.48	112.19
	September	October	November	December	January	February	March
Variety 4 - Motiapi							
1962-63	<u>93.97</u>	95.73	100.72	98.12	98.73	97.99	96.49
1963-64	103.06	105.31	112.61	99.58	99.72	98.55	96.05
1964-65	97.70	93.22	<u>93.05</u>	105.53	<u>107.97</u>	102.36	101.97
1965-66	97.72	100.98	97.81	<u>93.78</u>	96.17	98.93	102.00
Average (1961-62 to 1966-67)	<u>96.54</u>	99.96	100.49	98.46	100.32	101.58	100.13
	April	May	June	July	August	Mean deviation	Peak as % of trough
1962-63	103.25	<u>105.58</u>	103.72	103.44	102.26	3.16	112.36
1963-64	98.90	97.07	<u>94.44</u>	95.07	<u>99.64</u>	3.50	105.51
1964-65	105.99	96.23	91.71	101.48	106.79	5.35	116.03
1965-66	109.23	<u>110.24</u>	96.27	96.67	100.20	3.78	117.55
Average (1961-62 to 1966-67)	<u>103.36</u>	101.76	97.03	99.25	101.12	1.46	107.06
	September	October	November	December	January	February	March
Variety 5 - Sirsi Safed							
1962-63	106.65	106.89	103.96	<u>88.87</u>	97.13	91.76	90.31
1963-64	102.88	105.91	105.50	<u>91.67</u>	92.34	94.07	92.99
1964-65	109.48	106.96	106.97	105.97	83.73	<u>82.27</u>	88.19
1965-66	103.73	103.00	101.29	101.34	87.85	<u>87.26</u>	97.42
Average (1961-62 to 1966-67)	103.40	104.72	102.75	97.34	92.59	92.62	92.21
	April	May	June	July	August	Mean deviation	Peak as % of trough
1962-63	94.23	103.27	<u>107.19</u>	105.84	103.90	6.28	120.61
1963-64	95.28	101.98	102.34	106.25	<u>108.79</u>	5.61	118.68
1964-65	98.17	98.90	106.66	104.43	<u>108.27</u>	8.12	131.60
1965-66	105.72	<u>107.60</u>	104.87	103.26	96.66	5.13	123.31
Average (1961-62 to 1966-67)	96.83	101.29	105.40	105.37	<u>105.48</u>	4.74	114.39

Table A8.5. Index of Seasonal Variation in Arecanut Prices, 1961-62 to 1966-67 - Terminal
Market - Bombay - Mangalore Varieties

	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March
Variety 1 - Mangalore Moti							
1962-63	108.02	106.90	108.06	<u>79.97</u>	88.01	94.46	97.41
1963-64	102.75	106.10	106.10	<u>93.41</u>	95.13	97.42	96.37
1964-65	104.99	105.46	106.55	105.65	<u>86.84</u>	87.91	89.93
1965-66	101.47	102.94	102.38	103.51	88.90	<u>88.42</u>	98.25
Average (1961-62 to 1966-67)	101.87	103.96	103.78	97.68	<u>92.19</u>	95.31	95.33
Variety 2 - Mangalore Vachras							
1962-63	106.71	106.87	108.13	<u>80.35</u>	88.47	94.66	97.89
1963-64	102.61	106.37	103.00	<u>93.69</u>	95.46	97.71	96.64
1964-65	105.40	106.33	107.80	106.32	<u>88.04</u>	89.35	90.64
1965-66	102.59	103.21	103.08	104.71	90.72	<u>89.86</u>	97.57
Average (1961-62 to 1966-67)	102.00	104.06	104.28	98.41	<u>93.05</u>	95.89	95.35
Variety 3 - Mangalore Choll							
1962-63	96.02	98.79	99.50	<u>88.60</u>	95.37	103.76	106.39
1963-64	96.49	<u>95.78</u>	97.56	101.44	102.21	104.23	101.84
1964-65	101.22	99.82	101.40	99.74	97.43	97.84	99.47
1965-66	<u>96.11</u>	99.16	99.11	99.09	97.91	100.54	<u>102.93</u>
Average (1961-62 to 1966-67)	98.37	99.10	99.76	<u>98.31</u>	98.85	101.64	<u>102.61</u>
	April	May	June	July	August	Mean de- viation	Peak as % of trough
Variety 1 - Mangalore Moti							
1962-63	96.09	105.03	106.16	<u>107.65</u>	102.23	7.34	134.61
1963-64	97.26	99.98	102.96	102.37	<u>103.51</u>	3.41	110.81
1964-65	98.09	100.03	103.89	104.84	<u>105.82</u>	6.21	121.86
1965-66	103.73	<u>106.83</u>	105.20	104.23	94.14	5.05	120.82
(Average - 1961-62 to 1966-67)	97.96	101.10	103.49	<u>104.60</u>	102.73	3.59	113.46
Variety 2 - Mangalore Vachras							
1962-63	96.46	105.46	105.65	<u>107.07</u>	102.28	7.03	133.25
1963-64	97.52	100.25	100.34	102.64	<u>103.77</u>	3.16	110.75
1964-65	91.92	100.14	104.00	103.35	<u>106.11</u>	6.68	120.52
1965-66	102.74	<u>104.76</u>	103.50	102.60	95.26	4.53	117.37
(Average - 1961-62 to 1966-67)	96.63	100.84	102.51	<u>103.93</u>	103.05	3.45	111.69
Variety 3 - Mangalore Choll							
1962-63	105.06	103.85	<u>106.17</u>	101.04	95.45	4.38	119.83
1963-64	100.33	98.73	100.32	100.19	99.88	1.76	108.82
1964-65	<u>96.18</u>	102.68	<u>103.61</u>	102.00	98.61	1.82	107.73
1965-66	101.98	102.48	100.37	100.32	100.00	1.44	107.10
(Average - 1961-62 to 1966-67)	101.38	101.06	100.43	99.98	98.51	1.19	104.37

Table A8.6. Index of Seasonal Variation in Arecanut Prices, 1961-62 to 1966-67 - Terminal Market - Bangalore (Shimoga Variety)

	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March
Variety 1 - Rajalu							
1962-63	100.70	100.40	98.86	98.06	<u>94.75</u>	99.94	100.79
1963-64	105.95	103.45	<u>97.07</u>	98.77	99.76	103.45	<u>105.82</u>
1964-65	100.16	<u>98.45</u>	98.87	102.54	<u>103.77</u>	101.82	100.39
1965-66	100.08	106.55	104.24	101.52	99.82	99.74	98.51
Average (1961-62 to 1966-67)	101.46	102.24	100.04	100.45	<u>99.78</u>	101.35	100.84
Variety 2 - Bette							
1962-63	107.16	103.29	97.72	<u>78.80</u>	86.29	102.21	97.21
1963-64	99.97	<u>95.23</u>	95.31	97.84	101.23	103.36	<u>104.28</u>
1964-65	101.39	99.02	100.11	103.37	100.92	95.73	95.39
1965-66	<u>96.43</u>	103.00	<u>103.52</u>	99.21	100.12	102.69	100.76
Average (1961-62 to 1966-67)	100.60	99.77	99.44	<u>96.29</u>	97.65	101.33	97.63
Variety 3 - Nulli							
1962-63	98.54	<u>96.54</u>	98.56	99.18	96.76	100.50	102.93
1963-64	102.28	102.71	<u>96.09</u>	97.33	98.25	99.38	100.37
1964-65	104.02	102.55	103.44	101.84	101.63	100.01	98.65
1965-66	102.96	109.32	107.11	103.75	96.75	96.58	<u>96.47</u>
Average (1961-62 to 1966-67)	101.72	102.16	100.87	100.47	<u>98.47</u>	99.13	99.32

	April	May	June	July	August	Mean deviation	Peak as % of trough
Variety 1 - Rajalu							
1962-63	100.03	99.98	100.37	102.73	<u>103.39</u>	1.40	109.12
1963-64	97.87	96.48	98.20	96.87	96.31	3.11	109.01
1964-65	98.14	94.48	101.11	99.32	100.95	1.79	105.40
1965-66	98.52	98.38	97.52	<u>97.09</u>	<u>98.03</u>	2.07	100.97
(Average (1961-62 to 1966-67)	98.52	97.61	98.62	98.60	100.49	1.15	101.57
Variety 2 - Bette							
1962-63	107.47	109.13	<u>110.05</u>	99.47	101.20	6.75	139.60
1963-64	98.12	97.38	103.81	100.49	102.98	8.69	101.50
1964-65	95.44	<u>89.73</u>	<u>107.64</u>	105.04	106.72	4.16	119.96
1965-66	100.02	99.19	98.43	98.47	98.16	1.69	107.35
Average (1961-62 to 1966-67)	98.30	98.70	104.33	102.10	103.86	8.04	108.35
Variety 3 - Nulli							
1962-63	102.66	102.83	<u>103.77</u>	98.69	99.04	8.12	107.49
1963-64	100.84	100.99	<u>101.44</u>	100.86	99.16	1.63	105.57
1964-65	96.87	96.88	98.35	<u>96.41</u>	<u>99.35</u>	8.25	103.05
1965-66	96.99	97.21	97.71	97.42	<u>97.73</u>	3.86	101.31
Average (1961-62 to 1966-67)	99.64	<u>100.21</u>	100.10	98.49	99.42	0.92	101.77

Table A8.7. Returns to storage, 1961-62 to 1965-67 - Sirsi market

Year and Monthly month	average price (Rs. per quintal)	Returns to storage based on									
		December Price		January Price		February Price		March Price		April Price	
		Rs. per quintal	%	Rs. per quintal	%	Rs. per quintal	%	Rs. per quintal	%	Rs. per quintal	%
1	2	3	4	5	6	7	8	9	10	11	12
1. Variety - Rashi											
1961-62											
December	424.00										
January	479.00	+50.70	+11.84								
February	491.00	+58.40	+13.50	+ 7.15	+1.48						
March	492.00	+55.10	+12.61	+ 3.30	+0.68	- 3.97	- 0.80				
April	529.00	+ 87.80	+ 19.90	+35.45	+7.18	+28.06	+ 5.60	+32.02	+ 6.44		
May	523.00	+77.50	+17.40	+24.60	+4.94	+17.09	+ 3.38	+21.04	+ 4.19	-11.35	- 2.12
June	497.00	+47.20	+10.49	- 6.25	- 1.24	-13.89	- 2.72	- 9.94	- 1.96	-42.70	- 7.91
July	498.00	+43.90	+ 9.67	-10.10	- 1.99	-17.85	- 3.46	-13.92	- 2.72	-47.05	- 8.63
August	481.00	+22.60	+ 4.93	-31.95	- 6.23	-39.82	- 7.65	-35.90	- 6.95	-69.40	-12.61
1962-63											
December	434.00										
January	455.00	+16.60	+ 3.79								
February	450.00	+ 7.20	+ 1.63	- 9.61	- 2.09						
March	446.00	- 1.20	- 0.27	-18.22	- 3.92	- 8.56	- 1.88				
April	455.00	+ 3.40	+ 0.75	-13.83	- 2.95	- 4.12	- 0.90	+ 4.48	+ 0.99		
May	489.00	+33.00	+ 7.24	+15.56	+ 3.29	+25.32	+ 5.46	+33.96	+ 7.46	+29.39	+6.39
June	484.00	+23.60	+ 5.12	+ 5.95	+ 1.24	+15.76	+ 3.37	+24.44	+ 5.32	+19.78	+ 4.26
July	474.00	+ 9.20	+ 1.98	- 8.66	- 1.79	+ 1.20	+ 0.25	+ 9.92	+ 2.14	+ 5.17	+ 1.10
August	463.00	- 6.20	- 1.32	-24.27	- 4.98	-14.36	- 3.01	- 5.60	- 1.20	-10.44	- 2.24
1963-64											
December	482.00										
January	466.00	-20.88	- 4.29								
February	424.00	-67.76	-13.78	-46.72	- 9.93						
March	412.00	-84.64	-17.04	-63.44	-13.34	-16.30	- 3.81				
April	400.00	-101.52	-20.24	-80.18	-16.70	-32.60	- 7.54	-16.18	- 3.89		
May	420.00	-86.40	-17.06	-64.88	-13.38	-16.90	- 3.87	- 0.36	- 0.09	+15.94	+ 3.94
June	406.00	-105.28	-20.59	-83.60	-17.08	-35.20	- 7.98	-18.54	- 4.37	- 2.12	- 0.52
July	407.00	-109.16	-21.15	-87.32	-17.66	-38.50	- 8.64	-21.72	- 5.07	- 5.18	- 1.26
August	420.00	-101.04	-19.39	-79.04	-15.84	-29.80	- 6.63	-12.90	- 2.98	+ 3.76	+ 0.90
1964-65											
December	450.00										
January	462.00	+ 7.44	+ 1.64								
February	446.00	-13.12	- 2.86	-20.68	- 4.43						
March	450.00	-13.68	- 2.95	-21.36	- 4.53	- 0.52	- 0.12				
April	493.00	+24.76	+ 5.29	+16.96	+ 3.56	+37.96	+ 8.34	+38.44	+ 8.46		
May	474.00	+ 1.20	+ 0.25	- 6.72	- 1.40	+14.44	+ 3.14	+14.88	+ 3.24	-23.99	- 4.82
June	455.00	-22.36	- 4.68	-30.40	-6.26	-9.08	- 1.96	- 8.68	- 1.87	-47.98	- 9.54
July	459.00	-22.92	- 4.76	-31.08	- 6.34	- 9.60	- 1.97	- 9.24	- 1.97	-48.97	- 9.64
August	505.00	+18.52	+ 3.81	+10.24	+ 2.07	+32.20	+ 6.81	+32.20	+ 6.81	- 7.96	- 1.55

Continued/..

Table A8.7 - continued

	1	2	3	4	5	6	7	8	9	10	11	12
<u>1965-66</u>												
December	581.00											
January	540.00	-46.87	- 7.99									
February	574.00	-18.74	- 3.16	+28.54	+ 5.23							
March	616.00	+17.39	+ 2.91	+65.08	+11.81	+36.20	+ 6.24					
April	638.00	+33.52	+ 5.55	+81.62	+14.67	+52.40	+ 8.95	+15.78	+ 2.54			
May	670.00	+59.65	+ 9.77	+108.16	+19.25	+78.60	+13.29	+41.56	+ 6.61	+25.56	+ 3.97	
June	664.00	+47.78	+ 7.76	+96.70	+17.05	+66.80	+11.19	+29.34	+ 4.62	+13.12	+ 2.02	
July	679.00	+56.91	+ 9.15	+106.24	+18.55	+76.00	+12.60	+38.12	+ 5.95	+21.68	+ 3.30	
August	675.00	+47.04	+ 7.49	+96.78	+16.74	+66.20	+10.87	+27.90	+ 4.31	+11.24	+ 1.69	
<u>1966-67</u>												
December	602.00											
January	619.00	+10.92	+ 1.80									
February	655.00	+40.84	+ 6.65	+29.75	+ 4.76							
March	645.00	+33.76	+ 5.44	+13.50	+ 2.14	-16.61	- 2.51					
April	640.00	+13.68	+ 2.18	+ 2.25	+ 0.35	-28.22	- 4.22	-11.51	-1.77			
May	634.00	+ 1.60	+ 0.25	-10.00	- 1.55	-40.33	- 5.98	-24.02	- 3.65	-12.46	- 1.93	
June	619.00	-19.48	- 3.05	-31.25	- 4.81	-62.44	- 9.16	-45.53	- 6.85	-33.92	- 5.20	
July	622.00	-22.56	-3.50	-34.50	- 5.26	-66.05	- 9.60	-49.04	- 7.31	-37.38	- 5.67	
August	642.00	- 8.64	- 1.33	-20.75	- 3.13	-52.66	- 7.58	-35.55	- 5.25	-23.84	- 3.58	
<u>All Years - 1961-62 to 1966-67</u>												
December	497.00											
January	504.00	+ 1.97	+ 0.39									
February	507.00	- 0.06	- 0.02	- 2.10	- 0.41							
March	515.00	+ 2.91	+ 0.57	+ 0.80	+ 0.16	+ 2.87	+ 0.56					
April	526.00	+ 8.88	+ 1.72	+ 6.70	+ 1.29	+ 8.74	+ 1.69	+ 5.79	+ 1.11			
May	534.00	+11.85	+ 2.27	+ 9.60	+ 1.83	+11.61	+ 2.22	+ 8.58	+ 1.63	+ 2.68	+ 0.50	
June	525.00	- 2.18	- 0.41	- 4.50	- 0.85	- 2.52	- 0.48	- 5.63	- 1.06	-11.64	- 2.17	
July	516.00	-16.21	- 3.05	-18.60	- 3.48	-16.65	- 3.13	-19.84	- 3.70	-25.96	- 4.79	
August	525.00	-12.24	- 2.28	-14.70	- 2.72	-12.78	- 2.38	-15.05	- 2.79	-22.28	- 4.07	
<u>2. Variety - Chaali</u>												
<u>1961-62</u>												
December	444.00											
January	417.00	-31.50	- 7.02									
February	424.00	-29.00	- 6.40	+ 2.77	+ 0.66							
March	452.00	- 5.50	- 1.20	+26.54	+ 6.24	+23.70	+ 5.53					
April	480.00	+18.00	+ 3.90	+50.31	+11.71	+47.40	+10.96	+23.42	+ 5.13			
May	493.00	+26.50	+ 5.68	+59.08	+13.61	+56.10	+12.84	+31.84	+ 6.90	+ 8.14	+ 1.68	
June	486.00	+15.00	+ 3.18	+47.85	+10.92	+44.80	+10.15	+20.26	+ 4.35	- 3.72	- 0.76	
July	489.00	+13.50	+ 2.84	+46.62	+10.54	+43.50	+ 9.76	+18.68	+ 3.97	- 5.58	- 1.13	
August	495.00	+15.00	+ 3.13	+48.39	+10.83	+45.20	+10.05	+20.10	+ 4.23	- 4.44	- 0.89	

Continued/..

Table A8.7 - continued

	1	2	3	4	5	6	7	8	9	10	11	12
<u>1962-63</u>												
December	430.00											
January	426.00	- 8.36	- 1.92									
February	417.00	-21.72	- 4.95	-13.32	- 3.10							
March	420.00	-23.08	- 5.21	-14.64	- 3.37	- 1.23	- 0.29					
April	443.00	- 4.44	- 0.99	+ 4.04	+ 0.92	+17.54	+ 4.12	+18.74	+ 4.42			
May	498.00	+46.20	+10.23	+54.72	+12.34	+68.31	+15.90	+69.48	+16.21	+50.51	+11.29	
June	498.00	+41.84	+ 9.17	+50.40	+11.26	+64.08	+14.77	+65.22	+15.07	+46.02	+10.18	
July	503.00	+42.48	+ 9.22	+52.08	+11.30	+64.85	+14.80	+65.96	+15.09	+46.53	+10.19	
August	479.00	+14.12	+ 3.04	+22.76	+ 4.99	+36.62	+ 8.28	+37.70	+ 8.54	+18.04	+ 3.91	
<u>1963-64</u>												
December	483.00											
January	478.00	- 9.89	- 2.03									
February	479.00	-13.78	- 2.80	- 3.84	- 0.80							
March	486.00	-11.67	- 2.34	- 1.68	- 0.34	+ 2.15	+ 0.44					
April	500.00	- 2.56	- 0.50	+ 7.48	+ 1.52	+11.30	+ 2.31	+ 9.08	+ 1.85			
May	540.00	+32.55	+ 6.41	+42.64	+ 8.57	+46.45	+ 9.41	+44.16	+ 8.91	+34.94	+ 6.92	
June	562.00	+49.66	+ 9.69	+59.80	+11.91	+63.60	+12.76	+61.24	+12.23	+51.88	+10.17	
July	587.00	+69.77	+13.49	+73.96	+15.77	+83.75	+16.64	+81.32	+16.08	+71.82	+13.94	
August	584.00	+61.88	+11.85	+72.12	+14.09	+75.90	+14.94	+73.40	+14.38	+63.76	+12.26	
<u>1964-65</u>												
December	477.00											
January	472.00	- 9.83	- 2.04									
February	442.00	-45.66	- 9.38	-35.78	- 7.50							
March	476.00	-15.49	- 3.15	- 5.56	- 1.15	+30.53	+ 6.85					
April	546.00	+49.68	+10.01	+59.66	+12.27	+96.06	+21.35	+65.18	+13.56			
May	558.00	+56.85	+11.34	+66.88	+13.62	+103.14	+22.80	+72.36	+14.90	+ 6.48	+ 1.17	
June	589.00	+83.02	+16.41	+93.10	+18.77	+130.14	+28.36	+98.54	+20.09	+31.96	+ 5.74	
July	578.00	+67.19	+13.15	+77.32	+15.44	+114.65	+24.74	+82.72	+16.70	+15.44	+ 2.74	
August	585.00	+69.36	+13.45	+79.54	+15.74	+117.18	+25.05	+84.90	+16.98	+16.92	+ 2.98	
<u>1965-66</u>												
December	497.00											
January	521.00	+18.97	+ 3.78									
February	557.00	+49.94	+ 9.85	+30.73	+ 5.84							
March	600.00	+87.91	+17.17	+68.46	+12.88	+37.37	+ 6.64					
April	623.00	+105.88	+20.48	+86.19	+16.06	+54.72	+ 9.63	+16.94	+ 2.80			
May	612.00	+89.85	+17.21	+69.92	+12.90	+38.11	+ 6.64	- 0.12	- 0.02	-17.29	- 2.75	
June	598.00	+70.82	+13.43	+50.65	+ 9.25	+18.48	+ 3.19	-20.18	- 3.26	-37.58	- 5.13	
July	591.00	+58.79	+11.05	+38.38	+ 6.95	+ 5.85	+ 1.00	-33.24	- 5.32	-50.87	- 7.93	
August	550.00	+12.76	+ 2.38	- 7.89	- 1.41	-40.78	- 6.90	-80.30	-12.74	-98.16	-15.14	

Continued/..

Table A8.7 - concluded

	1	2	3	4	5	6	7	8	9	10	11	12
<u>1966-67</u>												
December	443.00											
January	480.00	+32.51	+ 7.26									
February	514.00	+62.02	+13.72	+29.14	+ 6.01							
March	520.00	+63.53	+13.92	+30.28	+ 6.18	+ 0.80	+ 0.15					
April	508.00	+47.04	+10.20	+13.42	+ 2.71	-16.40	- 3.13	-17.26	- 3.29			
May	512.00	+46.55	+10.00	+12.56	+ 2.51	-17.60	- 3.32	-18.52	- 3.49	- 1.14	- 0.22	
June	518.00	+48.06	+10.23	+13.70	+ 2.72	-16.80	- 3.14	-17.78	- 3.32	- 0.28	- 0.05	
July	534.00	+59.57	+12.56	+24.84	+ 4.88	- 6.00	- 1.11	- 7.04	- 1.30	+10.58	+ 2.02	
August	560.00	+81.08	+16.93	+45.98	+ 8.95	+14.80	+ 2.71	+13.70	+ 2.51	+31.44	+ 5.95	
<u>All years - 1961-62 to 1966-67</u>												
December	464.00											
January	464.00	- 4.70	- 1.00									
February	472.00	- 1.40	- 0.30	+ 3.30	+ 0.70							
March	493.00	+14.90	+ 3.12	+19.60	+ 4.14	+16.22	+ 3.40					
April	517.00	+34.20	+ 7.08	+38.90	+ 8.14	+35.42	+ 7.35	+19.01	+ 3.82			
May	533.00	+45.50	+ 9.33	+50.20	+10.40	+46.66	+ 9.59	+30.02	+ 5.97	+10.77	+ 2.06	
June	541.00	+48.80	+ 9.91	+53.50	+10.97	+49.88	+10.16	+33.03	+ 6.50	+13.54	+ 2.57	
July	552.00	+25.10	+ 5.06	+59.80	+12.15	+56.10	+11.31	+39.04	+ 7.61	+19.31	+ 3.62	
August	568.00	+66.40	+13.24	+71.10	+14.31	+67.32	+13.45	+50.05	+ 9.66	+30.08	+ 5.59	

Table A8.8. Returns to Storage, 1961-62 to 1966-67 - Shimoga Market

Year and month	Monthly average price (Rs. per quintal)	Returns to storage based on								
		January Price		February Price		March Price		April Price		
		Rs. per quintal	%	Rs. per quintal	%	Rs. per quintal	%	Rs. per quintal	%	
1	2	3	4	5	6	7	8	9	10	
<u>1. Variety - Kadihasa</u>										
<u>1961-62</u>										
January	602.00									
February	623.00	+14.60	+ 2.40							
March	629.00	+14.52	+ 2.36	- 0.61	- 0.10					
April	630.00	+ 9.44	+ 1.52	- 5.90	- 0.93	- 5.67	- 0.89			
May	641.00	+14.36	+ 2.29	- 1.19	- 0.19	- 1.02	- 0.16	+ 4.32	+ 0.68	
June	641.00	+ 8.28	+ 1.31	- 7.48	- 1.15	- 7.37	- 1.14	- 2.04	- 0.32	
July	670.00	+31.20	+ 4.88	+15.23	+ 2.33	+15.28	+ 2.33	+20.60	+ 3.17	
August	711.00	+66.12	+10.25	+49.94	+ 7.55	+49.93	+ 7.55	+55.24	+ 8.42	
<u>1962-63</u>										
January	759.00									
February	800.00	+33.03	+ 4.31							
March	798.00	+23.38	+ 3.02	-10.38	- 1.28					
April	796.00	+13.73	+ 1.76	-20.44	- 2.50	-10.36	- 1.28			
May	798.00	+ 8.08	+ 1.02	-26.50	- 3.21	-16.40	- 2.01	- 6.34	- 0.79	
June	822.00	+24.43	+ 3.06	-10.56	- 1.27	- 0.44	- 0.05	+ 9.64	+ 1.19	
July	832.00	+26.78	+ 3.33	- 8.62	- 1.03	+ 1.52	+ 0.18	+11.62	+ 1.42	
August	838.00	+25.13	+ 3.09	-10.68	- 1.26	- 0.52	- 0.06	+ 9.60	+ 1.16	
<u>1963-64</u>										
January	689.00									
February	684.00	-12.27	- 1.76							
March	667.00	-36.22	- 5.15	-24.22	- 3.50					
April	628.00	-82.17	-11.57	-70.12	-10.04	-46.05	- 6.83			
May	678.00	-39.12	- 5.46	-27.02	- 3.83	- 2.78	- 0.41	+43.34	+ 6.83	
June	665.00	-59.07	- 8.16	-46.92	- 6.59	-22.51	- 3.27	+24.00	+ 3.74	
July	642.00	-89.02	-12.18	-76.82	-10.69	-52.24	- 7.52	- 5.34	- 0.82	
August	647.00	-90.97	-12.33	-78.72	-10.85	-53.97	- 7.70	- 6.68	- 1.02	
<u>1964-65</u>										
January	630.00									
February	652.00	+15.32	+ 2.41							
March	664.00	+20.96	+ 3.26	+ 5.10	+ 0.77					
April	686.00	+38.60	+ 5.94	+22.52	+ 3.38	+16.98	+ 2.53			
May	739.00	+83.24	+12.69	+66.94	+ 9.96	+61.28	+ 9.04	+43.74	+ 6.29	
June	739.00	+76.88	+11.61	+60.36	+ 8.89	+54.58	+ 7.97	+36.80	+ 5.24	
July	788.00	+119.52	+17.88	+102.78	+15.00	+96.88	+14.02	+78.86	+11.12	
August	851.00	+176.16	+26.10	+159.20	+23.01	+153.18	+21.95	+134.92	+18.84	

Continued/..

Table A8.6 - continued

1	2	3	4	5	6	7	8	9	10
<u>1965-66</u>									
January	872.00								
February	901.00	+19.90	+ 2.26						
March	909.00	+19.12	+ 2.15	- 1.39	- 0.15				
April	924.00	+26.34	+ 2.82	+ 4.54	+ 0.49	+ 5.53	+ 0.60		
May	1008.00	+100.56	+11.11	+79.47	+ 8.55	+80.38	+ 8.67	+74.38	+ 7.97
June	1033.00	+116.78	+12.75	+95.64	+10.20	+96.23	+10.27	+90.08	+ 9.55
July	1040.00	+115.00	+12.43	+93.33	+ 9.86	+94.08	+ 9.95	+87.78	+ 9.22
August	1057.00	+123.22	+13.20	+101.26	+10.59	+101.93	+10.67	+95.48	+ 9.93
<u>1966-67</u>									
January	1020.00								
February	1023.00	- 7.58	- 0.74						
March	1006.00	-34.84	- 3.35	-27.61	- 2.67				
April	991.00	-60.10	- 5.72	-42.90	- 5.07	-25.44	- 2.50		
May	984.00	-77.36	- 7.29	-70.19	- 6.66	-42.56	- 4.15	-17.29	- 1.73
June	1012.00	-59.62	- 5.56	-52.48	- 4.93	-24.68	- 2.38	+ 0.74	+ 0.07
July	1065.00	-16.88	- 1.56	- 9.77	- 0.91	+18.20	+ 1.74	+43.77	+ 4.29
August	1100.00	+ 7.86	+ 0.72	+14.94	+ 1.38	+43.08	+ 4.08	+68.80	+ 6.67
<u>All years - 1961-62 to 1966-67</u>									
January	762.00								
February	781.00	+11.00	+ 1.43						
March	770.00	+ 1.32	+ 0.17	-10.19	- 1.29				
April	776.00	- 9.36	- 1.19	-21.06	- 2.64	-11.17	- 1.42		
May	808.00	+14.96	+ 1.89	+ 3.07	+ 0.38	+12.98	+ 1.63	+23.86	+ 3.04
June	819.00	+18.28	+ 2.28	+ 6.20	+ 0.76	+16.13	+ 2.01	+27.04	+ 3.41
July	839.00	+30.60	+ 3.79	+18.33	+ 2.23	+28.28	+ 3.49	+39.22	+ 4.90
August	867.00	+50.92	+ 6.24	+38.46	+ 4.64	+48.43	+ 5.92	+59.40	+ 7.36
<u>2. Variety - Saraku</u>									
<u>1961-62</u>									
January	558.00								
February	579.00	+15.04	+ 2.67						
March	571.00	+ 1.40	+ 0.25	-14.17	- 2.42				
April	576.00	+ 0.76	+ 0.13	-15.02	- 2.54	- 1.09	- 0.19		
May	597.00	+16.12	+ 2.78	+ 0.13	+ 0.02	+14.14	+ 2.43	+14.86	+ 2.55
June	598.00	+11.48	+ 1.96	- 4.72	- 0.78	+ 9.37	+ 1.59	+10.04	+ 1.71
July	626.00	+33.84	+ 5.71	+17.43	+ 2.86	+31.40	+ 5.28	+32.22	+ 5.43
August	665.00	+67.20	+11.24	+50.58	+ 8.23	+64.83	+10.80	+65.40	+10.91
<u>1962-63</u>									
January	707.00								
February	747.00	+32.55	+ 4.56						
March	744.00	+22.42	+ 3.11	-10.85	- 1.44				
April	753.00	+24.29	+ 3.33	- 9.38	- 1.23	+ 1.18	+ 0.16		
May	760.00	+24.16	+ 3.28	- 9.91	- 1.29	+ 0.68	+ 0.09	- 0.91	- 0.12
June	782.00	+39.03	+ 5.25	+ 4.56	+ 0.59	+15.18	+ 1.98	+13.50	+ 1.76

Continued/..

Table A8.8- continued

1	2	3	4	5	6	7	8	9	10
July	770.00	+19.90	+ 2.65	-14.97	- 1.91	- 4.32	- 0.56	- 6.09	- 0.78
August	779.00	+21.77	+ 2.87	-13.50	- 1.70	- 2.82	- 0.36	- 4.68	- 0.60
<u>1963-64</u>									
January	645.00								
February	628.00	-23.83	- 3.66						
March	613.00	-45.34	- 6.83	-21.66	- 3.41				
April	570.00	-94.85	-14.27	-71.00	-11.08	-49.51	- 7.99		
May	604.00	-67.36	-10.03	-43.34	- 6.70	-51.70	- 3.47	+27.92	+ 4.85
June	600.00	-77.87	-11.49	-53.68	- 8.21	-31.89	- 5.05	+18.16	+ 3.12
July	587.00	-97.38	-14.23	-73.02	-11.06	-51.08	- 8.01	- 0.60	- 0.10
August	593.00	-97.89	-14.17	-76.36	-11.01	-54.27	- 7.96	- 3.36	- 0.06
<u>1964-65</u>									
January	622.00								
February	634.00	+ 5.40	+ 0.86						
March	620.00	-14.68	- 2.34	-20.72	- 3.23				
April	647.00	+ 5.84	+ 0.91	- 0.12	- 0.02	+20.44	+ 3.26		
May	715.00	+67.56	+10.44	+61.48	+ 9.41	+82.16	+12.98	+61.15	+ 9.35
June	741.00	+87.28	+13.55	+81.08	+12.29	+101.90	+15.94	+80.62	+12.21
July	788.00	+128.00	+19.39	+121.68	+18.26	+142.64	+22.10	+121.09	+18.16
August	809.00	+142.72	+21.42	+136.28	+20.26	+157.38	+24.15	+135.56	+20.13
<u>1965-66</u>									
January	840.00								
February	888.00	+39.22	+ 4.62						
March	870.00	+12.76	+ 1.49	-27.26	- 3.04				
April	875.00	+ 9.30	+ 1.07	-31.20	- 3.44	- 4.08	- 0.46		
May	936.00	+61.84	+ 7.07	+20.86	+ 2.28	+48.16	+ 5.42	+51.87	+ 5.67
June	973.00	+90.38	+10.24	+48.92	+ 5.29	+76.40	+ 8.52	+80.06	+ 8.97
July	1000.00	+108.92	+12.22	+65.98	+ 7.18	+94.64	+10.45	+98.25	+10.89
August	982.00	+82.46	+ 9.17	+40.04	+ 4.25	+57.88	+ 7.43	+71.44	+ 7.65
<u>1966-67</u>									
January	859.00								
February	893.00	+25.03	+ 2.88						
March	864.00	-12.62	- 1.44	-38.31	- 4.25				
April	881.00	- 4.27	- 0.48	-30.30	-3.32	+ 7.98	+ 0.91		
May	873.00	- 0.92	- 0.10	-27.29	- 2.97	+11.28	+ 1.28	+ 2.81	+ 0.32
June	927.00	+24.43	+ 2.71	- 2.28	- 0.25	+36.58	+ 4.11	+27.94	+ 3.11
July	924.00	+12.78	+ 1.40	-14.27	- 1.52	-24.88	+ 2.77	+16.07	+ 1.77
August	890.00	-29.87	- 3.25	-57.23	- 6.04	-17.82	- 1.96	-26.80	- 2.92
<u>All years - 1961-62 to 1966-67</u>									
January	705.00								
February	725.00	+12.57	+ 1.76						
March	714.00	- 5.54	- 0.77	-18.63	- 2.54				
April	717.00	- 9.65	- 1.33	-22.94	- 3.10	- 4.52	- 0.63		
May	751.00	+17.24	+ 2.35	+ 3.75	+ 0.50	+22.28	+ 3.06	+26.45	+ 3.65
June	770.00	+30.87	+ 3.93	+15.44	+ 2.05	+34.08	+ 4.63	+38.22	+ 5.22
July	783.00	+35.02	+ 4.68	+21.13	+ 2.77	+39.88	+ 5.37	+43.99	+ 5.95
August	786.00	+30.91	+ 4.09	+16.82	+ 2.19	+35.68	+ 4.76	+39.76	+ 5.33

Table A8.9. Returns to Storage - Mangalore market, 1961-62 to 1966-67.

Year and Month	Monthly Average Price (Rs. per quintal)	Returns to Storage Based on									
		December Price		January Price		February Price		March Price		April Price	
		Rs. per quintal	%	Rs. per quintal	%	Rs. per quintal	%	Rs. per quintal	%	Rs. per quintal	%
1	2	3	4	5	6	7	8	9	10	11	12
1. Variety - New Supari											
1961-62											
December	497.00	+									
January	490.00	- 12.13	- 2.42								
February	560.00	+ 52.84	+10.42	+64.94	+13.12						
March	563.00	+50.81	+ 9.92	+62.98	+12.60	- 2.76	- 0.49				
April	544.00	+26.78	+ 5.18	+39.02	+ 7.73	-27.42	- 4.80	-24.79	- 4.36		
May	525.00	+ 2.75	+ 0.53	+15.06	+ 2.95	-52.08	- 9.02	-49.48	- 8.61	-24.60	- 4.48
June	572.00	+44.72	+ 8.48	+57.10	+11.09	-10.74	- 1.84	- 8.17	- 1.41	+16.90	+ 3.04
July	591.00	+58.69	+11.03	+71.14	+13.68	+ 2.60	+ 0.44	+ 5.14	+ 0.88	+30.40	+ 5.42
August	568.00	+30.66	+ 5.71	+43.18	+ 8.23	-26.06	- 4.39	-23.55	- 3.98	+ 1.90	+ 0.34
1962-63											
December	380.00										
January	475.00	+91.04	+23.71								
February	486.00	+98.18	+25.32	+ 6.09	+ 1.27						
March	486.00	+94.32	+24.08	+ 1.28	+ 0.26	- 5.02	- 1.02				
April	504.00	+108.46	+27.42	+14.47	+ 2.96	+ 8.06	+ 1.63	+12.98	+ 2.64		
May	557.00	+157.60	+39.46	+62.66	+12.68	+56.14	+11.21	+61.06	+12.31	+47.80	+ 9.19
June	563.00	+159.74	+39.61	+63.85	+12.79	+57.22	+11.31	+62.14	+12.41	+48.70	+ 9.47
July	556.00	+148.88	+36.57	+52.04	+10.33	+45.30	+ 8.87	+50.22	+ 9.93	+36.60	+ 7.05
August	569.00	+158.02	+38.45	+60.23	+11.84	+53.38	+10.35	+58.30	+11.42	+44.50	+ 8.48
1963-64											
December	522.00										
January	519.00	- 8.38	- 1.59								
February	545.00	+12.34	+ 2.32	+20.65	+ 3.94						
March	558.00	+20.06	+ 3.73	+28.40	+ 5.56	+ 7.39	+ 1.34				
April	553.00	+ 9.78	+ 1.80	+18.15	+ 3.39	- 3.12	- 0.56	-10.74	- 1.91		
May	583.00	+34.50	+ 6.29	+42.90	+ 7.94	+21.37	+ 3.80	+13.62	+ 2.39	+24.31	+ 4.35
June	608.00	+54.22	+ 9.79	+62.65	+11.49	+40.86	+ 7.20	+32.98	+ 5.74	+43.72	+ 7.75
July	634.00	+74.94	+13.40	+83.40	+15.15	+61.35	+10.71	+53.34	+ 9.19	+64.13	+11.25
August	644.00	+79.66	+14.12	+88.15	+15.88	+65.84	+11.39	+57.70	+ 9.84	+68.54	+11.91
1964-65											
December	488.00										
January	547.00	+53.96	+10.94								
February	554.00	+56.02	+11.25	+ 1.37	+ 0.25						
March	606.00	+103.98	+20.50	+47.84	+ 8.57	+46.30	+ 8.27				
April	654.00	+146.14	+28.78	+90.31	+16.02	+88.70	+15.69	+41.78	+ 6.82		
May	648.00	+135.20	+26.37	+78.78	+13.84	+77.10	+13.50	+29.66	+ 4.80	-12.70	- 1.92
June	708.00	+190.26	+36.75	+133.25	+23.18	+131.50	+22.81	+83.54	+13.38	+40.70	+ 6.10
July	728.00	+205.32	+39.28	+147.72	+25.46	+145.90	+25.06	+97.42	+15.45	+54.10	+ 8.03
August	714.00	+186.38	+35.32	+128.19	+21.88	+126.30	+21.49	+77.30	+12.14	-30.50	+ 4.92
1965-66											
December	583.00										
January	628.00	+39.01	+ 6.62								
February	656.00	+61.12	+10.27	+21.56	+ 3.40						
March	720.00	+119.23	+19.85	+79.22	+12.36	+57.28	+ 8.64				
April	731.00	+124.34	+20.50	+83.88	+12.96	+61.66	+ 9.21	+ 3.64	+ 0.50		
May	697.00	+84.45	+13.79	+43.54	+ 6.66	+21.04	+ 3.11	-37.62	- 5.12	-41.47	- 5.62
June	694.00	+75.56	+12.22	+34.20	+ 5.18	+11.42	+ 1.67	-47.88	- 6.45	+51.84	- 6.95
July	660.00	+35.67	+ 5.71	- 6.14	- 0.92	-29.20	- 4.24	-89.14	-11.90	-93.21	-12.38
August	596.00	-34.22	- 5.43	-76.48	-11.37	-99.82	-14.35	-160.40	-21.21	-164.58	-21.64

Continued/..

Table A8.9 - concluded

	1	2	3	4	5	6	7	8	9	10	11	12
<u>1966-67</u>												
December	518.00											
January	537.00	+13.66	+ 2.61									
February	611.00	+82.42	+15.59	+68.47	+12.62							
March	620.00	+86.18	+16.14	+72.04	+13.15	+ 2.73	+ 0.44					
April	608.00	+68.94	+12.79	+54.61	+ 9.87	-15.44	- 2.48	+18.36	- 2.93			
May	588.00	+43.70	+ 8.03	+ 29.18	+ 5.22	-41.61	- 6.61	-44.62	- 7.05	-26.24	- 4.27	
June	590.00	+40.46	+ 7.36	+25.75	+ 4.56	-45.78	- 7.20	-48.88	- 7.65	-30.38	- 4.90	
July	608.00	+53.22	+ 9.59	+38.32	+ 6.73	-33.95	- 5.29	-37.14	- 5.76	-18.52	- 2.96	
August	647.00	+86.98	+15.53	+71.89	+12.50	- 1.12	- 0.17	- 4.40	- 0.68	+14.34	+ 2.27	
<u>All Years - 1961-62 to 1966-67</u>												
December	521.00											
January	528.00	+ 1.63	+ 0.31									
February	569.00	+37.36	+ 7.03	+35.56	+ 6.66							
March	598.00	+60.09	+11.38	+59.22	+10.99	+23.15	+ 4.03					
April	599.00	+56.82	+10.48	+54.88	+10.11	+18.40	+ 3.17	- 5.12	- 0.85			
May	595.00	+47.55	+ 8.67	+45.54	+ 8.29	+ 8.65	+ 1.48	-15.18	- 2.49	-10.15	- 1.68	
June	628.00	+75.28	+13.62	+73.20	+13.19	+35.90	+ 6.06	+11.78	+ 1.91	+16.80	+ 2.75	
July	627.00	+69.01	+12.37	+65.86	+11.94	+29.15	+ 4.88	+ 4.74	+ 0.76	+ 9.75	+ 1.58	
August	622.00	+58.74	+10.43	+56.52	+10.00	+18.40	+ 3.05	- 6.30	- 1.00	- 1.30	- 0.21	

CHAPTER IX

EXPORTS OF ARECANUT

In this chapter an attempt is made to present the quantitative flow of arecanut from the primary wholesale markets to the various terminal and consuming markets in the country. It also attempts to present in some detail the pattern and methods of sale by the traders in the primary wholesale markets and the size of trade handled by the traders in these markets with the help of the available data. The analysis refers to the year 1965-67 (October-September) and to only two markets, Mangalore and Sirsi, as no quantitative data were available for Shimoga market.

The records at the South Kanara Market Committee, Mangalore, provided the quantity exported by each trader monthwise. These were based on the returns submitted by the exporters and covered exports by road, railway and sea. This source did not provide the destination of the exports and the number of importers at each place. The destination-wise exports by road only along with quantity and value of the exports and number of importers were, however, collected from another official agency¹ which were based on the declaration of the exporters. These, however, did not cover the entire exports. Though 85 per cent of the exports

¹ The name of the official agency from whom these details were collected is not mentioned here for technical reasons.

of arecanut from Mangalore market during 1966-67 was by road, the data collected from this agency accounted for only 53 per cent of the total exports i.e. about 62 per cent of the exports by road.

The Regulated Market Committee of Sirsi did not possess any data about the export of arecanut from that market. However, the 'trip-sheets' by some of the local road transport agencies transporting arecanut out of Sirsi provided the destination of the produce, the name of the importer and the quantity but not the value of the nuts sent out. This was because, the traders exported arecanut mainly to Bombay to be sold through their agents and the price at which it was to be sold was not fixed before exporting. Since the entire transporting of arecanut out of Sirsi was not handled by the local transporting agencies, the data collected from these agencies did not cover the entire exports. In fact, they accounted for only about 54 per cent of the total purchases of arecanut during 1966-67.

The present chapter is broadly divided into three sections. The first section presents briefly the method of sorting and grading done by the traders and the method of selling to the upcountry buyers. In the second section the volume and pattern of exports are discussed. The third section presents the destinationwise flow of the commodity.

I. Methods of Grading and Sales by the Traders

The method of sale by the producer-sellers in the

regulated markets has already been discussed in detail in Chapter IV. It suffices to recollect here that the purchases by the various traders were mainly through the commission agents operating between the sellers and buyers in the regulated markets. It may, however, be mentioned that while in Sirsi as well as in Shimoga markets the commission agents were in fact also the major purchasers, in the case of Mangalore market, the commission agents, who were mainly the local people, hardly engaged themselves in the purchase of arecanut. Out of the 31 commission agents in Mangalore only four commission agents purchased and exported arecanut during 1966-67. Their share in the total purchases and exports was only about 0.4 per cent.

G r a d i n g

The produce brought by the primary sellers in the regulated market is a mixture of different grades and quality. The traders after purchasing sort them into various grades before reselling either within the market or outside the market. A brief mentioning of the methods of grading and the various commercial grades would not be out of place here.

In Mangalore market the variety of arecanut traded is the unboiled whole nuts called 'Chaali'. After purchasing, the traders sort out the inferior quality nuts called 'Koka' and broken and split nuts. This is done by hand picking mainly by female labour. The second stage in grading is

the sorting of nuts according to their size. This is done by using sieves of different sizes. At a time about half quintal of nuts is poured into the sieve handled by two male operators. After making sure that all the nuts of the required size are sifted, the remaining is transferred on to another sieve with a bigger diameter mesh. This process continues until the different size nuts are separated. Generally, the nuts are sorted into six grades. There is a further gradation in each of these grades on the basis of the colour and shape of the nuts sorting of which is done by hand-picking. Further, the nuts are vertically split into depending on the demand for the required type of split nuts. The different commercial grades and their consuming markets are presented below in the decreasing order of their superiority.

<u>Local Trade Name</u>	<u>Consuming markets</u>
<u>Unboiled whole nuts</u>	
1. Moti	Madhya Pradesh
2. Middal	Uttar Pradesh and Gujarat
3. Jamnagar	Proper Bombay
4. Jini	Andhra Pradesh and Maharashtra
5. Lindi	Orissa
<u>Unboiled split nuts</u>	
1. Jamnagar and Jini mix	Madhya Pradesh and Uttar Pradesh
2. Moti and Middal mix	Calcutta proper
3. Moti and Middal mix and Broken	Orissa

After sorting and grading, the nuts are treated with sulphur fumes, to improve the lustre and keeping quality of the nuts. The arecanut bags are stacked in air tight rooms and sulphur fumes are sent through pipes. The bags are kept in the smoke-room for about 12 to 16 hours. Usually they are brought in the evening and removed the next day.

In Sirsi market the method of grading is similar. However, the boiled whole nuts are given a coating with 'Chogaru', the concentrated liquid extract remaining after boiling the fresh arecanuts, to give lustre to the nuts before fumigating with sulphur. The different commercial grades and the consuming markets of the arecanut traded in Sirsi market are given below:

<u>Local Trade name</u>	<u>Consuming markets</u>
<u>I. Boiled whole nuts</u>	
1. Api (Moti api)	Nagpur, Madhya Pradesh, Calcutta
2. Jadi api	- do -
3. Toapi	- do -
4. Dhapapi	- do -
5. Halka Dhappa	- do -
6. Unchi Barada	- do -
7. Jini api	- do -
8. Tounchi api	- do -
9. Nagar Barada	Sholapur, Barsi, Pandharpur, Latur and North Karnatak
10. Odakamuri	- do -

- | | |
|-----------------|--|
| 11. Mani | Sholapur, Barsi, Pandharpur,
Latur and North Karnatak |
| 12. Nani Api | - do - |
| 13. Sanna gundu | - do - |

II. Unboiled whole nuts

- | | |
|-------------|-------------------------------------|
| 1. Chaali | Bombay, Gujarat and North
India. |
| 2. Vacharas | - do - |
| 3. Jannagar | - do - |
| 4. Jini | - do - |
| 5. Bilegotu | Mainly Orissa |

(Source: Regulated Market Committee, Sirsi).

In Shimoga market, while sieves are used to sort the different size nuts, much of the grading is done by hand picking, since the grading is based on the colour and shape of the nuts. The major commercial grades of arecanut traded in this market are given below :

1. Nuli
2. Rajalu - Big, medium and small
3. Phiton
4. Kadihasa
5. Vanthi Bette
6. Red Bette
7. Benmuri
8. Red Dala
9. Nice dala
10. Idi

The consuming markets for the arecanut traded in this market are mainly in Andhra Pradesh, Madras and parts of Mysore State.

P a c k i n g

For transporting to upcountry markets arecanuts are packed either in single or double gunny bags depending upon the distance and the number of transhipments involved. If packed in single bags, ropes are tied around the belly of the bag 10 to 12 rounds so that the bags may not give way during transhipment. If packed in double bags, no roping is necessary.

Method of Sale

The buyers in the primary market at Mangalore sell to outside buyers on specific orders at agreed prices. The orders are received either directly from the buyers in the upcountry markets or through brokers or agents of the sellers in those markets or through the local agents of the upcountry buyers. The cost of gunny bags, packing and other handling charges, transport, insurance and the brokerage or commission are borne by the buyers. Goods are despatched at the risk of the buyers and delivery of the goods is through the bank.

In Sirsi, the buyers in the primary market send their produce to be sold in the upcountry market, Bombay. Since

the traders of Sirsi send their produce 'for sale' the prices at which it is sold in the Bombay market depends largely on their agents and the conditions in that market. However, the Sirsi traders are constantly posted with the conditions in Bombay market by their agents. These agents also advise the Sirsi traders to send arecanuts of specific grades. Cost of transportation, insurance, handling charges and commission to the selling agents at Bombay are borne by the sellers, i.e. the traders of Sirsi. Sales outside Bombay market by the traders in Sirsi market are on specific orders and at agreed prices. On such sales the costs of transportation, insurance, packing and packing materials and other handling charges are borne by the buyers.

The method of selling by the traders in the primary market at Shinoga to outside buyers was similar to the one observed in the case of Mangalore.

II. Volume and Pattern of Exports

I. Mangalore market

There were 75 exporters of arecanut in Mangalore market. Of these 75 exporters, 16 exporters did not report any purchase in the regulated market through the commission agents. Obviously these exporters purchased arecanut either from the other traders or from the sellers directly. The total exports of arecanut during 1966-67 (October to September) was 2,27,341 quintals valued approximately at Rs. 16.21

crores. The quantity exported and the share of each of the exporters in the total exports is given in Table 9.1. It can be seen from the table that there was a high degree of concentration in the export trade. About 65 per cent of the exports was handled by 20 exporters who were also the big traders. The share of these 20 traders in the total purchases was 89 per cent. However, these traders purchased more than what they exported. The purchases and exports according to the size of purchases are presented in Table 9.2.

It can be seen from Table 9.2 that the top ten traders who had a share of 70 per cent in the total purchases exported only about 63 per cent of their total purchases. The share of these ten traders in the total exports was about 46 per cent. The 10 traders in groups IV and V together though accounted for about 18 per cent of the purchases, their exports were about 21 per cent above their purchases. The share of these two groups in the total exports was 22 per cent. The 37 traders in group VI, whose individual share in the total purchases was less than one per cent, exported almost three times their purchases. The share of these traders in the total exports was nearly 30 per cent. The difference between the quantum of purchases and exports of the various groups of traders indicate that the relatively small exporters, who were also small traders, did not buy in the regulated market all their

Table 9.1. Quantity of Arecanut Exported and the Relative Share of Each Exporter, 1966-67 (Oct.-Sept.) Mangalore Market

Sr. No.	Quantity	%	Cumulative %
1	24626	10.83	10.83
2	17623	7.75	18.58
3	15443	6.79	25.37
4	12701	5.59	30.96
5	12466	5.48	36.44
6	10117	4.45	40.89
7	9713	4.27	45.16
8	9549	4.20	49.36
9	9296	4.09	53.45
10	9108	4.01	57.46
11	7209	3.17	60.63
12	6390	2.81	63.44
13	6023	2.65	66.09
14	5915	2.60	68.69
15	4034	1.77	70.46
16	3536	1.56	72.02
17	3417	1.50	73.52
18	3305	1.45	74.97
19	3240	1.43	76.40
20*	3178	1.40	77.80
21	3104	1.37	79.17
22	3082	1.36	80.53

Continued/..

Table 9.1 - continued

Sr. No.	Quantity	%	Cumulative %
23	3082	1.36	81.89
24	3053	1.34	83.22
25	3013	1.33	84.55
26	2994	1.32	85.87
27	2765	1.22	87.09
28	2725	1.20	88.29
29	2031	0.89	89.18
30	1976	0.87	90.05
31	1942	0.85	90.90
32	1832	0.81	91.71
33	1662	0.73	92.44
34	1584	0.70	93.14
35	1388	0.61	93.75
36	1259	0.55	94.30
37	1209	0.53	94.83
38*	1158	0.51	95.34
39	1134	0.50	95.84
40	1088	0.48	96.32
41	851	0.37	96.69
42	844	0.37	97.06
43	805	0.35	97.41
44	800	0.35	97.76
45	545	0.24	98.00
46	470	0.21	98.21

Continued/..

Table 9.1 - continued

Sr. No.	Quantity	%	Cumulative %
47	425	0.19	98.40
48	386	0.17	98.57
49	356	0.16	98.73
50	364	0.16	98.89
51	289	0.12	99.01
52	273	0.12	99.13
53	270	0.12	99.25
54	280	0.12	99.37
55*	249	0.11	99.48
56*	164	0.07	99.55
57*	103	0.05	99.60
58*	107	0.05	99.65
59*	123	0.05	99.70
60	81	0.04	99.74
61	97	0.04	99.78
62	69	0.03	99.81
63*	76	0.03	99.84
64	43	0.02	99.86
65*	48	0.02	99.88
66*	54	0.02	99.90
67*	41	0.02	99.92
68	12	0.01	99.93
69	28	0.01	99.94

Continued/..

Table 9.1 - concluded

<u>Sr. No.</u>	<u>Quantity</u>	<u>%</u>	<u>Cumulative %</u>
70	28	0.01	99.95
71*	22	0.01	99.96
72*	30	0.01	99.97
73*	16	0.01	99.98
74*	16	0.01	99.99
75*	6	0.01	100.00
	227341	100.00	

* Non-buying exporters.

Table 9.2. Volume of Purchases and Exports by Size of Traders, 1966-67 - Mangalore Market

Size Group of Traders*	No. of traders in the group	Purchases (Quintals)	% to total	Exports	% to total	Exports as % of purchases
I (10 per cent and above)	2	54184	23.37	33922	14.92	62.61
II (6 to 9.99 per cent)	3	50448	21.77	31248	13.75	61.94
III (4 to 5.99 per cent)	5	59184	25.53	38632	16.99	65.27
IV (2 to 3.99 per cent)	3	18393	7.93	25348	11.15	137.81
V (1 to 1.99 per cent)	7	23322	10.06	25196	11.08	108.04
VI (Less than 1 per cent)	39	22931	9.89	67604	29.74	294.81
VII (Non-exporting buyers) (Less than 1 per cent)	7	3350	1.45	-	-	-
VIII (Non-buying exporters)	16	-	-	5391	2.37	-
		231812	100.00	227341	100.00	98.07

* Based on the percentage share of each trader in the total purchases during 1966-67.

quantities while the big traders could more than do so. The small traders obviously had to depend on the resale of the bigger traders.

The pattern of exports over the season for the various groups of traders did not exhibit any marked variation. This can be clearly seen from Table 9.3 giving the monthly exports as a proportion of total exports during the year for each group of traders. It may be pointed out that though the pattern of purchases (presented in Table A6.2, Chapter VI) and exports over the season was almost similar, the magnitude of fluctuations in exports was smaller than those of purchases.

Sirsi market

As mentioned earlier the commission agents in Sirsi market were also the major purchasers and exporters of arecanut. The volume and pattern of purchases by the various commission agents and traders has already been discussed in detail in Chapter VI. As regards the exports the data collected from the transport agencies covered only about 54 per cent of the total purchases in the market. The total quantity exported during the year 1966-67 (Oct. - Sept.) was 41,230 quintals while the total purchases by the traders was 75,416 quintals. As there were many gaps in the data relating to the monthly exports by the various traders no attempt could be made to relate the pattern of purchases

Table 9.3. Monthly Exports of Arecanut as per cent of Total Exports during 1966-67 (trader groupwise)
- Mangalore Market

Month	Size Group of Traders*							All Groups
	I (10% and above)	II (6 to 9.99%)	III (4 to 5.99%)	IV (2 to 3.99%)	V (1 to 1.99%)	VI (Less than 1%)	VII (Non-buy- ing exporters)	
October	8.71	8.14	4.52	5.16	4.26	5.56	8.22	6.08
November	8.09	3.23	10.26	5.14	9.44	10.71	15.62	8.57
December	9.24	11.80	12.36	21.55	13.14	13.63	11.93	13.30
January	9.80	9.83	6.49	7.31	6.06	8.25	5.66	7.99
February	8.16	11.69	3.91	4.78	7.87	8.10	6.70	7.46
March	6.23	10.13	16.47	9.56	6.39	7.48	10.17	9.36
April	6.06	6.38	4.39	4.98	6.23	6.04	5.97	5.71
May	12.11	10.17	8.83	9.86	11.02	8.44	10.78	9.79
June	11.31	7.51	11.49	9.20	11.16	10.15	9.26	10.17
July	9.27	6.76	7.82	7.23	7.07	6.88	8.20	7.47
August	5.72	5.74	5.52	7.20	9.28	8.48	0.74	6.95
September	5.30	8.62	7.94	8.03	8.08	6.28	6.75	7.15
	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Total quantity (in quintals)	(33922)	(31248)	(38632)	(25348)	(25196)	(67604)	(5391)	(227341)

* Based on the Percentage share of each trader in the total purchases during 1966-67.

and exports over the season. The exports by the various traders are presented in Table 9.6.

III. Destination of Exports

In this section, the quantitative flow of arecanut from Mangalore and Sirsi markets to the various terminal and consuming markets is presented. As already mentioned these exports relate to exports by 'road only' and covered only a part of the total exports from these markets. In the case of Mangalore market these covered about 53 per cent of the total exports and 62 per cent of the exports by road during 1966-67 and in the case of Sirsi market these exports were about 54 per cent of the total sales (purchases) in the market. In spite of this shortfall in the coverage the destinationwise exports nevertheless show the spread of markets for arecanut traded in these two primary markets.

Mangalore Market

Arecanut from Mangalore market was exported to 107 places in 12 states and the total number of importers was 932. The total quantity exported to these places was 122,831 quintals valued at Rs. 8.79 crores. By far, Bombay was the single biggest importer of arecanut from Mangalore. The exports to Bombay alone was 58 per cent of the total exports. The maximum number of importers at a single place was also in Bombay where there were 99 importers, importing from 66

exporters in Mangalore. The quantity and value of exports to different states along with the number of places and importers are given below in Table 9.4. Detailed destinationwise exports are given in Table 9.5.

Sirsi Market

As regards the destination of exports from Sirsi market, of the total exports of 41,232 quintals 97.52 per cent was to Bombay, 0.76 per cent to Calcutta, 0.23 per cent to Ambala (Punjab), 0.04 per cent to Sholapur (Maharashtra) and the rest (1.45 per cent) were distributed within the State. The total quantity exported by each trader and the number of importers are given in Table 9.6. Out of the 31 importers of arecanut from Sirsi market 12 were in Bombay. Out of the 12 importers¹ at Bombay market, two importers shared nearly 60 per cent of the exports to Bombay from Sirsi market from 21 traders. The quantity received by each of the importers along with the number of exporters are presented in Table 9.7.

As mentioned earlier, the exports to Bombay were 'for sale' while for other places they were consignment sales. The quantity exported to the markets within the state were generally in small lots ranging from half quintal to four quintals. The exports to Ambala and Calcutta were only by the Totgars' Cooperative Sale Society. This society exported during 1966-67, 93.60 quintals of arecanut valued at

¹ Though termed as 'Importers' these were the selling agents of the Sirsi traders.

Table 9.4. Exports of Arecanut from Mangalore, 1966-67 (statewise)

State	No. of places	No. of Importers	Quantity (Quintals)	% to total quantity	Value (in Rs.'00)	% to total value
1. (a) Bombay	1	99	72019	58.63	512516	58.33
(b) Rest of Maharashtra	15	106	5145	4.19	38361	4.37
(c) Total Maharashtra	16	205	77164	62.82	550877	62.70
2. Gujarat	29	317	14219	11.58	108319	12.32
3. Uttar Pradesh	10	81	7959	6.48	55290	6.30
4. (Calcutta) West Bengal	2	17	8001	6.51	54551	6.20
5. Madhya Pradesh	13	102	6219	5.06	45953	5.23
6. Andhra Pradesh	14	108	5105	4.16	35847	4.08
7. Tamil Nadu	7	38	2086	1.70	14310	1.63
8. Kerala	2	8	1120	0.91	6729	0.77
9. Mysore	10	43	678	0.55	4836	0.55
10. Orissa	2	9	130	0.11	859	0.10
11. Punjab	1	1	92	0.07	584	0.07
12. Bihar	1	3	58	0.05	449	0.05
Total	107	932	122831	100.00	878604	100.00

**Table 9.5. Destinationwise Exports of Arecanut from
Mangalore Market by Road, 1966-67 (Oct.-Sept.)**

(Quantity in quintals; Value in Rs. '00)

Sr. No.	Destination	No. of importers	No. of exporters	Quantity	Value in Rs.'00
1	2	3	4	5	6
I. Maharashtra					
1	Bombay	99	60	72019	512516
2	Kolhapur	32	11	2675	20567
3	Nagpur	16	11	1210	8485
4	Sangli	10	7	367	2718
5	Chiplun	8	1	288	2206
6	Amraoti	7	5	190	1428
7	Nanded	3	3	115	763
8	Akola	11	6	104	790
9	Karad	6	4	39	295
10	Khed	2	1	45	338
11	Devrukh	2	2	36	216
12	Vadgaon	3	1	24	183
13	Jalna	1	1	17	123
14	Poona	3	3	27	185
15	Satara	1	1	7	58
16	Sholapur	1	1	1	6
	Total	205	66	77164	550877

Continued/..

Table 9.5 - continued

1	2	3	4	5	6
<u>II. Gujarat</u>					
1	Bhavnagar	31	12	4265	33161
2	Ahmedabad	45	26	2536	19396
3	Jamnagar	41	17	1207	8952
4	Rajkot	19	8	1136	8826
5	Gondal	13	9	501	3838
6	Veraval	16	6	994	7299
7	Dhoraji	7	4	207	1457
8	Porbunder	33	8	822	6240
9	Junagadh	21	5	549	4384
10	Baroda	10	6	519	3844
11	Morvi	11	5	336	2237
12	Nadiad	4	3	279	2131
13	Surendranagar	6	5	222	1673
14	Upleta	11	8	214	1683
15	Kutiyana	4	4	105	714
16	Keshod	5	3	87	666
17	Virangaon	4	2	27	196
18	Patan	1	1	17	136
19	Dwarka	7	5	30	226
20	Wankner	8	4	62	476
21	Jhodiya	1	2	26	195

Continued/..

Table 9.5 - Continued

1	2	3	4	5	6
22	Khambatiya	3	2	20	143
23	Boḷad	1	1	19	145
24	Jetpur	1	1	11	90
25	Nadiya	1	1	8	53
26	Surat	1	1	9	70
27	Chota Udaipur	1	1	5	37
28	Jasdon	2	1	6	51
		317	42	14219	108319
<u>III. Uttar Pradesh</u>					
1	Delhi	17	9	2181	14384
2	Lucknow	16	8	2878	20439
3	Kanpur	26	11	2415	16897
4	Allahabad	10	6	168	1200
5	Banda	2	2	150	1155
6	Jhansi	1	1	87	609
7	Barielly	5	3	40	309
8	Beharaich	2	2	22	163
9	Kheri	1	1	11	84
10	Aligarh	1	1	7	50
		81	18	7959	55290
<u>IV. West Bengal</u>					
1	Calcutta	11	8	7842	53465
2	Murshidabad	6	5	159	1086
		17	13	8001	54551

Continued/..

Table 9.5 - Continued

1	2	3	4	5	6
<u>V. Madhya Pradesh</u>					
1	Satna	23	10	1925	14501
2	Katni	32	8	2007	15087
3	Bhopal	10	8	786	5506
4	Bilaspur	6	6	427	2665
5	Ujjain	8	5	358	2810
6	Indore	10	8	243	1841
7	Jabalpur	3	3	137	1068
8	Sagar	5	4	120	910
9	Gwalior	1	1	91	691
10	Jaora	1	1	71	447
11	Manpur	1	1	28	230
12	Damoh	1	1	17	131
13	Sarangpur	1	1	8	66
		102	20	6219	45953
<u>VI. Andhra Pradesh</u>					
1	Hyderabad	51	17	4447	31472
2	Begum Bazar	15	7	183	1189
3	Nizamabad	4	5	167	1157
4	Warrangal	14	4	131	748
5	Karimnagar	5	2	20	149
6	Mancherial	4	2	60	432

Continued/..

Table 9.5 - Continued

1	2	3	4	5	6
7	Peddapalli	2	1	17	120
8	Kothagudam	2	2	15	104
9	Mehboobnagar	3	1	14	95
10	Adilabad	3	2	33	253
11	Anakapalli	2	2	4	28
12	Nirmal	1	1	4	28
13	Tirutanni	1	1	1	8
14	Vijayadurga	1	1	9	64
		108	20	5105	35847
<u>VII. Tamil Nadu</u>					
1	Kumbhakonam	15	8	1695	11638
2	Madras	13	7	279	1942
3	Tanjore	5	4	44	270
4	Tiruchirapalli	1	2	36	250
5	Nagapattanam	2	2	21	132
6	Pudokottai	1	2	8	57
7	Vanthalli	1	1	3	21
		38	12	2086	14310
<u>VIII. Kerala</u>					
1	Cochin	8	8	1120	6729
<u>IX. Mysore</u>					
1	Nipani	8	6	142	1073
2	Belgaum	6	2	243	1735

Continued/..

Table 9.5 - Continued

1	2	3	4	5	6
3	Bangalore	6	5	42	238
4	Chikodi	5	2	75	563
5	Sankeshwar	6	3	43	309
6	Sangameshwar	5	3	57	426
7	Bidar	2	3	40	279
8	Hadgli	2	4	25	151
9	Gulbarga	1	1	8	48
10	Hubli	1	1	3	14
		43	15	678	4836
<u>X. Orissa</u>					
1	Cuttack	2	1	17	108
2	Berhampur	7	9	113	751
		9	10	130	859
<u>XI. Punjab</u>					
1	Amritsar	1	2	92	584
<u>XII. Bihar</u>					
1	Patna	7	3	58	449

Table 9.6. Exports of Arecanut from Sirsi market, 1966-67
(Quantity in quintals)

Exporters	Exports to Bombay		Exports to other places		Total ex-ports
	Quantity	No. of importers	Quantity	No. of importers	Quantity
1	6688	1	422	3	7110
2	4776	1	438	3	5214
3	4260	1	-	-	4260
4	3365	2	-	-	3365
5	3261	5	-	-	3261
6	2365	3	-	-	2365
7	2061	1	-	-	2061
8	1809	3	-	-	1809
9	1430	5	206	7	1636
10	1545	3	-	-	1545
11	1067	1	-	-	1067
12	901	6	8	1	909
13	880	2	-	-	880
14	861	2	-	-	861
15	854	1	-	-	854
16	667	2	4	1	671
17	617	1	-	-	617
18	539	4	31	3	570
19	493	4	-	-	493
20	436	1	-	-	436
21	386	1	-	-	386
22	215	1	-	-	215
23	201	2	-	-	201
24	146	1	-	-	146
25	73	1	-	-	73
26	72	1	-	-	72
27	40	1	74	1	114
28	39	1	-	-	39
	40047	12	1183	19	41230

Table 9.7. Volume of Arecanut Received by Each Importer*
at Bombay from Sirsi Market (Importerwise) -
1966-67

Importer	No. of Exporters in Sirsi	Quantity (Quintals)	%
1	13	14439	36.07
2	13	9532	23.80
3	5	3503	8.75
4	6	2663	6.65
5	4	2094	5.23
6	4	1857	4.64
7	4	1715	4.28
8	5	1306	3.26
9	4	915	2.28
10	3	766	1.91
11	4	532	1.33
12	1	176	0.43
13 (non-specific)	-	549	1.37
Total		40047	100.00

* Though termed as Importers these were the selling agents of the Sirsi traders.

Rs. 71,527 to Ambala and 312 quintals valued at Rs.202,190 to Calcutta. These were sales on orders received by the society and the various costs incidental to exports were borne by the importers. There was only one importer in Ambala and one in Calcutta.

To sum up, the traders in the primary markets purchased mainly through the commission agents. In Mangalore market the commission agents hardly engaged themselves in the purchase of arecanut and formed only a link between the buyers and sellers while in the other two markets, Sirsi and Shimoga, the commission agents were in fact also the bulk purchasers of arecanut.

Grading of the produce at the stage of producer-selling is not done. The grades are established in the upcountry markets and the traders grade in the market after purchase and before exporting. The method of sale by the traders in the primary markets to the upcountry buyers was different in these markets. The traders in the primary market at Mangalore sold to outside buyers on specific orders and at agreed prices. This was so in the case of Shimoga market also. The traders in Sirsi market on the other hand sent arecanut mainly to Bombay market to be sold through their agents. Because of this method of sale the traders of Sirsi were always faced with the uncertainty of the price they would realize. Only small quantities were sold on specific orders received and at agreed prices and these

were mainly within the State.

As to the destination of exports, the quantitative flow of arecanut from the two markets, Mangalore and Sirsi, amply brings out the widespread of markets for arecanut traded in these two markets. While Mangalore market also had direct link with a large number of consuming markets, the produce from Sirsi market was largely routed through the Bombay market. While the data presented above showed that the exports from Mangalore and Sirsi markets were mainly to the consuming markets in northern India, enquiries at Shimoga market revealed that arecanut from Shimoga market was exported mainly to Andhra Pradesh, Madras and parts of Mysore State. However, no quantitative data was available to substantiate this. The importance of these primary markets, as far as marketing of arecanut is concerned, is thus obvious.

CHAPTER X

SUMMARY AND CONCLUSIONS

In the foregoing chapters we have discussed the marketing of arecanut in the major producing regions of Mysore State examining in detail the manner of disposal of the crop by the producers in the primary wholesale markets. We also examined the structure and functioning of these markets and the factors influencing the pattern of arrivals, sales and prices in these markets. In the present chapter we summarize the discussions in the preceding chapters and present the conclusions as suggested by our analysis.

Arecanut is one of the important 'conventional necessities' of the large mass of Indian population. To meet the internal demand large quantities of arecanut were being imported. However, as the result of a deliberate policy to curb and eventually stop all imports, imports of arecanut which formed nearly one third of the total supply till 1958-59 declined to a mere 0.41 per cent in 1966-67. Though domestic production responded to a decline in imports by registering an increase, the per capita availability, however, declined. While the consumption of arecanut is widespread its production is highly localised in the three States of Mysore, Kerala and Assam. As production of arecanut in Assam is largely

consumed within that State, the national market is entirely dependent on the production in the two southern States, Mysore and Kerala.

In Mysore State, which is the largest single producer of arecanut, the production of the crop is also highly localised. Nearly 63 per cent of the area under arecanut in the State is located in 15 of the 33 taluks of the four major arecanut producing districts which accounted for 75 per cent of the State's area under production of arecanut.

It may be pointed out here that despite the importance of the crop reliable statistics relating to the area and production of arecanut are lacking. Statistical information about the area under arecanut and the production of nuts is available for the State from two sources - one, the 'official estimates' as reported by the revenue agency, and the other, the results of the 'sample survey' conducted by the State Bureau of Economics and Statistics every year since 1959-60. However, the magnitude of difference between the two estimates, arising necessarily out of the estimation procedures involved in them, introduces an element of uncertainty in arriving at a clear picture. Considering the nature of the crop the official estimates of area appear to be more realistic or less unreliable. As regards production estimates, in the light of factors like the method of estimation, the volume of arrivals in the regulated markets, etc., the sample

survey estimates appear to be superior to those of the official estimates.

Consumption of arecanut forms a very small proportion of the total consumer budget of any category of people. Therefore, unlike many other edible agricultural products, like food-grains, the producers of arecanut market most of their total production, a very small quantity is retained for domestic consumption. This adds a new dimension to the crop under study. As such marketing plays a predominant role in the growth or otherwise of the cultivation of the crop. Traditionally, the marketing of arecanut like other agricultural commodities, was left to the 'nascent' marketing organisation that existed in the rural India. As is well known the traditional marketing facilities are either weak or contain elements not favouring a competitive organization.

Marketing of agricultural produce in India was set on a new footing through various legislative measures. These measures aim at reforming the primary wholesale markets where the produce changes hands for the first time from the producer to the trader. The regulatory measures are designed to establish proper institutions and practices in the market so that through informed and free competitive conditions the producer-sellers can have the best possible deals. The major device by which competition is fostered or made more effective is by

establishing centralized (regulated) markets. The establishment of such centralized markets ensures among other things (1) open sale system under supervision, (2) the possibility of the presence of several buyers and a competitive bidding for every lot sold, and (3) the easy availability of reliable market information. Besides these, the various market charges are fixed, correct weighment of the produce is assured and arrangements are made for settlement of disputes. It may be mentioned that the legislative measures do not aim at creating an alternative marketing system but at regulating the existing system such that greater competition may prevail, undesirable practices taking advantage of the ignorance and weakness of the producers may be eliminated, and the producers get the legitimate advantages of a informed and regulated market.

The three markets selected for the present study offered an interesting - interesting due to their differential structure and practices - scope for the study of regulated markets. These markets came to be established under three different State legislations as they formed parts of three different States when these markets came to be regulated. While the ultimate object of the legislations was the same, an examination of the three State legislations brought out that there were considerable differences in the various provisions made under each of

the Acts. Further, on the implementation side too there were differences. While the Shimoga and Sirsi Market Committees were largely able to implement the various provisions, the Mangalore Market Committee could not do so. The differences in the provisions made under the three marketing legislations and their implementation in the three markets, it appears, led to differences in the structure and organisation of these markets. In the present study, we have attempted to analyse these differences and also to relate the differences to the relative efficacy or efficiency of marketing. Briefly stated, the fundamental differences are (1) the composition of the sellers in the market, (2) operation of the commission agents as traders, and (3) the role of the cooperative societies in the marketing.

The various legislative measures do not make it compulsory for the producers to sell their produce in the centralized (regulated) markets. But they assume a voluntary action on the part of the producers to take advantage of such a centralized market. This, however, would largely depend on the location of these markets in relation to the producing regions. In this connection the present study attempted to analyse the marketing behaviour of the producers particularly in respect of the location and character - whether regulated or not - of the market centre. It is sometimes suggested that the location of

an organized market for a commodity acts as a stimulus to the location of its production in the surrounding regions. ✓ Whatever the possibilities of such a development in regard to other agricultural or livestock products, location of production of arecanut is conditioned by basic physiographic factors rather than the proximity of an organised market. The analysis in the present study indicated that the sale of the produce in the regulated markets depended largely on the distance of the producing villages from the regulated markets. This was possibly the reason for only about 70 per cent of the produce of Shimoga and Chickamagalur districts being sold in the regulated markets of these districts, while most of the produce of North Kanara district was sold in the regulated markets of the same district. Mangalore market in South Kanara district, however, handled the entire produce of the district despite the fact that this market is located far away from the major producing regions within that district. It may be pointed out here, that the small traders, who purchased from the producers at the farm site, accounted for a considerable proportion of the produce brought for sale in Mangalore market, while in North Kanara district practically all the produce was sold in the regulated markets by the producers. The role of the small trader as a seller in the regulated market was the minimal in the Shimoga market, despite the fact that

Shimoga and Chickanaagalur districts had many producing villages far away from the regulated markets. This was presumably because of a stricter enforcement of the market regulations in Shimoga than in Mangalore.

A detailed analysis of the data for Sirsi market further revealed the following :-

(1) While the effective supply area to a market depended on the pattern of distribution of production, the intensity of arrivals decreased with an increase in the distance from the market centre. This decrease, however, depended on the location of another competing market and it would be sharper if the competing market is a regulated one.

(2) The producers considered a regulated market a 'better market' than an unregulated one and a bigger regulated market is preferred to a smaller one.

(3) Looking at the seasonal pattern, the distance from the market centre as such did not seem to affect the pattern of arrivals over the season. All distance-groups more or less conformed to the average seasonal pattern of arrivals. The seasonality in arrivals appeared to be largely conditioned by the timing of harvests.

(4) The study also revealed that the relatively bigger producers brought their produce to the regulated market from longer distances. Though the cooperative societies, wherever they existed, also aided the disadvantageously

located smaller producers in taking advantage of a regulated market, distance still acted as a limiting factor as far as sale of arecanut in the regulated market by the producers is concerned.

The preference of a regulated market to unregulated market could also be seen from the substantial volume of arrivals from the neighbouring Kerala State into Mangalore market. The advantages of this market was, however, availed of by the small traders as the producers sold at the farm site largely because of the distant location of the regulated market.

As mentioned earlier, the marketing legislations do not aim at creating an alternative marketing system but to promote a greater competitiveness in the existing system, free from malpractices. In this connection we attempted to analyse the role of the commission agents and the impact of the existing trade practices on the price received by the producer-sellers.

The link between the producer-sellers and the purchasers in the primary wholesale market is the commission agent who receives a commission for his services. The entire produce brought by the producers passes through the commission agents and the sellers have no direct contact with the purchasers. The dependence of the sellers on the commission agents is due to a number of factors apart from the ignorance of the sellers about

market condition. Besides arranging for the sale of the produce, the commission agents provide the warehousing facilities until the produce is finally sold as there are no alternative storage facilities available to the sellers even for short periods. The Market Committees had no storage godowns of their own and besides they did not undertake to sell the produce on behalf of the sellers. Further, the commission agents provide the much needed credit facilities to the sellers at the various stages of crop production and marketing.

Each of the three markets studied here had a cooperative marketing society. The cooperative societies in Sirsi and Mangalore handled around one-third of the arrivals in the market as commission agents and the cooperative society in Shimoga handled about 17 per cent of the arrivals in the market. These cooperative societies provided transport facilities for bringing their members' produce from the village to the market in addition to the other services rendered by commission agents. However, the sphere of operation of these marketing societies differed either because of a limitation imposed by themselves or by some external factor such as legal restriction. While the cooperative society in Sirsi also acted as a purchaser of arecanut, the cooperative societies in Mangalore and Shimoga operated only as commission agents to the producers.

In Mangalore market while there was no mixing of the functions of commission agent and trader, in Sirsi and Shimoga markets the commission agents were also the major purchasers of arecanut. ✓ In fact it was observed that in Sirsi market the commission agents purchased nearly 83 per cent of the sales in that market. In Shimoga market the commission agents generally operated through 'dummy' traders as the market regulations did not allow the commission agents to buy in their own shop. In Sirsi market, however, the commission agents largely purchased the produce sold through them. This was possible because of a provision made in the by-law of the Market Committee that a commission agent can buy in his own shop only when his bidding is the highest in the open auction.

The Shirname Committee¹ had suggested that a commission agent should not be allowed to buy the goods as a principal when he is himself the agent of a seller. The reasons advanced for such a recommendation is that when he (commission agent) is an agent of a seller and also a buyer in the same transaction he may buy cheap and thereby sacrifice the interest of the seller whose agent he is. However, the results of our analysis of the data

1 op.cit., pp. 114-115.

relating to Sirsi market do not suggest that the existing trade practice of the commission agents was detrimental to the producer-sellers. If the practice of allowing the commission agents to self-purchase was detrimental to the interest of the producer-sellers, it should reflect in the self-purchase price being lower than the price the commission agent pays for his purchases from others or what others pay in his shop. The analysis of the price paid shows that in any case the commission agents did not by and large pay a lower price than others to the producers who sold through them. If anything they paid a somewhat higher price. Competition to maintain the loyalty of the producers who deal with the commission agents has possibly resulted in the higher price paid by the commission agents for self-purchase.

It was also attempted to study the effect of a high degree of concentration on the prices received by the sellers in Sirsi market. The results of our analysis do not suggest that the high degree of concentration in the trade in the primary market was detrimental to the producer-sellers. The extent of inter-group purchases by the commission agents and traders, the actual number of buyers from each commission agent viewed along with the large-scale trading operations of the cooperative society clearly indicate the existence of buying competition despite a high degree of concentration in the trade.

Further, the weighted average price paid for the total purchases was the highest for the top four buyers (excluding the cooperative society) who had a share of nearly 34 per cent in the total purchases. The high degree of concentration in the trade in itself does not necessarily mean that it works against the interests of the sellers particularly in the face of potential competition either from the expansion of smaller rivals or from new entry, as well as from that of the cooperative society.

Another feature that was analysed relates to the impact of the differences in the structure of marketing on the seasonalities in arrivals, sales and prices. As already mentioned, the three markets we analysed have different legislative background. In addition one of the markets namely, Sirsi, has a successful and dominant cooperative marketing society which functions both as a commission agent and a trader on behalf of the producers. Since the market mechanism is regulated to ensure a proper price, the present analysis to study the differential behaviour in terms of seasonalities as well as the factors affecting the prices acquires an importance. The results of our analysis may be summarised as follows:

The variations in magnitude of the seasonality in arrivals and sales in the three primary markets appeared to be independent of the volume of annual production or the total volume of arrivals in the market. The seasonality

in arrivals and sales in these markets showed varying patterns. At one end was Sirsi market with a high seasonality in arrivals and sales, both almost of the same order. At the other end was Shimoga market where the arrivals showed the largest seasonal fluctuation and sales showed the smallest seasonal fluctuation. In between these two was Mangalore market where though the seasonal fluctuation in arrivals was higher than in sales the seasonality in them could hardly be regarded as large. While fluctuations in arrivals are conditioned by the timing of harvests, availability of transport, etc., the fluctuations in sales stem mainly from the waiting capacity of the sellers and their judgement about the price.

An examination of the extent of price rise during the marketing season in these primary markets revealed that the rise in price was generally higher than the rise necessitated by costs of storing the produce for the requisite period. While the returns to storage for farmers were uncertain and fluctuating in the case of Sirsi market, they were generally positive and considerable in the two markets of Shimoga and Mangalore. It appeared from the analysis that because of the uncertain and fluctuating positive returns to storage and the trading operations of the cooperative society the postponement of sales by the sellers after the produce arrives in the market was not prevalent to an appreciable extent in Sirsi market.

In Shimoga market, as the operations of the cooperative society is not likely to favourably influence the prices in the heavy arrival season, since the society did not enter into the trade, the sellers (producers) regulated the quantity sold to take advantage of seasonal price rise. The case of Mangalore market, however, was different. The low seasonality in arrivals and sales was perhaps because of a larger trader component among the sellers who tried to adjust the arrivals in tune with the market condition and sold the quantity brought for sale without much postponement. The pattern of sales over the season in Shimoga and Mangalore markets shows that the producers and sellers by and large took advantage of the seasonal rise in price and runs counter to the generally held view that the producers fail to take advantage of the off-season rise in price.

While the seasonalities in arrivals and sales showed varying patterns, the seasonal fluctuation in prices showed a more or less similar pattern in these markets. The weekly wholesale prices in the primary and terminal markets exhibited a persistent seasonal pattern in their movement. However, the primary markets exhibited a larger seasonal fluctuation than the terminal markets. Further, the range of fluctuation in the prices, as revealed by the seasonal indices, showed that the fluctuation in the prices over the season is the highest in the case of

inferior variety nuts.

The weekly prices in the primary markets were examined for the influence of weekly arrivals and sales in these markets and the weekly prices in the terminal markets. The prices in the primary markets appeared to be largely independent of the arrivals or sales despite a high seasonality in them and were largely determined by the prices in the terminal markets. The seasonality in the price in the local market was largely a function of the terminal price rather than the rate of marketing in the primary markets. It may be mentioned that the analysis shows evidence of price effect that seem legitimately attributable to the variations in the rate of marketing. These effects are so small they are barely within the power of the present analysis to detect. Possible explanations of the small or negligible influence of arrivals or sales on the prices in the local market can be offered tentatively. However, these explanations merit further investigation.

The mechanism-through which the negative influence of arrivals or sales on the prices is counteracted is different in these markets. In Sirsi market it is presumably the large-scale trading operations of the cooperative society that counteracts the depressing influence of arrivals or sales on the prices. In Shimoga market, in the absence of a cooperative organisation as trader, it is the regulated sales by the producers (sellers) that

resulted in a small or negligible influence of the heavy arrivals on prices. In Mangalore market, the sellers counteract it, firstly, by adjusting the arrivals and secondly, through the quantity sold. The influence of the structure and functioning of the marketing organisation on the pattern of marketing and consequently on the prices in the primary wholesale markets is thus obvious.

The dominant influence of the terminal price emerges from the fact that almost the entire produce traded in the primary markets are exported and the terminal markets considered here receive a great bulk of these produce.

Thus, the present study while making an attempt to study the marketing of arecanut in its various aspects brings into focus the structure and functioning of the regulated markets particularly in the light of the various legislative measures to improve the conditions of marketing agricultural produce in the primary wholesale markets. The picture emerging out of the present study does not seem to be unfavourable to the producers. However, it may be pointed out that as the prices in the primary markets are largely determined by the prices in the terminal markets, the structure and organisation of these markets need to be examined.

Appendix I - A Brief Account of the Import Trade Control
in India with reference to the Import of
Areca nut

Import trade control was first instituted in India in May 1940, as a war measure to conserve the foreign exchange resources. In the beginning, only a limited number of consumer goods was brought under control and later in 1941 it was extended practically to all imported articles. In 1942 the few articles that were left out were also brought under the import control policy.

Prior to 1947, the operation of the exchange control was confined only to the non-sterling currencies and more specifically to the dollar and other hard currencies. The licencing of imports during this period was based on the general principle of 'essentiality' and 'non-availability' of the goods from the indigenous sources or from soft currency countries. Import licences were issued mainly according to these criteria, without reference to the amount of exchange involved. There was no definite allocation of foreign exchange for imports nor were any attempts made to limit licencing to a fixed figure either for all or for specific currencies.¹

At the end of the Second war, it was thought that

1 Report of the Import Trade Enquiry Committee, 1950, Ministry of Commerce, Government of India.

the control could be removed in view of the large demand for machinery and consumer goods. As a step towards the ultimate removal of control, the Government liberalized the import policy during 1946. A Universal Open General Licence (OGL VIII) was issued in September 1946, which allowed the free import of certain food stuffs and consumer goods from within or outside the sterling area. This led to a larger utilization of foreign exchange resources than anticipated. The exports also failed to expand to a corresponding degree.

Position Since 1947

Early in 1947 it was realized that such generous imports could no longer be allowed because of the restrictions imposed by the U.K. Treasury on the release of sterling balances. With a view to utilizing the limited foreign exchange available for essential imports, various steps were taken in this direction. From July 1947 import trade control entered thus on a new phase being closely linked with the foreign exchange control and the balance of payments problem. Since then, the main objective of the import trade control has been the conservation of foreign exchange reserves.¹ To be brief, it was a change from the 'qualitative' to 'quantitative' licensing on the basis of specific exchange ceilings allocated for specific goods from different currency blocs.

¹ Report of the Import Trade Enquiry Committee, op.cit., pp. 13-14.

In pursuance of the above policy the Government issued licences for the import of betelnuts (arecanuts) only from the soft currency areas, subjected to a monetary ceiling. Further, an import duty of Rs. 1.03 per kg. of betelnut was also levied.

In the second half of 1950, the Government introduced a quota system. Accordingly, a quota percentage of 75 per cent was allowed for established importers for importing betelnuts, from the soft currency areas only, for the period July-December 1950. The import duty of Rs. 1.03 per kg. of betelnut also continued to be levied.

Calculation of quotas

Imports during any one financial year between 1937-38 and 1949-50 both years inclusive, was taken as the basis for the calculation of the relevant quota of licences. The licencing authority was to determine the 'basic imports' of the applicant that is, the c.i.f. value of the imports made by the applicant falling under the same serial number of the Import Trade Control. These basic imports which corresponded to the imports made in one full year was then halved in order to obtain a corresponding figure for a six monthly period. To the 'basic imports' so halved the relevant percentage sanctioned for the licencing period was applied and the quota of the applicant was arrived at.

For the licencing periods January 1951 to June 1951

and July 1951 to December 1951, the quota percentage for importing betelnut was increased to 100 per cent and the calculation of the quota percentage was the same as followed during July-December 1950. The import duty also remained at the same level of Rs. 1.03 per kg.

For the licencing periods January-June 1951 and July-December 1951, the import licence issued was half of the previous half-year's imports if the licence was claimed on that basis or 50 per cent of half of best year's imports when licence is claimed on the basis of fresh documents. General permission was also given to import betelnut from Pakistan. The licences were valid for six months only from the date of issue. The same import policy was continued in 1953 also, and the import duty remained at Rs. 1.03 per kg.

During the licencing period of 1954, a liberal licencing policy was introduced for importing betelnuts. Licences were also issued to newcomers. The established importers could obtain a licence as a multiple or fraction of his July-December 1953 quota. The quota percentage was also raised to 60 per cent. However, the import duty was raised to Rs. 1.38 per kg. from April 1953 and it was further raised to Rs. 2.34 per kg. in April 1954. In May 1955 the import duty was reduced to Rs. 1.72 per kg. and the imports were liberalized. Applications from those who had no past experience as importers or internal traders were

also considered for issuing import licences.

In January 1957, the Liberal Licencing System was withdrawn. A quota percentage of 40 per cent was fixed for the half year January-June 1957. The basic period for fixing the import quota was extended upto 1955-56. The import duty was also raised from Rs. 1.72 per kg. to 2.27 per kg. in January 1957. For the licencing period July-September no import licence was issued for importing betelnut.

The quota percentage was cut down to 10 per cent for the period October 1957 to September 1958 in order to conserve the foreign exchange resources. The import quota was further cut down to 5 per cent for the period October 1958 to March 1960. The basic period for calculating the quota was extended to include the year 1956-57.

For the period April 1960 to September 1961 the quota percentage of 5 per cent was further subjected to a limitation of both 'quantity' and 'value'. For the purpose of computing the 'quantity' to be allowed the conversion factor used was Rs. 25 c.i.f. per cwt. The basic period for estimating the quota was limited up to 1956-57.

For the licencing period October 1961-March 1962, no licence was issued for the import of betelnuts. The Government stated in its policy that "Applications from established importers for the import of this item (betelnuts) will be considered on an ad-hoc basis. Import licences for an equal value of Rs. 500 will be granted to each established

importer irrespective of the quantum of his past imports of this item."¹ The import duty was also raised to Rs.3.07 per kg. From April 1962, the validity of the licences was extended to 12 months from the date of issue which was six months from the date of issue.

From March 1961, the State Trading Corporation of India started participating in the import trade of betelnut. The import of betelnuts was entrusted to the State Trading Corporation with a view to mop off the surplus profits, stabilize the internal price and utilize the profit for export promotion.^{1a} For internal distribution the existing trade channels were utilized at the price fixed by the Corporation.

From April 1963 onwards, the entire import trade in betelnut was handled by the State Trading Corporation. From April 1963 to March 1966, no import licence was issued for the import of betelnut either to the established importers or to the new comers. The Government stated in its import policy statement for 1966-67 that betelnut was not a licensable article.

Thus, the various measures adopted by the Government in restricting the imports resulted in a steep decline in the quantity as well as the value of imports of arecanut into India.

1 'Import Trade Control Policy', Ministry of Commerce, Government of India, September, 1961.

1a Annual Report, State Trading Corporation of India, 1962-63, p. 9.

Imports of arecanut were around 60 thousand tonnes prior to the restriction on imports in 1947 (Table 2.3, Chapter II). During the period 1947-48 to 1957-58, the imports were around 40 thousand tonnes (Table 2.4, Chapter II), the policy during this period being to restrict the import of arecanut. The year to year variation in the volume of imports during the period 1947-48 to 1957-58 were due to the variations in the value of import licences issued. From 1957 onwards the policy was to curb and eventually eliminate all imports. This policy resulted in a substantial and continuous decline in imports from the year 1958-59. The imports declined from 30,808 tonnes during 1957-58 to 18,363 tonnes in 1958-59 and to only 510 tonnes in 1966-67. The imports during 1966-67 were on the basis of the licences issued during the previous year.

Appendix II. The Mysore Agricultural Produce Marketing (Regulation) Act, 1966

A uniform marketing legislation called "The Mysore Agricultural Produce Marketing (Regulation) Act, 1966, extending to the whole of Mysore State was brought into force on 1st May 1968. The salient features of this uniform legislation (hereafter referred to as the new Act) in relation to the three State Legislations¹ discussed in Chapter IV are presented here.

Establishment of Markets and Market Committees

The first step in the administration of the Act is to declare an area as market and the commodities to be brought under regulation. The intension of the Government to exercise control over the sale and purchase of agricultural produce is to be notified in the official gazette and also in Kannada (the regional language) in a newspaper circulating in such area. It is also made obligatory on the part of the Government to consider such objections and suggestions received within the period specified in the notification before declaring any area as 'market area' for the purpose of this Act.

¹ 'The Bombay Agricultural Produce Markets Act, 1939', 'The Madras Commercial Crops Market Act, 1933', and the Mysore Agricultural Produce Markets Act, 1939', discussed in Chapter IV are referred to in this Appendix as the Bombay Act, Madras Act, and Mysore Act respectively.

While the Bombay and Madras Acts had a similar provision, the Mysore Act did not provide for any previous notification as to the intension of establishing a regulated market in specified areas for specified commodities.

As to the commodities covered by the legislation, while the Bombay and Mysore Acts covered all agricultural and animal husbandry products, the Madras Act specified only a few commercial crops and the Government was to declare as commercial crop for the purpose of the Act any other commodity to be brought under regulation. The new Act included all produce, whether processed or not of agricultural, animal husbandry, apiculture, pisciculture, horticulture, forest produce, livestock and poultry and any other produce declared by the State Government by a notification to be agricultural produce for the purposes of this Act.

After the notification of an area and the commodities to be brought under regulation, the next step in the administration of the Act is the establishment of a Market Committee duly empowered to enforce the provisions of the Act. The composition and strength of the Market Committees, it was seen in Chapter IV, displayed considerable variation under the various State Acts. Under the new Act a market committee consists of 15 members composed of the following :-

- (1) Seven growers' representatives elected by the

agriculturists in the market area.

(ii) Two traders' representatives elected by 'A' class, 'B' class and 'C' class traders in the market area.

(iii) One member representing the commission agents holding licence to operate in the market area.

(iv) One member representing the Taluk Marketing Co-operative Society within the area of operation of which the market yard is situated.

(v) One member representing the producers' cooperative society the area of operation of which is within the market area.

(vi) One member representing the Taluk Development Board within the jurisdiction of which the market yard is situated.

(vii) One member representing the local authority within the jurisdiction of which the market yard is situated.

(viii) One member representing the Chief Marketing Officer.

The first Market Committee is nominated by the Government and subsequently elected in the manner prescribed. The term of the first nominated committee is for two years. If it became necessary the term could be extended by such period or periods not exceeding one year in the aggregate. Under the Bombay and Mysore Acts the term of the first nominated Committee was for two years, and under the Madras

Act it was for one year in the first instance and if it became necessary the period was extended by another year. Under the old Acts the term of the elected committee was for three years. While under the new Act it is initially for a period of four years extendable from time to time for a total period not exceeding one year by a notification by the Government giving reasons for the extension of the term.

As regards the mode of representation the new Act provided for the election of all the members on the Committee as prescribed. Under the old Acts all the representatives on the market committee were elected excepting the growers' representatives under the Mysore Act. It was left to the Government whether the growers' representatives should be elected or nominated under the Mysore Act.

For electing growers' representatives, under the new Act, the market area is divided into seven agriculturists' constituencies, each constituency being a single member constituency. The territorial extent of a constituency is determined by the Deputy Commissioner, keeping in view, as far as practicable, that the number of voters in each constituency is the same. Any agriculturist ordinarily residing in a market area, not disqualified under Section 16 of the Act, is entitled to have his name entered in the list of voters of agricultural constituencies. Under the Madras Act all growers of the notified commercial

crop were entitled to have their name entered in the voters list. Under the Mysore Act the producers' electorate comprised producers residing in the market area holding or cultivating alienated or inalienated land assessed for payment of land revenue of Rs. 15 or more. Under the Bombay Act the producers' constituency was equated with the membership of cooperative organisations in that area. Where such organisations did not exist, the growers' electorate comprised holders or tenants of land assessed at not less than Rs. 8 for payment of land revenue.

The traders' and commission agents' representatives are elected from among the 'A', 'B' and 'C' class traders and the commission agents, respectively, holding licences from the Market Committee and operating in the market area. Under the earlier Acts the traders' constituency consisted of both traders and commission agents. Under the new Act these were made into two separate constituencies.

To give adequate representation to cooperative societies, under the new Act, one member is elected from among the managing committee of the Taluk Marketing Cooperative Society and one from the producers' cooperative society. If there be more than one society of the class specified above in the market area, in accordance with the principle laid down under the Act, the Registrar of Cooperative Societies specified the society from which the representative is to be elected. If there is no society in the market area as

specified above, the members are elected from among the primary credit societies specified by the Registrar of Cooperative Societies.

Prior to the enforcement of this new Act, to give adequate representation to the producers' cooperative sale societies registered as traders, the Bombay Act reserved one of the four seats to be filled by traders' representatives for such cooperative societies. A similar provision did not exist in the other two Acts.

Another important change introduced in the new Act is in respect of the election of the Chairman and Vice-Chairman of the Market Committee. The Chairman is the chief executive officer and is responsible for the proper functioning of the market in accordance with the provisions of the Act. Under the earlier three Acts, the Chairman and Vice-Chairman of the Market Committee were elected from among the elected members from the traders and growers constituencies. Under the new Act, both the Chairman and Vice-Chairman are to be elected from among the members representing only the agriculturists' constituencies.

Control over Market Functionaries

As the sole object of the legislation is to regulate the market practices, control over the various functionaries operating in the market is essential. The means with which this is done is by authorizing the Market Committees to

issue and cancel licences to the market functionaries dealing in the notified commodities.

Under the new Act provision is made not only for licensing the traders, commission agents, brokers, weighmen but also other functionaries like processors, exporters, importers, or any other market functionaries. A provision is also made to licence any place in the market area used for the sale of the notified agricultural produce. Refusal to grant or renew a licence by the market committee is to be communicated to the party concerned in writing giving the reasons thereby. The Act also has made a provision for appeals against such refusals. Provision for appeal did not exist either in the Bombay or Mysore Acts.

Security for trading

Under the new Act traders and commission agents are required to furnish a security or bank guarantee as specified in the Act to obtain a licence to operate in the market area.

The traders licenced to operate in a market area are classified into the following four categories :-

(i) 'A' class traders who are entitled to purchase notified agricultural produce anywhere in the market area.

(ii) 'B' class traders entitled to purchase notified agricultural produce only in the yard or yards in the market area.

(iii) 'C' class traders, entitled to purchase notified

agricultural produce only outside the market or markets in the market area.

(iv) 'D' class traders, entitled to purchase notified agricultural produce anywhere in the market area for sale to consumers for domestic purposes and whose total annual purchase or turnover in such agricultural produce does not exceed fifteen thousand rupees.

The minimum cash security or bank guarantee for the different class of traders and commission agents is given below :-

- (1) Rs. 1500 for 'A' class trader,
- (2) Rs. 1000 for 'B' class trader,
- (3) Rs. 500 for 'C' class trader,
- (4) Rs. 100 for 'D' class trader and
- (5) Rs. 500 for commission agents.

Further, a limit is also fixed to the extent to which a trader or a commission agent can remain indebted to a commission agent or to his principal as the case may be. The fixation of this limit is left to the individual market committees and the Act only prescribed that the security furnished by a trader or commission agent should not fall below one per cent of his aggregate indebtedness to the commission agents in the case of a trader and to his principals in the case of a commission agent.

The security furnished by a trader or commission agent is liable to forfeiture by the market committee for any

default made by the licensee in payment of any money payable by him to the market committee or to the market functionary under the Act, the rules or by-laws made thereunder. The security furnished by a trader or commission agent is subjected to a first charge in favour of the market committee for all sums due to the committee by the licensee. The security furnished by a trader is subjected to a second charge in favour of the commission agents to whom the trader is indebted. The security furnished by a commission agent is subjected to a second charge in favour of the principals to whom the commission agent is indebted.

Market fee

Market fee, which is the main source of income of the market committees, is levied and collected from the buyer in respect of agricultural produce bought by (i) any trader or other person in the yard, and (ii) any trader outside the market or sub-market in the market area. The actual rate of the fee is to be specified in the by-laws of the market committees. The Act only fixed the maximum rate which is thirty paise per one hundred rupees of the price of agricultural produce. For purposes of collecting the market fee it is presumed unless the contrary is proved, that all notified agricultural produce leaving the yard is deemed to have been bought within such yard by the person in possession of such produce. It may be pointed out here

that under the Bombay and Mysore Acts the market fee was collected from the seller in the yard. It was only under the Madras Act that the market fee was collected from the purchaser on the quantity exported by him.

Panchayats as Agents of Market Committee

None of the earlier Acts took into consideration the sales in villages falling within the market area. The functioning of the market committees was restricted to the market proper and more specifically to the market yard. However, the new Act took cognisance of this fact and a provision is made in the Act to appoint village panchayats to act as agents of the market committees. The powers and duties of the Panchayats appointed as agents of the committees are as follows :

(i) It shall not allow any market functionary to operate in the area under its jurisdiction without obtaining the necessary licence from the committee.

(ii) It shall have power to receive application for grant or renewal of licence and to collect the prescribed licence fee on behalf of the committee.

(iii) It shall collect market fee from the buyer in respect of the agricultural produce sold in the area under its jurisdiction at the rates specified in the by-laws of the committee and issue receipts in the form prescribed.

(iv) It shall have power to specify the time and place

of business in the area under its jurisdiction and to conduct and supervise the sales, weighment, delivery, payment and all other matters relating to marketing of notified agricultural produce.

(v) The Chairman or the Secretary of the Panchayat, shall have power to examine and inspect the weights used in the sale and purchase of agricultural produce in the area under its jurisdiction.

(vi) It shall have power to call for the periodical reports and returns to be furnished by the market functionaries.

It shall be the duty of the Panchayat to :-

(i) forward all applications for grant or renewal of licence together with the licence fee to the committee;

(ii) forward to the committee all periodical reports and returns received from the market functionaries, before 5th of succeeding month;

(iii) provide necessary basic facilities for transacting business;

(iv) receive and publish the market rates and other allied information on the notice board of the Panchayat for the benefit of all concerned;

(v) do propaganda in regard to proper methods of preparation, storage, packing, transportation and marketing of agricultural produce, and

(vi) do all other functions entrusted to it by the

Committee for regulating the marketing of agricultural produce in the area under its jurisdiction.

The Panchayat acting as an agent of the market committee is allowed to retain an amount not exceeding seventy-five per cent, as may be determined by the market committee, of the market fee collected by it and the balance is paid to the market committee.

Further, a Panchayat is also granted a sum equal to seventy five per cent of the licence fee collected from market functionaries operating exclusively in the area under the jurisdiction of such panchayat.

Provision is also made for the grant of initial financial assistance by way of interest free loans to a Panchayat repayable at such times and in such instalments as may be agreed upon between the market committee and the panchayat.

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