GOVERNMENT OF KERALA

SEASON AND CROP REPORT OF KERALA 1984-85

DEPARTMENT OF
ECONOMICS & STATISTICS
TRIVANDRUM

SEASON AND CROP REPORT OF KERALA 1984-85

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PREFACE

"Season and Crop Report of Kerala" is one of the important publications of the Department of Economics and Statistics. This is 26th issue of the series. It deals with the various aspects of the agricultural economy of the State for the year 1984-85. The data relating to the land use and area under production of crops furnished in the report are based on the results of the sample survey under the scheme EARAS.

The report has been prepared by Sri. T. V. Isaac, Research Officer and edited by Smt. J. Padmam, Assistant Director under the immediate supervision and guidance of Mr. K. Achuthan, Joint Director of this Department.

Suggestions for the improvement of future issues of the report are welcome.

Trivandrum,
February 1987.

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Director of Economics & Statistics.

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1.0 General characteristics of the State

1.1 *Formation*

Kerala State was formed on first November 1956, by realigning the erstwhile Travancore-Cochin State excluding the Tamil speaking southern portions, the entire Malabar region and the Malayalam speaking portions of the South Canara District (of Karnataka) which were portions of the composite Madras State prior to the re-organisation of States on linguistic lines.

1.2 *Location*

The State lies at the south-west corner of the Indian Peninsula between 8°18' and 12°48' north latitudes and 74°52' and 77°22' east longtitudes. It is bounded by the Karnataka State on the north, Tamil-Nadu on the east and the south and the Arabian sea on the west. The western ghats acts as a boundary wall on the eastern side of the State. The Sahya mountains protect the State from the hot summer winds blowing over the Deccan Plateau. It has a long coast line of 580 Km. in length. The width of the State varies from 130 km. in the middle to 32 Km. in the extremities. The geographical area of the State is 38863 sq. km. which forms only 1.16% of the total area of the Indian Union.

1.3 *Topography*

The topography of the State is a peculiar one. From the forest clad high altitude mountainous regions of the western ghats the land mass undulates to the golden shores of the Arabian sea presenting a series of evergreen hills and valleys. Because of the nature of the terrian and its nearness to the sea rainfall is very heavy and numerous rivers and streams flow westwards criss crossing the hills and valleys and until they empty into the Arabian sea. The land on the west coast is more or less flat and is adorned by lakes and lagoons. Because of these diverse characteristics of the land and consequent plant growth, the State is well marked into three distinct regions viz., the high land, the mid-land and the low-land. The high-land region comprises of an area of 18653 Sq. Km. which lies 250 ft. above mean sea level. The mid-land region with an area of 16231 sq. km. lies between 25' and 250' above mean sea level. The low land region lies upto 25' above mean sea level and comprises with an area of 3979 Sq. km. on the west coast. The high-land region grows many exotic varieties of trees like sandalwood, teak rose wood, Mahagani etc. Numerous other varities of hard and soft woods also grow in this region. Most of the reserve forests of the State are located here. The highest peak in the western ghats viz. Anamudi is situated on the border of the State. The Periyar lake from which the river Periyar originates is located in this region. The rain fall is very high here compared to other regions. This region is highly suitable for the cultivation of plantation crops like tea, coffee, cardamom and rubber. The mid-land region is famous for diverse crops.

While paddy is grown in the valleys, coconut, arecanut, pepper, rubber, tapioca, plantains, ginger, cashew etc. are grown on the slopes of the hills. The low-land is monopolised by paddy and coconut.

1.4 *Administrative divisions*

The State at present is divided into 14 districts for administrative purposes viz. Trivandrum, Quilon, Pathanamthitta, Alleppey, Kottayam, Idukki, Ernakulam, Trichur, Palghat, Malappuram, Kozhikode, Wayanad, Cannanore and Kasargode. Each district is sub-divided into Taluks and villages. Village is the primary unit of administration. There are 61 taluks and 1331 villages in the State at present. The total geographical area of the State according to professional survey is 38863 sq. km. The district-wise distribution of area according to village papers, which is slightly different from that of the professional survey is given in table 1.4.1.

TABLE 1.4.1

District-wise distribution of area

District	*Area in sq. km.**	*Percentage*
Trivandrum	2186	5.63
Quilon	2518	6.48
Pathanamthitta	2688	6.92
Alleppey	1361	3.50
Kottayam	2195	5.65
Idukki	5150	13.25
Ernakulam	2353	6.06
Trichur	2994	7.71
Palghat	4390	11.30
Malappuram	3632	9.35
Kozhikode	2333	6.00
Wayanad	2126	5.47
Cannanore Kasargode	4929	12.68
State	38855	100.00

*Area according to village papers which slightly differ from the geographical area as computed by S.G. of India.

1.5 *Rural Development Divisions*

For all round development of rural areas the State is delimited into 151 C.D. Blocks. The Blocks at present implement various poverty amelioration programmes for the uplift of the rural poor. The important programmes implemented by these Blocks are (1) the Integrated Rural Development Programme (IRDP), (2) Training of Youth for Self Employment Programme (TYSEP), (3) National Rural Employment Programme (NREP) and (4) the Rural Landless Employment Guarantee Programmes (RLEGP). Besides these various other schemes under the 20 point programmes are also implemented by the C.D. Blocks. The IRDP benefited 1.05 lakh families in 1984-85. Nearly 9754 persons were benefited under TRYSEM and 4436 placements were made during 1984-85. The NRE Programme generated 142 lakh mandays of work and constructed 1570 houses, 105 schools, 7 community centres, 2 hospitals and 1522 km. of rural roads. The Rural Landless Employment Programme which was started by the end of 1983 generated 50 lakh mandays of work and completed 1392 houses under the asset generation programme.

1.6 *Local Self Government*

Panchayats in the rural areas and Municipalities and Corporations in the urban area are the units of local self Government in the State. There are at present 1001 panchayats, 46 Municipalities and 3 Corporations in the State. These institutions are run by the elected representatives of the local people.

1.7. *Climate*

The State is blessed with a salubrious climate. Since the State is a narrow strip of land that lies between high altitude mountains and sea there occurs heavy rainfall. Consequently extreme climates are not experienced in this State.

1.7.1 *Rainfall*

The State receives heavy rain-fall from the South-west and North-East monsoon winds blowing over the State. The South-West monsoon starts in June and extends upto September. The North-East monsoon period is from October to December. Isolated showers also do occur during the remaining months of the year. About 66% of the total rainfall is received from the South-west monsoon alone. The average normal rain fall (compiled from the data for 50 years from 1901 to 1950) is 3017.6 m.m. with a range of 2001.6 m.m. to 3796 m.m. A notable feature of the distribution of the rainfall is that it progressively increases from South to North and West to East. The normal and actual rain fall for the years 1983-84 and 1984-85 is furnished in table 1.7.1.1. Rainfall was near normal in the State during 1984-85. However in Idukki it was excess and deficient in Trivandrum and Malappuram during the year.

TABLE No. 1.7.1.1

District-wise distribution of normal and actual rainfall 1983-84 and 1984-85

District	Normal Rain fall	Actual Rainfall		% change in 1984-85	
		1983-84	1984-85	over normal rainfall	over 1983-84
Trivandrum	2001.6	1046.7	1057.2	—47.18	+1.00
Quilon	2760.2	2196.7	1959.6	—29.01	—10.78
Pathanamthitta		2961.9	2242.3	—25.55	—24.30
Alleppey	3012.0	3180.9	2598.0	—13.75	—18.33
Kottayam	3462.6	2932.8	3403.8	—1.70	+16.06
Idukki	2898.9	2347.2	4143.5	+42.93	+76.53
Ernakulam	3548.5	4067.6	2801.6	—21.05	—31.12
Trichur	3177.4	3486.2	3495.5	+10.01	+0.27
Palghat	2397.7	2370.1	2244.4	+6.39	—21.80
Malappuram	2900.1	1009.4	1233.4*	—57.47	+22.19
Kozhikode	3796.0	3773.1	2904.9	—23.47	—23.01
Wayanad		3272.4	2481.9	—34.62	—24.16
Cannanore	3479.9	4519.2	3632.7	+5.67	—19.62
Kasargode			2952.9	—14.11	
State	3017.6	3060.2	2779.0	—7.91	—9.19

1.7.2. *Temperature*

Since Kerala is a narrow strip of land situated between high altitude mountains and sea, extreme temperatures are not experienced as stated already. But the temperature recorded at Palghat and Punalur had always been higher than that of other places during summer. This is because of the hot summer winds blowing over Deccan plateau escapes into these places through the Palghat and Aryankavu passes respectively in the Sahya Mountains. Normally the temperature varies between 21°c and 33°c. But of late due to denudation of forests the temperatures rises upto 39°c occasionally

in these places. The temperature recorded at the selected centres of the State for the years 1983 and 1984 are furnished in table 1.7.2.1 below:

TABLE No. 1.7.2.1

Temperature recorded at selected centres of Kerala 1983 and 1984

Name of centre	*Temperature recorded during* 1983		*Temperature recorded during* 1984	
	Average Minimum	*Average Minimum*	*Average Maximum*	*Average Maximum*
Trivandrum	24.0	31.9	23.4	31.0
Punalur	23.5	33.9	22.6	32.0
Alleppey	24.5	31.9	23.9	31.1
Cochin	24.7	31.5	23.7	31.3
Palghat	23.5	32.9	N.A.	N.A.
Kozhikode	24.5	31.2	24.1	30.7

1.8 *Soil*

The different types of soils found in this State are classified as follows:

(i) The hilly and forest soil seen all along the eastern part of the State.
(ii) The sandy soil seen in the coastal belt.
(iii) The laterate soil seen in the mid-land.
(iv) The black soil occurring in patches in the eastern boarders of Palghat district.
(v) Peat or Kari soil seen in Alleppey district.
(vi) The alluvial soil seen along the southern and eastern parts of Vembanad lake and in small patches in Trivandrum District.

1.9 *Mineral wealth*

The State is not rich in minerals. But rare mineral sands such as ilmenite, rutile, monozite, zircon and sillimenite are mined from the coastal line. Minor minerals like white quartz sand, fire clay, Ball clay, lime shell and China clay are also mined in the State. Major minerals like coal, iron ore etc., and petroleum are conspicuous by their absence. Consequently the State is industrially backward among other Indian States.

1.10 *Crops and crop seasons*

The major crops grown in the State are food crops like paddy, pulse, mango, jack, cashewnut, tapioca and banana, spices like pepper, arecanut, ginger and turmeric, plantation crops like tea, coffee, cardamom and rubber and oil seeds like coconut, sesamum and groundnut.

The period of sowing of various crops are mainly in the rainy seasons— Autumn, winter and summer are the seasons for paddy, the staple food of the people of Kerala. But most of the seasonal crops are sown well before the south-west monsoon sets in the State. A table showing the seasons of sowing, harvesting etc., of important crops are appended to this report.

1.11 *Population characteristics*

The population of the State as per 1981 census was 254.54 lakhs as against 213.7 lakhs during 1971. The decadel variation in population during the period 1971-81 was 19.2% as against 25% for the country as a whole. The pressure of population is very high in the State. The density of population was 655 per sq. KM in 1981 which was more than three fold of the all-India average of 216. In the low-land region it was 1385 even during 1971 itself. The birth rate was 24.9 and death rate was 6.7 in 1983. The infant mortality rate was 40 per thousand live births in 1980. The sex ratio was 1032 as against 934 for the country as a whole in 1981. The mean age at marriage was 27.2 years for males and 21 years for females. The rate of married couples per thousand population was 145 as against 169 for the country as a whole. The dependancy rate if the number of persons in the age groups 0–14 and 60 and above for 1000 persons in the age group 15–59 was 741 in Kerala as against 854 for India in 1981. About 70% of the people were literates as against 36% for the country as a whole. About 81% of the people live in villages as against 77% for India as a whole in 1981.

The district-wise distribution of population and density of population are given in the sub-joined table of 1.11.1

TABLE 1.11.1

District-wise distribution of population 1981

District	*Population in lakhs*	*Density of population per Sq. Km.*
(1)	(2)	(3)
Trivandrum	25.96	1188
Quilon	22.96	903
Pathanamthitta	11.59	431

(1)	(2)	(3)
Alleppey	17.29	1270
Kottayam	16.97	773
Idukki	9.72	189
Ernakulam	25.35	1077
Trichur	24.40	815
Palghat	20.44	466
Malappuram	24.03	667
Kozhikode	22.45	962
Wayanad	5.54	261
Cannanore	19.31	565
Kasargode	8.73	
State	254.54	655

1.12 *Housing and Households*

There were 42.97 lakhs of occupied residential houses in Kerala in 1981 with a density of 111 houses per Sq. KM. as against 34.18 lakhs houses with a density of 88 houses per Sq. KM. in 1971. Out of this 83% was in urban area. About 6 lakhs houses were in a dilapidated condition and required urgent replacement. There were 4423 lakh households in 1981 with an average family size of 5.75. The corresponding figures for 1971 was 35.43 lakhs and 6.03 respectively. There was 103 households per hundred occupied houses as against 104 households during 1971 census. The urban rural break-up of the same during 1981 was 106 and 102 respecitvely. These are indicative of the magnitude of housing problems in the State.

1.13 *Occupation and Employment*

81% of the people of Kerala live in rural areas. Their main occupation is Agriculture and related activities. Urbanisation is slow for want of industrial growth. Modern industries have come up here and there. But a good number of them, especially those in the public sector, are not functioning economically. Traditional industries like coir, cashew and handloom are not catching up with the time. Employment opportunities in these industries are dwindling and for maintaining the present level of employment, Government is initiating several measures.

Meagre opportunities in the domestic labour market and the availability of a large number of educated and unemployed man power have facilitated its export to the Gulf countries. This has also facilitated a vast

inflow of capital in foreign currency into the State by way of remittances from the expatriate labour force. Though the State could not utilise it for productive purposes initially due to the inherent weakness of the manufacturing sector, has now started many new schemes for absorbing such capital. However major portion of these funds had been diverted for the purchase of land and the construction of palatial houses. The price of land and labour were pushed up manifold. The big boost received by the construction sector did not benefit the manufacturing sector of the State either as the construction related industries were located outside the State. It was a case of missed opportunity for the manufacturing sector to thrive. Construction of palatial houses has led to the consumption of costly consumer durables, the manufacture of which were again located outside the State. Consequently a sizable portion of the remittances received in the State was percolated into other State. The main beneficiaries from these remittances were the landed class, local traders and the manufacturers in other States. The near collapse of the once mighty oil market had a considerably reduced employment opportunities in the Gulf region especially in the construction sector, and a large number of expatriate labour force from the Gulf have returned and have now entered the domestic labour market. The fear of an exodus of these people from the Gulf in the near future is looming large on the horizon of Kerala's economy unless the petroleum market gears up considerably.

The distribution of population according to workers and non-workers are given in the sub-joined table.

TABLE 1.13.1

Sex-wise distribution of population according to workers and non-workers—1981 (in '000)

	Males	%	*Females*	%	*Total*	%
Total population	12528	100.0	12926	100.00	25454	100.00
Total workers	5624	44.89	2147	16.61	7771	30.53
Main workers	5141	41.04	1650	12.76	6791	26.68
Marginal workers	483	3.86	497	3.84	980	3.85
Non-workers	6904	55.11	10779	83 39	17683	69.47

The work participation rate or the percentage of workers to total population was 30.53 according to 1981 census. The percentage of female workers to total workers was 27.63. While the work participation rate of males was 44.89% it was only 16.61% in respect of females. Out of the total population 3.85% was marginal workers who constituted 12.61% of the total

workers. Thus main workers constituted only 26.68% of the total population. The distribution of main workers according to industry of origin is given in Table 1.13.2 below:

TABLE 1.13.2

Classification of main workers according to industry of origin (in '000)-1981

	Males	%	*Females*	%	*Total*	%
Total workers	5141	100.00	1650	100.00	6791	100.00
Cultivators	806	15.68	82	4.97	888	13.08
Agricultural labourers	1199	23.32	719	43.58	1918	28.24
Livestock forestry, fishing, plantations & allied activities	534	10.39	102	6.18	636	9.37
Mining and quarrying	48	0.93	5	0.30	53	0.78
Sub-Total—Primary	2587	50.32	908	55.03	3495	51.47
Manufacturing, processing, servicing and repairs:						
(a) Household industry	124	2.41	126	7.64	250	3.68
(b) Other than household industry	630	12.25	211	12.79	841	12.38
Construction	193	3.75	12	0.73	205	3.02
Sub-Total Secondary	947	18.42	349	21.15	1296	19.08
Trade and commerce	704	13.69	54	3.27	758	11.16
Transport, storage and Communications	310	6.03	27	1.64	337	4.96
Other services	593	11.54	312	18.91	905	13.33
Sub-Total—Tertiary	1607	41.26	393	23.82	2000	29.45

From the above table it may be seen that 52% of the employment was in the agricultural sector, 19% in the secondary manufacturing sector and 19% in the service sector.

The problem of unemployment in Kerala is very acute especially among educated people. There were 24.6 lakhs of job seekers on the live register of employment exchanges in Kerala as on 31-3-1985. Out of this 64276 were professional and technical work seekers including doctors, engineers, diploma holders in engineering, etc.

1.14 *State Income*

The State Income of Kerala for the year 1984-85 at current prices is estimated at Rs. 5965 crores. The same at 1970-71 prices was estimated at 1751 crores. Out of this the primary sector accounted for Rs. 2396 crores or 40.17% of the total State income. The secondary manufacturing sector accounted for only 1168 crores or 19.58% of the total. The tertiary services sector accounted for 2401 crores or 40.25% of the total State income. The contribution of the agricultural sector towards State income has decreased from 51.6% in 1970-71 to 40.17%. The per capita State income at current prices for the year 1984-85 was estimated at Rs. 2196 whereas the same at 1970-71 prices was Rs. 645. The per capita national income at current prices during 1984-85 was estimated at Rs. 2344 and that at 1970-71 prices was estimated at Rs. 772.

1.15 *The agricultural Sector*

1.15.1 *General condition of the agricultural sector*

Agriculture is the dominant sector of Kerala economy as in any other developing economy. Though the contribution of this sector towards State income has only second position, compared to other sectors, more than 51% of the total work force in 1981 was engaged in this sector. 80% of the population of the State live in villages and their living conditions are generally poor. A big majority of them depend upon agriculture for a living either as cultivator or as agricultural labourer or as both. According to 1981 census 28.06 lakhs of people were engaged in farming operations as their chief occupation. The crop pattern of the State is weighted in favour of perennial crops because the cultivation of cash crops are more remunerative than seasonal crops. Perennial crop cultivation is less labour intensive and products fetch attractive prices being near monopolies of the State. Cultivation of seasonal crops like paddy on the other hand is labour intensive and is more prone to natural calamities like drought or flood them perennial crops. The prices of seasonal crops are often influenced by the prices prevailing in the neighbouring States which are usually low. Moreover the size of the operational holdings

is too small to be economical in most cases. The details of agricultural holdings as available from the agricultural census 1981-82 are furnished below in Table 1.15.1.1.

TABLE 1.15.1.1

Distribution of operational holdings in Kerala 1981-82

	Size Class	*No. of holdings*	*% to total*	*Area hectares*	*Average size (Ha)*
1.	0.02—0.5	342239	88.9	44382	0.13
2.	0.5—1.0	28010	7.3	19595	0.70
3.	1.0—2.0	11487	3.0	15388	1.34
4.	2.0— 3.0	2041	0.5	4784	2.34
5.	3.0— 4.0	591	0.2	2047	3.46
6.	4.0— 5.0	169	0.0	731	4.33
7.	5.0— 7.5	232	0.1	1344	5.79
8.	7.5—10.0	..	..	..	..
9.	10.0—20.0	67	0.0	811	12.10
10.	20.0—30.0	25	0.0	579	23.16
11.	30.0—40.0	12	0.0	431	35.92
12.	40.0—50.0	..	..	..	..
13.	50 and above	..	..	..	..
	All sizes	384873	100.00	90092	0.23
14.	Below 0.02	66155	..	..	..

From the above table it may be seen that out of a total of 3.85 lakh of operational holdings 96% were marginal (below 1 hectare) holdings. However the average size of a holding below 1 hectare class was only 0.17 hectare.

Small holdings (between 1 and 2 hectares) constituted only 1.3% with an average size of 1.34 hectares. 0.8% of the holdings belonged to the size class of 2 hectares and above. This shows that Kerala is a land of marginal farmers.

The literacy in the State is very high compared to other States. The labourers are highly political conscious. Trade Union movement in the State is much stronger in the organised sector of the State than these in the neighbouring States. So they were able to extract a high rate of wages for themselves. This has its impact on the agricultural sector also. Though cost of inputs was very high commensurate rise in prices of agricultural products

was conspicuous by its absence. A rise in price of rice in the State is efficiently neutralised by the public distribution system. A fixed quantity of rice supply for subsistence is assured from ration shops at reasonable prices. Moreover rice from other states is imported into Kerala at moderate rates. On the other hand if the price of rice increases abnormally in the market in the short run cultivation and consumption of tapioca which is a popular cereal substitute even among the neorich would increase. Consequently the Offtake and price of rice would decreases. Hence an abnormal increase in the price of rice is ruled out in the State in the long run under the prevailing conditions.

Holdings get fragmented year after year and it become more and more uneconomic. Without a qualitative improvement in cultivation techniques there is little scope for enhancing productivity to offset rising cost and ensure remunerative returns from paddy cultivation. This can be achieved only through augmentation of irrigation facilities, mechanisation, introduction of high yielding and disease resistant varieties of seeds and proper manuring techniques. But mechanisation cannot be thought of in the near future owing to the smallness of holdings and the prevailing high incidence of unemployment. To minimise labour cost the only other alternative is substitution of hired labour by household labour. Since two children norm in family size has gained acceptance more people may not be available for full-time employment in agriculture in the long run. A sizeable number of job seekers being educated are therefore status conscious and are willing to await for a long period for a white collar job than work in farms and get employed early. These factors will hamper the substitution of hired labour by household labour. In the case of high yielding varieties of paddy now in the vogue the amount of water manure and plant protection measures required are very high compared to local varieties. Moreover high yielding varieties yield very little straw compared to local varieties. Owing to these difficulties Farmers were seen reverting to the cultivation of local varieties in preference to high yielding varieties to minimise cost of cultivation. Here again the productivity is at a loss.

Co-operative farming was not successful due to the affinity of the farmers to private possession of land. It may be remembered that co-operative farming and even Government farming have not taken its roots especially in Kuttanad compared to private farming. In such situations it is quite natural on the part of farmers to convert paddy lands into garden lands. The cultivation of cash crops is more remunerative and loss expensive barring the initial investment. Cash crop cultivation suits absence land lords who continue to cultivate their ancestroral property, though in other vocations. Conversion of paddy fields into garden lands cannot be encouraged for more than one

reason. First of all, it may lead to environmental problems; secondly it will hamper the process of polarisation of holdings, a reverse process to fragmentation. Conversion of lands may make barriers to contiguity of paddy fields which will cause as a disincentive for mechanisation. The people in other avocations any stick on to agriculture as a secondary source of income. Movement of the population from agriculture to other sector is the need of the hour.

If we completely neglect paddy cultivation and turn our attention to cash crops we may have to pay a heavy price in times of national calamities like drought or war as we have to depend upon other states for our complete food requirements.

1.15.2. *Technique of Agriculture use of improved inputs*

(i) *High yielding varieties of paddy seeds.*—The details of area, production and productivity of high yielding varieties of paddy for the years 1980-81 to 1984-85 are given in Table 1.15.2.1.

From Table 1.15.2.1 it may be seen that the area under high yielding varieties of paddy was decreasing year after year from 1980-81 to 1982-83 and was increasing slowly thereafter. The report from the field suggest that many farmers are reluctant to use high yielding varieties of paddy on account of uncertain monsoons, high cost of inputs susceptiability to diseases, low yield rate of straw and low price fetched by high yielding varieties compared to local variety.

(2) *Consumption of fertilisers.*—The consumption of fertilizers in Kerala for the years 1980-81 to 1984-85 are given below:

TABLE 1.15.2.1

Year	*Consumption of fertilizer*			
	N	*P205*	*K20*	*Total*
1980-81	41697	23402	32431	97530
1981-82	40612	23214	30935	94761
1982-83	45233	26555	38065	109853
1983-84	62480	31178	35819	129477
1984-85	57657	32642	37346	127645

TABLE 1.15.2.1

Area under High yielding varieties of paddy for the period from 1930-31 to 1984-85

Year	*Total area under paddy (Ha)*	*Area under HYV (Ha)*	*% to total*	*Total production of paddy (tons)*	*Production under HYV (tons)*	*% to total*	*Productivity-Kg/hectare*		
							HYV	*Other varieties*	*All varieties*
1980-81	801699	279728	34.89	1271962	559061	43.95	1999	1366	1587
1981-82	806871	259703	32.19	1330393	531107	39.45	2045	1477	1660
1982-83	778490	196395	25.03	1306197	429372	32.87	2186	1506	1678
1983-84	740086	212350	29.07	1207916	430412	35.63	2027	1473	1632
1984-85	730379	220539	30.19	1255902	453843	36.14	2058	1573	1720

The rate of consumption of chemical fertilizers per hectare of cropped area in the State during the year 1984-85 was estimated at 47.9 kg. as against 280.5 kg. for Pondicherry, 153.6 kg. for Punjab and 47.3 kg. for the country as a whole. Though the rate of consumption of chemical fertilizers was slightly higher than the national average it was the lowest in the southern region.

Besides chemical fertilizers, organic manure is also in common use. There were 35 lakhs of cattle and buffalos, 20 lakhs of goats and sheeps in the State according to 1982 live stock census. It is estimated that about 44 lakhs tonnes of wet dung is produced annually by these animals. It is also estimated that about 96% of the wet dung are used as manure.

The economics of application of chemical fertilizers is given in Table 16.2.2.2.

TABLE 16.2.2.2.

Economics of application of N, P2.05, and K20 on paddy

(1)	(2)	(3) *Fertilizer and food grain prices Rs. /Kg. with effect from*					
Nutrients prices Rs./kg.		7-4-1983	29-6-1983	2-7-1983	7-1-1984	19-7-1984	7-4-1985
1.	N—based on urea	5.11	4.67	4.67	4.67	4.67	4.67
2.	P2.05 based on SSP	5.87	5.31	5.31	5.31	5.31	5.31
	based on DAP	5.83	5.46	5.46	5.46	5.46	5.46
	Based on complex	6.72 to 8.25	6.33 to 7.80	6.33 to 7.80	6.33 to 7.80	6.33 to 7.80	6.33 to 7.80
3.	K2.0 based on MOP	2.17	2.00	2.00	2.00	2.00	2.00
Out put price Rs. Kg.							
4.	Procurement price of paddy	1.22	1.22	1.32	1.32	1.37	1.37
B. Physical returns							
5.	Kg. of paddy required to buy 1kg. of N	4.81,	4.35	4.02	4.02	3.88	3.88
6.	Kg. of paddy required to buy 1kg. of P205	4.81	4.35	4.02	4.02	..	..
	as SSP	..	..	..	..	3.88	3.88
	as DAP	4.78	4.48	4.14	4.14	3.99	3.99
	as complex	5.51 to 6.76	5.19 to 6.39	4.80 to 5.91	4.80 to 5.91	4.62 to 5.69	4.62 to 5.69

7. Kg. of paddy required to buy 1kg. of K2.0	1.78	1.64	1.52	1.52	1.46	1.46
C. Gross Financial Return on every Rupee invested in Fertilizer (Rs.)						
8. Return from nutrient N	2.86	3.13	3.39	3.39	3.52	3.52
9. Return from Nutrient P2 05 based on SSP	1.45	1.61	1.74	1.74	1.81	1.81
based on DAP	1.46	1.56	1.69	1.69	1.76	1.76
based on complex	1.27 to 1.04	1.35 to 1.09	1.46 to 1.18	1.46 to 1.18	1.52 to 1.23	1.52 to 1.23
10. Return from Nutrient K2 0	2.81	3.05	3.30	3.30	3.43	3.43

Source: FA1—Annual Review of Fertilizer Consumption and Production 1984-85.

1.15.3 *Agricultural Labourers*

Agricultual Labourers constitute the largest single class among various categories of workers. According to the survey on Socio Economic conditions of agricultural and other rural labourers in Kerala 1983-84 there were 35.84 lakhs of rural households in Kerala as against 35.49 lakhs during 1981 census. Out of this 9.68 lakhs were agricultural labourer households and 8.1 lakhs other rural labour households. About 92% of the agricultural labour households possessed land with an average size of 43 cents. The average number of wage earners in agricultural labour family was 2.4. They were unemployed on an average for 3.2 days a week as against 2.3 days for other rural labour households. The average annual income per agricultural labour household was only Rs. 4863 as against Rs. 6130 for other rural labour households. The percapita annual income of agricultural labour household was Rs. 915 as against Rs. 1098 for other rural labour households and Rs. 1981 for the State as a whole in 1983-84. Thus it may be seen that the lots of the agricultural labour is worse than a other rural labour, inspite of the existence of a comparably high wage rate in the farm sector of Kerala compared to other States.

1.16. *Communication facilities*

Communication facility is an essential perquisite for economic growth. The State has got a fairly developed system of communications. The total road length of the State is estimated at 1.09 lakh Km. which works out to 218 km. per 100 Sq. km. of area and 394 km. per lakh population. The panchayats maintain about 75% of the total road length. The number of motor vehicles registered in the State was 3.19 lakhs in 1984-85 with a motor vehicle density of 821 vehicles per 100 sq. km. of area and 1164 vehicles per lakh of population. The total rail length in the State is estimated at 916 km. out of which 803 km. were broad guage. The two ends of the State from South to North are connected by a broad guage line. The section between Cochin and Valayar is a double lined one. The meter guage section runs from Quilon to Schencottai. At present Trivandrum is connected with major cities of the country by direct trains. This has eased the inter-state movement of the people of this State. But the traffic between Trivandrum and Bombay section continues to be highly congested and more direct trains are needed in this section. The importance of a coastal railway line connecting Mangalore and Bombay has to be particularly stressed in this context. The density of railway length in Kerala is only 23.6 km. per 1000 sq. km. of area. Kerala is heavily dependent on road transport for the movement of goods and consequently the intensity of traffic is very heavy. This leads to the incidence of high rate of road accidents and the number of accidents per Sq. km. of area is highest and in respect of accident indices, the State is third among the Indian States. The back waters, the rivers and the interlinking canal system do provide ample scope for the development of a cheap inland water transport system in the low land and lower midland regions. There exists a canal system inter-connecting the various rivers, lakes and lagoons of the State from

Trivandrum to Badagara and from Valapattanam to Kasargode. The system will be complete only if the gap between Badagara and Valapattanam is filled up by digging a new canal. Coastal transport facilities are also enormous with the existance of a major port at Cochin, four intermediate ports at Vizhinjam, Neendakara, Alleppey and Beypore and 9 minor ports at Tivandrum, Quilon, Kodungallor, Ponnani, Badagara, Tellicherry, Cannanore, Azhikkal and Kasargode. At present there are two aerodromes at Trivandrum and Cochin and a third one at Calicut is undr construction. International flights for the gulf countries, Male and Colombo are being operated from Trivandrum. Domestic flights to Madras, Bangalore, Bombay and Delhi are being operated from these aerodromes. There is one post office for every 8.18 sq. km. of area and 5843 people. There are 6.55 telephones for every thousand population and 4.28 phones per sq. km. of area.

2.0. **Land Utilisation**

The particulars of area under various land utilizations and crops are estimated on the basis of the sample survey conducted under EARAS. In 1984-85 the survey covered 265 villages with a 20 sample size. The various classes of utilizations and their definitions adopted for the survey are given below:

(i) *Forests.*—All actual forest area on land classified or administered as forests under legal enactments dealing with forest.

(ii) *Land put to non-agricultural uses.*—Area occupied by buildings, road courtyards, play grounds, railways, rivers, canals and other lands put to non-agricultural uses.

(iii) *Barren and uncultivable land.*—Land like mountains, deserts etc, and land which cannot be brought under cultivation unless at a high cost.

(iv) *Permanent pastures and grazing land.*—All grazing lands whether they are permanent or not are included under this item.

(v) *Miscellaneous tree crops.*—All cultivable land which is not included under net area sown, under thatching grass, bamboo bushes etc.

(vi) *Cultivable waste.*—All land available for cultivation, but not taken up for cultivation or abandoned after a few years of cultivation for one or other reasons continuously for five years and above are included in this category.

(vii) *Current fallow.*—This is crop areas which are kept uncultivated for the current year.

(viii) *Other than current fallow.*—All lands which taken up for cultivation but are temporarily out of cultivation for a priod of not less than one year and not more than five years.

(ix) *Net area sown.*—This represents the area sown with crops by counting the area sown more than once in the same year only once.

(x) *Total cropped area.*—Total cropped area is the area obtained by counting as may times as has been sown in a single year.

The land utilisation particulars of the State for the year 1984-85 are furnished in table 11.1 of summary tables and 12.3 of the detailed tables.

The area discussed under various land uses of the State is based on the area under village papers which slightly differ from that of the area under professional survey.

District-wise details of area under various land uses are discussed in the following paragraphs.

2.1 *Forests.*—The District-wise details of area under forests are given in table 2.1.1.

TABLE 2.1.1.

District-wise distribution of area under Forests 1984-85

District	*Area under Forest (Hect)*	*% to total*	*% to total area of the district*
(1)	(2)	(3)	(4)
Trivandrum	49861	4.61	22.78
Quilon	81436	7.53	32.34
Pathanamthitta	155214	14.35	57.75
Alleppey	..	..	..
Kottayam	8141	0.75	3.70
Idukki	260907	24.12	50.67
Ernakulam	8123	0.75	3.45
Trichur	103619	9.58	34.61
Palghat	136257	12.60	31.04
Malappuram	103417	9.56	35.90
Kozhikode	41386	3.83	17.74
Wynad	78787	7.29	38.88
Cannanore	54359	5.03	11.49
State	1081509	100.00	27.83

The area under forests form 27.83%of the total-geographical area of the State. Though the percentage of area under forests to total area is highest in Idukki, the percentage of area under forests to geographical area of the district is highest in respect of Pathanamthitta. In Idukki and Pathanamthitta more than 50% of the total area of the district is covered by forests.

2.2. *Land put to non-agricultural uses.*—The area put under non-agricultural uses during the year 1984-85 was estimated at 2.80 lakh hectares as against 2.78 lakh hect. during the previous year. This forms 7.2 % of the total geographical area of the State. The district-wise distribution of area under non agricultural uses during the year 1984-85 is furnished in the table 2.2.1

TABLE 2.2.1

District-wise distribution of area under non-agricultural uses

1984-85

District	*Area under non-agricultural uses (Hect.)*	*% to total*	*% to geographical area*
(1)	(2)	(3)	(4)
Trivandrum	17572	6.28	8.04
Quilon	21817	7.80	8.66
Pathanamthitta	8346	2.99	3.11
Alleppey	27451	9.81	20.18
Kottayam	18823	6.73	8.57
Idukki	13887	4.97	2.70
Ernakulam	33544	11.99	14.26
Trichur	22074	7.89	7.37
Palghat	33081	11.82	7.54
Malappuram	19414	6.94	5.35
Kozhikode	17070	6.11	7.32
Wynad	5474	1.96	2.58
Cannanore	41150	14.71	8.35
State	279703	100.00	7.20

From the above table it can be seen that the area under non-agricultural uses to total area under this category was highest in respect of Cannanore while the percentage of area under non-agricultural uses to geographical area of the district was highest in respect of Alleppey district.

2.3. *Barren and uncultivable land.*—The area under barren and uncultivable land was estimated at 85688 hect. during 1984-85 as against 86590 hect. estimated during 1983-84. The area under this category forms 2.21% of the geographical area. The area under this type of land was highest in the district of Cannanore with 28794 hect. followed by Idukki and Palghat with 19202 hect. and 13585 hect. respectively.

2.4. *Permanent pastures and grazing lands.*—The area estimated under permanent pastures and grazing lands was 4158 hectares during 1984-85 as against 5222 hect. during 1983-84. Only 0.12% of the geographical area of the State consists of pastures and grazing lands. The area under this category was highest in Idukki with 1680 hect. followed by Cannanore with 1206 hectares.

2.5. *Land under miscellaneous tree crops.*—The land under miscellaneous tree crops for the year 1984-85 was estimated at 51309 hect. as against 54701 hect. during the previous year. The total area under this category forms only 1.31 of the geographical area of the State. Out of this about 29% of area was in Idukki District and 27% in Cannanore District.

2.6. *Cultivable waste land.*—The area under cultivable waste land during the year 1984-85 was estimated at 1.3 lakhs hect. as againt 1.29 lakhs hect. during the previous year. The area under this category constituted about 3.35% of the total geographical area of the State.

Out of this about 68% of area was confined to the districts of Idukki, Palghat and Cannanore. The district-wise distribution of area under cultivable waste land is given in the table 2.6.1.

TABLE 2.6.1

District-wise distribution of area under cultivable waste

1984-85

District	*Area under cultivable waste (hect.)*	*% total*
(1)	(2)	(3)
Trivandrum	2196	1.69
Quilon	1122	0.86
Pathanamthitta	634	0.45
Alleppey	1849	1.42
Kottayam	1494	1.19
Idukki	39374	30.27

(1)	(2)	(3)
Ernakulam	5401	4.15
Trichur	5190	3.99
Palghat	25287	19.43
Malappuram	14343	11.03
Kozhikode	3361	2.58
Wynad	5455	4.19
Cannanore	24392	18.75
State	130098	100.00

2.7. *Fallow other than current fallow.*—The area under land classified as fallow other than current fallow was estimated at 27221 hectares during 1984-85 as against 42938 hectares during the previous year. The area under this category has decreased considerably over the previous year's estimate.

2.8. *Current Fallow.*—The area of land lying as current fallow during the year 1984-85 was estimated at 41658 hectares as against the previous year's estimate of 42938 hectares. The area lying as fallow was highest in Malappuram district while the same was lowest in Pathanamthitta district. The total area under this category forms only about 1% of the total geographical area of the State.

The district-wise distribution of current fallow is given in table 2.8.1. below:—

TABLE 2.8.1

District-wise distribution of current fallow 1984-85

District	*Area under current fallow (hectares)*	*Percentage to total*
Trivandrum	1269	3.05
Quilon	1075	2.58
Pathanamthitta	1023	2.46
Alleppey	2122	5.09
Kottayam	2513	6.03
Idukki	1618	3.88
Ernakulam	3232	7.76
Trichur	4753	11.41
Palghat	6067	14.56
Malappuram	3812	21.15
Kozhikode	2265	5.44
Wayanad	1362	3.27
Cannanore	5547	13.32
State	41658	100.00

2.9. *Net area sown.*—The net area sown during the year 1984-85 was estimated at 21.84 lakh hectares as against 21.80 lakh hectares during the previous year. The net area sown forms 56.2% of the geographical area of the state. The district-wise distribution of net area sown is furnished in the table 2.9.1.

TABLE 2.9.1

District-wise distribution of net area sown 1984-85

Districts	*Net area (hectares in lakhs)*	*% to Total*	*% to the area of the district*
Trivandrum	1.44	6.58	65.67
Quilon	1.44	6.59	57.19
Pathanamthitta	1.02	4.67	37.96
Alleppey	1.03	4.71	75.58
Kottayam	1.84	8.44	83.93
Idukki	1.62	7.40	31.38
Ernakulam	1.78	8.15	75.70
Trichur	1.57	7.18	52.42
Palghat	2.14	9.79	48.71
Malappuram	2.02	9.25	55.66
Kozhikode	1.61	7.41	69.40
Wayanad	1.14	5.21	53.55
Cannanore	3.19	14.62	64.78
State	21.84	100.00	56.22

From the above table it may be seen that the percentage of net area sown to total was highest in Cannanore district with 14.62% and lowest in Pathanamthitta taluk with 4.67%. But the percentage of net area sown to the geographical area of the district was highest in respect of Kottayam district with 83.93% while it was lowest in respect of Idukki district with 31.38% against a state average of 56.22%.

2.10. *Area sown more than once.*—The area sown more than once during the year 1984-85 was estimated at 6.9 lakh hectares as against 6.8 lakh hectares during the previous year. The area sown more than once constituted 31.60% of the

net area sown and 17.76% of the geographical area. Palghat district had the highest area sown more than once with 109965 hectares while Pathanamthitta district had the lowest area under this category with 2551 hectares. The district-wise distribution of area under area sown more than once is furnished in table 2.10.1.

TABLE 2.10.1

District-wise distribution of area sown more than once

District	*Area sown more than once (in hect.)*	*% to total*	*% to net area sown*
Trivandrum	81565	11.82	56.82
Quilon	83746	12.13	58.15
Pathanamthitta	2551	0.37	2.50
Alleppey	69137	10.02	67.24
Kottayam	48855	7.08	26.51
Idukki	18319	2.65	11.34
Ernakulam	68724	9.95	38.58
Trichur	72800	10.55	46.39
Palghat	109965	15.93	51.42
Malappuram	39680	5.75	19.63
Kozhikode	48219	6.99	29.78
Wayanad	25842	3.74	22.70
Cannanore	20817	3.02	6.52
State	690220	100.00	31.60

Though the area sown more than once was highest in Palghat district the percentage of area sown more than once to net area sown was highest in Alleppey district while it was lowest in Pathanamthitta district. Since area sown more than once normally associates with wet lands it may be presumed that Pathanamthitta district has less wet land area compared to other disticts.

2.11. *Total cropped areas.*—The total cropped area is the sum of the net area sown and area sown more than once in a year. The total cropped area of the state for the year 1984-85 was estimated at 28.75 lakh hectares as against

28.62 lakh hectares during the previous year. The total cropped area forms 132% of the net area sown and 73.98% of the geographical area of the state. The district-wise distribution of total cropped area is furnished in the table 2.11.1.

Table 2.11.1

District-wise distribution of total cropped area

District	*Total cropped area (tn lakh hectares)*	*% to total*	*% to net area sown (intensity of cropping)*
Trivandrum	2.25	7.83	157
Quilon	2.28	7.93	158
Pathanamthitta	1.04	3.62	103
Alleppey	1.72	5.98	167
Kottayam	2.33	8.10	127
Idukki	1.80	6.26	111
Ernakulam	2.47	8.59	139
Trichur	2.30	8.00	146
Palghat	3.24	11.27	151
Malappuram	2.42	8.42	120
Kozhikode	2.10	7.30	130
Wayanad	1.40	4.87	123
Cannanore	3.40	11.83	107
State	28.75	100.00	131

The total cropped area was highest in Cannanore district and the same was lowest in Pathanamthitta district.

But the percentage of total cropped area to net area sown or the intensity of cropping was highest in Alleppey district and was lowest in Pathanamthitta district. In this connection it may be remembered that about 58% of the geographical area of the Pathanamthitta district was covered by forest during 1984-85.

3.0. Area under crops

3.1. *Classification of area under seasonal, annual and perennial crops*

Crops may be broadly classified into seasonal annual and perennial according to the duration of each crop. Crops which have a duration of one season are called seasonal, crops with a duration of one year are called annual and crops which have a duration of more than one year are called perennial crops. The district-wise distribution of area under crops classified into seasonal, annual and perennial is furnished Table 3.1.1. below:

TABLE 3.1.1

District-wise distribution of area under seasonal, annual and perennial crops 1984-85

Sl. No.	District	Seasonal crops		Annual crops		Perennial crops	
		Area	% to total	Area	% to total	Area	Percentage to total
1	Trivandrum	85494	7.91	6788	10.41	132827	7.68
2	Quilon	88875	8.23	4920	7.55	133977	7.75
3	Pathanamthitta	35762	3.31	4216	6.47	64586	3.74
4	Alleppey	95922	8.88	3729	5.72	72314	4.18
5	Kottayam	61327	5.68	5834	8.95	165952	9.60
6	Idukki	23295	2.16	4914	7.54	151714	8.77
7	Ernakulam	111097	10.28	6200	9.51	129554	7.49
8	Trichur	114355	10.59	5282	8.10	110096	6.37
9	Palghat	217834	20.16	7082	10.87	98894	5.72
10	Malappuram	98380	9.10	5146	7.90	138316	8.00
11	Kozhikode	30881	2.86	3691	5.66	175572	10.15
12	Wayanad	37170	3.44	1839	2.82	100649	5.82
13	Cannanore	79889	7.40	5541	8.50	254729	14.73
	State	1080281	100.00	65182	100.00	1729180	100.00

Out of a total cropped area of 28.7 lakhs hectares during 1984-85 about 38% of area was covered by seasonal crops as against 60% by perennial crops and only 2% by annual crops. The area under perennial crops shows an increase over the years while those of the seasonal and annual crops show a reverse trend over the years.

The area under seasonal crops was highest in Palghat while the same was lowest in Idukki. In the case of annual crops also Palghat stands on the top of other districts in respect of area. The area under perennial crops was highest in Cannanore district. In the districts of Palghat and Trichur, seasonal crops dominate other crops.

3.2. *Classification of crops accordtng to food and non food crops*

The crops may again be subdivided into food crops and non food crops according to its use. The details of area under various crops classified into food and non food crops are given in table 11.4 of the summary tables and 12.5 of the detailed tables.

3.2.0. *Food crops*

The area under food crops during the year 1984-85 was estimated at 16.5 lakh hectares as against 16.7 lakhs hectares during the previous year. The area under food crops forms about 57% of the total cropped area. The area under food crops shows a decreasing trend over the years. The district-wise distribution of area under food crops is given in table 3.2.0.

TABLE 3.2.0

District-wise distribution of area under food crops 1984-85

Sl. No.	*District*	*Area under food crops (hectares in lakhs)*	*% to total*	*% to total cropped area of the district*
1.	Trivandrum	1.28	7.78	57.02
2.	Quilon	1.22	7.38	53.50
3.	Pathanamthitta	0.53	3.20	50.56
4.	Alleppey	1.13	6.84	65.66
5.	Kottayam	0.95	5.75	40.72
6.	Idukki	1.00	6.07	55.74
7.	Ernakulam	1.45	8.75	58.52
8.	Trichur	1.51	9.12	65.52
9.	Palghat	2.49	15.10	76.95
10.	Malappuram	1.50	9.09	62.03
11.	Kozhikode	0.76	4.63	36.36
12.	Wayanad	0.63	3.79	44.87
13.	Cannanore	2.06	12.50	60.66
	State	16.51	100.00	57.43

The area under food crops was highest in Palghat district while it was lowest in Pathanamthitta district. The percentage of area under food crops to total cropped area was highest in respect of Palghat district with about 77% while it was lowest in respect of Kozhikode district, with only about 36%. This percentage was less than 50% in the districts of Kottayam, Wayanad and Kozhikode. This percentage for the state as a whole was 57.43% as against 59.06% during the previous year.

The salient features of area under different food crops are summarised below.

(i) *Paddy*.—Paddy is the most important of the seasonal crops cultivated in the state with 25.41% of the total cropped area of the state. Being a seasonal crop it is cultivated during the three seasons of autumn, winter and summer. The season-wise distribution of area under paddy is given in Table 3.2.1.1. below:

TABLE 3.2.1.1

Season-wise distribution of area under paddy

Seasons	*Area under paddy*		
	1982-83	1983-84	1984-85
Autumn	342669 (40.0)	327783 (44.3)	318611 (43.62)
Winter	352273 (45.3)	324560 (43.8)	326812 (44.75)
Summer	83548 (10.7)	87743 (11.9)	84950 (11.03)
All seasons	778490	740086	730379
	(100.0)	(100.00)	(100.00)

From the above table it can be seen that the area under paddy shows a decreasing trend over they ears. Seasonwise area under winter crop shows a consistantly decreasing trend whereas the area under winter and summer crop shows a mixed trend. Now-a-days paddy fields area being converted into garden lands and most often single cropped lands which are cultivated only during autumn are subjected to the pressure of conversion.

The District-wise distribution of area under paddy during tne year 1984-85 is furnished in table 3:2:1:2 below

TABLE 3.2.1.2

District wise distribution of area under paddy 1984-85

Sl.No.	*District*	*Gross Area under paddy (hectares)*	*Percentage to total*
1	Trivandrum	27020	3.70
2	Quilon	37563	5.14
3	Pathanamthitta	17439	2.39
4	Alleppey	73610	10.08
5	Kottayam	31990	4.38
6	Idukki	8475	1.16
7	Ernakulam	89183	12.21
8	Trichur	102540	14.04
9	Palghat	166312	22.77
10	Malappuram	73185	10.02
11	Kozhikode	21345	2.92
12	Wynad	29651	4.06
13	Cannanore	52065	7.13
	State	730379	100.00

Paddy occupied about 7.3 lakh hectares of area or 25.4% of the gross cropped area during 1984-85 as against 7.4 lakh hectares or 26% of the gross cropped area during 1983-84, 23% of the total area under paddy was in Palghat district alone. Trichur, Ernakulam and Alleppey are the other major paddy growing districts of the State. The lowest area under paddy was estimated for Idukki district. In Palghat district 51% of total cropped area was covered by paddy alone during 1984-85.

2. *Other cereals and millets.*—Jowar, ragi, chama are the other important cereals and millets cultivated in the State. The total area under these crops during the year 1984-85 was estimated at 5482 hectares as against 5613 hectares during the previous year.

3. *Pulses.*—The area under pulses during the year 1984-85 was estimated as 28715 hectares as against 30268 hectares during the previous year. Palghat is the major pulses growing district of the State. About 1% of the gross cropped area was covered by pulses.

4. *Sugarcane.*—The area brought under Sugarcane cultivation during the year 1984-85 was estimated at 7839 hectares as against 8084 hectares during the previous year. Palghat, Idukki, Pathanamthitta and Alleppey are the major Sugarcane growing districts of the State.

5. *Pepper.*—The area under pepper during the year 1984-85 was estimated at 1.06 lakh hectares. Cannanore, Idukki and Kottayam are the major Pepper growing districts of the state 3.68% of the gross cropped area of the State was covered by Pepper during 1984-85.

6. *Chillies.*—The total area under chillies was estimated at 1001 hectares during the year under report as against 1017 hectares during the previous year. Cultivation of this crop on a commercial scale is limited to the Malabar region only.

7. *Ginger.*—The area under ginger during the year 1984-85 was estimated at 14537 hectares as against 14883 hectares during the previous year. Kottayam and Waynad are the major ginger growing districts of the State.

8. *Turmeric.*—Turmeric is cultivated throughout the state on a limited scale. Ernakulam and Kottayam are the major turmeric growing districts of the State. The area under this crop during the year 1984-85 was estimatd at 2885 hectares as against 3161 hectares during the previous year.

9. *Cardamom.*—Cardamom is mainly grown on the slopes of western ghats. Idukki district accounts for about 84% of the total area under this crop. The area under Cardamom for the year 1984-85 was estimated at 58769 hectares as against 54423 hectares during the previous year. Cardamom is not grown in the districts of Alleppey, Kottayam, Ernakulam and Trichur districts. About 2% of the gross cropped area of the State was covered by this crop.

10. *Arecanut.*—The area under arecanut during the year 1984-85 was estimated at 56778 hectares as against 59604 hectares during the previous year Out of this about 24% of area was in Cannanore district alone. Arecanut covered 1.98% of the gross cropped area of the State during 1984-85.

11. *Tamarind.*—The area under tamarind during the year under report was estimated at 11101 hectares against 11086 hectares during the previous year. Palghat is a major tamarind growing district of the State.

12. *Mango.*—Mango is grown throughout the State. The area under this crop during the year 1984-85 was estimated at 59984 hectares as against 60201 hectares during the previous year. About 2% of the gross cropped area was covered by the crop during 1984-85.

13. *Jack.*—The area under Jack during the year 1984-85 was estimated at 58502 hectares as against 58890 hectares during the previous year. Jack covered about 2% of the gross cropped area of the State during 1984-85.

14. *Banana.*—The area brought under banana cultivation during the year 1984-85 was estimated at 16123 hectares as against 15185 hectares during the previous year. The largest area under banana in the State was from Malappuram district.

15. *Other Plantain.*—Other plantain is cultivated throughout the State Trivandrum is the major district growing this crop. About 1% of the gross cropped area of the State was covered by this crop during 1984-85. The area under this crop during the year was estimated at 35294 hectares as against 34408 hectares during 1983-84.

16. *Pine apple.*—Pine apple is cultivated throughout the State on a limited scale. The area under this crop during the year 1984-85 was estimated at 4836 hectares as against 4703 hecatres during the previous year.

17. *Cashewnut.*—The area under Cashewnut during the year 1984-85 was estimated at 1.37 lakh hectares as against 1.42 lakh hectares during the previous year. More than 48% of the total area under this crop was in Cannanore district. Palghat and Malappuram are the other important cashew growing districts of the state. About 5% of the gross cropped area of the State was covered by this crop during 1984-85.

18. *Tapioca.*—Tapioca is cultivated during the three seasons viz. Autumn, Winter and Summer. Winter crop is the major one having an area of 64% of the total area under this crop. Trivandrum and Quilon are the chief tapioca growing districts of the State. Out of a total area of about 2.17 lakh hectares, 38% was in these districts alone during 1984-85. 7.5% of gross cropped area of the State in 1984-85 was covered by Tapioca.

3.3. *Non-food Crops*

The area under non-food crops during the year 1984-85 was estimated at 12.24 lakh hectares as against 11.7 lakh hectares. during the previous year. The area under non-food crops was steadily increasing over the past decade. Non-food crops covered about 43% of the gross cropped area. The salient features of area under important non food crops are summarised in the following paragraphs.

(a) *Ground nut.*—Groundnut is cultivated mainly in Palghat district where the Soil is suitable for this crop. The area under groundnut during the year 1984-85 was estimated at 11824 hecatres as against 9810 hectares during the previous year.

(b) *Sesamum.*—The area under sesamum during the year 1984-85 was estimated at 14448 hectares as against 15045 hectares during the previous year. Alleppey is the major sesamum growing district of the State.

(c) *Coconut.*—Coconut is the most important non-food crop cultivated in the State. The area under this crop covered about 24% of the total cropped area and 56% of the non-food crops. The area under coconut during the year under report was estimated at 6.87 lakh hectares as against 6.82 lakh hectares during the previous year. The area under coconut was highest in Kozhikode and it was lowest in Wayanad district. In Kozhikode about 51% of the gross cropped area was covered by coconuts.

(d) *Cotton.*—Cotton is cultivated only in Palghat district of the State and the area under this crop during the year 1984-85 was estimated at 6326 hectares as against 6300 hectares during the previous year.

(e) *Tobacco.*—Tobacco was cultivated only in Cannanore district and the area under this crop during the year under report was estimated as 833 hectares as against 536 hectares during the previous year.

(f) *Tea.*—Tea is mostly cultivated on the slopes of the western ghats. The area under tea during the year 1984-85 was estimated at 34976 hectares as againt 35702 hectares during the previous year. Out of this about 68% of the area under tea was in Idukki district alone. Tea covered about 1.2% of the gross cropped area of the State.

(g) *Coffee.*—Coffee is grown all over the State though the high ranges are best suited for this crop. Total area under this crop during the year 1984-85 was estimated at 64009 hectares of against 62368 hectares during the previous year. About 86% of the area was in Wayanad district alone. Nearly 40% of the total cropped area of Wayanad district and 2.3% of the gross cropped area of the State was covered by Coffee during 1984-85.

(h) *Rubber.*—The area under rubber during the year 1984-85 was estimated at 3.12 lakh hectares as against 2.71 lakh hecatres during the previous year. The area under rubber shows an increasing trend over the years. Kottayam district leads the other districts in the cultivation of Rubber. Rubber covered about 11% of the gross cropped area of the state during 1984-85.

(i) *Cocoa.*—Though Cocoa is a plantation crop there is no big Cocoa plantation as such in the State. This crop is cultivated as an inter crop to other crops like Coconut etc. Kottayam is the major Cocoa growing district of the State. The area under this crop during the year under report was estimated at 17860 hectares as against 18502 hectares during the previous year.

4. Irrigation

Irrigation is an essential input for cultivation especially for crops like paddy which require a large quantity of water to grow. Kerala is blessed with 41 west flowing and 3 east flowing rivers and these rivers provide vast potential for irrigation. It is estimated that about 6 lakhs hectares (net) or 14 lakh hectares (gross) of area could be brought under irrigation in Kerala through

major and medium irrigation. Because of heavy rain fall flood control was the main concern of farmers rather than irrigation in the past. Though construction of dams and power generation are much easier channeling of the impounded water to needy places was a costly affair because of the nature of the terrain. Consequently works on irrigation facilities have not taken much head way in Kerala and a vast potential remain untapped. With the commissioning of various power and irrigation schemes flood control has been achieved to a considerable level. In 1983-84 there were 13 ongoing major irrigation projects and 5 ongoing medium irrigation projects in Kerala. Out of these the major works at Kuttiady, Chitturpuzha, Pamba, Pazhassi and Periyar Valley are almost over. Besides, minor irrigation schemes and flood control projects were also taken up and implemented. Thannermukkom project is a major flood control scheme. There were 1.32 lakhs of pump sets electrically operated in Kerala at the end of the year 1984-85. According to quinqunnial census 1982, there were 24475 oil engines in the state a major portion of which is used for irrigation purposes. Source wise and crop-wise area under irrigation during 1983-84 are furnished in tables 11.2 and 11.3.

5. Weather and Crop Conditions

The weather in the State is controlled by the south west and north east monsoon winds. Under the influence of these winds heavy rains occur in Kerala. Cultivation by irrigation forms only 11% of the net area sown. In times of rain little irrigation is necessary and in a prolonged dry spell, cultvation by irrigation will be difficult as the water sources would get dried up since the west flowing rivers orginate and end up within the State itself. In such situation, cultivation is a gamble with the monsoons. The severe drought, conditions existed in the State during 1982-83 was rather an exception than a rule since complete failure of both the monsoons in a year was very rare in the history of the State. Generally there will be heavy rainfall during the months of June, July and October. This does not, however mean that the seasonal distribution of the rain will always be favourable to crops. Frequent floods and occassional drought conditions were the general pattern of the weather condition in the Sate in the past. The weather and crop conditions prevailed in various districts during the year are over viewed below.

1. *Trivandrum*

The important crops grown in the district are paddy, coconut, tapioca, banana, plantain and rubber. The year 1984-85 witnessed deficiency in rainfall in the district. Both the monsoons were weak in the district during the year. But sea erosion and uprooting of Coconut trees were reported from certain parts of the coastal line of the district. Though the rainfall was deficient it did not affect the crops adversely as the distribution of available rainfall helped to raise a normal crop during autumn season. Local varieties of paddy were preferred to high yielding varieties of paddy in Trivandrum and Chirayinkil taluks. The reason for this tendency among the farmers may be

attributed to insufficient rainfall and high cost of cultivation of high yielding varieties of paddy. However the average yield per hectare has increased considerably during the year compared to that of the previous year. Perinnial crops also fared better during this year.

2. *Quilon*

The important crops cultivated in the district are paddy, coconut, tapioca, rubber, arecanut, banana and pepper. The rainfall in the district was deficient during the year. Still there was flood damages to Autumn crop of paddy in Kunnathur taluk. The distribution of available rain was more or less favourable to all crops. Generally speaking, there was no natural calamities like flood, drought and pest attack in the district. Consequently the farmers were able to reap a rich harvest in respect of most crops.

3. *Pathanamthitta District*

The important crops cultivated in this district are paddy, coconut, tapioca, plantain, pepper, rubber and sugarcane. Though the rainfall was about 24% less than that of the previous year's total there were isolated cases of flood in Thiruvalla, Mallappally and Kozhencherry taluks, consequent on heavy rains during June. The rain fall was considerably less during February in all the taluks of the district. Still the distribution of available rain fall was favourble to all crops. Though there were minor crop losses the overall wealther condition was favourable to all crops. Consequently farmers were able to enjoy the benefit of it during the year. The tendancy among farmers to convert paddy lands into garden lands was gaining ground in this district. The reason for this tendency is attributed to high cost of cultivation and unattractive returns on paddy cultivation.

4. *Alleppey*

The main crops cultivated in the district are paddy, coconut, arecanut, tapioca, banana and sugarcane. Total rainfall was near normal in the district, during the year. But there was excess rain fall at the time of sowing in Mavelikara and Chengannur taluks and the seeds sown were washed away in certain places. Off season rains at the time of harvest in Kuttanad had adversely affected the crop. But the climatic condition was favourable to other crops during the year. The tendency of converting paddy fields to garden lands was seen among farmers in this district also. The adverse weather conditions especially for paddy during autumn season in Mavelikara and Chengannur taluks and off season heavy rain during October in Kuttanad had pushed down productivity of paddy in the district compared to that of the previous year.

5. *Kottayam*

The major crops grown in the district are rice, coconut, tapioca, rubber, pepper, arecanut and, banana and ginger. Rainfall during the year was normal in this district. There was heavy rain during June and flood damages were reported from certain parts of the district. The yield rate of paddy was higher than that of the previous year. The over all weather condition was favourable to most of the crops and the farmers were able to reap good harvest during the year, though the climate was not favourable to pepper.

6. *Idukki*

The major crops grown in the district are paddy, coconut, rubber, tapioca, pepper, tea, coffee, cardamom and ginger and banana. The district witnessed excess rainfall flood and lands slips during the year under report. The rainfall was normal during Kharif season. Khariff crop of paddy was a success in this district. But during Rabi season heavy rains and floods and land slips occurred in Peermade and Devicolam taluks caused heavy damages to property. There was severe crop losses. Off seasonal heavy rains adversely affected the Mundakan crop in Thodupuzha taluk. The estimated loss due to heavy rains and flood was put at Rs. 50 lakhs. The climate was not favourble to pepper which is a major crop in Udumbanchola and Thodupuzha taluks due to excess rain, and the production was decreased considerably. Due to pest attack ginger crop suffered about 20% losses during the year. But the season was favourable to crops like coconut, arecanut-rubber, cocoa and tapioca. In the case of paddy also the district recorded increased productivity during the year 1984-85 compared to that of the previous year.

7. *Ernakulam*

The important crops cultivated in this district are paddy, coconut, rubber, tapioca, banana, ginger, pepper etc. The rain fall in the district was deficient during the year under report. But heavy rains during June had flooded isolated pockets of the district. The distribution of the available rain fall was more favourable to crops though there was shortage of rain during February Natural calamities like flood, drought or severe pest attack was absent during the year. The productivity of major crops increased under favourable weather conditions in the district.

8. *Trtchur*

The major crops cultivated in the district are paddy, coconut, arecanut, rubber, banana, tapioca, plantain, etc. Rain fall was normal in this district. In Trichur taluk paddy crop both Kharif and rabi seasons was affected due to heavy rain and floods. Loss upto 18% of estimated production for the year was noticed in this taluk. Though the weather condition was favourable in Kodungallur taluk throughout the year it was not the case in respect of Talappally. In sufficient rain fall during rabi season has affected the crops.

In Mukundapuram the weather condition was satisfactory and still the overall productivity of paddy showed a decrease in this district compared to the previous year. Lack of rain fall during flowering stage and excess rain fall during the succeeding months adversely affected the production of pepper.

9. *Palghat*

The peculiarity of this district is that seasonal crops dominated over other crops. Besides paddy, pulses, sugar cane, cashew, rubber, arecanut, coconut, plantain, tamarind etc. are the other important crops cultivated. Rain fall during the year was normal. Weather was favourable for crops in the district except for heavy rainfall and flood in certain places during Autumn season. There was off seasonal heavy rains at the time of harvest of virippu crop in certain parts of the district. Though there was wide spread pest attack in Ottappalam and Chittoor taluks it was able to be contained by the application of pesticides. During Mundakan season drought affected crops in some parts of the district. But due to better irrigation facilities the winter crop in Mannarghat was a bumper one. There was wide spread pest attack during this season due to weak east winds which controls pest attack considerably. Generally Mundakan crop is not a success in this district due to lack of adequate water and the consequent inability to apply high dozes of fertilizers. There was tendency among the farmers to cultivate banana in places where paddy was grown traditionally due to better returns from banana cultivation. On the whole the weather condition was favourable to all crops compared to that of the previous year. Consequently productivity of all crops was better than that of the previous year.

10. *Malappuram*

The main crops cultivated in this district are paddy, coconut, arecanut rubber, tapioca, banana, etc. The rainfall was deficient in this district during the year. The autumn crop was normal in this district. But near drought conditions prevailed from November to January. Due to the scarcity of water, manuring operations could not be undertaken in time and there was pest attack also. Only 64% of the wet lands could be brought under Mundakan crop; out of which only 4% of the area was covered by high yielding varieties of paddy. High Yielding varieties require more water for manuring and plant protection measures as they are more prone to diseases. The summer crop was also not very successful. Still the yield rate of paddy for all the seasons together was higher than that of the previous year in this district. The climate was favourable to other crops also.

11. *Kozhikode*

The important crops grown in the district are paddy, coconut, banana, rubber, pepper, cashew and tapioca. The overall rainfall during the year was deficient. There was heavy rain during June and consequent flood.

The virippu crop was normal in Kozhikode taluk. But during Mundakan season lack of adequate rain and pest attack affected the crop in many places. Still the productivity was better than that of the previous year. The weather condition for perennial crops were also favourable. Consequently the farmers were able to reap a rich coconut harvest in this district which is a coconut bowl of the state.

12. *Wayanad*

The major crops cultivated in this district are coffee, paddy, cardamom, tea, pepper, coconut and tapioca. The rainfall conditions were not satisfactory during the year. Lack of rain has adversely affected seasonal crops than perennial crops. The productivity of paddy had declined considerably compared to that of the previous year. Mundakan is the major crop in Wayanad. There was mear drought conditions in this district during this seasons. This affected rice production adversely in the district during the year. The perennial crops fared better than that of the previous year especially for coffee for which it was a record yield.

13. *Cannanore*

The important crops cultivated in the districts are paddy, coconut, cashew, pepper, arecanut, rubber, banana, tapioca etc. The rainfall was normal. But the distribution of the rainfall was not favourable. There was very heavy rainfall and flood and consequent crop losses during June. The year witnessed major natural calamities like floods, sea erosion and cyclone. The cyclone had damaged the banana crop in many parts of the district. The year was favourable to coconut. But lack of timely rain has affected the production of crops like arecanut, pepper and cashewnut. Wide spread damages to crops were reported from many parts of the district during both kharif and rabi seasons. Sea erosion has damaged properties worth Rs. 13 lakhs in Hosdurg taluk. The total production and yield rate of paddy suffered severely due to adverse weather conditions in this district. The climate was favourable to coconut during the year in the district.

On the whole the climatic conditions were congerial to crops in most of the districts of the State. The weather was particularly favourable to cocoanut and most other crops. For pepper and cashew the weather was not favourable and there was a decline in production of these crops in the districts where these crops were cultivated on a large scale. There were severe losses to property and crops in Idukki district due to heavy rain, floods and land slides. In Alleppey district also off season heavy rain and flood resulted in severe crop losses. Though the farmers were able to reap a bumper cocoanut crop during the year the prices fell sharply. The consumption of imported palm oil which was much cheaper than coconut oil also caused this price change. Consequently the increase in production of coconut did not help the farmers to increase their income in proportion

to the increase in production. This has disappointed farmers. The fall in production of paddy, cashew pepper and arecanut which are the major crops of Cannanore District have adversely affected the farmers of this region. On the whole the wheather and crop conditions were more favourable to the state during the year under report, when compared to that of the previous year.

6.0. Production of important crops

The details of production of important crops in the state are given in table 11.5 of the summary tables and 12.7 of the detailed tables. The salient features of the production of important crops are discussed below:

(i) *Rice*

The total rice production during the year 1984-85 was estimated at 12.56 lakh tonnes as against 12.08 lakhs tonnes during the previous year. The district-wise distribution of production of rice during the year 1984-85 is given in table 6.1.1 below:

TABLE 6.1.1.

District-wise production of rice 1984-85

District	*Production of rice*		*Yield per hectare (Kg.)*
	Tonnes	*% total*	
Trivandrum	45319	3.61	1677
Quilon	58929	4.69	1569
Pathanamthitta	35920	2.86	2058
Alleppey	140514	11.19	1909
Kottayam	66572	5.30	2081
Idukki	17401	1.39	2053
Ernakulam	149199	11.88	1673
Trichur	147381	11.74	1437
Palghat	350420	27.90	2107
Malappuram	100712	8.02	1376
Kozhikode	23898	1.90	1120
Wayanad	53489	4.26	1804
Cannanore	66098	5.26	1269
State:	1255902	100.00	1720

From the above table it can be seen that Palghat District has produced 28% of the total production of rice in the state. The districts of Alleppey, Ernakulam, Trichur and Palghat had a share of 10% or more each in the total production of rice during the year under report. The yield per hectare was highest in Palghat district with 2107 Kg. per hectare while it was lowest in Kozhikode district with only 1120 Kg. per hectare against a state average of 1720 Kg. The yield per hectare shows a declining trend in the districts of Alleppey, Trichur and Wayanad district as against an increasing trend in all other districts. The average yield in the districts of Trivandrum, Quilon, Ernakulam, Trichur, Malappuram, Kozhikode and Cannanore were less than the state average. The yield per hectare was better during 1984-85 in most districts than that of the previous years.

The season wise production of rice and yield per hectare for the years 1983-84 and 1984-85 are furnished in table 6.1.2 below:

TABLE 6.1.2

Season-wise distribution of rice 1983-84 and 1984-85

Season	*Production of rice (Tonnes)*		*% change over the previous year*	*Yield per hectare (Kg.)*	
	1983-84	1984-85		1983-84	1984-85
Autumn	520458	549027	+5.5	1588	1723
Winter	520622	539859	+3.7	1604	1652
Summer	166836	167016	+0.1	1901	1966
All Seasons	1207916	1255902	+4.0	1632	1720

Though the area under paddy during the year has decreased slightly the production of rice has increased by about 48000 tons or 4% over the previous year. Though there was heavy rain in June and crop losses in Alleppey and Cannanore districts the autumn crop was a success in the rest of the state. 5.5% increase in production was recorded for autumn crop during 1984-85 over the corresponding crop in the previous year. But the increase in production was less marked in winter and summer, due to meagre rain during these seasons. The yield rate for punja crop continued to be higher than other crops during this year also.

(*ii*) *Pulses*

The production of pulses during the year 1984-85 was estimated at 20384 tonnes as against the previous year's estimate of 19912 tons. Palghat District is the major pulse producing district of the State.

(*iii*) *Sugarcane* (*gur*)

The quantity of gur produced in the state during the year 1984-85 was estimated at 42754 tonnes as against 44630 tons during the previous year. Idukki and Palghat Districts are the major gur producing districts of the state.

(*iv*) *Black pepper*

The production of black pepper during the year 1984-85 was estimated at 17350 tonnes as against 24549 tonnes during the previous year. The unfavourable distribution of rain at the flowering stage and after is the main reason for this shortfall in the production of black pepper. The highest quantity of black pepper was produced in Cannanore District as usual.

(*v*) *Dry ginger*

The production of dry ginger during the year 1984-85 was estimated at 41245 tonnes as against 36705 tonnes during the previous year. The yield per hectare of dry ginger increased during the year under normal weather conditions.

(*vi*) *Turmeric* (*cured*)

The production of cured turmeric during the year 1984-85 was estimated at 5186 tonnes as against 5841 tonnes during the previous year. The decrease in production of cured turmeric was due to the fall in area under cultivation of this crop.

(*vii*) *Cardamom Processed*

The estimates of production of processed cardamom for the year 1984-85 stood at 2850 tonnes as against 1963 tonnes during the previous year. The production and yield per hectare of processed cardamom has increased during the year under favourable weather conditions.

(*viii*) *Betel nut*

The estimated production of betel nut during the year 1984-85 was 9269 million nuts against 8318 million nuts estimated for the previous year. The production of betel nut in state as a whole has increased during the year under better seasonal distribution of rainfall. Cannanore District is the major betel nut producing district of the state with 29% share of total production. But adverse weather condition has adversely affected production of this crop in Cannanore District during the year under report.

(*ix*) *Banana*

The production of banana was estimated at 1.90 lakh tons as against 1.78 lakh tonnes during the previous year. The production of banana showed an increasing trend during the past three years mainly due to increase in area. This may be due to better returns compared to other wet land crops like paddy and sugarcane. Malappuram is the major banana producing district of the state.

(*x*) *Other Plantain*

The production of other plantain during the year 1984-85 was estimated at 1.42 lakh tonnes as against 1.39 lakh tons during the previous year. The quantity of other plantain produced was highest in Trivandrum District compared to other Districts.

(*xi*) *Cashewnut*

The production of the cashewnuts during the year 1984-85 was estimated at 72294 tonnes as against 77375 tonnes during the previous year. Cannanore District remained as the major cashewnut producing district of the State. Though nearly 60% of total production of raw nuts was from this district during the year under report, adverse wheather conditions in Cannanore District has adversely affected the total production of this crop during the year.

(*xii*) *Tapioca*

The production of tapioca during the year 1984-85 was estimated at 36.94 lakhs tonnes as against 39 lakh tonnes during the previous year. The decrease in area under tapioca was the main reason for the decrease in production. The highest quantity of tapioca was produced in Trivandrum District and together with Quilon District shared about 41% of the total production. The District-wise distribution of production of tapioca is given in table 6.12.1 below:

TABLE 6.12.1

District-wise distribution of production of topioca 1984-85

District	*Production of topioca (lakh tonnes)*	*% to total*	*Yield rate ton/hectare*
Trivandrum	8.11	21.96	15.42
Quilon	7.14	19.33	16.96
Pathanamthitta	2.76	7.45	20.15
Alleppey	1.59	4.30	14.74
Kottayam	4.07	11.02	20.26
Idukki	1.80	4.87	19.64
Ernakulam	2.05	5.55	19.80
Trichur	0.74	2.00	12.97
Palghat	2.34	6.33	18.72
Malappuram	2.73	7.39	17.38
Kozhikode	0.30	0.81	7.69
Wayanad	0.69	1.87	23.05
Cannanore	2.63	7.12	15.27
State:	36.94	100.00	17.04

The production of tapioca during the year has decreased. The reasons for this were a fall in area under the crop coupled with a fall in productivity in Trivandrum District. The productivity was highest in Wayanad district with 23.05 tonnes hectare and the lowest yield rate was in Kozhikode District with 7.69 tonnes/hectare.

(*xiii*) *Groundnut*

The production of groundnut during the year 1984-85 was estimated at 11768 tonnes as against 8578 tonnes during the previous year. About 99% of the total produce was from Palghat District alone.

(*xiv*) *Sesamum*

The production of sesamum during the year 1984-85 was estimated at 3632 tonnes as against 3838 tonnes during the previous year. The decrease in production was due to decrease in area under cultivation. About 43% of the total production of sesamum was in Alleppey District.

(*xv*) *Coconut*

The production of coconut during the year 1984-85 was estimated at 3453 million nuts as against 2602 million nuts. The sharp increase of nearly 60% in production of coconut may be attributed to the recovery of coconut trees from the bad effects of the 1982-83 drought coupled with very favourable climatic conditions during the year. Kozhikode is the major coconut producing district of the state.

(*xvi*) *Cotton*

The quantity of cotton produced during the year was estimated at 10010 bales (of 170 kg.) as against 9969 bales during the previous year. Cotton is a monopoly produce of Palghat District.

(*xvii*) *Tobacco*

Tobacco is produced only in Cannanore District and the production of tobacco for the year under report was estimated at 981 tonnes as against 1016 tonnes during the previous year.

(*xviii*) *Tea*

The production of tea during the year 1983-84 was estimated at 56329 tonnes as against 44214 tonnes during the previous year. Out of this about 73% was produced in Idukki District alone.

(*xix*) *Rubber*

The production of rubber during the year 1984-85 was estimated at 1.89 lakh tonnes as against 1.62 lakh tonnes during the previous year. The production of rubber shows a steadily increasing trend over the year. Kottayam is the major rubber producing district of the state with 26% share in total production.

(*xx*) *Cocoa*

The production of cocoa during the year 1983-84 was estimated at 4536 tonnes as against 3936 tonnes during the previous year. About 37% of the total produce of cocoa was from Kottayam District alone.

7. Sowing, harvesting and peak marketing periods

The information on sowing, harvesting and peak marketing seasons on important crops are furnished in table 11.8 of the summary tables.

8. Farm price of certain commodities

The average farm price of certain important agricultural produces during the year 1984-85 are given in table 11.6 of the summary tables and 12.8 of the detailed tables.

9. Agricultural wages

District-wise details of agricultural wages classified into skilled (carpenter & mason) and unskilled (for field labour men and women) for the year 1984-85 are furnished in table 12.9 of detailed tables.

10. Livestock, poultry and agricultural implements

The details of livestock, poultry and agricultural implements as available from quinquennial livestock census 1982 are furnished in table 11.7 of the summary tables and 12.10 of detailed tables.

11.0 Summary of Tables

TABLE 11.1

Classification of area according to utilisation 1984-85

Sl.No.	*Head of Classification*	*Area in hectares*	*Percentage to total*
(1)	(2)	(3)	(4)
1	Total area according to village papers	3885497	100.00
2	Forest	1081509	27.84
3	Land put to non-agricultural uses	279703	7.20
4	Barren & uncultivable land	85688	2.20
5	Permanent pastures & grazing land	4158	0.11
6	Land under miscellaneous tree crops	51039	1.31
7	Cultivable waste land	130098	3.35
8	Current fallow	41658	1.07
9	Other fallow	27221	0.70
10	Net area sown	2184423	56.22
11	Total cropped area	2874643	73.98
12	Area sown more than once	690220	17.76

TABLE 11.2

Source-wise area under irrigation

Source of irrigation	*Area irrigated hectares*		*% to total*	
	1982-83	1983-84	1982-83	1983-84
(1)	(2)	(3)	(4)	(5)
Government canals	104321	100445	40.3	37.83
Private canals	4356	3574	1.6	1.35
Government tanks & wells	5271	5945	2.0	2.24
Private tanks & wells	57048	60847	22.1	22.91
Minor & lift irrigation (Government scheme)	36154	33937	14.1	12.78
Other sources	51594	60788	19.9	22.89
Total	258744	265536	100.0	100.00
Percentage of are a irrigated to net area sown	11.8	12.18	..	..

TABLE 11.3

Crop-wise area under irrigation

Sl. No.	*Name of crop irrigated*	*Area irrigated*		
		1982-83	*Percentage*	1983-84
(1)	(2)	(3)	(4)	(5)
1	Paddy	280805	71.91	286932
2	Vegetables	3876	0.99	4513
3	Tubers	785	0.20	570
4	Coconut	67147	17.19	67887
5	Arecanut	12983	3.32	13657
6	Cloves, nutmeg & cinnamon	833	0.21	756
7	Other condiments & spices	1291	0.33	1113
8	Banana	5636	1.44	5601
9	Betel leaves	658	0.17	676
10	Sugarcane	906	0.23	693
11	Others	15591	3.99	13146
12	Total	390511	100.00	395544

TABLE 11.4

Area under crops in Kerala 1984-85

Class of crops	*Name of crop*	*Area in hectares*	
		1983-84	1984-85
(1)	(2)	(3)	(4)
Cereals & millets	1. Paddy	740086	730379
	2. Jowar	1565	1822
	3. Ragi	1367	1200
	4. Other cereals & millets	2681	2460
	5. Total cereals & millets	745699	735861
Pulses	6. Pulses including tur	30268	28715

(1)	(2)	(3)	(4)
Sugar crops	7. Sugarcane	8084	7839
	8. Palmirah	12330	11706
	9. Total sugar crops	20414	19545
Spices & condiments	10. Pepper	106143	105835
	11. Chillies	1017	1001
	12. Ginger	14883	14537
	13. Turmeric	3161	2885
	14. Cardamom	54423	58769
	15. Arecanut (betel nut)	59604	56778
	16. Other condiments and spices	4937	3495
	17. Total condiments and spices including tamarind)	255254	255401
Fresh fruits	18. Mango	60201	59984
	19. Jack	58870	58052
	20. Banana	15185	16123
	21. Other Plantains	34408	35294
	22. Pineapple	4703	4836
	23. Other fruits	22639	21311
Dry fruits	24. Cashewnut	142339	136863
	25. Total fruits	338345	332463
Vegetables	26. Tubers	33033	30471
	27. Sweet potato	5085	4635
	28. Tapioca	233010	216742
	29. Other vegetables (including drumstick)	29017	26961
	30. Total vegetables	300145	278809
Other food crops	31. Tamarind	11086	11101
Total food crops:		1690125	1650794
Oil seeds	32. Coconut	682281	687483
	33. Sesamum	15045	14448
	34. Groundnut	9810	11824
	35. Other oil seeds	1832	1793
	36. Total oil seeds	708968	715548
Fibres	37. Cotton	6300	6326
Drugs	38. Tobacco	552	533
Narcotics	39. Tea	35021	34976
Plantation	40. Coffee	62368	64009
Crops	41. Cocoa	18052	17860
	42. Rubber	271200	311976
	43. Total of drugs- narcotics and plantation crops	387193	428821

(1)	(2)	(3)	(4)
Other non-food crops	44. Fodder grass	2066	1989
	45. Green manure crops	9401	8599
	46. Lemongrass	7320	7762
	47. Betel leaves	1149	1046
	48. Other non-food crops	49180	53225
Total non-food crops		1171577	1223849
Total cropped area		2861702	2874643
Area sown more than once		681347	690220
Net area sown		2180355	2184423

TABLE 11.5

Production of Important Crops 1983-85

Sl. No.	*Name of crops*	*Unit*	*Quantity produced*	
			1983-84	1984-85
(1)	(2)	(3)	(4)	(5)
1.	Rice	Tonnes	1207916	1255902
2.	Jowar	,,	661	925
3.	Ragi	,,	1028	1000
4.	Other cereals	,,	1829	1809
5.	Pulses	,,	19912	20384
6.	Sugarcane (gur)	,,	87062	42754
7.	Pepper (black)	,,	24549	17350
8.	Chillies (dry)	,,	930	913
9.	Ginger (dry)	,,	35705	41245
10.	Turmeric (cured)	,,	5841	5186
11.	Cardamom (processed)	,,	1963	2850
12.	Arecanut (betel nut)	Million nuts	8318	9269
13.	Banana	Tonnes	177917	189564
14.	Other plantain	,,	138736	141628
15.	Cashewnut	,,	77375	72294
16.	Tapioca (raw)	,,	3923990	3694270
17.	Sweet potatoes	,,	33605	38779

(1)	(2)	(3)	(4)	(5)
18.	Groundnut	Tonnes	8578	11768
19.	Sesamum	,,	3838	3632
20.	Coconut	Million nuts	2602	3453
21.	Cotton	Bales of 170 kg.	9969	10010
22.	Tobacco	Tonnes	1016	981
23.	Tea	,,	44214	56329
24.	Coffee	,,	9465	..
25.	Rubber	,,	162212	188900

TABLE 11.6

Average farm (harvest) price of certain Agricultural Commodities 1982-83 to 1984-85

Sl. No.	*Commodity*	*Unit*	1982-83 *average*	1983-84 *farm price*	1984-85 (*weighted average*)
(1)	(2)	(3)	(4)	(5)	(6)
1.	Paddy	Quintal	209.61	259.87	
2.	Coconut	100 Nos.	144.31	244.93	
3.	Arecanut	,,	8.09	10.78	
4.	Tapioca	Quintal	66.56	75.80	
5.	Cashewnut	,,	468.07	781.60	
6.	Banana	100 Nos.	46.09	57.72	
7.	Pepper	Quintal	1176.31	1684.32	
8.	Ginger	,,	1344.13	2737.53	
9.	Sugarcane	M.T.	159.77	187.13	

TABLE 11.7

Number of Livestock, Poultry and Agricultural Machinery

Sl. No.	(1)	(2)	(3)	Census (1977)	Census (1982)
(1)	(2)	(3)	(4)	(5)	(6)
1.	Cattle	Male over 3 years	(a) Breeding	3462	10699
			(b) Working	353672	233048
			(c) Others	13980	22226
			Total	371114	265973
		Female over 23 years	(a) Breeding:		
			(1) In Milk	705040	864272
			(2) Dry	585474	561476
			(3) Not calved	74794	83484
			(b) Working	2569	..
			(c) Others	3103	3383
			Total:	1370980	1512615
			Young Stock	1263965	1318187
			Total Cattle:	3006059	3096775
2.	Buffaloes	Males over 3 years	(a) Breeding	1777	3282
			(b) Working	210199	166088
			(c) Others	6798	13431
			Total:	218774	182801
		Females over 3 years	(a) Breeding:		
			(1) In Milk	86698	82730
			(2) Dry	55646	48878
			(3) Not calved	9013	5710
			(b) Working	5039	..
			(c) Others	1196	1473
			Total:	157592	138791
			Young stock	78034	86992
			Total Buffaloes	454400	408584
3.	Goat		(a) One year & above	956695	1165438
			(b) Below one year	726602	838357
			Total:	1683297	2003795

(1)	(2)	(3)	(4)	(5)	(6)
4.	Sheep		(a) One year & above (b) Below one year	.. ..	3610 3449
			Total:	2546	7059
5.	Horses & Ponies		(a) 3 years & above (b) Below 3 years	.. ..	46 26
			Total:	90	72
6.	Mules			Nil	323
7.	Donkeys			266	370
8.	Camels			..	4
9.	Pigs			172375	127147
	Other (Elephants)			..	451
	Total Livestock:			5319033	5644580
			Dogs Others	.. ..	1156438 434677
		Total Livestock including dogs and others		5319033	7235696
10.	Poultry		(a) Fowls (b) Ducks (c) Others	12956186 429569 3096	14519039 530354 34017
11.	Ploughs		(a) Wooden (b) Iron (Steel)	316975 69191	228566 47385
12.	Carts			20525	8245
13.	Sugarcane Crushes		(a) Power (b) Bullocks	459 863	3925 95
14.	Oil Engines			28759	24475
15.	Electric pumps			25973	74456
16.	Tractors			783	1335

TABLE 11.8

Sowing, harvesting and peak marketting seasons of principal crops in Kerala

Sl. No.	*Name of crop*	*Season*	*Period of Sowing*	*Period of flowering*
(1)	(2)	(3)	(4)	(5)
1.	Rice	Autumn	April — July	July — October
		Winter	August — November	October — January
		Summer	October — December	January — March
			January — March	March — May
2.	Ragi	I Crop	April — July	August — September
		II Crop	September — October	October — November
		III Crop	May — June	September — October
			December —	January — February
3.	Small Millets	Autumn	April — July	July — November
		Summer	January — February	March
4.	Red gram	Autumn	May — August	June — September
		Winter	August — November	September — November
		Summer	February — March	May
5.	Horsegram	Autumn	February — April	March — April
		Winter	September — November	October — November
		Summer	December — February	January — April
6.	Green gram	Autumn	June — August	August — September
		Winter		October — November
		Summer	September — October	

TABLE 11.8 (*Contd.*)

Sl.No.	*Name of crop*	*Season*	*Period of harvesting*	*Peak marketing period*
(1)	(2)	(3)	(6)	(7)
1.	Rice	Autumn	August — October	September — November
		Winter	November — January	December — March
		Summer	March — May	March — June
			April — June	April — July
2.	Ragi	I Crop	September — November	September — November
		II Crop	December — January	December — January
		III Crop	October — November	October — November
			February	—
3.	Small Millets	Autumn	September — November	December — January
		Summer	April	April
4	Red gram	Autumn	August — October	August — October
		Winter	October — January	December — January
		Summer	May	June
5.	Horsegram	Autumn	April — June	May — June
		Winter	November — January	November — February
		Summer	April	April
6.	Green gram	Autumn	August — September	September — December
		Winter	November — December	November — December
		Summer	November — December	December — January

TABLE 11.8 (*Contd.*)

(1)	(2)	(3)	(4)			(5)		
7.	Black gram	Winter	March	—	June	July	—	August
		Summer	September	—	October	October	—	November
8.	Other Pulses	Autumn	April	—	July	July	—	August
		Winter	September	—	December	October	—	December
		Summer	December	—	March	January	—	April
9.	Sugar cane	Autumn	October	—	February		..	
		Winter	November	—	March		..	
		Summer	June	—	October	September	—	October
10.	Ginger	Autumn	March	—	July		..	
		Winter	March	—	June		..	
11.	Pepper	Winter	June	—	August	July	—	October
		Summer		July		July	—	September
12.	Cotton	Winter	June	—	October	November	—	December
13.	Sesamum	Autumn	April	—	August	July	—	September
		Winter	August	—	October	October	—	December
		Summer	December	—	February	February	—	April
14.	Sweet Potatoes	Autumn	April	—	July		..	
		Winter	October	—	November		..	
		Summer	December	—	March		..	
15.	Turmeric		April	—	July		..	
16.	Lemongrass		May	—	June		..	

TABLE 11.8 (*Contd.*)

(1)	(2)	(3)	(6)			(7)		
7.	Black gram	Winter	June	—	September	September	—	October
		Summer	November	—	December	December	—	January
8.	Other Pulses	Autumn	July	—	October	July	—	November
		Winter	November	—	February	December	—	March
		Summer	February	—	June	April		
9.	Sugarcane	Autumn	October	—	December	November	—	December
		Winter	December	—	February	January	—	February
		Summer	October	—	January	January		
10.	Ginger	Autumn	November	—	February	December	—	February
		Winter	December	—	February	December	—	March
11.	Pepper	Winter	November	—	February	November	—	March
		Summer	January	—	April	March	—	May
12.	Cotton	Winter	December	—	March	February	—	March
13.	Sesamum	Autumn	August	—	October	July	—	October
		Winter	December	—	April	December	—	February
		Summer	March	—	May	March	—	May
14.	Sweet Potatoes	Autumn	September	—	November	November	—	February
		Winter	January	—	February	February	—	March
		Summer	March	—	June	April	—	June
15.	Turmeric		November	—	February	November	—	March
16.	Lemongrass		July	—	November	July	—	November
			January	—	February	January	—	February
			April	—	May	April	—	May

TABLE 11.8 (*Contd.*)

(1)	(2)	(3)	(4)	(5)
17.	Tapioca	Autumn	July — October	..
		Winter	March — May	..
		Summer	June — October	..
			October — November	..
18.	Mango		..	December
19.	Arecanut		..	June
20.	Tubers	Autumn	February — March	..
		Winter	March — April	..
21.	Banana	Autumn	August — September	April — May
		Winter	December — January	August — October
22.	Tobacco	Winter	November — December	..

TABLE 11.8 (*Contd.*)

(1)	(2)	(3)	(6)	(7)
17.	Tapioca	Autumn	July — August	July — September
		Winter	November — March	December — February
		Summer	March — July	March — July
			April — May	
18.	Mango		April — May	April — May
19.	Arecanut		September	September
20.	Tubers	Autumn	July — September	August — September
		Winter	November — January	December — January
21.	Banana	Autumn	July — August	July — August
		Winter	November — January	December — January
22.	Tobacco	Winter	March — April	May — June

TABLE 12.1

Normal Rainfall (m.m)

District	*July*	*August*	*September*	*October*	*November*	*December*	*January*	*February*	*March*	*April*	*May*	*June*	*Total*
Trivandrum	257.4	204.5	168.9	280.2	210.2	70.1	21.2	18.0	48.0	118.1	213.9	391.1	2001.6 —
Quilon	449.5	318.1	226.1	344.9	242.9	63.4	24.1	32.1	83.6	166.9	260.3	547.9	2760.2+
Pathanamthitta	..	..	..	..	..	..	..	..	..	..	..	..	..
Alleppey	552.3	370.3	272.7	330.2	219.4	64.1	25.9	29.3	59.0	133.5	291.5	663.8	3012.0—
Kottayam	657.7	447.5	296.5	383.8	244.7	73.6	28.8	30.3	85.4	176.9	324.4	713.3	3462.6+
Idukki	655.1	432.9	262.7	304.4	195.8	68.8	31.1	24.1	44.6	111.7	200.9	550.7	2898.8
Ernakulam	785.3	518.0	293.9	359.7	212.6	54.2	16.8	22.4	51.6	129.5	308.4	796.1	3548.5
Trichur	761.4	458.6	250.3	307.5	158.3	30.3	9.3	8.8	28.6	86.6	274.3	303.4	3177.4
Palghat	649.9	363.0	169.5	257.2	140.9	29.7	9.8	9.3	27.0	79.6	158.4	503.4	2397.7
Malappuram	787.0	405.0	198.8	290.0	163.8	30.9	6.7	6.5	19.3	78.7	211.0	702.4	2900.1
Kozhikode Wynad	1117.4	599.2	262.4	290.2	163.7	34.2	10.4	7.6	20.0	92.4	254.0	944.5	3796.0
Cannanore	1063.5	584.8	239.4	218.0	106.0	22.8	5.3	4.8	11.1	58.6	200.6	923.0	3437.9
State	686.4	422.6	242.0	306.9	190.9	51.2	18.5	10.3	46.4	115.6	245.0	672.8	3017.6

TABLE 12.2

District-wise Average Monthly Distribution of Rainfall in Kerala in (m.m.) for the year 1984-'85.

District	*July*	*August*	*September*	*October*	*November*	*December*	*January*	*February*	*March*	*April*	*May*	*June*	*Total*
Trivandrum	129.3	21.1	39.4	144.5	102.6	1.2	81.8	8.2	21.0	61.4	116.1	330.6	1057.2
Quilon	426.0	103.0	116.0	175.0	105.2	13.5	67.5	6.0	62.4	22.0	279.0	584.0	1959.6
Pathanamthitta	423.6	253.1	165.8	144.2	106.3	25.9	84.5	3.8	102.6	162.6	199.9	570.0	2242.3
Alleppey	410.8	105.6	237.7	115.8	83.8	44.9	72.0	12.2	168.7	109.9	495.0	741.6	2598.0
Kottayam	641.9	251.1	256.9	225.6	170.0	18.3	88.5	20.4	73.9	59.6	501.5	1096.1	3403.8
Idukki	1322.7	486.8	434.2	463.3	120.4	34.6	121.9	1.0	78.5	98.1	116.9	865.1	4143.5
Ernakulam	700.1	258.8	98.6	326.2	54.4	12.3	107.0	3.5	16.0	6.0	213.5	1005.2	2801.6
Trichur	707.7	240.5	662.0	421.2	40.8	16.3	79.1	4.0	2.0	27.7	365.5	929.0	3495.5
Palghat	624.8	222.3	88.3	51.3	22.5	18.0	64.1	..	..	122.0	84.8	746.3	2244.4
Malappuram	631.2	259.6	..	282.0	46.2	14.4	..	..	..	..	..	..	1233.4
Kozhikode	641.3	381.8	..	275.0	76.6	12.7	38.5	1.2	34.5	..	356.8	1086.5	2904.9
Wynad	769.7	378.2	202.2	226.6	1.6	15.2	13.0	..	7.0	63.6	55.2	749.6	2481.9
Cannanore	831.0	333.2	73.0	381.0	3.0	3.0	5.0	..	15.0	55.0	389.5	1544.0	3632.7
Kasargode	685.6	411.9	147.0	360.6	66.0	..	..	7.0	..	13.0	319.7	942.1	2952.9
State	639.0	264.8	210.1	270.9	71.4	16.4	63.3	5.2	41.5	66.7	268.7	861.0	2779.0

TABLE 12.3

Classification of Area according to Land Utilisation

(In Hectare)

District	*Total geographical area*	*Forest*	*Land put to non agricultural uses*	*Barren & Unculti-vable land*	*Perman-ent pastures grazing land*	*Land Misc. & crops*	*Culti-vable waste*	*Fallow Other than current fallow*	*Current fallow*	*Net area sown*	*Area sown more than once*	*Total cropped area*
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Trivandrum	218600	49861	17572	2286	34	221	2196	1617	1269	143344	81655	225109
Quilon	251838	81436	21817	1088	28	338	1122	906	1075	144026	837-46	227772
Pathanamthitta	268750	155214	8346	827	11	181	634	501	1023	102013	2551	104564
Alleppey	136058	..	27541	576	10	134	1849	1033	2122	102828	69137	171955
Kottayam	219550	8141	18823	2034	47	285	1494	1955	2513	184258	48855	233113
Idukki	514962	26097	13887	19202	1630	15475	39374	1216	1618	161604	18319	179923
Ernakulam	235319	8123	33544	2869	166	1209	5401	2648	3232	178127	68724	246851
Trichur	299390	103619	22074	2205	149	1367	5190	3100	4753	156933	72800	229733
Palghat	438990	136257	33081	13585	243	7147	25287	3468	6067	213845	109965	323810
Malappuram	363230	103417	19414	7419	323	3042	14343	4298	8312	202162	39680	241842
Kozhikode	233300	41386	17070	2434	123	3286	3361	1480	2265	161925	48219	210144
wyanad	212560	78787	5474	2369	138	3570	5455	1589	1362	113816	25832	139658
Cannanore	492930	54359	41150	28794	1206	14785	24392	3355	5547	319342	20817	340159
State	3885497	1081509	279703	85688	4159	51039	130098	27241	41658	2184423	690220	2874643

TABLE 12.4

Classification of area according to land utilization 1984-85—Percentage distribution

District	Geographical area	Forest	Land put to non agricultural uses	Barrent to unculti-vable land	Permanent pastures & grazing lands	Land under more tree crop	Cultivable waste	Fallow other than current fallow	Current fallow	Net area sown	Area sown more than once	Total cropped area
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
1. Trivandrum	100.00	22.81	8.04	1.05	0.02	0.10	1.00	0.74	0.58	65.66	37.31	103.00
2. Quilon	100.00	32.34	8.66	0.43	0.01	0.13	0.45	0.36	0.43	57.19	33.25	90.44
3. Pathanamthitta	100.00	57.75	3.11	0.31	0.00	0.06	0.24	0.19	0.38	37.96	0.95	38.91
4. Alleppey	100.00	..	20.17	0.42	0.01	0.10	1.36	0.80	1.56	75.58	50.81	126.39
5. Kottayam	100.00	3.71	8.57	0.92	0.02	0.13	0.68	0.89	1.15	83.93	22.25	106.18
6. Idukki	100.00	50.67	2.70	3.73	0.33	3.01	7.65	0.24	0.31	31.38	3.56	34.94
7. Ernakulam	100.00	3.45	14.26	1.22	0.07	0.51	2.30	1.12	1.37	75.70	29.21	104.90
8. Trichur	100.00	34.61	7.37	0.74	0.05	0.46	1.73	1.03	1.59	52.42	24.32	76.73
9. Palghat	100.00	31.04	7.54	3.09	0.06	1.63	5.76	0.79	1.38	48.71	25.05	73.76
10. Malappuram	100.00	28.47	5.35	2.04	0.09	0.84	3.94	1.18	2.43	55.65	10.92	66.58
11. Kozhikode	100.00	17.74	7.32	1.04	0.05	1.41	1.44	0.63	0.97	69.40	20.67	90.06
12. Wynad	100.00	37.06	2.58	1.12	0.06	1.68	2.57	0.75	0.64	53.54	12.13	65.70
13. Cannanore	100.00	11.03	8.35	5.84	0.25	3.00	4.95	0.68	1.12	64.78	4.22	69.01
State	100.00	27.84	7.20	2.20	0.11	1.31	3.35	0.70	1.07	56.22	17.76	73.98

TABLE 12.5

Area Under Crops 1984-85

(Area in hectares)

District	Cereals and Millets								Pulses including Tur				Total food-grains
	Rice				Jower	Ragi	Other cereals	Total Cereals and Millets	Autumn	Winter	Summer	Total	
	Autumn	Winter	Summer	Total									
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Trivandrum	13491	13203	326	27020	..	19	10	27049	196	560	2078	2834	29883
Quilon	18997	18326	240	37563	..	6	6	37575	932	478	398	1808	39383
Pathanamthitta	7394	6549	3496	17439	..	2	17	17458	43	143	210	396	17854
Alleppey	32756	15984	24870	73610	..	5	2	73617	58	203	369	630	74247
Kottayam	11559	14615	5816	31990	..	4	2	31996	210	195	1806	2211	34207
Idukki	3525	4590	360	8475	56	262	228	9021	132	251	786	1169	10190
Ernakulam	36690	38422	14071	89183	5	2	136	89326	512	281	602	1395	90721
Trichur	35576	49705	17259	102540	9	29	78	102656	1712	316	412	2440	105096
Palghat	86339	78006	1967	166312	1682	817	1789	170600	2713	4947	1002	8662	179262
Malappuram	32251	35861	5073	73185	11	10	66	73272	505	173	560	1238	74510
Kozhikode	7439	11432	2474	21345	..	17	20	21382	230	362	603	1195	22577
Wynad	4	23143	6504	29651	5	17	13	29686	3	15	259	277	19963
Cannanore	32590	16976	2500	52066	54	10	93	52223	34	3216	1210	4460	56683
State	318611	326812	84956	730379	1822	1200	2460	735861	7280	11140	10295	28715	74576

TABLE 12.5 (*Contd.*)

District	*Sugar crops*			*Spices and condiments*									
	Sugar-cane	*Palmyrah*	*Total*	*Pepper*	*Chillies*	*Ginger*	*Turmeric*	*Cardamum**	*Betel nuts*	*Tamarind*	*Cloves*	*Nutmeg*	*Cinnamon*	*Total*
(1)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)
Trivandrum	21	564	585	5001	..	192	35	164	3268	1726	133	85	9	10613
Quilon	194	30	224	7515	..	932	76	105	3061	664	68	89	24	12534
Pathanamthitta	1328	34	1362	4276	..	509	18	45	1334	206	51	106	8	6553
Alleppey	1273	44	1287	3644	..	204	21	..	2138	267	16	101	34	6425
Kottayam	262	443	705	11762	1	2533	558	..	2328	432	368	493	52	18527
Idukki	1954	204	2158	12819	..	1209	173	49552	2282	167	81	160	35	66476
Ernakulam	50	363	413	6191	..	2282	626	..	5727	741	113	1174	43	16897
Trichur	5	900	905	3780	3	96	149	..	6201	1460	31	229	35	11984
Palghat	2960	7120	9810	1665	187	410	290	3270	2170	2999	2	63	157	11213
Malappuram	14	1271	1285	4069	84	357	92	188	8300	1176	8	98	13	14385
Kozhikode	3	348	351	13354	75	1723	287	412	5374	610	7	48	61	21951
Wynad	14	230	244	8258	5	2757	193	4254	1115	110	7	6	24	16729
Cannanore	31	185	216	23501	646	1333	367	779	13480	543	7	268	188	41112
State	7839	11706	19545	105835	1001	14537	2885	58769	56778	11101	892	2920	683	255401

*Commodity Board estimates

(*In hectares*)

District	*Fresh fruits*								*Dry Fruits*	*Total fruits trees*
	Mango	*Jack*	*Banana*	*other Plantain*	*Pineapple*	*Pappaya*	*Others*	*Total*	*Cashew nut*	
(1)	(29)	(30)	(31)	(32)	(33)	(34)	(35)	(36)	(37)	(38)
Trivandrum	7293	7123	827	5406	377	660	1074	22760	6294	29054
Quilon	4758	4808	1445	2705	469	481	395	15061	7221	22282
Pathanamthitta	1792	2263	750	1864	207	311	351	7538	2030	9568
Alleppey	4057	2313	699	1489	208	632	532	9930	3530	13460
Kottayam	3634	4250	1597	3231	669	721	722	14824	1395	16219
Idukki	1663	2214	181	2473	301	626	1023	8481	1189	9670
Ernakulam	4595	3942	2145	3333	589	1019	625	16248	3809	20057
Trichur	4550	3644	1577	3273	344	1442	500	15330	7510	22840
Palghat	5752	3810	1778	2404	202	528	2331	16805	12857	29662
Malappuram	6190	5180	2381	2214	200	1244	569	17978	19850	37828
Kozhikode	6844	6654	1030	2368	249	1020	885	19050	4197	23247
Wynad	2475	5120	523	1137	123	105	1001	10484	922	11406
Cannanore	6381	6731	1190	3397	898	762	1752	21111	66059	87170
State	59984	58052	16123	35294	4836	9551	11760	195600	136863	332463

TABLE 12.5 (*Contd.*)

District	Vegetables									
	Drum-sticks	Tubers	Sweet Potatoe	Tapioca				Other Vegetables	Total Vegetables	Total food Crops
				Autumn	Winter	Summer	Total			
(1)	(39)	(40)	(41)	(42)	(43)	(44)	(45)	(46)	(47)	48)
Trivandrum	2879	1972	122	22971	22953	6705	52629	627	58229	128364
Quilon	1080	3963	38	14796	26563	734	42093	263	47437	121860
Pathanamthitta	352	3184	2	1175	11849	626	13650	344	17532	52869
Alleppey	607	5224	51	1904	7994	866	10764	844	17490	112909
Kottayam	1232	2799	23	1337	18252	495	22084	1122	25260	94918
Idukki	312	1229	129	1037	8052	84	9173	947	11790	100286
Ernakulam	1037	2415	46	2794	6824	746	10364	2512	16374	144462
Trichur	688	2080	148	1470	3887	331	5688	1095	9699	150524
Palghat	744	1859	1712	6266	5673	576	12515	2408	19238	249185
Malappuram	904	2003	1503	6058	8295	1388	15741	1846	21997	150005
Kozhikode	2131	1946	66	1961	1467	422	3850	281	8274	76400
Wayanad	180	823	18	1136	1424	435	2995	301	4317	62659
Cannanore	635	974	777	1553	14560	1083	17196	1590	21172	206353
State	12781	30471	4635	64458	137793	14491	216742	14180	278809	1650794

TABLE 12.5 (*Contd.*)

(*In Hectares*)

District	*Non food Crops*									
	Oil seed crops					*Drugs & narcotics*				
	Ground nut	*Sesamum*	*Coconut*	*Others*	*Total*	*Fibre cotton*	*Betal leaves*	*Tobacco*	*Lemon grass*	*Total*
(1)	(49)	(50)	(51)	(52)	(53)	(54)	(55)	(56)	(57)	(58)
1. Trivandrum	15	19	76969	211	77214	..	157	..	46	203
2. Quilon	..	2127	68927	56	71110	..	107	..	26	133
3. Pathanamthitta	..	201	25926	15	26142	..	67	..	21	88
4. Alleppey	..	4567	45699	92	50358	..	60	..	4	64
5. Kottayam	..	66	48179	113	48358	..	75	..	56	131
6. Idukki	..	245	15036	66	15347	..	5	..	2316	2321
7. Ernakulam	..	2131	55678	183	57992	..	83	..	538	621
8. Trichur	..	1278	62438	178	63894	..	78	..	48	126
9. Palghat	11744	1121	25504	539	38908	6326	8	..	105	113
10. Malappuram	5	2239	62214	53	64511	..	337	..	96	433
11. Kozhikode	..	76	107599	68	107743	..	41	..	782	823
12. Wayanad	..	115	3251	50	3416	..	3	..	2313	2316
13. Cannanore	60	263	90063	169	90555	..	25	533	1411	1969
State	11824	14448	687483	1793	715548	6326	1046	533	7762	9341

TABLE 12.5 (*Concld.*)

(*In hectares*)

District	*Non food crops*									
	Plantation crops									
	Tea	*Coffee*	*Rubber*	*Cocoa*	*Total*	*Fodder crops*	*Green manure crops*	*Other non-food crops*	*Total non-food crops*	*Total cropped area*
(1)	(59)	(60)	(61)	(62)	(63)	(64)	(65)	(66)	(67)	(68)
1. Trivandrum	1071	50	14891	876	16888	251	334	1855	96745	225109
2. Quilon	631	207	30208	970	32066	272	610	1720	105912	227772
3. Pathanamthitta	734	180	22098	940	23952	167	449	897	51695	104564
4. Alleppey	..	16	5580	1991	7587	132	164	751	59056	171965
5. Kottayam	2009	990	78739	5463	87201	346	231	1928	138195	233113
6. Idukki	23304	4875	28794	1936	59409	318	188	2054	79637	17992y
7. Ernakulam	2	274	34319	1970	56565	103	206	6902	102389	246851
8. Trichur	447	33	11019	730	12229	77	398	2485	79209	229733
9. Palghat	665	2291	13073	229	16198	37	1046	11997	74625	323810
10. Malappuram	174	..	18711	460	19345	23	2284	5241	91837	241842
11. Kozhikode	..	..	20470	934	21404	35	826	2913	133744	210144
12. Wayanad	5389	55093	5023	347	65852	79	381	4955	76999	139658
13. Cannanore	..	..	29111	1014	30125	148	1482	9257	133806	340159
State	34976	64009	311976	17860	428821	1989	8599	53225	1223849	2874643

TABLE 12.6

District-wise area under crops expressed as percentages to total cropped area of the District

District	Total cropped area	Total food crops	Total non food crops	Net area sown	Area sown more than once	Cereals and millets			Pulses	Total food grains	Sugar-cane
						Rice	Other cereals & millets	Total			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
1. Trivandrum	100.00	57.02	42.08	65.66	37.31	12.00	0.02	12.02	1.26	13.28	0.01
2. Quilon	100.00	53.50	56.50	57.19	33.25	16.49	0.01	16.50	0.79	17.29	0.09
3. Pathanamthitta	100.00	50.56	49.44	37.96	0.95	16.68	0.02	16.70	0.38	17.08	1.27
4. Alleppey	100.00	65.66	34.34	75.58	50.81	42.81	0.00	42.81	0.37	43.18	0.74
5. Kottayam	100.00	40.72	59.28	83.93	22.25	13.72	..	13.72	0.95	14.67	0.11
6. Idukki	100.00	55.74	44.26	31.38	3.56	4.71	0.30	5.01	0.65	5.66	1.09
7. Ernakulam	100.00	58.52	41.48	75.70	29.21	36.13	0.06	36.19	0.56	36.75	0.02
8. Trichur	100.00	65.52	34.48	52.42	24.32	44.63	0.06	44.9	1.06	45.75	..
9. Palghat	100.00	76.95	33.05	48.71	25.05	51.36	1.32	52.68	2.68	55.36	0.83
10. Malappuram	100.00	62.03	37.97	55.66	10.92	30.26	0.04	30.30	0.51	30.81	0.01
11. Kozhikode	100.00	36.36	63.64	69.40	20.67	10.16	0.04	10.17	0.57	10.74	..
12. Wayanad	100.00	44.87	55.13	53.54	12.13	21.23	0.03	21.26	0.20	21.46	0.01
13. Cannanore	100.00	60.66	39.34	64.78	4.22	15.31	0.04	15.35	1.31	16.66	0.01
State	100.00	57.43	42.57	56.22	17.76	25.41	0.19	25.60	1.00	26.60	0.27

TABLE 12.6 (*Contd.*)

District	*Palmira*	*Total*	*Pepper*	*ginger*	*carda-mom*	*betel-nut*	*Others*	*Total*	*Mango*	*Jack*	*Bana-na*	*Other plan-tain*	*Pine apple*	*Cashew nut*
(1)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)
1. Trivandrum	0.25	0.26	2.22	0.08	0.07	1.45	0.90	4.72	3.24	3.16	0.37	2.40	0.17	2.80
2. Quilon	0.01	0.10	3.30	0.41	0.05	1.34	0.40	5.50	2.09	2.11	0.63	1.19	0.21	3.17
3. Pathanamthitta	0.03	1.30	4.09	0.49	..	1.28	0.41	6.27	1.71	2.16	0.72	1.78	0.20	1.94
4. Alleppey	0.01	0.75	2.12	0.12	..	1.24	0.26	3.74	2.36	1.35	0.41	0.87	0.12	2.05
5. Kottayam	0.19	0.30	5.05	1.08	..	1.00	0.82	7.95	1.56	1.82	0.68	1.39	0.29	0.60
6. Idukki	0.11	1.20	7.13	0.67	27.54	1.27	0.34	36.95	0.92	1.23	0.10	1.37	0.17	0.66
7. Ernakulam	0.15	0.17	2.51	0.92	..	2.32	1.10	6.85	1.86	1.60	0.87	1.35	0.24	1.54
8. Trichur	0.39	0.39	1.65	0.04	..	2.70	0.83	5.22	1.98	1.59	0.69	1.43	1.15	3.27
9. Palghat	2.20	3.03	0.51	0.13	1.01	0.67	1.14	3.46	1.78	1.18	0.55	0.74	0.06	3.97
10. Malappuram	0.53	0.54	1.68	0.15	0.08	3.43	0.61	5.95	2.56	2.14	0.98	0.91	0.08	8.21
11. Kozhikode	0.17	0.17	6.36	0.82	0.20	2.56	0.51	10.45	3.26	3.17	0.49	1.13	0.12	2.00
12. Wayanad	0.17	0.18	5.91	1.97	3.05	0.80	0.25	11.98	1.77	3.67	0.37	0.81	0.09	0.66
13. Cannanore	0.05	0.06	6.91	0.39	0.23	3.95	0.61	12.09	1.88	1.98	0.35	1.00	0.26	19.42
State	0.41	0.68	3.68	0.51	2.04	1.98	0.67	8.88	2.08	2.02	0.56	1.23	0.17	4.76

TABLE 12.6 (*Contd.*)

District	Vegetables						Food crops	Oil seeds				
	Total fruits (including others)	Tubers	Sweet potatoes	Tapioca	Others vegetables	Total vegetables		Ground nut	Sesamum	Cashew-nut	Other oil seeds	Total oil seeds
(1)	(27)	(28)	(29)	(30)	(31)	(32)	(33)	(34)	(35)	(36)	(37)	(38)
1. Trivandrum	12.90	0.88	0.05	23.38	1.55	25.86	57.02	0.01	0.01	34.19	0.09	34.30
2. Quilon	9.78	1.74	0.01	18.48	0.60	20.83	53.50	..	0.93	30.26	0.03	31.22
3. Pathanamthitta	9.14	3.05	0.00	13.05	0.67	16.77	50.56	..	0.19	24.79	0.02	25.00
4. Alleppey	7.82	3.04	0.02	6.26	0.84	10.16	65.65	..	2.66	26.57	0.05	29.28
5. Kottayam	6.96	1.20	0.01	8.62	1.01	10.84	40.72	..	0.03	20.67	0.05	20.75
6. Idukki	5.38	0.68	0.07	5.10	0.70	6.55	55.74	..	0.14	8.35	0.04	8.53
7. Ernakulam	8.12	0.98	0.02	4.20	1.43	6.63	58.52	..	0.86	22.56	0.07	23.49
8. Trichur	9.94	0.91	0.06	2.48	0.77	4.22	65.52	..	0.55	27.18	0.08	27.81
9. Palghat	9.16	0.57	0.53	3.86	0.98	5.94	76.95	3.63	0.35	7.88	0.16	12.02
10. Malappuram	15.63	0.83	0.62	6.51	1.14	9.10	62.03	..	0.93	25.73	0.02	26.68
11. Kozhikode	11.06	0.93	0.03	1.83	1.15	3.94	36.36	..	0.04	51.20	0.03	51.27
12. Wayanad	8.16	0.59	0.01	2.15	0.34	3.09	44.87	..	0.08	2.33	0.04	2.45
13. Cannanore	25.63	0.29	0.23	5.06	0.64	6.22	60.66	0.02	0.08	26.48	0.05	26.63
State	11.57	1.06	0.16	7.54	0.94	9.70	57.43	0.41	0.50	23.92	0.06	24.89

TABLE 12.6 (*Concld.*)

District	*Drugs, narcotics and plantain crops*							*Other crops*					
	Tobacco	*Tea*	*Coffee*	*Rubber*	*Cocoa*	*lemon grass*	*Total*	*Cotton*	*Betal leaves*	*fodder crops*	*green manure crops*	*Other non food crops*	*Total non food crops*
(1)	(39)	(40)	(41)	(42)	(43)	(44)	(45)	(46)	(47)	(48)	(49)	(50)	(51)
1. Trivandrum	..	0.48	0.02	6.62	0.39	0.02	7.53	..	0.07	0.11	0.15	0.82	42.98
2. Quilon	..	0.30	0.09	13.26	0.43	0.01	14.09	..	0.05	0.12	0.27	0.75	46.50
3. Pathanamthitta	..	0.71	0.17	21.13	0.90	0.02	22.93	..	0.06	0.16	0.43	0.86	49.44
4. Alleppey	..	..	0.01	3.24	1.16	0.00	4.41	..	0.04	0.08	0.09	0.44	34.34
5. Kottayam	..	0.86	0.43	33.78	2.34	0.02	37.43	..	0.03	0.15	0.10	0.82	59.28
6. Idukki	..	13.23	2.71	16.00	1.08	1.29	34.31	..	0.00	0.18	0.10	1.14	44.26
7. Ernakulam	..	..	0.12	13.90	0.80	0.22	15.03	..	0.03	0.04	0.08	2.81	41.48
8. Trichur	..	0.29	0.01	4.80	0.32	0.02	5.35	..	0.03	0.03	0.18	1.08	34.48
9. Palghat	..	0.21	0.71	4.02	0.07	0.03	5.04	1.95	..	0.01	0.32	3.71	23.05
10. Malappuram	..	0.07	..	7.74	0.19	0.04	8.04	..	0.14	0.01	0.94	2.16	37.97
11. Kozhikode	..	..	..	9.74	0.44	0.37	10.55	..	0.02	0.02	0.39	1.39	63.64
12. Wayanad	..	3.86	39.45	3.60	0.25	1.66	48.81	..	0.00	0.05	0.27	3.55	55.13
13. Cannanore	0.16	..	..	8.56	0.30	0.42	9.43	..	0.01	0.04	0.43	2.80	39.34
State	0.02	1.22	2.23	10.85	0.62	0.27	15.21	0.22	0.03	0.07	0.30	1.85	42.57

TABLE 12.7

Production of important crops 1984-85

District	Rice				Jowar	Ragi	Other cereals	Pulses	Sugarcane (gur)	Black pepper	Dry chillies	Dry Ginger
	Autumn	Winter	Summer	Total								
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Trivandrum	24470	20545	304	45319	..	15	5	649	96	925	..	780
Quilon	27693	30992	244	58929	..	5	3	1518	1119	1394	..	2615
Pathanamthitta	13607	12227	10086	35920	..	2	9	306	7657	970	..	1328
Alleppey	61687	21606	57221	140514	..	4	2	545	7340	846	..	654
Kottayam	25021	27056	14495	66572	..	3	1	1852	1511	933	1	6413
Idukki	7112	9530	759	17401	24	225	244	966	10430	1778	..	3379
Ernakulam	62011	64482	22706	149199	2	2	87	999	288	547	..	7385
Trichur	42606	73828	30947	147381	3	24	50	1742	29	677	3	156
Palghat	196006	151524	2940	350420	866	671	1286	6289	13961	263	164	986
Malappuram	41216	50974	8522	100712	4	9	42	919	73	660	74	702
Kozhikode	6152	13977	3769	23898	..	17	13	909	16	2352	66	2455
Wayanad	4	41932	11553	53489	2	16	8	211	73	1835	4	10554
Cannanore	41442	21186	3470	66098	24	7	59	3479	161	4170	601	3838
State	549027	539859	167016	1255902	925	1000	1809	20384	42754	17350	913	41245

Production estimates of Sugarcane for 1982-83 and 1983-84 have been revised as 43316 tonnes and 44360 respectively.

TABLE 12.7 (*Contd*)

District	*Cured Turmeric*	*Processed* Cardamom*	*Betel nuts (million nuts)*	*Tamarind*	*Mango*	*Jack (Nos. '000)*	*Banana*	*Other Plantain*	*Raw cashew nut*	*Tapioca*	*Sweet potatoe*	*Papaya*
(1)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)
Trivandrum	68	4	377	4375	6607	30052	11069	20391	4158	811539	702	3723
Quilon	144	2	360	1374	14773	52479	15032	12484	3431	713897	183	391
Pathanamthitta	32	1	212	287	4785	17672	9736	8034	418	275048	12	2069
Alleppey	4	..	157	192	9071	9113	11043	4692	862	158661	315	3365
Kottayam	1009	..	251	487	4633	14229	24980	16084	626	406902	184	4895
Idukki	310	2280	223	208	2747	7224	2262	9791	318	180158	1043	1252
Ernakulam	1125	..	1089	1005	12025	16939	26465	16392	1583	205207	361	4227
Trichur	233	..	1071	3038	20070	13818	17599	7194	3209	73773	1161	6192
Palghat	523	310	372	7821	41858	14573	12446	11542	5843	234281	13701	3918
Malappuram	59	2	1153	2092	26598	10008	24529	6888	7326	273579	12843	7592
Kozhikode	654	3	1128	1473	22079	15564	12261	8572	1478	29607	368	500
Wynad	512	224	190	265	2900	8392	6720	6112	292	69035	146	817
Cannanore	513	24	2686	931	25141	18376	15422	13452	42750	262583	7753	3772
State	5186	2850	9269	23548	193327	228439	189564	141628	72294	3694270	38779	42713

*Commodity Board estimates

TABLE 3 (12.7)

(*In tonnes*)

District	*Ground-nut*	*Sesa-mum*	*Coconut (Million nuts)*	*Cotton (Bale of 170 Kg.)*	*Tobacco*	*Lemon grass oil*	*Tea**	*Rubber*	*Cocoa*	*Pineapple*	*Drum-stick*
(1)	(26)	(27)	(28)	(29)	(30)	(31)	(32)	(33)	(34)	(35)	(36)
Trivandrum	13	3	488	..	..	3	1051	9568	105	4779	3458
Quilon	..	330	275	..	..	2	174	20046	73	5504	1074
Pathanamthitta	..	31	124	..	..	2	188	14319	402	2282	302
Alleppey	..	1589	282	..	..	1	..	3199	425	2146	436
Kottayam	..	21	192	..	..	4	421	49207	1661	7224	477
Idukki	..	76	44	..	..	160	41335	17780	505	3466	327
Ernakulam	..	298	363	..	..	62	..	21727	668	6491	819
Trichur	..	557	297	..	..	2	1296	7507	68	2864	1223
Palghat	11697	219	76	10010	..	19	1374	6879	63	2461	746
Malappuram	5	430	193	..	..	2	93	9522	143	2237	948
Kozhikode	..	20	676	..	..	13	..	11820	150	3358	2010
Wayanad	..	15	2	..	..	39	10397	2116	76	1659	194
Cannanore	53	43	441	..	981	42	..	15210	197	15457	688
State	11768	3632	3453	10010	981	351	56329	188900	4536	59828	12702

*Commodity Board estimates.

TABLE 12.8

Distribution of operational holdings in 1981-82—Agricultural Census

Sl. No.	*Size class (hectares)*	*Individual holdings*		*Institutional holdings*		*Total holdings*	
		Number	*Area (ha)*	*Number*	*Area (ha)*	*Number*	*Area (ha)*
1	0.02-0.5	341681	44275	558	107	342239	44382
2	0.5- 1.0	27901	19524	109	71	28010	19595
3	1.0- 2.0	11404	15262	83	126	11487	15388
4	2.0- 3.0	2018	4734	23	50	2041	4784
5	3.0- 4.0	579	2003	12	44	591	2047
6	4.0- 5.0	169	731	..	..	169	731
7	5.0 -7.5	232	1344	..	..	232	1344
8	7.5-10.00	..	..	..	..	..	..
9	10.0-20.0	67	811	..	..	67	811
10	20.0-30.0	25	579	..	..	25	579
11	30.0-40.0	12	431	..	..	12	431
12	40.0-50.0	..	..	..	..	..	..
13	50.0 and above	..	..	..	..	..	..
	All sizes	384088	89694	785	398	384873	90092
	Below 0.02	66155	803	..	..	66155	803

TABLE 12.9

Average farm prices of certain commodities Average farm prices 1984-85

District	*Average farm price* 1984-85								
	Paddy Qtl.	*Coconut* 100 *Nos.*	*Arecanut* 100 *Nos.*	*Tapioca* Qtl.	*Cashewnut* Qtl.	*Banana* 100 *Nos.*	*Pepper* Qtl.	*Ginger* Qtl.	*Sugarcane* M.T.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Trivandrum	264.69	242.29	13.63	41.78	874.11	69.42	2580.21	..	..
Quilon	208.75	270.94	13.10	46.34	737.81	65.51	2863.93	2350.00	..
Pathanamthitta	216.19	270.72	13.49	55.96	766.38	58.26	2999.17	1923.93	190.00
Alleppey	206.82	264.38	12.06	58.18	722.64	64.17	2759.09	..	170·00
Kottayam	204.89	274.96	11.67	76.51	752.50	61.14	2902.17	2281.40	..
Idukki	209.85	296.74	12.19	62.22	775.63	56.77	2875.52	2190.95	..
Ernakulam	209.44	283.20	12.62	47.40	782.81	52.91	2998.00	2321.02	..
Trichur	196.90	272.48	17.07	69.90	839.48	58.86	2884.46	..	..
Palghat	185.60	267.25	10.70	50.64	802.71	48.70	2892.01	2258.99	185.21
Malappuram	202.41	262.45	14.32	66.53	710.63	53.99	2961.02	1708.33	..
Kozhikode	222.12	237.29	8.34	59.17	745.21	51.29	2917.36	2275.13	..
Wayanad	171.82	..	21.88	60.38	568.75	45.94	2974.13	2195.97	250.00
Cannanore	219.64	268.71	11.10	95.92	904.34	48.35	2964.37	2211.18	..
State									

TABLE 12.10

Agricultural Wages 1984-85—Skilled Labour (I) Carpernter

District	*July*	*August*	*September*	*October*	*November*	*December*	*January*	*February*	*March*	*April*	*May*	*June*
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Trivandrum	31.00	32.00	32.00	32.00	32.50	34.00	34.50	35.00	35.00	35.00	35.00	35.00
Quilon	38.00	38.00	38.00	38.00	39.00	39.00	40.00	41.50	42.50	42.50	42.00	42.50
Pathanamthitta	..	..	..	..	..	..	..	..	..	..	..	..
Alleppey	38.00	38.00	38.00	38.00	39.00	39.00	40.00	40.00	40.00	40.00	42.50	42.50
Kottayam	36.50	37.50	38.00	38.50	39.00	39.50	40.50	41.50	42.50	43.00	43.00	43.00
Idukki	..	..	..	..	..	..	..	..	..	..	..	..
Ernakulam	38.00	38.00	38.00	38.00	41.00	41.00	41.50	41.50	42.50	42.50	42.50	42.50
Trichur	39.00	41.50	42.50	45.00	45.50	45.50	45.50	45.50	47.50	47.50	47.50	47.50
Palghat	26.50	28.50	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	31.00
Malappuram	36.50	38.50	38.50	38.75	39.00	40.75	40.75	40.75	40.75	40.75	40.75	40.75
Kozhikode	34.00	35.50	35 50	36.50	38.50	39.00	40.50	41.50	42.50	42.50	42.50	42.50
Wayanad	..	..	..	..	..	..	..	..	..	..	..	..
Cannanore	34.00	35.00	36.50	39.50	40.00	40.00	41.50	41.50	41.50	41.50	41.50	41.50

TABLE 12.10 (*Contd.*)

Skilled Labour (2) Mason 1984-85

District	*July*	*August*	*September*	*October*	*November*	*December*	*January*	*February*	*March*	*April*	*May*	*June*
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Trivandrum	31.00	32.00	32.00	32.00	32.50	33.00	33.75	35.00	35.00	35.00	35.00	35.00
Quilon	38.00	38.00	38.00	38.00	39.00	39.00	40.00	41.50	42.50	42.50	42.50	42.50
Pathanamthitta	..	..	..	..	..	..	..	..	..	..	..	..
Alleppey	38.00	38.00	38.00	38.00	39.00	39.00	40.00	40.00	40.00	40.00	42.50	42.50
Kottayam	36.50	37.50	38.00	38.50	39.00	39.50	40.50	41.50	42.50	43.00	43.00	43.00
Idukki	..	..	..	..	..	..	..	..	..	..	..	..
Ernakulam	38.00	38.00	38.00	38.00	39.00	41.00	41.50	41.50	42.50	42.50	42.50	42.50
Trichur	39.00	41.50	42.50	45.00	45 00	45.50	45.50	47.50	47.50	47.50	47.50	47.50
Palghat	26.50	28.50	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	31.00
Malappuram	36.50	38.50	38.50	38.75	39.00	40.75	40.75	40.75	40.75	40.75	40.75	40.75
Kozhikode	34.00	35.50	36.00	36.50	38.50	39.00	40.50	41.50	42.50	42.50	42.50	42.50
Wynad	..	..	..	..	..	..	..	..	..	..	..	..
Cannanore	34.00	35.00	36.00	38.00	38.50	40.00	41.50	41.50	41.50	41.50	41.50	41.50

TABLE 12.10 (*Contd.*)

Paddy Field Labour (A) Men—Unskilled

Districts	*July*	*August*	*September*	*October*	*November*	*December*	*January*	*February*	*March*	*April*	*May*	*June*
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Trivandrum	20.25	25.00	25.00	21.50	21.50	25.00	25.00	25.00	25.00	25.00	25.50	22.50
Quilon	18.00	20.00	20.00	20.00	20.00	21.00	22.50	22.50	22.50	22.50	22.50	22.50
Pathanamithitta	..	..	..	..	..	..	..	..	..	..	..	..
Alleppey	18.00	20.00	20.00	20.00	21.00	21.00	21.00	21.00	21.00	23.50	23.50	22.00
Kottayam	18.00	19.00	19.00	19.00	19.50	17.00	19.50	19.50	19.50	17.00	20.75	21.00
Idukki	..	..	..	..	..	..	..	..	..	..	..	..
Ernakulam	23.50	26.50	27.50	27.50	27.50	27.50	27.50	27.50	27.50	26.50	26.50	26.50
Trichur	24.00	25.75	26.50	26.75	28.25	28.25	28.25	28.25	28.25	28.25	28.25	28.25
Palghat	15.50	15.50	15.50	15.75	15.75	15.75	15.75	15.75	15.75	15.75	15.75	15.75
Malappuram	21.00	24.00	24.75	23.00	23.00	23.00	24.75	25.50	25.50	23.00	23.00	26.50
Kozhikode	21.50	22.00	22.50	23.00	23.00	23.00	23.50	23.50	23.50	23.50	23.50	25.00
Wynad	..	..	..	..	..	..	..	..	..	..	..	..
Cannanore	31.00	31.00	31.00	32.00	34.00	34.00	34.00	34.00	34.00	34.00	35.00	35.00

TABLE 12.10 (*Contd.*)

Paddy Field Labour (A) Women—Unskilled

District	*July*	*August*	*September*	*October*	*November*	*December*	*January*	*February*	*March*	*April*	*May*	*June*
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Trivandrum	12.50	..	..	16.25	16.25	20.00	20.00	20.00	20.00	..	..	..
Quilon	14.00	14.00	15.00	14.50	14.50	15.00	15.00	15.00	15.00	15.00	15.00	15.00
Pathanamthitta	..	..	..	..	..	..	..	..	..	..	..	..
Alleppey	12.00	12.00	12.00	12.00	12.00	12.50	12.50	12.50	12.50	12.00	12.00	12.00
Kottayam	12.25	12.00	12.00	12.75	12.75	12.75	12.75	12.75	12.75	13.00	13.00	14.00
Idukki	..	..	..	..	..	..	..	..	..	..	..	..
Ernakulam	13.50	11.00	13.50	13.50	13.00	13.25	13.25	13.25	13.25	13.00	13.00	13.00
Trichur	14.50	14.50	15.50	16.50	16.50	16.50	16.50	16.50	16.50	16.50	16.50	16.50
Palghat	10.50	10.50	10.50	10.50	10.50	10.50	10.50	10.50	10.50	10.50	10.50	10.50
Malappuram	15.00	15.00	15.00	15.00	13.00	13.00	15.00	15.00	15.00	13.00	13.00	13.00
Wynad	..	..	..	..	..	..	..	..	..	..	..	..
Kozhikode	14.00	14.00	14.00	14.00	14.00	14.00	14.50	14.50	15.50	15.50	16.00	16.00
Cannanore	15.00	14.00	14.00	15.00	16.00	16.00	16.00	16.00	16.25	16.25	16.25	16.25

TABLE 12.11

Number of livestock, Poultry and Agricultural Machinery and implements in Kerala 1982—Cattle

CATTLE

Districts	Male over three years				Female over three years					Young stock	Total
	Breeding	Working	Others	Total	Inmilk	Breeding	Not calved	Working	Total		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Trivandrum	735	7367	1078	9180	71569	30033	4290	191	106083	82238	197501
Quilon	967	10229	1904	22100	114691	87113	11273	423	213500	183694	419294
Alleppey	338	4410	930	5723	96207	69161	9927	542	175837	137665	319225
Kottayam	763	4070	795	5628	84100	61737	8074	211	154122	123603	283353
Idukki	782	6965	789	8536	48684	33633	3844	112	86273	71219	166028
Ernakulam	911	29262	1594	31767	88076	48211	6341	334	142962	129638	304367
Trichur	870	19821	2680	23371	67359	33720	4875	368	106322	103962	233655
Palghat	839	46844	2465	50148	68878	42710	3883	125	115596	108069	273813
Malappuram	1153	35355	2999	39507	47455	28028	4074	312	79869	73988	193364
Kozhikode	956	10320	1570	12846	56978	41644	10032	100	108754	84968	212568
Wynad	685	17704	1278	19667	24632	18037	2748	440	45857	43440	108964
Cannanore	1655	31701	4144	37500	95643	67449	14122	226	177440	169703	384643
State	10699	233048	22226	265973	864272	561476	83483	3384	1512615	1318187	3096775

TABLE 12.11 (*Contd.*)

BUFFALOUES

Districts	Male over three years				Female over three years						Young stock	Total
	Breeding	Working	Others	Total	Breeding	No calved	Working	Others	Inmilk	Total		
(1)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)
Trivandrum	291	5843	736	6870	4952	495	..	105	10700	16252	8316	31438
Quilon	299	6922	605	7826	3826	466	..	77	5583	9952	6303	24081
Alleppey	93	3213	528	3834	1509	112	..	35	2238	3894	1955	9683
Kottayam	119	1467	296	1882	1495	149	..	14	2563	4221	1828	7931
Idukki	173	2148	328	2649	2695	224	..	49	4448	7416	4128	14192
Ernakulam	153	13825	851	14829	2039	167	..	32	6089	8327	4116	27272
Trichur	482	17024	1478	18984	6112	799	..	190	11996	19097	16250	54331
Palghat	369	63840	2110	66319	9194	693	..	280	11802	21969	14066	102354
Malappuram	435	28688	1929	31052	6821	1154	..	332	11221	19528	13848	64428
Kozhikode	85	716	124	925	1422	172	..	23	2778	4395	1880	7200
Wynad	291	14331	1023	15645	3004	476	..	291	4200	7971	5026	28642
Cannanore	492	8071	3423	11986	5809	803	..	45	9112	18769	9276	37031
State	3282	166088	13431	182801	48878	5710	..	1473	82730	138791	86992	408584

TABLE 12.11 (*Contd.*)

District	Sheep			Goats			Horse and poines		
	One Year and above	Below one year	Total	One Year and above	Below one year	Total	3 years and above	Below three years	Total
(1)	(25)	(26)	(27)	(28)	(29)	(30)	(31)	(32)	(33)
Trivandrum	387	333	720	106048	79777	185825	18	1	19
Quilon	826	480	1306	137394	98341	235735		1	1
Alleppey	384	280	664	80073	58335	138408	..	3	3
Kottayam	221	258	479	97479	61867	159346	3	..	3
Idukki	424	338	762	58836	40305	99141	12	10	22
Ernakulam	127	126	253	103830	76524	180354	..	1	1
Trichur	152	330	482	104528	81842	186370	4	..	4
Palghat	680	610	1290	113467	81198	194665	4	8	12
Malappuram	250	373	623	132188	92425	224613	1	2	3
Kozhikode	17	60	77	90413	63617	154030	2	..	2
Wynad	39	92	131	31670	25312	56982	1	..	1
Cannanore	103	169	272	109512	78814	188326	1	..	1
State	3610	3449	7059	1165438	838357	2003795	46	26	72

TABLE 12.11 (*Contd.*)

Districts	*Elephant*	*Camels*	*Mules*	*Donkeys*	*Pigs*	*Dogs*	*Others*	*Total Livestock including dogs*
(1)	(34)	(35)	(36)	(37)	(38)	(39)	(40)	(41)
Trivandrum	4	..	..	2	8724	156160	20217	600610
Quilon	49	3	..	..	1026	168794	26454	876743
Alleppey	38	..	..	..	584	98277	60295	627177
Kottayam	97	..	..	3	41239	90820	61063	644334
Idukki	26	..	322	106	34201	87318	43412	445531
Ernakulam	66	..	..	6	15335	113768	79639	721061
Trichur	74	..	..	1	2118	65644	16811	559490
Palghat	9	..	..	122	982	98398	5365	677010
Malappuram	24	..	..	5	183	46626	19805	549674
Kozhikode	24	..	..	..	1279	72292	31926	479398
Wynad	28	..	..	125	4248	53247	13409	265777
Cannanore	12	1	1	..	17228	105095	56281	788891
State	451	4	323	370	127147	1156439	434677	7235696

TABLE 12.11 (*Concld*)

Districts	*Poultry*				*Plugh*			*Sugarcane crushers*	
	Fowls	*Ducks*	*Others*	*Total*	*Wooden*	*Steel*	*Carts*	*Power*	*Bullocks*
(1)	(42)	(43)	(44)	(45)	(46)	(47)	(48)	(49)	(50)
Trivandrum	1414548	13697	3243	1431488	5462	5093	170	30	4
Quilon	1479058	30701	1762	1511521	11501	13117	658	26	5
Alleppey	1378143	206001	3796	1587940	7385	4234	217	140	22
Kottayam	1134613	67803	4802	1207218	4342	695	165	285	19
Idukki	554221	8336	1798	564355	5523	1684	39	63	16
Ernakulam	1489939	126003	8210	1624152	29662	4055	263	940	5
Trichur	1494043	37030	2365	1533438	16080	3729	782	1589	3
Palghat	1285688	10035	1421	1297144	65279	4649	5718	359	9
Malappuram	1657291	13643	2626	1673560	33225	3029	81	170	2
Kozhikode	1041574	7497	1678	1050749	4952	808	11	28	..
Wynad	360887	2611	922	364420	14801	4347	70	67	1
Cannanore	1229034	6997	1394	1237425	30354	1945	71	228	9
State	14519039	530354	34017	15083410	228566	47385	8245	3925	95

TABLE 12.12 (*Base* 1970=100)

Statement showing the Consumer Price Index Number from July 1984 to June 1985

Centre	*July*	*August*	*September*	*October*	*November*	*December*	*January*	*February*	*March*	*April*	*May*	*June*	*Average*
Trivandrum	316	316	317	319	321	322	323	320	316	316	318	321	319
Quilon	324	325	326	327	329	330	330	327	325	325	327	330	327
Punalur	308	308	308	309	310	310	310	306	302	302	304	307	307
Alleppey	308	309	309	309	309	310	311	308	304	304	307	310	308
Kottayam	320	321	321	319	317	317	318	316	315	315	318	323	318
Mundakayam	303	303	300	298	297	297	298	295	291	291	294	298	297
Munnar	300	300	298	299	300	301	302	300	299	300	302	306	301
Ernakulam	300	301	301	301	301	302	302	301	298	298	301	305	301
Chalakudy	312	312	310	308	307	307	307	305	304	306	310	315	309
Trichur	314	314	312	312	313	313	313	309	308	310	314	319	313
Palghat	313	313	311	311	311	312	312	308	304	304	306	310	310
Malappuram	316	316	316	315	315	316	317	314	312	313	316	319	315
Kozhikode	307	308	309	309	310	311	312	311	309	310	314	318	311
Meppadi	318	319	317	315	315	316	316	315	314	316	318	321	317
Cannanore	310	311	310	310	309	309	309	306	303	305	308	312	309

13.0 Appendices

13.1 *Working class consumer price index numbers*

The Consumer Price Index Numbers for the state ar being compiled in respect of 15 selected centres with the base 1970=100. The indices for the centres of the state for the years 1983-84 and 1984-85 are furnished below in table 13.1.1.

TABLE 13.1.1

Consumer price index numbers for different centres

Sl. No.	*Name of centre*	*Yearly average cost of living indices*		*% change in 1984-85 over*
		1983-84	1984-85	1983-84
1.	Trivandrum	295	319	8.14
2.	Quilon	303	327	7.92
3.	Punalur	292	307	5.14
4.	Alleppey	291	308	5.84
5.	Kottayam	295	318	7.80
6.	Mundakayam	288	297	3.13
7.	Munnar	282	301	6.74
8.	Ernakulam	279	301	7.89
9.	Chalakudy	296	309	4.39
10.	Trichur	293	313	6.83
11.	Palghat	294	310	5.44
12.	Malappuram	290	315	8.62
13.	Kozhikode	285	311	9.12
14.	Meppadi	294	317	7.82
15.	Cannanore	284	309	8.80

TABLE 13.1.2

(*Base* 1970=100)

Statement showing the consumer price index numbers from July 1984 to June 1985

Centre	*July*	*August*	*September*	*October*	*November*	*December*	*January*	*February*	*March*	*April*	*May*	*June*	*Average*
Trivandrum	317	316	317	319	321	322	323	320	316	316	318	321	319
Quilon	324	325	326	327	329	330	330	327	325	325	327	330	327
Punalur	308	308	308	309	310	310	310	306	302	302	304	307	307
Alleppey	308	309	309	309	309	310	311	308	304	304	307	310	308
Kottayam	320	321	321	319	317	317	318	316	315	315	318	323	318
Mundakayam	303	303	300	298	297	297	298	295	291	291	294	298	297
Munnar	300	300	298	299	300	301	302	300	299	300	302	306	301
Ernakulam	300	301	301	301	301	302	302	301	298	298	301	305	301
Chalakudy	312	312	310	308	307	307	307	305	304	306	310	315	309
Trichur	314	314	312	312	313	313	313	309	308	310	314	319	313
Palghat	313	313	311	311	311	312	312	308	304	304	306	310	310
Malappuram	316	316	316	315	315	316	317	314	312	313	316	319	315
Kozhikode	307	308	309	309	310	311	312	311	309	310	314	318	311
Meppadi	318	319	317	315	315	316	316	315	314	316	318	321	317
Cannanore	310	311	310	310	309	309	309	306	303	305	308	312	309

From the above table it may be seen that the cost of living indices during the year was highest in Quilon and the lowest was in Mundakayam. The percentage change in the indices during the year over the previous was a single digit figure in all the centres. The minimum change was noticed at Mundakayam with 3.12% while the highest was at Kozhikode with 9.12%. The change in the indices during 1983-84 over the previous year ranged between 6.8% and 17.1%. This shows that the year 1984-85 showed less price fluctuations compared to that of the previous year.

The monthly consumer price index numbers for the bove 15 centres have been furnished in table 13.1.2 below. The same for 10 selected centres of the old series have also been compiled using the linking factor for the benefit of comparison and presented in table 13.1.3.

TABLE 13.1.3

Statement of consumer price index numbers for the Agricultural year 1984-85

Centre	*July* 1984	*August*	*September*	*October*	*November*	*December*	*January*	*February*	*March*	*April*	*May*	*June*	*Average*
Trivandrum	2743	2743	2752	2769	2786	2795	2804	2778	2743	2743	2760	2786	2767
Quilon	2767	2776	2784	2793	2810	2818	2818	2793	2776	2776	2793	2818	2794
Punalur	2581	2581	2581	2589	2598	2598	2598	2564	2531	2531	2548	2573	2573
Alleppey	2627	2636	2636	2636	2636	2644	2653	2627	2593	2593	2619	2644	2629
Kottayam	2800	2809	2809	2791	2774	2774	2783	2765	2756	2756	2783	2826	2786
Ernakulam	2649	2658	2658	2658	2658	2667	2667	2658	2631	2631	2658	2693	2657
Trichur	2751	2751	2733	2733	2742	2742	2742	2707	2698	2716	2751	2794	2738
Chalakudy	2739	2739	2722	2704	2695	2695	2695	2678	2669	2687	2722	2766	2709
Munnar	2400	2400	2384	2392	2400	2408	2416	2400	2392	2400	2416	2448	2405
Kozhikode	2926	2935	2945	2945	2954	2964	2973	2964	2945	2954	2992	3031	2961

Base for all Centres except Kozhikode 1939=100
For Kozhikode base 1935=100

13.2.0 *Parity Index*

The index of partiy measures the variation in the economic prosperity of the farmer in relation to changing farm prices, farm cultivation cost and domestic expenditure as compared to the position in the base period. This is defined as a ratio of the index of the prices received and the index of prices paid by farmers expressed as a percentage.

13.2.1. *Index of Prices received by the farmer*

This index is a measure of relative changes in receipts of a farmer from the important agricultural products as a result of changes in farm prices. The changes are measured based on the prices, prevailed in the base year (1952-53). The weighted average of the price relative of the current farm prices to those of the base year is defined as the index of prices received. For the construction of the index the following crops are considered.

1. Paddy, 2. Coconut, 3. Arecanut, 4. Cashewnut, 5. Tapioca, 6. Ginger, 7. Pepper, 8. Banana, 9. Sugarcane.

13.2.2 *The index number of prices paid by the farmer*

The index number of prices paid by the farmer is a measure of the relative changes in the expenditure incurred by the farmer for farm cultivation and domestic expenditure, as a result of the changes in wages, rates, cost of implements, cost of manure, cost of maintenance of livestock and prices of consumer goods as compared to the situation in the base year. This is calculated as the geometric mean of two indices viz. the index of farm cultivation cost and the index of domestic expenditure.

The index of parity between prices received and prices paid by the farmer during each month of the years 1983-84 and 1984-85 are furnished in table 13.2.2.1 below.

TABLE 13.2.2.1

Index number of parity

Base 1952-53=100

Month	*Year*	
	1983-84	1984-85
(1)	(2)	(3)
July	97	110
August	98	101
September	98	100
October	101	101
November	112	99

(1)	(2)	(3)
December	115	98
January	105	98
February	106	92
March	105	93
April	104	93
May	102	88
June	116	86
Average	105	97

The index of parity which stood at 116 points by the end of June 1984 has declined by 30 points by the end of June 1985. Short fall in harvest prices of major agricultural products due to increase in production and increase in prices paid by farmers for farm cultivation cost and domestic expenditure have adversely affected the parity in prices received by farmers compared to the prices paid by them. This has pushed the index of parity backwards.

13.3 *Quarterly average retail prices of some important commodities*

The trends in the district-wise quarterly average retail prices of 12 important commodities for the year 1984-85 are discussed below:

1. *Coconut per dozen.*—The prices of coconut per dozen ranged from Rs. 49.59 in Idukki during the second quarter to Rs. 20.53 during the last quarter at Cannanore. The price of this commodity showed a bullish trend up to the second quarter and began to fall from the third quarter and continued this trend till the end of the year.

2. *Coconut oil per litre.*—The prices of coconut oil moved upwards during the first two quarter and began its downward movement from the third quarter onwards. The price range was between Rs. 37.78 per litre at Ernakulam during the second quarter and Rs. 19.78 per litre during the last quarter at Alleppey. Increase in production and decrease in demand due to increased use of palm oil are attributed as reasons for wild fluctuation in coconut oil prices.

3. *Rice—F.P. per Kg.*—The price of rice distributed through the fair price shops remained steady around Rs. 2.36 per kg. from quarter to quarter.

4. *Blackgram per kg.*—The price of this commodity fluctuated between Rs. 6.16 during the last quarter at Pathanamthitta and Rs. 8.12 during the first quarter at Calicut. The ruling price of this commodity at Kottayam, Ernakulam and Kozhikode were comparably higher than at other centres throughout the quarters.

TABLE 13.3.1

Quarterly Average Retail Prices at District Headquarters for 1984-85

Commodity	*Quarter*	*Trivandrum*	*Quilon*	*Pathanamthitta*	*Alleppey*	*Kottayam*	*Idukky*	*Ernakulam*	*Trichur*	*Palghat*	*Malappuram*	*Kozhikode*	*Wynad*	*Cannanore*
(1)		(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Coconut/ Dozen	I	38.50	41.64	40.50	41.08	48.05	48.05	43.73	42.55	44.29	37.05	38.84	38.23	39.96
	II	48.00	42.45	45.50	43.98	48.93	49.59	46.61	43.67	44.16	40.63	38.80	36.18	37.15
	III	41.30	33.88	33.53	32.38	40.23	43.15	39.92	35.95	37.10	36.61	35.98	45.15	34.13
	IV	26.75	24.65	20.80	23.08	26.40	32.45	27.41	27.27	25.90	25.96	23.75	32.00	20.53
Coconut Oil/Ltr.	I	35.77	33.44	32.71	32.41	33.61	36.44	36.89	35.29	34.89	34.78	70.24	34.83	34.27
	II	36.63	34.32	34.16	34.24	34.65	34.65	37.78	35.89	35.07	34.69	35.33	34.96	36.68
	III	34.30	27.20	28.49	26.92	28.16	29.45	30.13	28.65	29.42	28.16	29.57	30.82	30.94
	IV	21.26	20.03	20.46	19.78	20.14	20.61	22.28	20.44	20.42	20.54	21.36	23.74	23.32
Rice/Kg.	I	..	2.26	..	2.26	2.26	2.26	2.28	2.27	..	2.27	2.27	2.35	2.27
	II	..	2.26	..	2.26	2.27	2.29	2.27	2.27	..	..	2.27	..	2.27
	III	2.26	2.26	..	2.26	2.27	2.33	2.28	2.26	..	2.27	..	..	2.95
	IV	..	2.26	2.26	2.27	2.27	2.33	2.28	2.26	2.39	2.27	2.27	..	..
Black gram/kg	I	6.81	6.51	6.21	6.36	7.37	7.37	7.33	6.90	6.52	7.11	8.12	7.73	6.36
	II	6.86	6.38	6.25	6.22	7.41	7.41	7.53	7.09	6.65	6.74	7.27	7.82	6.92
	III	6.98	6.35	6.28	6.88	7.43	6.54	7.51	6.73	6.93	6.57	7.15	6.36	7.00
	IV	6.97	6.66	6.16	6.60	7.39	6.73	7.67	6.73	6.88	6.61	7.68	6.36	7.00

Commodity	Quarter	Trivandrum	Quilon	Pathanamthitta	Alleppey	Kottayam	Idukky	Ernakulam	Trichur	Palghat	Malappuram	Kozhikode	Wynad	Cannanore
(1)		(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Coffee powder/ kg.	I	30.06	28.33	28.17	27.92	28.51	28.56	30.54	29.76	29.69	24.46	10.80	30.45	30.30
	II	29.10	30.83	29.79	29.15	28.11	24.78	30.64	29.58	29.26	25.71	28.11	29.79	29.00
	III	..	30.00	27.46	30.00	26.27	17.37	29.60	28.26	29.00	25.68	29.04	29.27	..
	IV	..	28.16	26.16	30.00	25.35	17.71	28.57	28.23	25.58	25.67	28.81	..	29.00
Tea/Kg.	I	41.79	42.71	46.32	44.52	42.01	..	37.68	40.35	42.22	42.64	41.28	38.18	41.35
	II	40.01	41.63	44.62	43.13	39.33	..	39.74	39.96	40.47	39.88	40.01	32.92	39.77
	III	40.86	41.25	43.72	31.36	31.19	17.71	40.94	40.91	40.78	40.77	40.26	32.79	39.00
	IV	41.53	42.16	44.58	31.07	31.56	..	41.63	41.65	41.53	41.53	40.56	..	38.98
Tobacco/ Kg. (Vadakan)	I	15.00	13.50	16.73	15.12	18.45	18.45	17.48	16.83	16.30	18.81	17.97	20.56	26.38
	II	15.00	12.00	..	12.00	17.50	17.50	17.67	17.42	17.96	23.50	25.01	26.22	27.80
	III	15.00	13.66	..	18.00	17.75	18.00	17.67	17.79	20.96	23.83	28.79	35.76	24.67
	IV	15.00	14.25	..	18.16	18.25	18.00	17.67	18.06	19.38	24.00	29.89	34.35	28.08
Tobacco (Kg)	I	13.00	17.50	16.73	17.12	19.06	18.33	18.64	18.18	21.36	19.83	19.83	25.23	..
	II	13.00	15.45	16.16	15.81	18.00	20.00	19.00	19.00	22.30	20.00	20·00	35.83	..
	III	13.00	16.83	16.00	13.00	18.21	18.00	19.00	23.00	..	20.00	..	30.01	..
	IV	13.00	17.00	16.00	..	19.05	18.00	19.00	21.27	..	20.00	..	30.00	..
Gingelly Oil/Ltr.	I	19.56	19.83	19.20	19.52	19.84	19.84	22.10	20.79	20.00	20.02	21.39	20.05	19.96
	II	19.27	19.80	18.90	19.35	19.66	19.66	21.88	20.55	19.75	24.76	21.18	19.73	21.33

	III	19.19	19.68	18.96	17.46	19.59	19.69	22.48	19.57	18.00	19.56	18.97	19.93	20.93
	IV	18.49	19.16	19.57	16.54	16.88	19.80	20.76	18.69	17.79	18.82	18.38	19.63	20.98
Tapioca (raw)/kg.	I	.61	1.00	.75	.88	1.15	1.15	.99	.94	.86	1.10	1.17	1.22	1.49
	II	.55	1.00	.72	.86	1.16	1.17	1.46	.87	.80	.81	1.08	1.17	1.47
	III	.60	.96	.70	1.00	1.18	1.25	1.01	.82	.65	.98	1.08	.90	1.50
	IV	.84	1.02	.70	1.00	1.11	1.25	1.67	.86	.66	1.05	.66	.90	1.50
Sugar (FP)/kg.	I	4	4	4	4	4	4	4	4	4	4	4	4	4
	II	4	4	4	4	4	4	4	4	4	4	4	4	4
	III	4	4	4	4	4	4	4	4.40	4.40	4.40	4.40	4.40	4.40
	IV	4.40	4.40	4.40	4.40	4.40	4.40	4.40	4.40	4.40	4.40	4.40	4.40	4.40
Chillies/ kg.	I	20.68	17.86	16.07	16.96	18.22	18.21	17.21	18.38	18.57	16.88	16.88	18.94	20 95
	II	24.96	22.08	19.49	20.79	22.37	22.71	22.74	23.66	23.29	21.56	21.56	27.06	25.51
	III	21.76	17.86	19.58	20.48	13.99	18.80	20.46	18.86	19.46	18.05	19.02	21.19	21.09
	IV	21.14	18.03	18.42	19.26	17.09	17.09	19.31	19.56	19.30	18.01	18 54	20.34	21.09

5. *Gingelly oil/litre.*—The price of gingelly oil generally showed a decreasing trend over the quarters in all centres except Alleppey and Ernakulam where there was an increase in price during the third quarter over that of the second quarter. The price varied between Rs. 22.48 at Ernakulam during the third quarter and Rs. 16.54 during the last quarter at Alleppey.

6. *Tapioca raw/kg.*—The price of this commodity varied between Rs. 0.55/kg. at Trivandrum during the second quarter and Rs. 1.67 per kg. at Ernakulam during the last quarter.

7. *Sugar (F.P.)/kg.*—The price of sugar distributed through the fair price shops remained steady at Rs. 4/kg. at all centres during the first three quarters while during the fourth quarter the price has increased to Rs. 4.40 at all centres.

8. *Chillies/kg.*—The prices of this commodity registered abnormal increase at all centres of the state throughout the year, through it was highest during the second quarter at all the centres. The highest price of Rs. 27.06 was quoted from Wynad during the second quarter and the lowest end of the range was Rs. 17.09 quoted from Idukki during the last quarter of the year.

9. *Coffee powder/kg.*—The price of coffee powder varied from Rs. 17.37 at Idukki during the third quarter to Rs. 30.83 during the second quarter at Quilon. The price of this commodity was comparably low during last quarter at all centres of the state.

10. *Tea/kg.*—The price of tea maintained at a higher level without wide fluctuation throughout the year at many centres. But price of the commodity ruled at Idukki was comparably very low.

11. *Tobacco (Vadakkan)/kg.*—There were wide flucutation in price of this commodity from centre to centre. While the price remained steady at Rs.15 at Trivandrum the price ruled at Kozhikode, Wynad and Cannanore Centre, fluctuated wildly. The price range was between Rs. 12 at Quilon during the second quarter and Rs. 35.75 during the second quarter at Wynad.

12. *Tobacco (Jaffna)/kg.*—The price of the commodity fluctuated between Rs. 13 at Trivandrum during all quarters to Rs. 35.83 during the second quarter at Wynad.

13.4 *Export of Agricultural commodities.*—Foreign export of agricultural commodities through the ports of Kerala for the year 1984-85 are furnished in table 13.4.1 below. There was a sharp decline of about 21% in the value of goods exported during the year 1984-85 over the previous year.

TABLE—13.4.1

Foreign Export from the Ports of Kerala 1983-84 and 1984-85

Sl. No.	Commodity	Unit	1983-84		1984-85	
			Quantity	Value (lakhs)	Quantity	Value (lakhs)
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1	Cardamom	MT.	229.63	596.11	510.80	998.35
2.	Cashew Kernals	"	34118.22	15819.11	24298.54	12773.98
3.	Cashew shell oil	"	1711.20	85.92	2007.63	107.13
4.	Coffee	"	28671.43	8145.49	22446.53	7520.09
5.	Coir & Coir products	"	27981.09	2574.11	18493.93	2131.57
6.	Ginger	"	3423.31	979.41	4988.74	1088.03
7.	Lemongrass Oil	"	110.62	122.25	158.21	180.57
8.	Marine Products	"	31409.22	13849.85	21178.66	10224.80
9.	Oil Cake	"	0.80	1.70	..	..
10.	Pepper	"	27317.26	5477.35	11136.71	3541.26
11.	Rubber manufacture	"	527.20	167.94	234.66	218.22
12.	Tea	"	42589.10	13071.21	28705.96	9619.12
13.	Wood and Timber	"	..	705.71	..	425.99
14.	Sundrier (Miscellaneous)	"	..	11985.66	..	9348.05
	Total:	"	..	73581.82	..	58177.16

13.5 *Notes on certain crops in Kerala*

1. *Tea*

India continues to be the biggest producer of Tea in the world. Tea is one of the principal foreign exchange earners. Tea industry substantially contribute to the national exchequer and also provides employment to a large number of people. India accounts for nearly 46 per cent of the world production of tea. India ranked first among the exporters of tea in the international market but of late Ceylon has wrested the first rank from India.

Climate.—A hot moist climate is most suitable for tea plantation, the temperature varying from 55F to 95F and an annual rainfall ranging between 100 to 130 inches. Tea is usually cultivated at altitudes ranging from 3000 feet to 5000 feet above mean sea level.

Soil.—The best soil suitable for the successful cultivation of tea is a high friable soil of good depth through which water percolates freely.

Planting.—After removing the forest growth and providing for roads, drains and building sites the planting is done. The actual spacing of plants will depend upon the layout of the land used for cultivation. They are usually planted in square, rectangular or triangular patterns suitably spaced so that when mature they cover the ground almost completely without over crowding and providing for a coverage of about 3000 plants per acre. "Hedge planting" i.e. planting in raws 5 apart with a spacing of 2' between the bushes in a row is also done in new estates. Before planting is done pits of 9' square and 18" deep are taken and the pits filled with the soil best suited for the cultivation of tea. Planting will begin in June or July depending mainly upon the South West Monsoon. Water is essentially needed for the young plants for the first two or three months after planting. Young plants taken from the nursery are preferred to the seeds. Usually those plants are removed from the nursery after 6 to 18th months with great care so that the tap root of the plant is not damaged and planted in the places fixed for the purpose.

Pruning.—When the plants are about two years old and five to six feet high they are pruned to stimulate lateral growth and to develop them into a bush.

Plucking.—Plucking is usually done by women and children. The young and freshly sprouted leaves with two leaves and a bud are plucked. Plucking is done through out the year in several rounds. The period of one round varies according to the altitude of the land. In the high ranges the plucking rounds cover a period upto fourteen days whereas in the plains the period is only seven or eight days.

Manure.—The important manures used are mixtures of nitrogen phospherous and potash. In some estates amonium sulphate is also widely used.

Yield.—The average yield of a good estate is about thousand pounds of prepared tea per acre.

Diseases.—There are many kinds of diseases and attacks on the tea bush, Tea mosquito, the red spider and thrips are some of the important pest attacking the crops.

Life of the plant.—The average life of a tea plant varies from 60 to 80 years.

From the garden to market.—The leaves plucked from tea garden have to under go a series of processes before it appears in the Market for sale.

In the tea factory the leaves are spread on a wire mesh or hessian cloth rack for a period of 18 hours for eliminating moisture so that it can be rolled easily. The next stage is called rolling. A rolling machine specially made for this purpose with pressure adjustments is used to twist the leaves for breaking the leaf cells so that the leaf juices ooze out. Then the rolled leaves are taken from the rolls breakers and put in the fermentation room. Fermentation is a process of Oxidation where the leaves undergo a chemical change. The green colour of tea leaves change into reddish hue of copper. The next process is known as drying hot air (200° to 230°) from the drier furnace is forced into the chamber where the leaves are dried.

The last two processes are grading and packing. There are two important classifications of grade. They are leaf grades and broken grades.

The former group is mainly divided into orange pekoe and pekoe souchong; broken orange pekoe, broken pekoe souchong. Fannings and dust are important broken grades. They are then packed category-wise and sent to the market for sale.

Besides the black tea the manufacture of which has been described above green tea is also manufactured in India in small quantity. In this process the fresh leaf is subject to heat treatment by steaming or roasting. The green leaf after the treatment is rolled and dried the process being repeated till the desired degree of dryness is reached.

2. *Coffee*

Coffee was first discovered in Africa, although the earliest clutivation began in Southern Arabia; Coffee as an important plantation crop was introduced in India and Africa. The production of coffee in India is only 1 per cent of the world production. There are two main species of coffee grown in India namely Arabica and Robusta. Robusta flourishes

at lower levels and has more power of resistence against extremes of climate, pests and diseases. It is easily distinguishable from Arabica by the size of its leaves and appearance of the berries.

Climate.—Coffee is a tropical plant. It is successfully cultivated in places where the altitudes is ranging between 1500 to 6000 feet above mean sea level. The most suitable altitude is between 2500 feet to 5000 feet. It needs a well distributed, rainfall of about 60 to 80 inches per annum and a distinct rainy and dry season with a minimum average temperature of 70°. A good dry spell from about December to March with a few intermittent showers of March and April and heavy rainfall in July and August constitute ideal conditions for the growth of the coffee plant (Report of the Plantation Enquiry Commission of Coffee 1956, Government of India.)

Soil.—Coffee requires sandy soils or clay loam soils with a good subsoil drainage system.

Planting.—Coffee is grown from seed usually. It is also propagated through cuttings from mature trees or shoots. Propagation from seeds is usually done in January or February in well prepared nursery buds. It is essential that the nursery buds must have shades to protect the tender shoots. These plants are to be transplanted after four to six months in the nursery. When the plants are twenty inches in height they are finally transplanted. The spacing between each plant is ordinarily eight to nine feet. The plants are manured well and watered frequently.

In the second method of propagation lower branch of the tree are bent down under the earth for atleast four months so as to enable new roots to sprout up from these branches.

Shade trees are provided in coffee plantation for protection of tree from the full intensity of the sun and for soil conservation.

Pruning.—Usually the coffee plants begin to bear fruit within 5 to 7 years of planting. The colour of the berries is green at first. The colour slowly changes to golden and then to bright red. These red cherries are plucked up by hand. Several pluckings are necessary before a crop is completely harvested.

Manures.—The important manures used for the coffee plants are super phosphate, ammonium sulphate, copper sulphate and urea.

Yield.—Under good climatic conditions a coffee plant yields, ½ to 2 lbs of green coffee in a season. Good yield may be obtained from a plant for a period of 20-30 years. Excessive rains or want of rains in the blossoming season will adversely affect the yield.

Diseases.—The following diseases are prevalent in the coffee estates. They are (1) Coffee steam borer, (2) Shot hole borer (3) leaf disease, (4) root-rot, (5) die back, (6) chlorisis and (7) green bug.

From garden to the market.—There are two processes by which raw coffee is cured. They are known as dry and wash methods. By the first method the coffee cherries are washed and spread out on the cement floors in the open air for drying. When they are completely dried they are allowed to run through fanning and hulling machines.

The second process known as wash process is entirely different. The cherries are put in the pulping machine which breakes them and the pulpy skin of the cherries are automatically removed. Then those cherries are put into big tanks for about 24 hours. A jelly like substance known as honey will be formed by these cherries due to fermentation. This honey is removed by thorough washing (canals). Then these cherries are spread out to dry for 2 to 3 weeks. When these are completely dried they are put through hulling and polishing machines. The coffee prepared by the wet method is called parchment. For preparing parchment coffee only ripe berries can be utilised.

Berries at different stages of maturity have to be converted into cherries. They are then graded and packed. The important grades are arabica, cherry, arabica parchment, robusta cherry and robusta parchments.

3. *Rubber*

In India attempts were first made to plant rubber in Belgeum and Ratnagiri in the Bombay State. 94 per cent of the total area under Rubber is in the Kerala State. 92 per cent of the total production of Rubber in India is also from Kerala.

Climate.—Rubber usally grows in the tropical belt lying within 15°N and 10 S of the equator and usually at an altitude of 1000 feet above sea level. For the cultivation of rubber a warm and humid climate is necessary. The annual rainfall should be between 80-120 inches and should be well distributed.

Soil.—A still alluvial soil which is neither too steep nor too swampy is suited for cultivating rubber.

Planting.—Young plants or seeds are planted in pits of about 18" x18". The planting season is from May to September usually 150 to 200 plants are planted in an acre.

Tapping.—Tapping of rubber will begin seven or eight years after planting. The period of tapping is from September to January.

Diseases.—There are two serious leaf diseases of rubber now prevailing in India. They are "orduimhovea" and phytophers mea lis which cause secondary leaf fall. These disease affect the growth of the tree and the yield of the tree. Another disease known as brown best is prevalent in the trees which are used for frequent tapping. The symptom of the disease is the cessation of the latex production by the trees in the affected portion of the bark.

From the estate to the market.—The latex brought by the tappers is first of all freed from sand; bark and other impurities by straining at the coagulating shed constructed specially for the purpose. In the case of crape rubber coagulation is done by using acetic acid. For changing latex into sheet rubber, the latex after being bulked and diluted is put into shallow pans. For removing water and for getting a definite shape the coagulam is pressed by hand. Then these sheets are allowed to pass two or three times between smooth rollers. The sheets are usually again passed through a machine for printing the trade mark of the estate. These sheets are washed. Then these are placed in specially constructed houses known as smoke houses and hot air with temperature of 115° F to 120° F is allowed to circulate in the room. This is done for 15 days. The colour of the sheet will change from white to black. There are three important types of rubber, smoked sheet, latex crape and scraprubber. Of these the most important one is smoked sheet.

4. *Cardamom.*

The important cardamom producing countries are India, Ceylon and Indo China. India is the largest producer of cardamom in the world. Cardamom is taken from the plant Ellettaria cardamom. Kerala ranks first as the largest producer of cardamom. 80 per cent of the worlds output of this valuable spice is produced in India. India's competitors are Ceylon, Indo-China and Guatemala. Cardamom possess an aromatic odour and it is commonly used for flavouring and medicines.

Climate.—The best climate suitable for cardamom, cultivation is a warm and humid atmosphere with a temperature ranging between 50°—95° F. It is cultivated in the shades of huge forest trees. Cardamom plants require a fairly well distributed and annual rainfall of 60-80 inches. The best altitude for cardamom planting is between 2500 to 5000 feet.

Soil.—Cardamom is cultivated usually in high ranges which has a fairly deep rich loam soil and a place sheltered from strong winds and too much sunlight.

Planting.—During February-March the forest land chosen for planting the cardamom is cleared. But care is taken that big tree providing shades are not cut down. Small pits of 2 feet squares and one foot deep are dug. The distance between one pit and the next varying from 8 to 10 feet, thus

providing for about 700 pits in one acre of land. During the month of May or June when the South West Mansoon sets in, the seeds are sown. Cardamom plants are usually prepared in specialised nurseries. The plants raised from seeds are usually free from any kind of disease. When these plants attain one year of growth they are transplanted. Usually two plants are planted in one pit. In August-September the stagnant water is allowed to drain off.

Plucking.—The crop begins to yield from the third year onwards, and annually thereafter. The harvest will begin in the month of August of the 3rd year of growth and lasts for nine months. The fruits are gathered at intervals of 30 to 40 days.

Yield.—The first yield is low. The yield attains a normal stage by the fifth year.

Life of plants.—Nine years is the average life of the plant.

Manure.—The important manures used are well-rotten, cattle manure, sheep and fish manure and leaves of phyllanthess emblica. A mixture of caster cake bone meals and pottasium chlorate is also considered to be a good manure.

Diseases.—The most important disease affecting the cardamom plantations is the virus diseases 'Katte' which is rampant in most cardamom plantation, The symptom of the disease is the mottling or curling of the leaves and degeneration of the clumps. The remedy lies in the rogueing of affected plants. Another menace is that caused by thrips mite etc. Dusting the plants with gamaxene is the remedy.

From the estate to the market.—The capsules of the cardamom are dried in the sun or specially built dry houses by using artificial heat. Usually 3-4 days are taken for drying the cardamom in the sunlight but at the same time 48 hours is only needed for artificial drying. The sundried produce retains the mucilaginous coating on the seeds and possess characteristic sweet aroma. The dried capsules are then cleaned. The final product of green cardamom is 20 to 28 per cent of the green harvested produce.

Some times bleaching is done by exposure to sulphur fumes. This changes the colour of the skin of the capsule to white and it helps to preserve it for longer periods. Then they are graded. There are three important grades (1) green cardamom, (2) white or bleached cardamom and (3) seeds. The quality of cardamom varies according to place and variety of the seed.

The middle east and Sweden absorbed a large quantity of the exports of cardamom from India.

5. *Pepper*

Kerala is famous for her pepper from time immemorial and is the chief producer of pepper in India. Black pepper which is one of the important spices is produced mainly by India and Indonesia. During the post war period India stands as the largest producer of pepper in the world.

Climate.—Pepper being a rainfed crop grows best in tropical regions where there is an average rainfall of 80 inches. The lower and upper limits of temperature in which the crop can flourish are 50° F and 140° F. It grows in places with altitude less than 3000 ft.

Soil.—The suitable soils for pepper cultivation are clay loam or sandy loam soils the first being the most suitable.

Planting.—The crop is propagated vegetatively by means of cutting. It is a wood climber and requires some support for vines. Jack and mango trees are commonly used as support for vines. Murukku trees are also used. On a plantation basis they are planted at a distance of 10 ft. apart. The vine is rarely allowed to grow beyond a height of 20 ft. lest the plucking of the pepper berries become difficult.

Plucking.—The vines begin to bear after three years of planting. Flowering period is from June to July. The harvesting period is from December to March. When ripe the colour of the berries is orange. The berries are allowed to dry in the sun in mats for a week till the colour become black. Some times the skin of the ripe berries is removed before drying. This kind of pepper is known as white pepper and is produced only in limited quantities.

Yield.—The yield mainly depends upon the fertility of the soil and the locality. The yield at the first harvest is generally poor. Full yield can be expected from the seventh year. Usually in an acre there will be 300 to 400 standards where pepper is cultivated on a plantation scale. The average yield per standard vary between ¼ lb to 2 lb of dried produce.

Life of the plant.—The life of the plant ranges between 25 to 30 years. But rarely some varieties have been found to five up to 60 years.

Manure.—The best manures to be used for the pepper gardens are powdered bean cake, fish guane and dried prawn.

Diseases.—One of the major diseases that affects pepper is pollu which the pepper berries are rendered hollow.

From garden to market.—The dried, black pepper is graded and packed. The pepper is generally packed in double gunny bags. Pepper is mainly exported to U.S.A. and U.K.

6. *Ginger*

The three important ginger growing regions are India, Jamaica and Sierra Leoans. Of these ginger producing regions the best variety is seen in Jamaica and Sterra Leoans. Indian ginger contains more fibre content.

Climate.—Ginger requires heavy rainfall. It needs a warm humid climate and considerable shade.

Soil.—The soils suitable for ginger cultivation are well drained, sandy clay, loam, red loam or laterite soils.

Planting.—Planting usually begins by the end of May or beginning of June before the commencement of the heavy rains. Ginger rhizomes (underground stem) are planted. Before planting the ground is ploughed and manured. The seeds are planted in these beds in small pits at a distance of 6-10 inches. After planting the beds are covered with leaves with a view to protect the young shoots from the on slaught of the rain and to serve as manure also. The crop takes nine to ten months to attain maturity. In July-August weeding and manuring is done.

Harvesting.—The harvesting is done by digging out the rhizomes.

Manure.—Usually cattle manures are used.

Yield.—The iyeld is generally eight to ten times of the seed rate. In Kerala the average yield of ginger is about 1.5 tonnes per hectare.

Pests and diseases.—Ginger crop is usually affected by a disease known soft root. The colour of the green plants are changed into pale yellow and the production goes down. Use of mercuric chloride 0.35 per cent for treating the rhizomes sorted as seed is advocated as preventive measure. Another important disease is known as varmicularia. The leaves become covered with yellowish and brownish spots and gradually dry up. Spraying with bordezex mixture is suggested in such cases.

From garden to the market.—Dry ginger as a market produce is prepared as follows. First the outer skin of rhizomes are removed. Then they are soaked in water and kept over night. In the morning they are cleaned well. Then these rhizomes are allowed to dry for a week in the hot sun. They are again cleaned. The ginger is known as the rough or unbleached ginger of commerce.

There is another variety of ginger known as lime ginger or bleached ginger. The process is a bit different from the above. The green ginger is put in shallow cisterns and they are cleaned by water repeatedly. When they are finally cleaned they are put in a solution containing milk of lime for

some time after which they are dried in the sun. This process of dipping in lime and drying will be continued a number of times until the rhizomes get a uniform coating of lime.

Then they are graded. There are three important export grades B. C. and D. B. quality ginger will have three fingers. The other two grades (C&D) have two fingers and one finger respectively.

The B and C grades are exported to foreign market. The D grade being small pieces of ginger is mostly consumed internally in India.

Indian ginger is mainly exported to Aden, Arabia and United Kingdom.

7. *Lemongrass Oil*

Lemongrass oil which is an important raw material for the perfumery soap and cosmetic industries is extracted by distilling the leaves of the grass "cymbopogam Flexrosus, stapf". The important lemongrass growing areas are Ceylon, Java, West Indies, Malaya, Guatemala and India. Guatemala and India are holding almost a monoply in the world market. In India Kerala is the most important producer of this crop. The major lemongrass growing areas are Kuruppampadi, Odakkalai, Thodupuzha, Muvattupuzha, Wynad, Taliparamba etc. At Odakkalai there is a lemongrass oil research station.

Climate.—It grows on the fertile hill slopes. The grass grows when the monsoon begins.

Soil.—It flourishes in hard laterite soils.

Cultivation:—Fertile hill slopes with hard laterite soils are selected for the cultivation. During February-March the site selected is first cleared of all under growth vegetation by burning them. In April-May the land ploughed, and is prepared into long narrow beds for cultivation of lemongrass. Usually in one acre 15 to 20 lbs. of seeds are sown. The seeds are sown broadcast. The crop is also grown by transplating of seedlings raised in separate nurseries. There are two varieties of lemongrass, red stem and white stem. The former variety gives better quality of oil containing greater, quantity of citral.

Harvesting.—Generally harvesting will begin five months after sowing. The harvesting has to be done before the flowering season of the crop. Five cuttings are annually taken. After the first cutting subsequent cuttings are done at intervals of 30 to 45 days. Usually the harvesting season ends by December.

Life of the plant.—The life of the lemongrass plant is 5 to 8 years.

Yield:—The yield of the crop under different years is given below.

1st year	1½	dozen	bottles of 22 oz. each
2nd „	2		„
3rd „	2		„
4th „	2		„
5th „	2		„

From the garden to the market:—Now in Kerala we are using an old country method for distling the lemongrass oil. The old apparatus consist of copper boiler, condenses (oil) receiver and wooden tube.

The raw grass and water are put in the boiler specially made for this purpose The shape of the boiler is like a retort apparatus. Then the boiler is heate.d with firewood. After some time a mixture of water vapour and Essential oil escapes through the copper spiral connected to the retort. This copper spiral is allowed to cool down by immersing it in a wooden bucket. full of water. The wooden bucket has an opening near the bottom to let off the water as it becomes not during the distillation time. The essential oil and water will be collected in the receiver tube. The specific gravity of the essential oil is lower than water. At 30 C specific gravity is 0.878. So naturally the lemongrass oil floats at the top of the receiver tube. Then it is separated from water.

Lemongrass oil is packed in steel drums which has a capacity of 40 to 45 gallons. Lemongrass oil is mainly exported to U.S.A. and U.K.

13.6 Classification of soil

District	*Type of soil*	*Details of distribution*
(1)	(2)	(3)
Trivandrum	1. Fairly rich brown loam of latertic origin	Middle Part of the district
	2. Sandy loam	Western coastal region
	3. Richest dark brown loam of granite origin	Eastern hilly part of the district
Quilon	1. Sandy loam	Karunagappally and part of Quilon taluk
	2. Laterite soil	Kottarakkara, and parts of Kunnathur and Pathanapuram Taluk
	3. Hill & Forest soil	Part of Pathanapuram Taluk
Pathanamthitta	1. Laterite soil	Pathanamthitta, Mallappally Ranny and parts of Thiruvalla Taluks
	2. Hill& Forest soil	Parts of Pathanamthitta and Ranny Taluks
Alleppey	1. Sandy loam	Karthigappally and Mavelikkara taluks.
	2. Sandy soil.	Shertallai and Ambalapuzha taluks.
	3. Clay and loam with much of activity	Kuttanad
	4. Laterite soil	Chengannur and part of Mavelikkara
Kottayam	1. Laterite Soil	Part of Meenachil, Changanacherry and Kottayam taluks

(1)	(2)	(3)
	2. Alluvial soil	Parts of Changanacherry, and Kottayam taluks
Idukki	1. Laterite soil	Peermade and Thodupuzha taluks.
	2. Alluvial soil	Devicolam and Udumbanchola taluks
Ernakulam	1. Laterite	Moovattupuzha and part of Kunnathunadu
	2. Sandy loam	Parur, cochin and Kanayannur taluks.
	3. Alluvial	Part of Alwaye and Kunnathunadu
Trichur	1. Sandy loam	Part of Mukundapuram, Trichur and Chawghat taluks
	2. Laterite	Western portion of Talappilly and estern part of Trichur taluks
	3. Granite	Northern part of Talappilly
	4. Clay	Back water area in Chowghat and Part of Mukundapuram
Palghat	1. Sandy soil	Riverside areas.
	2. Laterite	Ottappallam, Perinthalmanna Mannarghat and Palghat taluks
	3. Black soil	North eastern portion of Chittoor taluk.
Malappuram	1. Sandy soil	Coastal areas of the district
	2. Laterite	Major parts of the district barring coastal areas
Kozhikode	1. Laterite	Major parts of the district barring coastal areas.
	2. Sandy	Coastal areas

(1)	(2)	(3)
Wynad	1. Laterite	Most parts of the district
Cannanore	1. Laterite	Major parts of the district barring coastal areas.
	2. Sandy	Coastal areas

13.7 Conversion ratio between the raw materials and the processed products

Rice:	Rice (cleaned) production 2/3 of paddy production	
Cotton:	Cotton lint production 1/3 of kapas production cotton seed production 2/3 of kapas production	
	2 times of cotton lint production	
Groundnut:	Kernel to nuts in shell	70 per cent
	Oil to nuts in shell	28 ,,
	Oil to kernels crushed	40 ,,
	Cake to kernels crushed	60 ,,
Seasamum:	Oil to seeds crushed	40 ,,
	Cake to seeds crushed	60 ,,
Caster seeds:	Oil to seeds crushed	37 ,,
	Cake to seeds crushed	63 ,,
Coconuts	Copra to nuts one ton copra	6775 nuts
	Oil to copra crushed	62 per cent
	Cake to copra crushed	38
Neemn see	Oil to kernel crushed	45 to 50 per cent
	Cake to kernals	50 to 55 ,,
Sugar:	Gur from cane crushed	10 percent
	Crystal sugar from gur refined	62.40 ,,
	Crystal sugar from cane crushed	9.97 ,,
	Khandassari sugar from gur refined	37.5 ,,
	Molasses from cane crushed	3.5 ,,
Cashewnuts:	Cashew kernels	25 per cent of Cashewnut
	Butter from mixed milk	6.3 per cent
	Ghee from mixed milk	5.3 ,,

13.8 Average analysis of important fertilisers

Sl. No.	Name of fertiliser	Nitrogen (N. per cent	Phosphate (P^2O^5)	Potash (K^2O)
(1)	(2)	(3)	(4)	(5)
1.	Ammonium Sulphate Nitrate	26.0	..	..
2.	Ammonium Sulphate	20.5	..	..
3.	Ammonium Nitrate	33.5	..	..
4.	Ammonium Phosphate	16.0	20.0	..
5.	Calcium Ammonium Nitrate	20.5	..	..
6.	Nitrate of Soda	16.5	..	..
7.	Calcium Nitrate	15.3	..	..
8.	Calcium Cyanamide	20.0	..	..
9.	Urea	46.0	..	..
10.	Super Phosphate—Single	..	18.00	..
11.	Super Phosphate—Double	..	35.00	..
12.	Super Phosphate	..	45.00	..
13.	Rock Phosphate	..	28.3	..
14.	Hyper Phosphate	..	27.3	..
15.	Sulphate of Potash	..	..	48.00
16.	Muriate of Potash	..	..	50.00
17.	Groundnut Cake	7.00	1.5	1.3
18.	Castor Cake	4.3	2.0	1.00
19.	Mustard Cake	4.5	1.5	..
20.	Muhua Cake	2.5	0.8	1.8
21.	Neem Cake	5.2	1.0	1.4
22.	Gingelly Cake	6.2	2.0	1.2
23.	Coconut Cake	3.0	1.9	1.8
24.	Poultry Manure	1.2—1.5	..	..
25.	Sheep Manure	0.8—6	..	..
26.	Horse Manure	0.8—6	..	..
27.	Farm Yard Manure	0.4	0.3	0.2
28.	Fresh Cow Dung	1.57	0.25	0.18
29.	Compost	0.5	0.25	0.5
30.	Bone Meal	3.5	21.0	..
31.	Fish Meal	4.10	3.0	0.3
32.	Blood (Dried)	11.5	1.5	0.6
33.	Meat Meal	11.0	..	0.6
34.	White Fish Meal	10.0	10.0	1.0

13.9 Insect pests affecting paddy crops, their distribution and some Practical methods of control

Sl. No.	*Name of pest*	*Nature of damage*	*Control measure*
(1)	(2)	(3)	(4)
1.	Rice Swarming Caterpillar (Spodoptera mauritia)	Defoliation plants reduced to stumps-nursery and early growing stages attacked	Spray D.D.T. at 1.5 KG. a.i. per hectare or endrin at 250 gm. a.i. per hectare.
2.	Rice stem borer (Schoenabius in cestulus)	Caterpillar bores into stem causing 'dead hearts' and 'white ear heads'	set light traps in the field to catch and destroy moths Collect egg masses from nursery plant and destroy them.
		All stages of plant suseptable to attack	Spray endrin or parathion at 250 gm. a.i., per hectare at intervals of 15-20 days starting from 15th day after sowing and upto flowering.
3.	Rice bug (Leptocorisa acuta)	Sucks 'milk' of tender-grains leaving them chaffy	Dust B.H.C. or spray endrin or parathion at doses given above
4.	Rice Hispa Dicladispa (Hispa armigera)	Adults feed on the green matter of leaves and grubs mine the leaves	Spray D.D.T., endrin or parathoon at above doses
5.	Rices case worm Nymphua depunctalis	Caterpillar in lead case defoliates.	do.
6.	Paddy gall fly (Diptera)	The maggot bores into central shoot and cause the formation of elongated hallow gall called 'silver shoot'	Spray endrin or parathion at 250 g a.i. per hectare 4 times at weekly intervals from 15th day after transplantation set up light traps-

(1)	(2)	(3)	(4)
7.	Paddy Mealy bug	Dives within leaf sheaths in colonies sucking sap causing stunting of crop	Spray parathion at 250 gm. a.i. per hectare phospha midon (Dimeero 100%) solun at 100 ml., per hectare or Dimothocate (Regor at 312 ml. per hectare.)
8.	Paddy leaf hoppers and Jaosids	Cause-weakening of crop by desapping in colonies	Dust B.H.C.
9.	Paddy leaf roller Gnaphalocrocies medainalis G	Catterpillar folds leaves and feeds on green matter. Attacked fields show white patches.	Dust B.H.C. or spray D.D.T. at doses given above

TABLE 13.10

List of Raingauge Stations in Kerala

Trivandrum

1. Ponmudi
2. Varkala
3. Attingal
4. Nedumangad
5. Trivandrum (b)
6. Neyyattinkara
7. Parassala
8. Trivandrum (Aerodrame)
9. Vellayani (A.N.)

Quilon

1. Kottarakkara
2. Punalur
3. Karunagappally
4. Ariankavu
5. Quilon
6. Paravur
7. Kulathupuzha
8. Nilamel

Pathanamthitta

1. Konni
2. Adur
3. Thiruvalla
4. Pathanamthitta

Alleppey

1. Arukutty
2. Sherthalai
3. Alleppey (b)
4. Ambalapuzha
5. Chengannur
6. Haripad
7. Mavelikkara
8. Kayamkulam

Kottayam

1. Vaikom
2. Palai
3. Ettumanoor
4. Kanjirappally
5. Kottayam
6. Changanacherry
7. Kottayam (Agromet)
8. Kumarakom

Idukki

1. Chinnar
2. Marayur
3. Munnar
4. Devicolam
5. Kumily
6. Peermade (Taluk)
7. Peermade (residency)
8. Vandanmedu
9. Velur
10. Karikode (Thodupuzha)

Ernakulam

1. Malayattur
2. Parur
3. Perumbavoor
4. Alwaye
5. Neriyamangalam
6. Muvattupuzha
7. Cochin (b)
8. Ernakulam
9. Piravom

Trichur

1. Crangannore
2. Mukundapuram
3. Trichur
4. Thalapilly
5. Ollukkara
6. Peechi
7. Chalakudy
8. Potta
9. Muttathur
10. Thumburmoozhi

Palghat

1. Alathur
2. Palghat
3. Parali
4. Ottappalam
5. Cherplasserry
6. Mannarghat
7. Chittur
8. Pattambi

Malappuram

1. Perinthalmanna
2. Ponnani
3. Manjeri
4. Nilambur
5. Thirurangadi

Kozhikode

1. Kozhikode
2. Quilandy
3. Badagara
4. Muthanga
5. Kuppady
6. Kuttiyadi (Dam)
7. Kuttiyadi (P.H.)

Wynad

1. Vythiri
2. Manantoddy
3. Peria
4. Chedloth

Cannanore

1. Thaliparamba
2. Cannanore
3. Tellicherry
4. Irikkur
5. Payyannur
6. Mahe

Kasargode

1. Hosdurg
2. Kasargode
3. Kasargode (Agromet)

13.11 Glossary of English, Malayalam and botanical names of crops

Sl. No.	*English name*	*Malayalam name*	*Botanical name*
(1)	(2)	(3)	(4)
		Cereals	
1.	Paddy	Nellu	Oryza Sativa
2.	Ragi	Koovaraku	Eleusine Coracana
3.	Jowar	Cholam	Sorghum Valgare
4.	Bajra	Kambu	Ponnistum Typhodem
5.	Kodamillet	Varagu	Paspalum Scrobiculatum
6.	Chama	Chama	Panicum Miliare
7.	Wheat	Gothambu	Triticum Vulgare
8.	Barley	Barley	Hordeum Vulgare
9.	Maize	Mokke Cholam	Zea mays
		Pulses	
1.	Blackgram	Uzhunnu	Phaseolus mungo
2.	Greengram	Cherupayar	Phaseolus Aureus
3.	Horsegram	Muthira	Dolichos Biflorus
4.	Redgram	Thuvara	Cajanus Cajan
5.	Cowpea	Perumpayar	Vigna Sinensis
		Sugar	
1.	Sugarcane	Karimbu	Sacharum Officinarum
2.	Palmyrah	Karimpana	Borassus flabellifar
		Condiments and Spices	
1.	Chilly	Mulagu	Capsium Sapp
2.	Turmeric	Manjal	Cureuma lenga
3.	Cardamom	Elom	Elatteria cardamom
4.	Coriander	Kothamalli	Coriandrum Sativum
5.	Mustard	Kadugu	Brassica spp
6.	Pepper	Kurumulagu	Pipper Nigrum
7.	Cumin	Jeerakam	Ciminumoymium
8.	Garlic	Veluthully	Allium Sativum
9.	Long pepper	Thippilli	Piperlongum
10.	Ginger	Inchi	Zingiber officinale
11.	Nutmeg	Jathi	Myristica Fragrans
12.	Cinnamom	Karukappatta	Cinnamomum Zoylanica
13.	Clove	Grampu	Eugnnia Caryophyllate
14.	Cinchona	Cinchona	Cinchona Officinalis
15.	Arecanut	Adacka	Areca Catechu

Sl. No.	English name	Malayalam name	Botanical name
(1)	(2)	(3)	(4)
		Fruits	
1.	Banana	Vazha	Musa Paradisiaca
2.	Plantain	Vazha	Mussepientium
3.	Bread fruit	Seemaplavu	Artocarpusincisa
4.	Bullocks heart	Malamumthiri	Anonarecticulate
5.	Cashew	Kasumavu	Anacardium Occidentale
6.	Grape vine	Munthiri	Vitis Vinifere
7.	Custard apple	Seetha Pazham	Anona Squamosa
8.	Guava	Pera	Psidium Guajava
9.	Jujube	Elantha	Aiz rphus jujuba
10.	Jack fruit	Plavu	Artocarpus Integrifalia
11.	Lemon	Naranga	Citrus Lemon
12.	Lime	Naranga	Citrus Auranitfollia
13.	Mango	Mavu	Mangifer Indica lia
14.	Papaya	Pappaka	Carica Pappaya
15.	Pineapple	Kaithachakka	Ananas sativa
16.	Pomegranate	Mathalam	Punica Crantaum
17.	Sapota	Sapota	Achras Achras Sapota
18.	Pomello	Bamplimas	Citrus Mahima
19.	Orange	Orange	Citrus retaulate
20.	Mangosteen	Mangosteen	Garcimia mangesteens
		Vegetables	
1.	Tapioca	Maracheeni	Manihot Utilissima
2.	Elephantear	Chembu	Celocasiantiquorum
3.	Elephantfoot	Chena	Amorphophallus
4.	Potato	Urulakizhangu	Solanumtuberosum
5.	Sweet potato	Cheenikizhangu	Impomoca batatas
6.	Radish	Mullangi	Raphanus sativus
7.	Yam	Kachil	Dioscarea Spp
8.	Turnip	Seema Mullangi	Brassica Campsstria
9.	Carrot	Carrot	Daucus Carrot
10.	Bed Pumpkin	Vellarimathan	Gucurbita Maxime
11.	Brinjal	Vazhuthana	Solanum Malengena
12.	Tomato	Thakkali	Lydcoperseum esculentum
13.	Amaranthus	Cheera	Amaranthus Spp
14.	Lady's finger	Venda	Abelmoschus esaulenlus
15.	Bitter gourd	Pavakka	Mamordica Charantia
16.	Bottle gourd	Churakka	Lagenaria Siceraria
17.	Snake gourd	Padvalanga	Trichosanthese angunia
18.	Ridge gourd	Peechanga	Luffaacutangulata.