GOVERNMENT OF KERALA

SEASON AND CROP REPORT OF KERALA STATE 1983.84

DEPARTMENT OF
ECONOMICS & STATISTICS
TRIVANDRUM
JUNE 1986

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PREFACE

This is the 25th of the series of season and crop reports relating to Kerala State. It deals with the different aspects of agricultural economy of the State relating to the year 1983-84. The data relating to land use, area under crops, and production of crops are based on the results of the sample Survey conducted under EARAS in 20 percent of the villages of the State during the year.

This report was prepared by Sri T. V. Issac, Research Officer of the Agricultural Statistics division under the immediate supervision of Smt J. Padmam, Assistant Director on the overall guidance of Sri K. Achuthan, Joint Director.

I hope the report will give a comprehensive 'picture of the state of agriculture in Kerala during the year. I also hope that this report will be of much use to planners and research scholars.

N. GEORGE JOHN,
Director.

Trivandrum
June 1986.

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SEASON AND CROP REPORT OF KERALA STATE

1983-84

1.1. Introduction

Kerala 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 longitudes. It is elongated in shape with western ghats in the east and the Arabian sea in the west as its natural boundaries. Its coastal line extends upto a distance of 580 Kms. 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 1.18% of the total area of Indian Union.

The physical configuration of the State is a diversified one. From the forest clad western ghats the land mass undulates to the golden shores of the Arabian sea, presenting a seris of evergreen hills and valleys. Numerous rivers and streams flow west-wards from the western ghats criss-crossing the hills and valleys untill they empty into the Arabian sea. The land on the west-coast is more or less flat and is adorned by lakes, lagoons and internationally renowned beach Kovalm,. Due to these diverse characteristics of the land and consequent plant growth, the State is classified into three distinct regions viz. the high land, the mid-land and the low-land. The high land region comprises an area of 18,653 sq.km. which lies 250, above mean sealevel. The midland region lies between 25' and 250' above mean sea level with an area of 16231 sq. km. The low land region lies below 25' MSL on the west coast and extends over an area of 3,979 sq. km.

The high land region grows a variety of trees like sandal wood, teak, rose wood, mahogani etc. Numerous other varieties of hard and soft woods also grow abundantly in this area. Most of the reserve forests of the State are located here. The highest peak in the western ghats viz. Anamala is situated on the border of the State. The Periyar lake from which the river Periyar originates is also located in this region. The rainfall is very high in this region compared to other regions. As such it is highly suitable for the cultivation of plantation crops like tea, coffee, rubber and cardamom.

The mid-land region is known for its diverse crops. While paddy is grown in the valleys, coconut, arecanut, pepper, rubber, tapioca, plantain, etc. are grown in abundance on the slopes of hills.

The low land region is monopolised by coconut and paddy.

Agriculture is the main occupation of the people. Coir making, cashew nut processing and handloom weaving are the traditional industries of the State. Paddy, coconut, arecanut, Pepper, rubber, tapioca and banana are the important crops cultivated. Paddy being a seasonal crop and the main

stapple food of the people of Kerala, is cultivated during the three seasons viz. Autumn (virippu), Winter (mundakan) and Summer (punja). Autumn crop is mainly rianfed and water drawn from natural streams while witner crop depends upon irrigation canals too for water. Summer crop was raised as a single crop originally on water-logged areas or reclaimed lagoon lands by dewatering during summer. Taking advantage of the irrigation facilities more and more land were brought under summer crop. Other important seasonal crops cultivated are plantain/ginger, pulses, sesamum and other tubers. Perennials occupy the pride of place among crops and about 59% of the total cropped area is covered by perennial crops. Besides commercial crops jack and mango are also extensively grown in the State. Multiple cropping of perennials and seasonal crops in the dry land is the general pattern of cultivation prevalent in the State.

The State is blessed with a salubrious climate. The climate is of tropical forests with heavy rain, a warm humidity of atmosphere and a fairly uniform temperature. The average temperature varies between 21° cand 33° c. The normal average rain fall is 3000 mm. per annum.

1.2. **Area**

For administrative purposes the State is divided into 14 districts viz. Trivandrum, Quilon, Pathanamthitta, Alleppey, Kottayam, Idukki, Ernakulam, Trichur, Palghat, Malappuram, Kozhikode, Wynad, Cannanore and Kasargode. The total geographical area of the State is 38863 sq.km. This forms only 1.18% of the area of the Indian Union. The district-wise area of the State according to village papers which differs slightly from that of the geographical area of the State as compiled by the Surveyor General of India is given in Table 1.2.1 below:—

TABL 1.2.1.

District-wise distribution of area

Sl. No.	*Distrcit*	*Area oin sq. km.*	*Percentage to total*
1	Trivandrum	2186	5.63
2	Quilon	2518	6.48
3	Pathanamthitta	2688	6.92
4	Alleppey	1361	3.50
5	Kottayam	2195	5.65
6	Idukki	5150	13.25
7	Ernakulam	2353	6.06
8	Trichur	2994	7.71
9	Palghat	4390	11.30
10	Malappuram	3632	9.35

11	Kozhikode	2333	6.00
12	Wynad	2126	5.47
13	Cannanore	4929	12.68
	Kasargode		
	State	38855	100.00

Idukki and Alleppey are the largest and the smallest districts respecitvely.

1.3. Population

The population of the State as per 1981 census was 254.54 lakhs as against 213.47 lakhs during 1971. The density of population during 1981 was 655 as against 549 during 1971. The density of population for the country as a whole during 1981 was only 216. The decadal variation in population in 1981 over 1971 was 19.24%. The district-wise distribution of population and density of population are given in table 1.3.1.

TABLE 1.3.1.

District-wise distribution of population 1981

Sl. No.	*District*	*Population*		*Density of population*
		Total (lakhs	*% to total*	
1	Trivandrum	25.96	10.2	1188
2	Quilon	22.76	8.9	903
3	Pathanamthitta	11.59	4.5	431
4	Alleppey	17.29	6.8	1270
5	Kottayam	16.97	6.7	773
6	Idukki	9.72	3.8	189
7	Ernakulam	25.35	10.0	1077
8	Trichur	24.40	9.5	815
9	Palghat	20.44	8.0	466
10	Malappuram	24.03	9.4	622
11	Kozhikode	22.45	8.8	962
12	Wynad	5.54	2.2	261
13	Cannanore	19.31	7.5	565
14	Kasargode	8.73	3.4	
	State	254.54	100.00	655

1.4. Climate and rainfall

The climate of the State is influenced by the South-west (from June to August) and Nort east (October-December) monsoons. Under the influence of these winds wide spread rain occur in Kerala throughout the year except for a few broken periods of dry spell. About two thirds of the total rainfall is received from the south-west monsoon alone. The average normal rainfall in the State is 3017.6 mm. within a range of 2001.6 mm. and 3796 mm. A notable feature of the distribution of rainfall is that it progreassively increases from south to north and from west to east. The normal and actual rainfall for the years 1982-83 and 1983-84 are furnished in table 1.4.1 below:—

TABLE 1.4.1.

District-wise normal and actual rainfall 1982-83 & 1983-84 (in mm.)

District	*Normal rainfall*	*Actual rainfall*		*% change in 1983-84 over 1982-83*
		1982-83	1983-84	
Trivandrum	2001.6	558.5	1046.7	87.4
Quilon	2760.2	2634.1	2196.3*	—16.7
Pathanamthitta		NSA	2961.9	..
Alleppey	3012.0	2423.2	3180.9	31.2
Kottayam	3462.6	2204.5	2932.8	33.0
Idukki	2898.8	2400.5	2347.2	—2.3
Ernakulam	3548.5	2225.2	4067.6	82.7
Trichur	3177.4	2456.2	3486.2	41.9
Palghat	2397.7	2576.2	2870.1	11.4
Malappuram	2900.1	N.A.	1009.4**	..
Kozhikode	3796.0	2127.1	3773.1	77.3
Wynad		NAS	3272.4	..
Cannanore	3437.9	2746.5	4519.2	64.5
State	3017.6	2293.7	3060.2	1.4

* Not reported for November.
** Incomplete—rainfall from July to February have not been reported.

The total rainfall during the year was above normal for the State as a whole. However in some districts the total rainfall was below normal. In the districts of Ernakulam and Cannanore, total rinfall was far above the normal rainfall.

1.5. Soil

The different types of soil found in the state are classified as follows:

(1) the hilly and forest soil seen all along the eastern part of the State.

(2) Sandy soil seen in the coastal belt

(3) The laterite soil seen in the mid land

(4) The black soil occuring in patches in the eastern border of Palghat District.

(5) The peat or kari soil seen in Alleppey.

(6) The alluvial soil seen along the southern and eastren parts of Vembanad lake and in small patches in Trivandrum District.

(7) The red soil found on the eastern tip of Trivandrum District.

1.6. Communication

The State has got a fairly developed infrastructure of communication The road system interlinks the various district headquarters within the State as well as the border districts of the neighbouring states. But more development in this respect is needed in respect of the high land region of the State. Hence the absence of a ghat high way is keenly felt. The rail system in the State is not so well developed. The both ends of the State from South to North is connected by a B. G. line. But the section from Shoranur to Palghat is more important as it serves as the link line connecting the State by rail with major cities of the country. The section between Cochin-Shoranur-Palghat has been double lined and became operative recently. At present Trivandrum is connected with Madras, Bangalore, Bombay, Ahemadabad, Delhi, Jammu-Thavi and Guwahat (via.) Calcutta by direct trains. The introduction of these trains have eased the inter-state movement of passengers of this State.

The back waters and the interlinking canals do provide ample scope for the development of a cheap inland water transport system.

There is a major port at Cochin, three intermediate ports and eight other minor ports in the State. Coastal traffic facilities by sea are also available for the State.

At present there are two aerodromes one at Trivandrum and the other at Cochin. A third one is under construction at Calicut. International Flights to Gulf Countries, Male and Colombo are being operated from Trivandrum at present. Domestic flights to Madras, Bangalore, Bombay and Delhi are being operated from these airports. Domestic flights within the State be improved only on completion of the Calicut airport.

Postal facilities are below all India average though the State was ahead of other states in this respect a few years ago. Telephone facilities are comparably better in Kerala.

1.7.0. Land Utilisation

The land use particulars are estimated on the basis of data collected through the survey under EARAS Scheme. In 1983-84 the survey covered 270 villages with a 20% sample size. The districts of Quilon and Alleppey have been re-organised into three districts viz. Quilon, Pathanamthitta and Alleppey. Hence comparison of data over the period has become difficult in respect of these districts.

The land utilization particulars of the State for the year 1983-84 are furnished in table 2.1 and 3.4 of the detailed tables.

The District-wise area under important land uses are disoussed in the following paragraphs

1.7.1. Forests

The district-wise distribution of forests are given in table 1.7.1.1.

TABLE 1.7.1.1

District-wise distribution of forests—1983-84

District	*Area under forests*	*% to total*	*% to total geographical area*
Trivandrum	49861	4.61	22.78
Quilon	81438	7.53	32.34
Pathanamthitta	155214	14.35	57.75
Alleppey	..	..	..
Kottayam	8141	0.75	3.70
Idukki	260967	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 total area under the forests in the State is 10815 Sq. km. which formed 27.8% of the total geographical area of the State. It is above the national average but well below the 33% level required for the maintenance of ecological balance as advocated by ecologists.

The area under forests is highest in Idukki District with 2609 Sq. km. or 24% of the total area under forests. The percentage of forests to the total area of the district is highest in the newly formed Pathanamthitta district. In Alleppey district there is no forest at all.

1.7.2. Land put to non-Agricultural uses

The area under non-agricultural uses during the year 1983-84 was estimated at 277719 hectares as against 275908 hectare. during the previous year. This is roughly 7% of the total area of the State. The district-wise distribution of area under non-agricultural uses during the year is given in table 1.7.2.1 below:

TABLE 1.7.2.1

District-wise distribution of area under non-agricultural uses-1983-84

District	*Area under non-agricultural uses (hectares)*	*% to total*	*% to geographical area*
Trivandrum	17277	6.22	7.90
Quilon	20696	7.45	8.22
Pathanamthitta	8395	3.02	3.12
Alleppey	26148	9.42	19.22
Kottayam	19752	7.11	9.00
Idukki	15566	5.61	3.02
Ernakulam	34222	12.32	14.54
Trichur	22026	7.93	7.36
Palghat	32100	11.56	7.31
Malappuram	18974	6.83	5.22
Kozhikode	18437	6.64	7.90
Wynad	5270	1.90	2.48
Cannanore	38856	13.99	7.88
State	277719	100.00	7.15

From the above table it can be seen that the percentage of area under non-agricultural uses to the total area under this category was highest in cannanore District. But the percentage of area put to non-agricultural uses to total area of the district was highest in Alleppey district followed by Ernakulam district. In the districts of Wynad, Malappuram, Idukki and Pathanamthitta this percentage is less than the State average.

1.7.3. Barren and uncultivable land:

The area under barren and uncultivable land was estimated at 86590 hectares duing 1983-84 as against 86217 hectares during the previous year. This works out to 2.23% of the total geogrphical are a of the State. The district-wise distribution of area under this category is furnished in table 1.7.3.1.

TABLE 1.7.3.1.

District-wise distribution of area under barren and uncultivablel and 1983-84

District	*Area under barren and uncultiable land (hectares)*	*% to total*
Trivandrum	2255	2.60
Quilon	1069	1.24
Pathanamthitta	926	1.07
Alleppey	576	0.67
Kottayam	2175	2.51
Idukki	17442	20.14
Ernakulam	2649	3.06
Trichur	2457	2.84
Palghat	13959	16.12
Malappuram	7706	8.90
Kozhikode	2412	2.79
Wynad	2688	3.10
Cannanore	30276	34.96
State	86590	100.00

From the above table it may be seen that about 35% of the total area of land under this category was in Cannanore district. The three districts of Cannanore, Palghat and Idukki account for about 71% of the total area under this category.

1.7.4. Permanent pastures and grazing lands

The area earmarked as permanent pastures and other grazing lands was estimated at 5222 hectares during 1983-84 as against 5311 hectares during the previous year. About 42% of the total area was in Idukki district alone and together with Cannanore it works out to 73% of the total area under this category.

1.7.5. Land under miscellaneous trees crops

The land under miscellaneous tree crops for the year 1983-84 was estimated at 54701 hectares as against 54705 hectares during the previous year. Out of this about 29% was in Idukki district and 27% in Cannanore district.

1.7.6. Cultivable Waste land

The area under cultivable waste land was estimated at 128924 hectares as against 130213 hectares during the previous year. This forms about 3.3% of the geographical area of the State. The District-wise break up of the data is given in table 1.7.6.1.

TABLE 1.7.6.1.

District-wise distribution of area under cultivable waste land 1983-84

District	*Area under cultitable waste land (hectares)*	*% to total*
(1)	(2)	(3)
Trivandrum	2154	1.67
Quilon	867	0.67
Pathanamthitta	532	0.41
Alleppey	1900	1.47
Kottayam	1739	1.35
Idukki	38776	30.08
Ernakulam	5010	3.89
Trichur	5452	4.23
Palghat	24145	18.73
Malappuram	14134	10.96
Kozhikode	3717	2.88
Wynad	5455	4.23
Cannanore	25043	19.43
State	128924	100.00

From the above table it can be seen that about 30% of the total area under this category was in Idukki district alone. The Districts of Idukki, Cannanore, Palghat and Malappuram which have more than 10% each of area under this category together commanded about 70% of the total area under cultivable waste land.

1.7.7. Fallow other than current fallow

The area under fallow other than current fallow during the year 1983-84 was estimated at 27539 hectares as against 27425 hectares during the previous year. This type of land forms only 0.7% of the total geographical area of the State.

1.7.8. Current fallow

The area under current fallow during the year 1983-84 was estimated at 42938 hectares which forms only 1% of the total geographical area of the State. The area under this category during the previous drought hit year was 44555 hectares. The district-wise distribution of area under this category is shown in table 1.7.8.1. below.

TABLE 1.7.8.1

District-wise distribution of area under current fallow-1983-84

District	*Area under current fallow (hectares)*	*% to total*
Trivandrum	1311	3.05
Quilon	1117	2.60
Pathanamthitta	935	2.18
Alleppey	1958	4.56
Kottayam	2900	6.75
Idukki	1794	4.18
Ernakulam	3563	8.30
Trichur	4660	10.85
Palghat	6015	14.01
Malappuram	9066	21.11
Kozhikode	2480	5.78
Wynad	1489	3.47
Cannanore	5650	13.16
State	42938	100.00

The area under current fallow was highest in Malappuram District and the lowest was in Pathanamthitta District. About 59% of the total area under this catregory was spread over the Distritcts of Malappuram, Cannanore, Palghat and Trichur.

1.7.9 Net area sown:

The estimates of net area sown was 2180355 hectares during the year 1983-84 as against 2179754 hectares during the previous year. The net area sown dring 1983-84 works out to 56% f the geographical area of the State. The district-wise distribution of area under this category is shown shown in table 1.7.9.1.

TABLE 1.7.9.1

District-wise distribution of net area sown 1983-84

District	*Net area sown (hectares)*	*% to total*	*% to are of the district*
Trivandrum	143769	6.59	65.77
Quilon	145457	6.67	57.76
Pathanamthitta	102037	4.68	37.97
Alleppey	104274	4.78	76.64
Kottayam	182250	8.36	83.01
Idukki	161356	7.40	31.33
Ernakulam	177482	8.14	75.42
Trichur	156606	7.18	52.31
Palghat	214449	9.84	48.85
Malappuram	201807	9.25	55.56
Kozhikode	159377	7.31	68.31
Wynad	113052	5.19	53.19
Cannanore	318439	14.61	64.60
State	2180355	100.00	56.12

The net area sown was highest in Cannanore Distric and the same was lowest in Pathanamthitta District. But the percentage of net area sown to total geographical area of the District was highest in Kottayam District with 83% and it was lowest in Pathanamthitta District with only 38%. The districts of Pathanamthitta, Idukki, Trichur, Palghat, Malappuram and Wynad have this percentage less than the average for the State as a whole.

1.7.10. Area sown more than once

The area sown more than once in the state is estimated at 681347 hectares during the year 1983-84 as against 682319 hectares during the previous year. This shows a slight decline in area sown more than once. The district-wise distribution of area sown more than once is given in table 1.7.10.1 below:

TABLE 1.7.10.1

District-wise distribution of area sown more than once 1983-84

District	*Area sown more once*	*% to total*
Trivandrum	79292	11.64
Quilon	93208	13.68
Pathanamthitta	4970	0.73
Alleppey	64053	9.40
Kottayam	55988	8.22
Idukki	11493	1.69
Ernakulam	67960	9.97
Trichur	70558	10.36
Palghat	105422	15.47
Malappuram	46120	6.76
Kozhikode	42771	6.28
Wynad	20751	3.05
Cannanore	18761	2.75
State	681347	100.00

The area sown more than once was highest in Palghat District followed by Quilon, Trivandrum and Trichur. The area sown more than once was lowest in Pathanamthitta district with only 0.7% of the total area sown more than once.

1.7.11 Total cropped area.

The total cropped area is the sum of net are sown and the area sown more than once. The total cropped area of the state for the year 1983-84 was estimated at 28.6 lakhs hectares. There was no significant variation in the total cropped area over the previous year. The district-wise distribution of total cropped area is given in table 1-7-11-1 below.

TABLE 1.7.11.1

District-wise distribution of total cropped area 1983-84

District	*Total cropped area (hectares)*	*% to total*	*% to net area sown*
Trivndrum	223061	7.79	155
Quilon	238665	8.34	164
Pathanmathitta	107007	3.74	105
Alleppey	168327	5.88	161
Kottayam	238238	8.33	131
Idukki	172849	6.04	107
Ernakulam	245442	8.58	138
Trichur	227164	7.94	145
Palghat	319871	11.18	149
Malappuram	247927	8.66	123
Kozhikode	202148	7.06	127
Wynad	133803	4.68	118
Cannanre	337200	11.78	106
State	2861702	100.00	131

The total cropped area was highest in Cannanore Distrcit followed by Palghat District. But the percentage of total cropped area to net area sown or the intensity of croppingwas highest in Quilon District followed by Alleppey District and the same was least in Pathanamthitta District. Intensity of cropping in the Districts of Pathanamthitta, Cannanore, Idukki, Wynad, Malappauram and Kozhikode was less than the state average.

1.7.12. Area under seasonal, annual and percnnial crops.

Out of the total cropped area of 28.6 lakh hectares during 1983-84 about 39% of the area was covereo by seasonal crops as against 59% by perennial crops. while only 2% of the area was covered by annual crops. The area under perennial crops is on the increase for the last few years while the area under the seasonal crops was going down year after year. The district-wise

distribution of area under seasonal crops, annual crops and perennial crops for 1983-84 are given in table 1.7.12.1 below:

TABLE 1.7.12.1

District-wise distribution of area under seasonal, annual and perennial crops (hectares)—1983-84

District	*Seasonal crops*		*Annual crops*		*Perennial crops*	
	Area	*% to total*	*Area*	*% to total*	*Area*	*% to total*
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Trivandrum	(39.90) 89009	8.05	(3.07) 6851	9.75	(57.03) 127201	7.54
Quilon	(37.73) 90048	8.15	(1.96) 4672	6.65	(60.31) 143945	8.54
Pathanamthitta	(30.06) 40722	3.68	(3.87) 4141	5.89	(58.07) 62144	3.68
Alleppey	(55.74) 93827	8.49	(2.34) 3934	5.60	(41.92) 70566	4.19
Kottayam	(28.47) 67837	6.14	(2.32) 5524	7.86	(69.21) 164877	9.78
Idukki	(14.75) 25485	2.31	(3.10) 5366	7.63	(82.15) 141998	8.42
Ernakulam	(45.13) 110757	10.02	(2.19) 5369	7.64	(52.68) 129316	7.67
Trichur	(51.61) 117235	10.61	(2.14) 4866	6.92	(46.25) 105063	6.23
Palghat	(66.35) 212218	19.20	(3.96) 12677	18.04	(29.69) 94976	5.63
Malappuram	(41.34) 102499	9.27	(2.25) 5569	7.92	(56.41) 139859	8.30

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Kozhikode	(16.25) 32850	2.97	(1.72) 3469	4.94	(82.03) 165829	9.84
Wynad	(27.79) 37182	3.36	(1.28) 1707	2.43	(70.93) 94914	5.63
Cannanore	(25.42) 85713	7.75	(1.82) 6135	8.73	(72.76) 245352	14.55
State:	1105382 (38.63)	100.00	70280 (2.46)	100.00	1686040 (58.91)	100.00

(The figures in brackets show the Percentage to total cropped area of the District/State)

The area under seasonal crops was highest in Palghat District while it was lowest in Idukki District. In Idukki District about 82% of the total area of the district was covered by perennial crops. In Palghat, Alleppey and Trichur Districts seasonal crops covered more than 50% of the total cropped area. In all other districts perennial crops occupy more than 50% of the gross cropped area. The area under annual crops was highest in Palghat District.

1.8 Area under crops

Intensive multiple cropping of seasonal, annual and perennial crops is the pattern of cultivation in the State. The crops grown in the state may be broadly classified into food and non-food crops. The area under different crops classified into food and non-food crops are given in table 2.3 of summary tables and 3.6 of detailed tables.

A. Food crops

The area under food crops during the year 1983-84 was estimated at 16.9 lakhs hectares as against 17.1 lakh hectares during the previous year. The area under food crops have been on the decline for the past few years though with occasional fluctuations in the trend. The district-wise distribution of area under food crops in 1983-84 is given in table 1.8.A.0

TABLE 1.8.A.0

District-wise distribution of area under food crops 1983-84

District	*Area under food crops (Hecs)*	*% of total*	*% to total cropped area of the district*
Trivandrum	133133	7.88	59.68
Quilon	123045	7.28	51.55
Pathanamthitta	57830	3.42	54.04
Alleppey	110148	6.52	65.44
Kottayam	103559	6.13	43.47
Idukki	98651	5.84	57.07
Ernakulam	145961	8.63	59.47
Trichur	152191	9.00	67.00
Palghat	251939	14.91	78.76
Malappuram	158390	9.37	63.89
Kozhikode	77316	4.57	38.25
Wynad	61362	3.63	45.86
Cannanore	216600	12.82	64.24
State	1690125	100.00	59.06

The area under food crops was highest in Palghat district while the same was lowest in Pathanamthitta District. The percentage of area under food crops to the total cropped area of the district was also the highest in Palghat District. This percentage was lowest in Kozhikode district and was less than 50% in Kottayam and Wynad districts. In addition to these districts, the percentage was less in the districts of Quilon, Idukki and Pathanamthitta than the average for the state as a whole.

The various aspects of the area under important food crops are summarised in the following paragraphs.

(a) *Paddy.*—Paddy is the most important of all the crops cultivated in 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 during the year 1982-83 and 1983-84 is given in table 1.8.A.a, 1 below:

TABLE 1.8.A.-a.1

Season-wise distribution of area under paddy

Season	*Area under paddy (hectares)*	
	1982-83	1983-84
Autumn	3,42,669 (44.0)	3,27,783 (44.3)
Winter	3,52,273 (45.3)	3,24,560 (43.8)
Summer	83,548 (10.7)	87,743 (11.9)
Total	7,78,490 (100.00)	7,40,086 (100.00)

From the above table it can be seen that the area under paddy has decreased by over 4.9% during the year 1983-84 over the previous year and similarly, the area under Autumn and winter crops also decreased considerably. But the summer crop showed an increase in area over the previous year. The decline in the area under paddy during the year 1983-84 was due to the delayed and erratic rainfall conditions like drought during beginning of the Autumn season, excess rainfall and flood during the winter season, and the delayed harvest of the Autumn crop etc.

The district-wise distribution of area under paddy during the year 1983-84 is furnished in table 1.8.A.a.2

TABLE 2.18.A.a.2

District -wise distribution of area under paddy 1983-84

District	*Area under paddy (hectares)*	*% to total*
Trivandrum	27079	3.66
Quilon	39846	5.38
Pathanamthitta	17883	2.42

Alleppey	69201	9.35
Kottayam	34801	4.70
Idukki	8072	1.09
Ernakulam	86732	11.72
Trichur	103391	13.97
Palghat	168034	22.71
Malappuram	74749	10.10
Kozhikode	23155	3.13
Wynad	30571	4.13
Cannanore	56572	7.64
State	740086	100.00

Paddy occupied above 7.4 lakh hectares of area or 26% of the total cropped area of the state. Out of the total area under paddy about 1.68 lakhs hectares were in Palghat district alone. Palghat, Trichur and Ernakulam districts commanded about 48% of the area under this crop during 1983-84. The area under paddy was lowest in Idukki District.

(b) *Other cereals and millets.*—Jowar, ragi and chama are the other important cereals and millets grown in the State. The total area under these crops during the year 1983-84 was estimated at 5613 hectares as against 4825 hectares during the previous year. Palghat district remained as the chief producer of other cereals and millets.

(c) *Pulses.*—The area under pulses during the year 1983-84 was estimated at 30,268 hectares as against 30,085 hectares during the previous year. Palghat is the major pulses growing district of the State.

(d) *Sugarcane.*—The area under sugarcame during the year 1983-84 was estimated at 8084 hectares as against 7814 hectares during the previous year. Palghat, Idukki, Alleppey and Pathanamthitta are the major sugarcane growing districts.

(e) *Pepper.*—Pepper is cultivated extensively throughout the State. But its predominent position in Cannanore District is visible from the fact that about 23% of the total of 1.06 lakh hectares of area under this crop was in this district alone. Kozhikode, Kottayam and Idukki are the other important pepper growing districts of the State.

(f) *Chillies.*—The area under chillies during the year 1983-84 was estimated at 1017 hectares as against 1250 hectares during the pervious

year. One peculiarity of this crop is that it is cultivated only in *Northern Parts of Kerala* on a commerical scale.

(g) *Ginger.*—The area under ginger was estimated at 14883 hectares during the year 1983-84 as against 12662 hectares during the previous year Kottayam district is the major ginger growing district of the state.

(h) *Turmeric.*—Turmeric is cultivated on a limited scale throughout Kerala and Kottayam is the major turmeric growing district of the state. The area under this crop during the year 1983-84 was estimated at 3161 hectares as against 2847 hectares during the previous year.

(i) *Cardamom.*—Cardamom is mainly grown on the slopes of the Western ghats. Idukki district accounts for nearly 83% of the total area under this crop. The area under this crop during the year 1983-84 was estimated at 54,423 hectares as against 54388 hectares during the previous year. Cardamom is not grown in the districts of Ernakulam Trichur and Alleppey.

(j) *Arecanut.*—The area under arecanut was estimated at 59604 hectares as against 60816 hectares during the previous year. Cannanore is the major arecanut growing district of the state.

(k) *Tamarind.*—The area under tamarind during the year 1983-84 was estimated at 11086 hectares as against 10978 hectares during the previous year. Palghat is the major tamarind growing district of the State.

(l) *Mango.*—Mango is grown throughout the state. The area under this crop during the year 1983-84 was estimated at 60201 hectares as against 60205 hectares during the previous year.

(m) *Jack.*—The area under jack during the year 1983-84 was estimated at 58870 hectares as against 59990 hectares during the previous year.

(n) *Banana.*—The area under banana for the year 1983-84 was estimated at 15185 hectares as against 14126 hectares during the previous year. Malappuram is the major banana growing district of the State.

(o) *Other plantain.*—Other plantain is cultivated throught the state. Trivandrum is the major plantain growing district. The area under other plantain was estimated at 34408 hectares during 1983-84 as against 33912 hectares during the previous year.

(p) *Pineapple.*—The area under this fruit crop was estimated at 4703 hectares during 1983-84 as against 4466 hectares during the previous year.

(q) *Cashewnut.*—The area under cashewnut during the year 1983-84 was estimated at 1.42 lakh hectares as against 1.41 lakh hectares during the

previous year. Out of this more than 48% of the area under this crop was in cannanore district alone. Malappuram and Palghat are the other important cashew growing districts of the state.

(r) *Tapioca.*—Tapioca is cultivated in the three seasons of Autumn, Winter and Summer. But the winter crop covered about 64% of the total area under this crop during 1983-84. During the year 1982-83 the area under Autumn crop was higher than the winter crop. The area under tapioca during the year 1983-84 was estimated at 2.33 lakh hectares as against 2.28 lakhs hectares during the previous year. Trivandrum and Quilon are the major tapioca growing districts of the State. Tapioca covers about 8 % of the total cropped area of the State.

Non-food-crops

The area under non-food crops for the year 1983-84 was estimated at 11.7 lakh hectares as against 11.5 lakh hectares during the previous year. The area under non-food-crops was steadily increasing during the last few years at the cost of food crops. Non-food-crops covered about 41% of the gross cropped area during theyear 1983-84. The salient features on area of important non-food-crops are summarised below.

(a) *Groundnut.*—Groundnut is cultivated mostly in Palghat district where the soil is particularly suited for the cultivation of this crop. The area under groundnut during the year 1983-84 was estimated at 9810 hectares as against 10276 hectares during the previous year.

(b) *Sesamum.*—Sesamumis cultivated throughtout the State. Alleppey district dominated the other districts in the cultivation of this crop. The area under this crop during the year 1983-84 is estimated at 15045 hectares as against 14153 hectares during the previous year.

(c) *Coconut.*—Coconut is the most important non-food crop which is extensively cultivated in the state. The area under this crop was estimated at 24% of the total cropped area and 58% of the non-food crops. The area under coconut during the year 1983-84 was estimated at 6.82 lakh hectares as against 6.74 lakh hectares during the previous year. The area under coconut was highest in Kozhikode district and the same was lowest in Wynad district.

(d) *Cotton.*—Palghat is the only cotton growing district in the state and the area under this crop during the year 1983-84 was estimated at 6300 hectares as against 5900 hectares during the previous year and 6777 hectares during 1981-82. This shows a fluctuating trend in the area of this crop over the years.

(e) *Tobacco.*—Tobacco is cultivated only in Cannanore district. The area under this crop was estimated at 552 hectares during the year 1983-84 as against 536 hectares during the previous year and 570 hectares during 1981-82.

(f) *Tea.*—Tea is a plantation crop cultivated mostly on the slopes of the Western ghats. The area under tea during the year 1983-84 was estimated at 35021 hectares as against 35205 hectares during the previous year. Idikki is the chief tea growing district of the state. About 68% of the total area under tea was in this district alone.

(g) *Coffee.*—Coffee is grown all over the state, though high ranges of the western ghats are particularly suited for this crop. Nearly 86% of the total area under this crop was in Wynad district alone. The area under coffee was estimated at 62368 hectares as against 57905 hectares during the previous year

(h) *Rubber.*—Rubber is the most important plantation crop cultivated in the State. The area under rubber was estimated at 2.71 lakh hectares during the year 1983-84 as against 2.56 lakh hectares during 1982-83 and 2.38 lakh hectares in 1981-82. The area under this crop shows an increasing trend over the years. Kottayam is the leading rubber growing district of the state with about 27% of the total area under this crop.

(i) *Cocoa.*—Cocoa is grown intermixed with coconut trees and other crops. Kottayam is the major cocoa growing district of the state. The area under this crop during the year 1983-84 was estimated at 18052 hectares as against 18254 hectares during the previous year.

1.9 **Irrigation**

Irrigation is an essential input for cultivation especially for crops like paddy which requires large quantity of water to grow. Because of the nature of the terrain and heavy rainfall Kerala is belessed with 41 west flowing and 3 east flowing rivers. These rivers provide vast potential for irrigation and power generation. It is estimated that 6 lakh hectares (net) or 14 lakh hectares (gross) could be brought under irrigation. Because of heavy rain fall, flood control was the main concern of the farmers rather than irrigation in the past. Though contruction of irrigation dams are much easier channaling of the impounded waters to needy places is a costly affair because of the undulating nature of the terrain. Consequently construction of irrigation facilities have not taken much headway in Kerala and a vast potential remain untapped. In the five year plans priority was given to power generation schemes which will act as flood control schemes also. With the commissioning of various power generation and irrigation schemes flood control have been achieved to a considerable level. In 1983-84 there were 13 ongoing major irrigation projects and five ongoing medium irrigation projects in Kerala. Out of these the major works at Kuttiady, Chitturpuzha, Pamba, Pazhassi and Periyar valley are almost over. Besides these minor irrigation and flood control projects are also being taken up and implemented. Malampuzha and Neyyar are the major irrigation projects already commissioned and Thennermukkom project is a major flood control project.

The crop-wise and source-wise details of area irrigated during 1982-83 are given in table 2.2.1 and 2.2.2 of the summary tables.

It is estimated that 2.53 lakhs hectares (net) or 3.9 lakh hectares (gross) of area have been brought under irrigation in Kerala by the end of 1982-83. The percentage of net area irrigated to net area sown works out to only 11.83 and the percentage of gross irrigated area to gross cropped area was 9.01. Government canals are the major source of irrigation and irrigated 1.04 lakh hectares or 40.3% of the total area under irrigation. Private tanks and wells come second with an irrigated area of 57 thousand hectares under this source. Paddy, coconut, arecanut and betel leaves are the major crops benefited by irrigation. Nearly 72% of the gross area irrigated was covered by paddy followed by coconut with 17%.

1.10 Weather and Crop conditions

The State receives the benefit of both the south-westand north-east monsoons blowing in the country. But the distribution of the Rainfall may not necessarily be favourable to crops always. Excess rainfall, flood and drought conditions do affect the crops occasionally in varying degrees.

(a) *Trivandrum District*:

The delayed onset of south-west monsoon by one month coupled with the prolonged drought conditions of the previous year have affected the virippu crop of paddy adversely and the sowing operations were delayed by one month. The use of high yielding or long duration seeds were dispensed with and instead short duration local varieties of seeds were preferred by farmers. The transplanting operations for the winter crop was also pushed forward by about one month. Though the climate was favourable for the crop in the initial stages, off season rains at flowering stage adversely affected the yield of winter paddy also. The climate was also not favourable to the summer crop due to drought except in Neyyattinkara taluk where irrigation facilities were available. Yield rate suffered heavily in respect of perennial crops also under the impact of the drought conditions of the previous year. In short the weather conditions were not at all favourable to crops during the year though the total rain fall was much better than that of the previous year.

(b) *Quilon:*

The south-west monsoon arrived late in the district. Consequently agricultural operations were delayed and cultural operations were modified to suit the changed conditions. As a result, yield rate suffered. During the autumn season nearly thousand hectares were kept fallow. The crop in the winter season also fared badly for want of enough rains in the initial stages and heavy off season rains at the flowering stage. Pest attack in parts of Kunnathur and Kottarakara taluks was able to be contained by the timely

use of pesticides. In the summer season rainfall was unexpectedly heavy which though favourable for high growth of paddy resulted in severe pest attack. This factor has adversely affected the productiviy of summer crop also. The yield rate of perennial crops also fared badly under the impact of the drought conditions of the previous year. For jack it was a year of bumper crop.

(c) *Alleppey District*:

The belated arrival of the south-west monsoon delayed the sowing operations. Good rains received during the middle of the season revived the crop and from thereon the climatic conditions were favourable to the crops. Consequently productivity of paddy was higher than that of the previous year in Karthigappally, Mavelikkara, Chengannur and Ambalapuzha taluks. But this was not the case in respect of Thiruvalla, Kuttand and Sherthalai. In Tiruvalla and Sherthalai due to the delayed onset of monsoon farmers preferred local varieties of seed to high yielding varieties. This has adversely affected productivity of paddy during the autumn season In Kuttanad drought conditions at the sowing stage and off season heavy rains at harvest stage has damaged the crops. But the summer crop was a success in this district due to favourable climatic conditions and timely availability of fertilizers. Consequently yield rate of paddy for the three seasons together was higher than that of the previous year. The productivity of perennial crops has suffered in this district also under the impact of previous year's drought.

(d) *Pathanamthitta District:*

South-west monsoon arrived late and this pushed forward the main crop seasons by one month. But when the sowing operations for the autumn crop was over climatic cnditions were favourable to crops in Pathanamthitta Taluk unlike other parts of the District. Winter crop was not a success due to off season rains at harvest stage. The productivity of perennial crops except jack suffered under the impact of previous year's drought.

(e) *Kottayam*:

Due to the belated arrival of south-west monsoon agricultural operations in this district also was delayed and there was reduction of area under paddy during the year. But when the sowing operations were over the climatic conditions were favourable to crops during the Autumn season. No natural calamities like flood or pest attack was reported during the season. But during winter season there was crop losses due to drought and salinity in the field in the western parts of the district. The summer crop also was not a success this time. Cansequently yield rate of paddy has decreased and in respect of perennial crops it declined sharply under the impact of the drought conditions of the previous year.

(f) *Idukki*:

The onset of south-west monsoon was delayed in this district also. Sowing and planting operations were delayed by one month and short duration local variety of seeds were used in preference to high yielding variety of paddy in Thodupuzha Taluk. Besides drought, cyclone also affected the crop adversely in certain parts of the district. The winter crop was also delayed due to the late harvest of Autumn crop. Though the climate was favourable in the initial stages off season heavy rains at flowering stage has affected the yield rate adversely. The productivity of perennical crops also declined under the impact of the drought conditions of the previous year.

(g) *Ernakulam*:

The south-west monsoon arrived late in this district and consequently sowing operations were delayed by one month. Due to the prolonged dry spell of the previous year salinity has seriously affected the Autumn crop in the coastal villages. The winter crop of paddy was also not a success in most parts of the district due to off-season heavy rains at flowering stage. Perennial crops also fared badly during the year under the impact of the drought condition of the previous year. Though total rainfall was far above the normal its distribution was not favourable to seasonal crops.

(h) *Trichur*:

The belated onset of south-west monsoon has pushed forward the agricultural operations by one month in this district. Consequently autumn crop of paddy was not a success in Trichur and Thalappilly taluks. Flood brought havoc to about 700 hectares of crop resulting in a loss of about 31.8 lakh rupees in some parts of the district. But during winter season the climate was favourable to the crops except in Kodungalloor taluk where drought affected about 125 hectares of paddy resulting in a loss of about Rs. 30000/-. There was also pest attack in Mukundapuram taluk due to excess rainfall. The summer cropwas satisfactory during the year. On the whole the productivity of paddy in this district was higher than that of the previous year.

(i) *Palghat*:

Agricultural operations in this district was delayed by one month due to the belated arrival of south-west monsoon. But once it began to rain there was no cause for anxiety to farmers. Still then some farmers hesitated to use hybrid varieties of seeds and instead they opted for local varieties expecting scarcity of water in the course of the crop. The crop as a whole was a good one. During the winter season transplanting which has already been delayed owing to the late harvest of the autumn crops was further pushed forward due to excess rainfall. Consequently weeding operations could not be done in certain parts of the district. In addition to

this wide spread pest attack lowered the productivity of winter crop. Due to drought conditions summer crop in the district was also not a succes. Perennial crops aiso fared badly under the impact of the drought conditions of the previous year.

(j) *Malappuram*:

The starting of agricultural operations for the autumn crop of paddy was delayed due to the belated arrival of south-west monsoon in the district. Otherwise the climate was faavourable to crops. Though the winter and summer seasons were favourable to crops, productivity did not rise due to increased adoption of local varieties of paddy in preference to hybrid varieties which require more water, manuring and plant protection measures. Consequently yield rate was around the pevious year's average. The productivity of perennial crops fell sharply during the year under the impact of previous year's drought conditions..

(k) *Kozhikode*:

The delayed onset of south-west monsoon has delayed agricultural operations by about one month. Weeding and manuring operations were not undertaken in some parts of the district. There were crop losses due to pest attack also in some parts of the district. The winter season was comparably better for paddy. Still off season rains and pest attack adversely affected productivity. The climate was also not favourable to the summer crop in most parts of the district. On the whole productivity fell sharply compared to that of the previous year. Perennial crops also fared badly on account of the previous year's drought conditions.

(l) *Wynad district*:

Though the monsoon arrived late its distribution was favourable to the long duration winter crops when it began to rain. But the crop was adversely affected by off season rains at the flowering stage. However, the productvity was better than that of the drought affected previous year. The productivity of perennial crops was not good in this district also during the year under review.

(m) *Cannanore district*:

The district experienced belated arrival of south-west monsooon. Con sequently agricultural operations in the Autumn season was delayed by about one month. But once it began to rain its distribution was near favourable to crops. But during the winter season off-season and excess rain fall has caused wide spread pest attack and consequent reduction in productivity. The summer crop was near normal in this district. Inspite of this productivity of paddy was less than that of the previous year. Productivity stood reduced substantially in respect of perennial crops also under the impact of previous year's drought conditions.

In general though the rain fall was higher than last year's total as well as of normal rain fall its distribution was not favourable to paddy. The year started with belated arrival of the south-west monsoon by one month. Consequently the three crop seasons were pushed forward by about one month. Many farmers opted for local varieties of paddy in preference to high yielding varieties. Many of them abandoned weeding as well as manuring operations during Autumn season, while it was drought which adversely affected the Autumn cop it was excess rainfall that affected the winter crop. Excess rain fall created pests and off season rain at flowring stage made more chaff. Conseuquently productivity on the whole was less than the worst drought affected previous year. Under the impact of previous year's drought conditions productivity in respect of most perennial crops fell sharply during the year. Because of these adverse causes the economic condition of the farmers were worse than that of the previous year.

1.11 **Production of important crops**:

The details of proudction of important crops in the State are given in table 2.4 summary tables and 3.8 of the detailed tables. The salient features of production of important crops are discussed below:

(1) *Rice*:

(1) *Rice.*—The total rice production during the year 1983-84 was estimated at 12.08 lakh tonnes as against 13.06 lakh tonnes during 1982-83 and 13.39 lakh tonnes during 1981-82. This shows a decreasing trend in the production of rice over the years. The district-wise details of production of rice during the year 1983-84 are given in table 1.11.1 below:

TABLE 1.11.1

District-wise distribution of production of rice 1983-84

District	*Production (Tonnes*	*% to total*	*Yield per hectare (Kg.*
Trivandrum	36462	3.02	1346
Quilon	58035	4.81	1456
Pathanamthitta	30741	2.54	1719
Alleppey	133758	11.07	1933
Kottayam	70027	5.80	2012
Idukki	13863	1.15	1717
Ernakulam	119054	9.86	1373
Trichur	155121	12.84	1500
Palghat	339365	28.10	2020
Malappuram	93291	7.72	1248
Kozhikode	21853	1.81	944
Wynad	61755	5.11	2020
Cannanore	74591	6.17	1319
State	1207917	1000.00	1632

From the above table it may be seen that Palghat is the chief rice producing district and accounts for 28% of the total rice production in the State. Trichur and Alleppey are the other major rice producing districts of the State. The yield per hectare was highest in Palghat and Wynad districts with 2020 Kg. per hectare and it was lowest in Kozhikode district with only 944 Kg./ hectare as against a State average of 1632 Kg./hectare. The yield per hecatre was less than the State average in the districts of Trivandrum, Quilon, Ernakulam, Trichur, Malappuram and Cannanore.

Since paddy is a seasonal crop it would be interesting to have season-wise details of production and yield per hectare. These details are given for the years 1982-83 and 1983-84 in Table 1.11.1.2 below.

TABLE 1.11-1 2

Season-wise distribution of rice 1982-83 and 1983-84

Season	*Productio n of rice*		*Yield per hectare/Kg.*	
			Tonnes	
	1982-83	1983-84	1982-83	1983-84
Autumn	578828 (44.31)	520458 (43.09)	1689	1588
Winter	565704 (43.31)	520622 (43.10)	1606	1604
Summer	161665 (12.38)	166836 (13.81)	1935	1901
State	1306197 (100.00)	1207916 (100.00)	1678	1632

From the above table it may be seen that the production of rice during Autumn and Winter seasons during the year 1983-84 showed a decreasing trend. The production of rice during summer of 1983-84 registered an increasing trend over the previous year eventhough yield rate has gone down. The reason for this was that more areas have been brought under plough during this year over that of the previous year. But during the main crop seasons of autumn and winter 1983-84 both area under paddy and yield rates were less than those of the previous year. The yield per hectare of paddy was highest in respect of summer crop of paddy for the years 1983-84 and 1982-83.

(ii)*Pulses.*—The estimates of production of pulses for the year 1983-84 stood at 19912 tonnes. Out of this about 28% was produced in Palghat district alone.

(iii) *Sugarcane (Gur).*—The production of gur during the year 1983-84 was estimated at 44630 tonnes as against 43316 tonnes during the previous year. Idukki and Palghat are the major gur producing districts of the State.

(iv) *Black pepper.*—The estimates of production of pepper for the year 1983-84 was 24549 tonnes which shows very little change over the previous year's estimate. Cannanore district accounts for nearly 25% of the total production of black pepper.

(v) *Dry ginger.*—The etimates of production of ginger showed a fluctuating trend as the area under this crop often fluctuated depending upon the price of dry ginger and input costs. The production of dry ginger during the year 1983-84 was estimated at 36705 tonnes as against 31581 tonnes during the previous year.

(vi) *Turmeric (cured).*—The production of cured turmeric has increased from 5192 tonnes in 1982-83 to 5841 tonnes during1983-84. Ernakulam and Kottaym are the two major turmeric producing districts of the State.

(vii) *Cardamom (processed).*—The estimates of production of processed cardamom for the year 1983-84 stood at 1963 tonnes as against the previous year's estimate of 1900 tonnes. Idukki district accounted for nearly 83% of the total production of processed cardamom during the year under review.

(viii) *Betel nut.*—The estimated production of betel nut during the year 1983-84 was 8318 million nuts as against 11027 million nuts during the previous year. It shows a sharp decline in the production of betel nuts during the year. Due to the unprecedented drought conditions prevailed during the previous year a large number of arecanut trees were withered away and this has adversely affected the production of nuts during the year under review. Cannanore district leads other districts in the production of betel nut.

(ix) *Banana.*—The production of banana was estimated at 1.78 lakh tonnes during the year 1982-83 as against 1.65 lakh tonnes during the previous yeas. The quantity of banana produced during the year was highest in Malappuram district.

(x) *Other plantain.*—The production of other plantain was estimated at 1.38 lakh tonnes during the year 1983-84 as against 1.24 lakh tonnes during the previous year. The quantity of other plantain produced during the year was highest in Trivandrum district.

(xi) *Cashewnut.*—The production of raw cashew nut during the year 1983-84 was estimated at 77375 tonnes as against 75495 tonnes during the previous year. Cannanore district remains as the major cashewnut producing district of the State.

(xii) *Tapioca.*—The estimated production of tapioca for the year 1983-84 was 39.2 lakh tonnes as against 38.5 lakh tonnes during the previous year. Trivandrum is the major tapioca producing district of the State.

The district-wise distribution of production of tapioca are given in Table 1:11.xii-1.

TABLE 1:11 XII 1

District-wise distribution of production of tapioca

District	*Production of tapioca in lakh tonnes*	*% to total*	*Yield rate tonnes/ hectare*
Trivandrum	9.94	25.33	17.93
Quilon	5.95	15.16	14.30
Pathanamthitta	2.01	5.12	11.25
Alleppey	3.64	9.28	30.63
Kottayam	4.83	12.31	20.98
Idukki	1.68	4.28	16.00
Ernakulam	2.52	6.42	21.25
Trichur	1.04	2.65	17.88
Palghat	1.83	4.66	14.10
Malappuram	2.15	5.48	11.95
Kozhikode	0.40	1.02	11.88
Wynad	0.49	1.25	19.10
Cannanore	2.76	7.04	15.23
State	39.24	100.00	16.84

The production of tapioca during the year 1983-84 was highest in respect of Trivandrum district with 25.33% of the total production. The production and yield per hectare of tapioca was lowest in respec t of Kozhikode district. The average yield per hectare of tapioca was highest in respect of Alleppey district with 30.63 tonnes per hectare. The average yield per hectare was less than the state average in the districts of Quilon, Pathanamthitta, Idukki, Palghat, Malappuram, Kozhikode and Cannanore.

(*xiii*) *Groundnut.*—The production of groundnut during the year 1983-84 was estimated at 8578 tonnes as against 9074 tonnes during the previous year. About 99% of the total groundnut production was in Palghat district alone.

(*xiv*) *Sesamum.*—The production of sesamum during the year 1983-84 wastes imated at 3838 tonnes as against 3648 tonnes during the previous year. The quantity of sesamum produced was the highest in Alleppey district.

(*xv*) *Coconut.*—The production of coconut during the year 1983-84 was estimated at 2602 million nuts as aginst 3184 million nuts during the previous year. The sharp decline in the production during the year may be attributed to the severe drought conditions prevailed during the previous year. The

production of cocoanut was highest in Kozhikode district and was lowest in Wynad district.

(xvi) *Cotton.*—The quantity of cotton produced during the year 1983-84 was estimated at 9969 bales of 170 kg. as against 9336 bales during the previous year. Cotton is a monopoly produce of Palghat district.

(*xvii*) *Tobacco.*—Tobacco is produced only in Cannanore district. Its producrion during the year 1983-84 was estimated at 1016 tonnes as against 987 tonnes during the previous year.

(*xviii*) *Tea.*—The production of tea during the year 1983-84 was estimated at 44214 tonnes as against 45439 tonnes during the previous year. Out of this about 75% was produced in Idukki district alone.

(*xix*) *Coffee.*—The production of coffee during the year 1983-84 was estimated at 9465 tonnes as against 21785 tonnes during the previous year. There was sharp decline in the production of coffee during the year. Wynad district accounted for 73% of the total production of coffee as against 82% during the previous year. The total production of coffee shows a decrease of about 11 thousand tonnes in Wynad district alone.

(*xx*) *Rubber.*—The production of rubber during the year 1983-84 was estimated at 1.62 lakh tonnes as aginst 1.53 lakh tonnes during the previous year. This shows an increase of about 6% over the previous year. The production of rubber was highest in Kottayam district with 27% of the total production of rubber in the State.

(xxi) *Ccoa.*—The oroduction of cocoa during the year 1983-84 was estimated at 3936 tonnes. Out of this about 27% was produced in Kottayam district alone.

1.12. Farm price of certain commodities

The average farm price of certain important agricultural commodities are given in table 2.5 of summary tables and 3.9 of detailed tables.

1.13. Sowing, harvesting and peak marketing Periods

The information on these topics have been furnished in table 2.7 of summary tables.

1.14. Agricultural Wages

District-wise details of agricultural wages classified into skilled and unskilled for the year 1983-84 are furnished in table 3.10 of the detailed tables.

1.32. Live stock, poultry and agricultural implements

The details of livestock, poultry and agricultural implements as available from the quinquennial livestock census 1982 are furnished in table 2.6 of summary tables and 343 of the detailed tables.

PART II

2.1 Classification of area

2.2.1 Source-wise area under irrigation

2.2.2 Crop-wise area under Irrigation

2.3 Area under crops

2.4 Production of important crops

2.5 Average farm prices of certain commodities

2.6 Livestock, Poultry and Agricultural machinery

2.7 Sowing, Harvesting ad Peak marketing seasons.

TABLE 2.1

Classification of area—1983-84

	Classification	*Area*	*Percentage to total*
1.	Total area according to village papers	3885497	100.00
2.	Forests	1081509	27.84
3.	Land put to non-agricultural uses	277719	7.15
4.	Barren and uncultivable lands	86590	2.23
5.	Permanent pastures an d grazing lands	5222	0.13
6.	Land under miscellaneous tree crops	54701	1.41
7.	Cultivable waste land	128924	3.31
8.	Current fallow	27539	0.71
9.	Other fallow	42938	1.11
10.	Net area sown	2180355	56.11
11.	Total cropped area	2861702	73.65
12.	Area sown more than once	681347	17.54

TABLE 2.2.1.

Source-wise area under irrigation (hectares) 1982-83

Source of irrigation	*Area irrigated*		*% to total*	
	1982-83	1983-84	1982-83	1983-84
Government Canals	104321	..	40.3	..
Private Canals	4356	..	1.6	..
Government tanks and wells	5271	..	2.0	..
Private tanks & wells	57048	..	22.1	..
Minor and lift irrigation (Government scheme)	36154	..	14.1	..
Other sources	51594	..	19.9	..
Total	258744	..	100.00	..
Percentage of area irrigated to net area sown	11.8	..	..	..

TABLE 2.2.2.

Crop-wise area under irrigation

Sl. No.	Crops	Year			
		1981-82	%	1982-83	%
1.	Paddy	275145	71.82	280805	71.91
2.	Vegitables	3464	0.90	3876	0.99
3.	Tubers	442	0.12	785	0.20
4.	Coconut	63183	16.49	67147	17.19
5.	Arecanut	14308	3.73	12983	3.32
6.	Cloves, nutmeg & Cinnamon	1005	0.26	833	0.21
7.	Other condiments & spices	999	0.26	1291	0.33
8.	Banana	4868	1.27	5636	1.44
9.	Betel leaves	597	0.16	658	0.17
10.	Sugarcane	945	0.25	906	0.23
11.	Others	18170	4.74	15591	3.99
	Total	383126	100.00	390511	100.00

TABLE 2.3

Area under crops in Kerala 1983-84

Classification of crops	*Name of crop*	*Area in Rect.*
(1)	(2)	(3)
Cereals and millets	1. Paddy	740086
	2. Jowar	1565
	3. Ragi	1367
	4. Other cereals & millets	2681
	5. Total cereals & millets	745699
Pulses	6. Tur	..
	7. Other pulses	..
	8. Total pulses including tur	30268
Sugar crps	9. Sugar cane	8084
	10. Palmirah	12330
	11. Total sugar crops	20414

(1)	(2)	(3)	(4)
Spices & Condiments	12.	Pepper	106143
	13.	Chillies	1017
	14.	Ginger	14883
	15.	Turmeric	3161
	16.	Cardamom	54423
	17.	Arecanut (betelnut)	59604
	18.	Other condiments & spices	4937
	19.	Total condiments & spices	255254
Fresh fruits	20.	Mango	60201
	21.	Jack	58870
	22.	Banana	15185
	23.	Other Plantains	34408
	24.	Pine apple	4703
	25.	Other fruits	22639
Dry fruits	26.	Cashewnut	142339
	27.	Total fruits	338345
Vegetables	28.	Tapioca	233010
	29.	Sweet Potatoes	5085
	30.	Tubers	33033
	31.	Other vegetables	29017
	32.	Total vegetables	300145
Other Food Crops	33.	Tamarind	11086
	34.	Total food crops	1690125
Oil Seeds	35.	Coconut	682281
	36.	Sesamum	15045
	37.	Groundnut	9810
	38.	Other oil seeds	1832
	39.	Total Oil Seeds	708968
Drugs, Fibres, Narcotics & Plantation Crops	40.	Cotton	6300
	41.	Tobacco	552
	42.	Tea	35021
	43.	Coffee	62368
	44.	Cocoa	18052
	45.	Rubber	271200
	46.	Total	387193

Other non-food crops	47.	Fodder grass	2066
	48.	Green manure crops	9401
	49.	Lomongrass	7320
	50.	Betel leaves	1149
	51.	Other non-food crops	49180
	52.	Total	69116
	53.	Total Non-food crops	1171577
	54.	Total area under all crops	2861702
	55.	Area sown more than once	681347
	56.	Net area sown	2180355

TABLE 2.4

Production of important crops—1983-84

Name of crop	*Unit*	*Quality*
Rice	Tonnes	1207916
Jowar	"	661
Ragi	"	1028
Other cereals	"	1829
Pulses	"	19912
Sugarcane (Gur)	"	87062
Pepper (black)	"	24549
Chillies (dry)	"	930
Ginger (dry)	"	36705
Turmeric (cured)	"	5841
Cardamom (processed)	"	1963
Arecanut (betelnut)	Million nuts	8318
Banana	Tonnes	177917
Other plantain	"	138736
Cashewnuts	"	77375
Tapioca (Raw)	"	3923990
Sweet Potatoes	"	33605
Groundnut	"	8578
Sesamum	"	3838
Coconut	Million nuts	2602
Cotton	Bales of 170 kg.	9969
Tobacco	Tonnes	1016
Tea	"	44214
Coffee	"	9465
Rubber	"	162212

TABKE 2.5

Average farm price of certain commodities 1983-84

Sl. No.	*Name of commodity*	*Unit*	*Average farm Price (Rs.)*
1.	Paddy	Qtl.	259.87
2.	Coconut with husk	100	244.93
3.	Arecanut ripe	100	10.78
4.	Tapioca (Raw)	Qtl.	75.80
5.	Cashewnut	,,	781.60
6.	Banana	100	57.72
7.	Pepper (blank)	Qtl.	1684.32
8.	Ginger	,,	2737.53
9.	Sugarcane	M.T.	187.13

TABLE 2.6

NUMBER OF LIVESTOCK, POULTRY & 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 3 years	(a) Breeding:		
			(1) In Milk	705040	864272
			(2) Dry	585474	561476
			(3) Not calved	74794	83483
			(b) Working	2569	..
			(c) Others	3103	3384
			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

(1)	(2)	(3)	(4)	(5)	(6)
		Females over 3 years	(a) Breeding:		
			(1) In Milk	86698	827350
			(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
4.	Sheep		(a) One year and above	..	3610
			(b) Below one year	..	3449
			Total:	2546	7059
5.	Horses & Ponies		(a) 3 years & above	..	46
			(b) Below 3 years	..	26
			Total:	90	72
6.	Mulses			Nil	323
7.	Donekys			266	370

8.	Camels		..	4
9.	Pigs		172375	127147
	Others (Elephant)		..	451
	Total Livestock		5319033	5644530
		Dogs	..	1156438
		Others	..	434677
		Total Livestock inculding dogs and others	5319033	7235696
10.	Poultry	(a) Fowls	12956186	14519039
		(b) Ducks	429569	530354
		(c) Others	3095	34017
11.	Ploughs	(a) Wooden	316975	228566
		(b) Iron (Steel)	69191	47385
12.	Carts		20525	8245
13.	Sugarcane Crushes	(a) Power	459	3925
		(b) Bullocks	863	95
14.	Oil Engines		28759	24476
15.	Electric pumps		25973	74456
16.	Tractors		783	1335

TABLE 2.7

Sowing, harvesting and peak marketing 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.	Greengram	Autumn	June — August	August — September
		Winter	October	November
		Summer	September — October	October — November
7.	Blackgram	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

Sl. No.	Name of Crop	Season	Period of Harvesting	Prak marketing period
(1)	(2)	(3)	(6)	(7)
1.	Rice	Autumn Winter Summer	August — October November — January March — May April — June	September — November December — March March — June April — July
2.	Ragi	I Crop II Crop III Crop	September — November December — January October — November February	September — November December — January October — November
3.	Small millets	Autumn Summer	September — November April	December — January April
4.	Regdram	Autumn Winter Summer	August — October October — January May	August — October December — January June
5.	Horsegram	Autumn Winter Summer	April — June November — January April	May — June November — Februaary April
6.	Greengram	Autumn Winter Summer	August — September November — December November — December	September — December November — December December — January
7.	Blackgram	Winter Summer	June — September November — December	September — October December — January
8.	Other pulses	Autumn Winter Summer	July — October November — February February — June	July — November December — March April

TABLE 2.7—*Contd.*

(1)	(2)	(3)	(4)	(5)
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	
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	Noyember — Decembes	..

(1)	(2)	(3)	(6)			(7)		
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
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

PART III

TABLE 3.1

Normal Rain fall (m.m)

District	*July*	*August*	*September*	*October*	*November*	*December*	*Janeary*
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Trivandrum	257.4	204.5	168.9	280.2	210.2	70.1	21.2
Quilon	449.6	318.1	226.1	344.9	242.9	63.4	24.1
Pathanamthitta							
Alleppey	552.3	370.3	272.7	330.2	219.4	64.1	25.9
Kottayam	657.7	447.5	296.5	383.8	244.7	73.6	28.8
Idukki	655.1	432.9	262.7	304.4	195.8	68.8	31.1
Ernakulam	785.3	518.0	293.9	359.7	212.6	54.2	16.8
Trichur	761.4	458.6	250.3	307.5	158.3	30.3	9.3
Palghat	649.9	363.0	169.5	257.2	140.9	29.7	9.8
Malappuram	787.0	405.0	198.8	290.0	163.8	30.9	6.7
Kozhikode	1117.4	599.2	262.4	290.2	163.7	34.2	10.4
Wynad							
Cannanore	1063.5	584.8	239.4	218.0	106.0	22.8	5.3
State	686.4	422.6	242.0	306.9	190.9	51.2	18.5

District	February	March	April	May	June	Total
(1)	(9)	(10)	(11)	(12)	(13)	(14)
Trivandrum	18.0	48.0	118.1	213.9	391.1	2001.6( )
Quilon	32.1	83.6	166.9	260.3	547.9	2760.2/( )
Pathanamthitta	29.3	59.0	133.5	291.5	663.8	3012.0
Alleppey	30.3	85.4	176.9	324.4	713.3	3462.6
Kottayam	24.1	44.6	111.7	200.9	556.7	2898.8
Idukki	22.4	51.6	129.5	308.4	796.1	3548.5
Ernakulam	8.8	28.6	86.6	274.3	803.4	3177.4
Trichur	9.3	27.0	79.6	158.4	503.4	2397.7
Palghat	6.5	19.3	78.7	211.0	702.4	2900.1
Malappuram	7.6	20.0	92.4	254.0	944.5	3796.0
Kozhikode	4.8	11.1	58.6	200.6	923.0	3437.9
Wynad	19.3	46.4	115.6	245.0	672.8	3017.6
Cannanore						
State						

TABLE 3.2

Monthly rain fall Statement for 1983-84 (m.m)

District	*July*	*August*	*September*	*October*	*November*	*December*	*January*
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Trivancrum	71.3	126.3	125.7	35.9	62.0	64.4	28.9
Quilon	310.2	359.0	283.0	61.0	..	68.0	22.0
Pathanamthitta	433.4	498.8	416.8	92.9	211.5	68.7	34.2
Alleppey	487.7	559.4	423.4	151.3	122.6	88.0	281.5
Kottayam	602.1	541.9	481.2	102.2	103.6	67.6	46.4
Idukki	368.4	406.6	123.1	120.1	128.2	97.5	51.3
Ernakulam	615.1	598.9	1426.2	103.6	128.0	34.9	53.5
Trichur	688.8	688.4	563.4	139.0	82.3	40.6	10.2
Palghat	653.6	509.5	381.6	163.8	82.6	53.9	8.0
Malappuram	..	..	..	..	..	..	..
Kozhikode	834.2	941.0	675.2	148.5	40.0	25.0	24.2
Wynad	479.6	756.2	280.0	288.9	51.8	118.2	96.1
Cannanore	956.4	898.9	655.0	118.9	49.4	54.5	28.0
State	559.3	573.7	486.2	134.7	95.8	65.1	57.0

District	February	March	April	May	June	Total
(1)	(9)	(10)	(11)	(12)	(13)	(14)
Trivandrum	49.4	52.8	109.7	85.9	234.4	1046.7—
Quilon	86.0	188.0	196.0	102.0	521.1	2196.3—
Pathanamthitta	162.3	124.1	319.7	134.2	465.3	2961.9
Alleppey	40.9	80.7	253.3	186.7	505.4	3180.9
Kottayam	72.3	70.3	146.3	69.5	629.4	2932.8
Idukki	101.4	130.4	257.6	111.3	369.3	2347.2
Ernakulam	72.4	69.3	147.0	86.2	732.5	4067.6
Trichur	14.9	39.5	109.6	19.1	880.4	3486.2
Palghat	4.0	40.2	77.5	43.0	852.4	2870.1
Malappuram	..	40.2	130.0	45.6	793.6	1009.4
Kozhikode	25.1	54.7	250.1	31.0	724.1	3773.1
Wynad	16.5	129.0	63.2	95.6	894.3	3272.4
Cannanore	3.1	161.8	138.5	94.0	1360.7	4519.2
State	54.0	90.9	169.1	84.9	689.5	3060.2

Not re orted.

TABLE 3.3

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

Cattle

Districts	*Male over three years*				*Female over 3 years*					*Young stock*	*Total*
	Breeding	*Working*	*Others*	*Total*	*Inmi.k*	*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	19229	1904	22100	114691	87113	11273	423	213500	183694	419294
Alleppey	383	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	33721	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	151261	1318187	3096775

TABLE 3.3

Buffloes

Districts	Male over three years				Female over three years						Young stock	Total
	Breeding	working	Others	Total	Breedong	Not working valved		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	14193
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	15769	9276	37031
State	3282	166088	13431	182801	48878	5710	..	1473	82730	138791	86992	408584

TABLE 3.3 (*Contd.*)

District	Sheep			Goats			Horses and ponies		
	One year and above	Below one year	Total	One year and above	Below one year	Total	3 years and above	Below three years	
(1)	(26)	(27)	(28)	(29)	(30)	(31)	(32)	(33)	(34)
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	162	272	109512	78814	188326	1	..	1
State	3610	3449	7059	1165438	838357	2003795	46	26	72

TABLE 3.3 *Contd*

Districts	*Elephant*	*Camels*	*Mules*	*Donkeys*	*Pigs*	*Dogs*	*Others*	*Total Liveatock including Dogs*
(1)	(35)	(36)	(37)	(38)	(39)	(40)	(41)	(42)
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	103095	56281	788891
State	451	4	323	370	127147	1156439	434677	7235696

Districts	Poultry				Plough			Sugarcane
	Fowls	Ducks	Others	Total	Wooden	Steel	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	16735560	33225	3029	81	170	2
Kozhikode	1041574	7497	1678	1050749	4952	808	11	28	..
Wynad	360887	2611	922	364420	14801	4347	70	67	1
Cannannore	1229034	6997	1394	1237425	30354	1945	71	228	9
State	14519039	530354	34017	15083410	228566	47385	8245	3925	95

TABLE 3.4

Classification of Area under Land Utilisation (in hectares)—1983-84

District	Total geographical area	Forest	Land put to non agricultural uses	Barren and unculti-vable land	Perma-nent pastures and grazing land	Land under Misc. tree crops	Cult-vable waste	Fallow other-than current fallow	Current fallow	Net area sown	Area sown more ones	Total cropped area
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Trivandrum	218600	49861	17277	2255	35	242	2154	1696	1311	143769	79292	223061
Qilon	251838	81438	20696	1069	30	385	867	779	1117	145457	93208	238665
Pathanamthitta	268750	155214	8395	926	8	213	532	490	935	102037	4970	107007
Alleppey	136058	..	26148	576	14	150	1900	1038	1958	104274	64053	168327
Kottayam	219550	8141	19752	2175	52	304	1739	2237	2900	182250	55988	238238
Idukki	514962	260907	15566	17442	2216	15652	38776	1253	1794	161356	11493	172849
Ernakulam	235319	8123	34222	2649	166	1329	5010	2775	3563	177482	67960	245442
Trichur	299390	103619	22026	2457	150	1333	5452	3087	4660	156606	70558	227164
Palghat	438980	136257	32100	13959	290	8651	24145	3114	6015	214449	105422	319871
Malappuram	363230	103417	18974	7706	400	3664	14134	4062	9066	201807	46120	247927
Kozhikode	233330	41386	18437	2412	166	3816	3717	1539	2480	159377	42771	202148
Wynad	212560	78787	5270	2688	122	4077	5455	1620	1489	113052	20751	133803
Cannanore	492930	54359	38856	30276	1573	14885	25043	3849	5650	318439	18761	337200
State	3885497	1081509	277719	86590	5222	54701	128924	27539	42938	2180355	681347	2861702

TABLE 3.5

District-wise area under different land uses—Percentage distribution 1983-84

District	*Geographical area according to village papers*	*Forest*	*Land put to non-agrl. uses*	*Barren and unculti-vable land*	*Permanent pastures and grazing land*	*Land under misc. tree crops*	*Culti-vable waste land*	*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	100.00	22.81	7.90	1.03	0.02	0.11	0.99	0.77	0.60	65.77	36.27	102.40
Quilon	100.00	32.34	8.22	0.42	0.01	0.15	0.34	0.31	0.44	57.77	37.01	94.77
Pathanamthitta	100.00	57.75	3.12	0.35	0.00	0.08	0.20	0.18	0.35	37.97	1.85	39.82
Alleppey	100.00	..	19.23	0.42	0.00	0.11	1.40	0.76	1.44	76.64	47.08	123.72
Kottayam	100.00	3.71	9.00	0.99	0.02	0.14	0.79	1.02	1.32	83.01	25.50	108.51
Idukki	100.00	50.67	3.02	3.39	0.43	3.04	7.53	0.24	0.35	31.33	2.23	33.57
Ernakulam	100.00	3.45	14.54	1.13	0.07	0.57	2.13	1.18	1.51	75.42	28.88	104.30
Trichur	100.00	34.61	7.36	0.82	0.05	0.45	1.82	1.03	1.56	52.31	23.57	75.88
Palghat	100.00	31.04	7.31	3.18	0.07	1.97	5.50	0.71	1.37	48.85	24.02	72.87
Malappuram	100.00	28.47	5.22	2.12	0.11	1.01	3.89	1.12	2.50	55.56	12.70	68.26
Kozhikode	100.00	17.74	7.90	1.03	0.07	1.64	1.59	0.66	1.06	68.31	18.33	86.64
Wynad	100.00	37.07	2.48	1.26	0.06	1.92	2.56	0.76	0.70	53.19	9.76	62.95
Cannanore	100.00	11.03	7.88	6.14	0.03	3.02	5.08	0.78	1.15	64.60	3.81	68.41
Wynad	100.00	27.84	7.15	2.23	0.13	1.41	3.31	0.71	1.11	56.12	17.54	73.65

TABLE 3.6

Area Under Crops 1983-84 (Area in hectares)

District	Cereal and Millets								Pulses including Tur				Total foodgrains
	Rice												
	Autumn	Winter	Summer	Total	Jowar	Ragi	Other Cereals	Total ckrels & millets	Autumn	Winter	Summer	Total	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Trivandrum	13165	13546	368	270879	..	19	..	27098	187	826	3264	2251	30362
Quilon	19477	20028	341	39846	3	7	2	39858	925	399	327	1651	41509
Pathanamthitta	7988	6254	3641	17883	2	2	..	17887	30	133	175	338	18225
Alleppey	28532	15570	25099	69201	..	7	4	69212	76	201	488	765	69977
Kottayam	12906	14583	7312	34801	..	4	2	34807	207	238	1539	1984	36791
Idukki	3830	3955	287	8072	117	305	233	8727	192	256	1017	1465	10192
Ernakulam	35736	36994	14002	86732	5	4	183	86924	519	340	586	1445	88369
Trichur	37920	48220	17251	103391	12	35	104	103542	1811	375	433	2619	106161
Palghat	87895	77692	2447	168034	1346	942	1962	172284	2548	5211	1299	9058	181342
Malappuram	33779	35303	5667	74749	20	11	61	74841	605	169	746	1520	76361
Kozhikode	9677	11286	2192	23155	10	10	14	23189	293	367	701	1361	24550
Wynad	..	23850	6715	30571	9	9	19	30608	6	9	205	220	30828
Cannanore	36878	17273	2421	56572	41	12	97	56722	31	3353	1194	4578	61300
State	327783	324560	87743	740086	1565	1367	2681	745699	7430	11877	10961	30268	775967

TABLE 3.6 (*Contd.*)

District	Sugar Crops			Spices and conciments										
	Sugar cane	Palmyrah	Total	Pepper	Chillies	Ginger	Turmeric	Cardamom	Batal nuts	Tamarind	Clovest	Nutmeg	Cinnam Coni No.	Total
(1)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)
Trivandrum	25	617	642	5394	..	230	30	164	3301	1707	147	88	13	11074
Quilon	228	34	262	7457	..	853	63	104	3092	676	74	84	21	12424
Pathanamthitta	1433	26	1459	3905	..	1423	15	45	1464	193	37	60	6	6148
Alleppey	1500	9	1509	3860	..	229	28	..	2138	241	36	156	28	6716
Kottayam	274	464	738	12646	1	3206	654	22	2480	471	336	504	61	20381
Idukki	2145	226	2371	12209	..	1511	187	45189	2424	160	40	175	40	61935
Ernakulam	59	381	440	6665	..	2177	710	..	6192	814	119	1331	52	18060
Trichur	5	922	927	4073	4	98	180	..	6567	1492	26	202	35	12677
Palghat	2356	7435	9791	1523	219	371	316	3274	2380	2896	9	74	229	11291
Malappuram	10	1387	1397	4114	84	447	101	184	8833	1182	3	121	13	15082
Kozhikode	3	365	368	12753	75	1825	243	412	5834	544	12	50	93	21841
Wynad	18	261	279	7508	5	2207	218	4270	1131	109	6	7	26	15487
Cannanore	28	203	231	24036	629	1306	416	759	13768	601	8	384	231	42138
State	8084	12330	20414	106143	1017	14883	3161	54423	59604	11086	853	3236	848	255254

TABLE 3.6 (*Contd.*)

District	Fresh Fruits							Dry fruits		Total fruit trees
	Mango	Jack	Banana	Other Plantation	Pine apple	Pappaya	Others	Total	Cashew nut	
(1)	(29)	(30)	(31)	(32)	(33)	(34)	(35)	(36)	(37)	(38)
Trivandrum	7477	7016	812	5458	393	708	1265	23129	6485	29614
Quilon	4695	4909	1089	2760	476	506	350	14785	7558	22343
Pathanamthitta	2100	2177	668	1726	241	297	407	7616	2154	9770
Alleppey	3529	2388	623	1571	180	540	419	9250	3331	12581
Kottayam	4237	4482	1344	3238	588	763	858	15510	1472	16982
Idukki	1916	2282	175	2674	366	755	1065	9233	1222	10455
Ernakulam	5148	4417	1836	3059	422	1050	712	16644	4032	20676
Trichur	4258	3843	1403	3056	321	1635	516	15032	6883	22015
Palghat	5304	4290	1591	2192	227	517	2341	16462	13222	29684
Malappuram	6143	5475	2827	2125	220	1437	703	18930	21946	40876
Kozhikode	5878	5967	1073	2029	319	1040	954	17260	4699	21859
Wynad	2786	4338	526	1010	150	102	967	9879	1007	10886
Cannanore	6730	7286	1218	3510	800	888	1844	22276	68328	90604
State	60201	58870	15185	34408	4703	10238	12401	196006	142339	338345

TABLE 3.6 (*Contd.*)

District	VEGETABLES									
	Drum-stick	*Tubers*	*Sweet potatoe*	*Topioca*			*Other vegetables*	*Total vegetables*	*Total vegetables*	*food crops*
				Autumn	*Winter*	*Summer*	*Total*			
(1)	(39)	(49)	(41)	(42)	(43)	(44)	(46)	(46)	(47)	(48)
Trivandrum	3085	2214	133	24425	23486	7521	55432	577	61441	133133
Quilon	1185	3410	48	15338	25562	724	41624	240	46507	123045
Pathanamthitta	385	3560	3	1633	15273	977	17883	397	22228	57830
Alleppey	682	5779	64	1956	9053	891	11900	940	19365	110148
Kottayam	1482	3246	24	1454	21060	494	23008	907	28667	103559
Idukki	359	1584	169	1353	9042	90	10485	1101	13698	98651
Ernakulam	1218	2756	60	2793	8345	736	11874	2508	18416	145961
Trichur	796	2460	137	1396	4150	251	5797	1221	10411	152191
Palghat	953	1701	1845	6445	6073	472	12990	2342	19831	251939
Maaplpuram	1091	2380	1571	7391	9151	1418	17960	1672	24674	158390
Kozhikode	2605	2327	82	1647	1359	355	3361	323	8698	77316
Wynad	106	862	27	965	1200	407	2572	315	3882	61362
Cannanore	678	754	922	1682	15581	861	18124	1849	22327	216602
State	14625	33033	5085	68478	149335	15197	23300	14392	300145	1690125

TABLE 3.6 (*Contd*)

District	NON FOOD CROPS									
	Oil Seed Crops					Fibre	Drugs & Narcotics			
	Ground-nut	Sesa-mum	Coco-nut	Others	Total	Cotton	Betel leates	Tobacco	Lemon grass	Total
(1)	(49)	(50)	(51)	(52)	(53)	(54)	(55)	(56)	(57)	(58)
Trivandrum	15	16	73568	205	73804	..	163	..	54	217
Quilon	..	2301	75018	59	77378	..	119	..	24	143
Pathanamthitta	..	216	28807	19	29042	..	73	..	18	91
Alleppey	..	4910	46907	79	51896	..	60	..	3	63
Kottayam	..	41	50914	148	51103	..	80	..	57	137
Idukki	..	256	16523	56	16835	..	6	..	1831	1837
Ernakulam	..	2303	62038	199	64540	..	94	..	524	618
Trichur	..	1177	58929	153	60259	..	81	..	56	137
Palghat	9704	1388	23186	598	34876	6300	11	..	107	118
Malappuram	11	1912	60739	57	62719	..	387	..	99	486
Kozhikode	..	64	100164	86	100314	..	45	..	820	865
Wynad	..	128	3612	66	3806	..	3	..	1901	1904
Cannanore	80	333	81876	107	82396	..	27	552	1826	2405
State	9810	15045	682281	1832	708968	6300	1149	552	7320	9021

TABLE 3.6—(*Contd.*)

District	PLANTATION CROPS					Fodder crops	Green Manure crops	Other non-food crops	Total non food crops	Total cropped Area
	* Tea	Coffee	Rubber	Cocoa	Total					
(1)	(59)	(60)	(61)	(62)	(63)	(64)	(65)	(66)	(67)	(68)
Trivandrum	1072	51	11574	926	13623	282	295	1707	89928	223061
Quilon	687	264	34253	994	36198	213	545	1143	115620	238665
Pathanamthitta	740	122	16674	1002	18538	127	393	986	49177	107007
Alleppey	..	15	3447	1955	5417	84	129	590	58179	168327
Kottayam	2011	986	72396	5191	80584	330	214	2311	134679	238238
Idukki	23834	4874	21938	2014	52660	370	237	2259	74198	172849
Ernakulam	2	247	27580	2033	29862	108	239	4114	99481	245442
Trichur	447	33	10760	724	11964	95	423	2095	74973	227164
Palghat	665	2351	10800	245	14061	60	1212	11305	67932	319871
Malappuram	174	..	18287	488	18949	26	2872	4485	89537	247927
Kozhikode	..	..	18765	989	19754	87	909	2903	124832	202148
Wynad	5389	53425	2396	331	61541	85	410	4695	72441	133803
Cannanore	..	..	22330	1160	23490	199	1523	10587	120600	337200
State	35021	62368	271200	18052	386641	2066	9401	49180	1171577	2861702

* For the calendar year 1983-84. For Tea, Coffee, Rubbre and Cardamom the figures are provisional

Source: Respective Boards.

TABLE 3.7

Area under crops 1983-84—Percentage distribution

District	Total cropped area	Total food crops	Non food crops	Cereals and millets			Total pulses	Total food grains	Sugar Crops		Total
				Paddy	Others	Total cereals and millets			Sugar-cane	Others	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Trivandrum	100.00	59.69	40.31	12.14	0.01	12.15	1.46	13.61	0.01	0.28	0.29
Quilon	100.00	51.56	48.44	16.70	..	16.70	0.69	17.39	0.10	0.01	0.11
Pathanamthitta	100.00	54.04	45.96	16.71	..	16.71	0.32	17.03	1.34	0.02	1.36
Alleppey	100.00	65.44	34.56	41.11	0.01	41.12	0.45	41.57	0.89	0.01	0.90
Kottayam	100.00	43.47	56.53	15.85	..	15.85	0.35	31.87	0.13	0.21	0.34
Idukki	100.00	57.07	42.93	4.67	0.38	5.05	0.85	5.90	1.24	0.13	1.37
Ernakulam	100.00	59.47	40.53	35.34	0.07	35.41	0.59	36.00	0.02	0.16	0.18
Trichur	100.00	67.00	33.00	45.51	0.09	45.58	1.15	46.73	..	0.41	0.41
Palghat	100.00	78.76	21.24	52.53	1.33	53.86	2.83	56.69	0.74	2.32	3.06
Malappuram	100.00	63.88	26.12	30.15	0.04	30.19	0.61	30.80	..	0.56	0.56
Kozhikode	100.00	38.25	61.75	11.45	0.02	11.47	0.67	12.15	..	0.18	0.18
Wynad	100.00	45.86	54.14	22.85	0.03	22.88	0.16	23.54	0.01	0.20	0.21
Cannanore	100.00	64.24	35.76	16.77	0.04	16.81	1.36	18.18	0.01	0.06	0.07
State	100.00	59.06	40.94	25.86	0.20	26.06	1.06	27.12	0.28	0.43	0.71

TABLE 3.7 (*Contd.*)

District	Condiments and spices						Fresh fruits					
	Pepper	Ginger	Cafda-	Betel-	Others	Total spices	Mango	Jack	Banana	Other plantain	Other fruits	Prine apple	Total fruits
(1)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(2)	(21)	(22)	(23)	(24)	(25)
Trivandrum	2.42	0.10	0.70	1.48	0.89	4.96	3.35	3.15	0.36	2.45	..	0.18	10.37
Quilon	3.12	0.36	0.04	1.90	0.37	5.21	1.97	2.06	0.46	1.16	..	0.20	6.20
Pathanamthitta	3.65	0.40	0.04	1.37	0.29	6.28	1.96	2.03	0.62	1.61	..	0.23	7.12
Alleppey	2.29	0.25	..	1.27	0.29	3.99	2.10	1.42	0.37	0.93	..	0.12	5.50
Kottayam	5.76	1.46	0.01	1.13	0.92	9.28	1.93	2.04	0.61	1.48	..	0.27	7.06
Idukki	7.06	0.87	26-14	1.41	0.35	35.83	1.11	1.32	0.10	1.55	1.05	0.21	9.63
Ernakulam	2.72	0.89	..	2.52	1.23	7.36	1.74	1.80	0.75	1.25	..	0.17	6.78
Trichur	1.79	0.05	..	2.89	0.85	5.58	1.87	1.69	0.62	1.35	0.95	0.14	6.62
Palghat	0.48	0.12	1.02	0.74	1.07	3.53	1.66	1.34	0.50	0.69	0.89	0.07	9.28
Malappuram	1.66	0.18	0.07	3.56	0.61	6.08	2.48	2.21	1.14	0.86	..	0.09	7.64
Kozhikode	6.31	0.90	0.20	2.89	0.50	10.80	2.91	2.95	0.53	1.00	..	0.16	8.54
Wynad	5.61	1.65	3.19	0.85	0.28	1.57	2.08	3.24	0.39	0.76	..	0.11	7.38
Cannanore	7.13	0.39	0.23	4.08	0.70	12.50	2.00	2.16	0.36	1.04	..	0.24	6.61
State	3.71	0.52	1.90	2.08	0.71	8.92	2.10	2.06	0.53	1.20	..	0.16	6.85

TABLE 3.7 (*Contd.*)

District	Dried Fruit		Vegetables				Total fruits & vegetables	Total food grains
	Cashew nuts	Tapioca	Sweet potatoe	Tubers	Other Vegetables	Total vegetables		
(1)	(26)	(27)	(28)	(29)	(30)	(31)	(32)	(33)
Trivandrum	2.91	24.85	0.06	0.99	1.64	27.54	..	59.69
Quilon	3.17	17.44	0.02	1.43	0.74	19.49	..	51.56
Pathanamthitta	2.01	16.71	..	3.33	0.73	20.77	..	54.04
Alleppey	1.98	7.07	0.04	3.43	0.96	11.50	..	65.44
Kottayam	0.67	10.48	0.01	1.48	1.09	13.06	..	47.17
Idukki	0.71	6.07	0.10	0.92	0.85	7.93	..	57.07
Ernakulam	1.64	4.84	0.02	1.12	1.51	7.50	..	59.47
Trichur	3.07	2.55	0.06	1.08	0.89	4.58	..	67.00
Palghat	4.13	4.06	0.58	0.53	1.06	6.20	..	78.76
Malappuram	8.85	7.24	0.63	0.96	1.11	9.95	..	63.88
Kozhikode	2.28	1.66	0.04	1.15	1.45	4.30	..	38.25
Wynad	0.75	1.92	0.02	0.64	0.32	2.90	..	45.86
Cannanore	20.26	5.37	0.27	0.22	0.75	6.62	..	64.24
Total	4.97	8.14	0.18	1.15	1.01	10.49	..	59.06

TABLE 3.7 (*Contd*)

Non-food Crops

District	*Ground nut*	*Oilseeds*				*Drugs, Narocloies & plantation crops*					*Lemon grass*	*Total*
		Sesamum	*Coconut*	*Other oil seeds*	*Total*	*Tobacco*	*Tea*	*Coffee*	*Rubber*	*Cocoa*		
(1)	(34)	(35)	(36)	(37)	(38)	(39)	(40)	(41)	(42)	(43)	(44)	(45)
Trivandrum	0.01	0.01	32.98	0.09	33.08	..	0.48	0.01	5.19	0.42	0.01	6.11
Quilon	...	0.96	31.43	0.03	32.42	..	0.28	0.11	14.35	0.42	0.01	..
Pathanamthitta	..	0.20	26.92	0.02	27.14	..	0.69	0.11	15.58	0.94	0.02	5.06
Alleppey	..	2.92	27.87	0.05	30.83	..	..	0.01	2.05	1.16	..	3.22
Kottayam	..	0.02	23.19	0.07	23.28	..	0.92	0.45	32.98	2.36	0.03	36.70
Idukki	..	0.15	9.56	0.03	9.74	..	13.79	2.82	12.69	1.17	1.06	30.47
Ernakulam	..	0.94	25.28	0.08	26.30	..	..	0.10	11.24	0.83	0.21	12.17
Trichur	..	0.52	25.94	0.07	26.53	..	0.20	0.02	4.74	0.32	0.03	5.27
Palghat	3.03	0.43	7.25	0.19	10.90	..	0.21	0.74	3.38	0.08	0.03	4.40
Malappuram	..	0.77	24.35	0.03	25.30	..	0.07	..	7.38	0.20	0.04	7.64
Kozhikode	..	0.03	49.55	0.04	49.62	..	..	..	9.28	0.49	0.41	9.77
Wynad	..	0.10	2.70	0.05	2.84	..	4.03	39.92	1.79	0.03	1.42	45.99
Cannanore	0.02	0.10	24.29	0.03	24.44	0.16	..	..	6.62	0.34	0.54	6.97
State	0.34	0.53	23.84	0.06	24.77	0.02	1.22	2.18	9.48	0.04	0.26	13.51

TABLE 3.7 (*Contd*)

District	*Cotton*	*Betal leaves*	*Fodder crops*	*Green manure crops*	*Other nonfood crops*	*Tontal non food crops*
(1)	(46)	(47)	(48)	(49)	(50)	(51)
Trivandrum	..	0.07	0.13	0.13	0.77	40.32
Quilon	..	0.05	0.10	0.23	0.48	48.44
Pathanamthitta	..	0.07	0.12	0.37	0.92	45.96
Alleppey	..	0.04	0.05	0.08	0.35	34.66
Kottayam	..	0.04	0.15	0.10	1.05	61.34
Idukki	..	..	0.22	0.14	1.38	42.93
Ernakulam	..	0.04	0.04	0.17	1.68	40.53
Trichur	..	0.04	0.04	0.19	0.92	33.00
Palghat	1.97	..	0.02	0.38	3.53	21.24
Malappuram	..	0.16	0.01	1.16	1.81	36.11
Kozhikode	..	0.02	0.04	0.45	1.44	61.75
Wynad	..	0.02	0.06	0.31	3.51	54.14
Cannanore	..	0.01	0.06	0.45	3.14	35.77
State	0.22	0.04	0.07	0.33	1.72	40.94

TABLE 3.8

Production of Important crops (in tonnes) (Year 1983-84)

District	Rice				Jowar	Ragi	Other cereals	Pulses	Sugar cane (gur)	Black pepper	Dry chillies	Dry ginger	Cured Turmeric	Processed cardamom	Betal nuts (million nuts)
	Autumn	Winter	Summer	Total											
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
Trivandrum	20226	15864	372	36462	..	15	..	749	184	620	..	562	58	3	370
Quilon	29998	27834	203	58035	1	6	1	1286	246	1723	..	2310	119	4	289
Pathanamthitta	12623	9254	8864	30741	1	2	..	261	13315	738	..	1055	27	2	89
Alleppey	46187	25586	61985	133758	..	5	3	623	13938	513	..	564	55	..	196
Kottayam	28754	27632	13641	70027	..	3	1	1406	5546	2390	1	8555	1183	1	281
Idukki	6364	7210	289	13863	51	262	149	1190	30805	2234	..	3606	325	1629	184
Ernakulam	50995	47964	20095	119054	2	3	117	1035	597	4560	..	5403	1276	..	797
Trichur	53404	71443	30274	155121	4	29	67	1870	51	823	4	102	281	..	1122
Palghat	175566	160779	3020	339365	568	656	1369	5589	24796	174	196	626	533	115	278
Malappuram	38301	45805	9185	93291	8	10	39	1128	101	716	74	794	153	6	1246
Kozhikode	8938	10964	1951	21853	4	10	9	1036	30	3953	66	4391	554	9	1141
Wynad	..	48084	13671	61755	4	9	12	168	171	2928	4	5204	567	139	162
Cannanore	49102	22203	3286	74591	18	18	62	3571	282	6177	585	3533	710	55	2163
State	520458	520622	166836	1207916	661	1028	1829	19912	87062	24549	930	36705	5841	1963	8318

TABLE 3.8—(*Contd.*)

District	*Tamarind*	*Mango*	*Jack (Nos. in 000)*	*Banana*	*Other plantain*	*Raw cashew nut*	*Tapioca*	*Sweet Potatoe*	*Pap-Pappaya*	*Ground nut*	*Sesamum*
(1)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)
Trivandrum	4327	7058	31488	9971	20795	1459	993896	803	15810	13	5
Quilon	1399	14578	54122	10999	12613	3212	595223	289	411	..	547
Pathanamthitta	269	7417	17346	8641	7439	239	302223	18	1976	..	45
Alleppey	173	7587	9800	9843	4760	280	242522	386	2792	..	866
Kottayam	531	5402	15006	21235	16449	240	482708	145	5180	..	9
Idukki	199	3165	7599	1869	10482	858	167760	1088	1510	..	45
Ernakulam	1104	10611	20407	23354	15509	2064	252323	362	4355	..	701
Trichur	3105	18782	14573	15657	6784	6061	103650	827	7236	..	318
Palghat	7553	39426	17838	11137	10631	4257	183159	11972	3836	8436	400
Malappuram	2103	26399	10578	28835	6545	11631	214622	10678	8483	11	656
Kozhikode	1313	19962	16039	13734	7345	3463	39929	501	510	..	20
Wynad	263	3752	7730	6827	5484	223	49125	171	794	..	36
Cannanore	1030	26516	19891	15785	13900	43388	276029	6365	4396	71	190
State	23369	190655	242417	177917	138736	77375	3903169	33605	57755	8578	3838

TABLE 3.9

Average farm prices of certain commodities (Harvest price) 1983-84

(in Rs.)

District	*Paddy Qtl.*	*CoConut 100 Nos.*	*Arecanut 100 Nos.*	*Tapioca Qtl.*	*Cashew Qtl.*	*Banana 100 Nos.*	*Pepper Qtl.*	*Ginger Qtl.*	*Sugarcane M.T.*
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Trivandrum	298.45	225.31	11.71	..	816.67	71.40	1527.08	..	..
Quilon	252.98	256.41	12.46	59.09	818.23	68.61	1518.33	1770.00	..
Pathanamthitta	269.65	244.86	12.07	60.90	761.11	59.79	1883.23	2833.75	176.00
Alleppey	251.60	243.37	12.40	65.05	730.42	67.60	1660.42	..	163.75
Kottayam	265.25	242.79	10.82	75.73	751.04	61.48	1719.50	2861.46	..
Idukki	261.00	263.99	10.81	80.35	834.38	58.75	1783.05	2842.08	..
Ernakulam	268.00	264.46	11.95	70.15	831.25	58.27	1674.65	2999.38	..
Trichur	257.39	257.52	12.52	88.36	800.08	55.16	1813.47	..	..
Palghat	232.86	252.53	10.33	68.72	785.75	52.35	1724.59	2673.75	187.50
Malappuram	250.09	221.55	11.13	81.15	866.50	52.04	1693.49	2628.21	..
Kozhikode	267.17	234.10	7.22	108.30	921.17	51.91	1724.93	2686.11	..
Wynad	248.85	308.75	6.38	81.25	641.67	41.91	1789.90	2665.10	..
Cannanore	252.84	234.40	7.93	87.38	893.50	47.67	1749.56	2735.11	..
State	259.87	244.93	10.78	75.80	781.60	57.72	1684.32	2737.53	187.13

TABLE 3.10

Agricultural wages 1983-84

Skilled Labour—(i) Carpenter (*in Rs.*)

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	24.50	24.50	24.50	24.50	24.50	25.00	25.00	26.00	27.00	27.50	29.00	30.00
Quuilon	24.50	24.50	24.50	24.50	24.50	24.50	25.00	27.00	28.00	28.50	31.00	36.00
Pathanamthitta	x	x	x	x	x	x	x	x	x	x	x	x
Alleppey	24.00	24.00	24.00	24.00	24.00	24.00	24.00	27.00	28.00	29.00	32.00	36.00
Kottayam	25.00	25.00	25.00	25.00	25.00	25.00	25.00	26.50	28.00	28.50	31.50	35.00
Idukki	x	x	x	z	x	x	z	z	z	z	z	z
Ernakulam	24.50	24.50	24.50	24.50	24.50	24.50	24.50	26.50	27.50	29.00	32.00	36.00
Trichur	24.50	25.00	25.00	25.00	25.00	25.50	25.50	27.00	28.00	29.00	32.00	36.00
Palghat	23.50	23.50	23.50	23.50	24.00	24.00	23.50	25.00	25.00	25.50	26.50	26.50
Malappuram	23.50	23.50	23.50	23.50	23.50	23.50	23.50	26.00	26.50	28.50	31.50	34.50
Kozhikode	23.00	23.00	23.00	23.00	23.00	23.00	23.00	25.00	25.00	28.00	30.00	32.00
Wynad	z	z	z	x	x	x	x	x	x	x	x	x
Cannanore	23.00	23.00	23.00	23.00	23.00	23.00	23.00	25.00	25.50	28.00	30.50	32.50

x—Not collected

TABLE 3.10 (*Contd*)

(2) *Mason*

District	*July*	*August*	*September*	*October*	*November*	*December*	*January*	*Febuarry*	*March*	*April*	*May*	*June*
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Trivandrum	25.00	25.00	25.00	25.00	25.00	25.00	25.00	27.00	27.00	27.50	29.00	30.00
Quilon	24.50	24.50	24.50	24.50	24.50	25.00	25.00	27.00	28.00	28.50	31.00	36.00
Pathanamthitta	x	x	x	x	x	x	x	x	x	x	x	x
Alleppey	24.00	24.00	24.00	24.00	24.00	24.50	25.00	27.00	27.50	29.00	32.00	36.00
Kottayam	25.00	25.00	25.00	25.00	25.00	25.00	25.00	26.50	28.00	28.50	31.50	35.00
Idukki	x	x	x	x	x	x	x	x	x	x	x	x
Ernakulam	24.50	24.50	24.50	24.50	25.00	25.00	25.00	27.00	27.50	29.00	32.00	36.00
Trichur	24.50	25.00	25.00	25.00	25.00	25.00	25.00	27.00	28.00	29.00	32.00	36.00
Palghat	23.50	23.50	23.50	23.50	24.00	24.00	24.00	25.00	25.00	25.50	26.50	26.50
Malappuram	23.50	23.50	23.50	23.50	23.50	23.50	23.50	26.00	26.50	28.50	31.50	34.50
Kozhikode	23.50	23.50	23.50	23.50	23.50	23.50	23.50	25.00	25.00	28.00	30.00	32.00
Wynad	x	x	x	x	x	x	x	x	x	x	x	x
Cannanore	23.00	23.00	23.00	23.00	23.00	23.00	23.00	25.00	25.00	28.00	30.50	32.50

x — not collected.

TABLE 3.10 (*Contd.*)

(3) *Paddy field labour—A-Men*

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	14.50	14.50	14.50	14.50	14.50	14.50	14.50	15.00	15.50	16.00	19.75	20.25
Quilon	15.00	15.50	15.50	15.50	15.50	16.00	16.00	16.00	16.50	16.50	17.00	18.00
Pathanamthitta	x	x	x	x	x	x	x	x	x	x	x	x
Alleppey	15.50	15.50	15.50	15.50	15.50	15.50	15.50	16.00	16.00	18.00	18.00	18.00
Kottayam	14.00	14.00	14.50	14.00	14.00	14.00	14.00	14.50	14.50	17.00	18.00	18.00
Idukki	x	x	x	x	x	x	x	x	x	x	x	x
Ernakulam	14.00	14.00	14.00	14.00	14.00	14.00	14.50	15.00	15.00	18.50	20.50	21.50
Trichur	15.00	15.00	15.00	15.00	15.00	15.00	15.00	17.00	18.00	20.00	22.00	22.50
Palghat	10.50	10.50	10.50	11.00	11.00	12.00	12.50	13.00	14.00	14.00	15.00	15.50
Malappuram	14.50	14.50	14.50	14.50	14.50	14.50	14.50	17.00	18.00	20.00	22.50	23.00
Kozhikode	13.00	13.00	13.00	13.00	13.00	13.00	13.00	14.50	16.00	18.50	19.50	19.50
Wynad	x	x	x	x	x	x	x	x	x	x	x	x
Cannanore	14.50	14.50	14.50	14.50	14.50	14.50	14.50	16.00	23.00	23.00	27.00	31.00

x — not collected

TABLE 3.10

Paddy field labour (B) – Women

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	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	12.50	11.25
Quilon	11.00	11.50	11.50	11.50	11.50	11.50	11.50	12.00	12.00	12.00	12.00	12.50
Pathanamthitta	x	x	x	x	x	x	x	x	x	x	x	x
Alleppey	10.00	10.00	10.00	10.00	10.00	11.00	11.00	11.00	11.00	11.00	12.00	12.00
Kottayam	11.00	11.00	11.00	11.00	11.00	11.00	11.50	11.50	11.50	11.50	12.00	12.25
Idukki	x	x	x	x	x	x	x	x	x	x	x	x
Ernakulam	10.00	10.50	10.50	10.50	10.50	10.50	10.50	11.50	12.00	13.00	13.50	13.50
Trichur	10.50	10.50	11.00	10.50	10.50	10.50	10.50	12.50	12.50	14.00	14.00	14.50
Palghat	8.50	8.50	8.00	9.00	9.00	9.00	9.00	9.00	9.00	9.50	10.00	10.50
Malappuram	10.00	10.00	10.00	10.00	10.00	10.00	10.00	13.50	13.50	13.50	13.00	14.50
Kozhikode	10.25	10.25	10.25	10.25	10.25	10.25	10.25	14.00	14.00	14.00	14.00	14.00
Wynad	x	x	x	x	x	x	x	x	x	x	x	x
Cannanore	8.25	8.25	8.25	8.25	8.25	8.25	8.25	9.50	14.00	14.00	15.00	15.00

x—not collected

PART IV

4.1 Working class cost of living Indices

4.2 Parity Index

4.3 Quarterly Retail prices

4.4 Export of Agricultural commodities

4.5 Notes on certain crops in Kerala

4.6 Classification of soils in Kerala

4.7 Conversion Ratio between the Raw Materials and the processed products.

4.8 Average Analysis of Important Fertilisers

4.9 Insects, pests affecting paddy crops, their distribution and some practical methods of control.

4.10 List of centres selected for recording Meterological data

4.11 Glossary of English, Botanical and Malayalam names of crops.

4.1 Working class cost of living Indices

The consumer price Index numbers for the State are being compiled in respect of fifteen selected centres with the revised base 1970=100 from August 1975 onwards. The indices for the centres in the state for the years 1982-83 and 1983-84 are furnihed below in table 4.1-0

TABLE 4.1.0

Consumer price Index numbers for different centres

Sl. No.	*Name of centre*	*Average cost of living indices*		
		1982-83	1983-84	% *difference*
1	Trivandrum	260	295	13.4
2	Quilon	268	303	13.0
3	Punalur	257	292	13.6
4	Alleppey	260	291	11.9
5	Kottayam	259	295	13.8
6	Mundakayam	254	288	13.3
7	Munnar	250	282	12.8
8	Ernakulam	261	279	6.8
9	Chalakudy	261	296	13.4
10	Trichur	256	293	14.4
11	Palghat	255	294	15.2
12	Malappuram	267	290	11.1
13	Kozhikode	263	285	8.3
14	Meppadi	251	294	17.1
15	Cannanore	255	284	11.3

From the above table it may be seen that the largest increase in cost of living was noticed at Meppadi while the lowest was in Ernakulam.

TABLE 4.1.1

Monthly Average cost of living Indices—1983-84 (New Series)

Base: 1970—100

Sl. No.	*Centre*	*July*	*August*	*September*	*October*	*November*	*December*	*January*	*February*	*March*	*April*	*May*	*June*	*Aterage*
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
1.	Trivandrum	278	284	285	287	289	294	297	300	300	303	307	311	295
2.	Quilon	291	297	298	299	300	301	303	304	304	309	313	319	303
3.	Punalur	282	287	286	288	290	291	292	293	293	296	299	304	292
4.	Alleppey	283	287	286	287	287	291	293	294	293	295	298	303	291
5.	Kottayam	279	286	286	288	290	295	296	299	299	304	308	315	295
6.	Mundakayam	276	282	283	284	284	288	290	292	290	293	294	301	288
7.	Munnar	271	273	273	274	277	281	282	285	284	289	291	297	282
8.	Ernakulam	268	272	272	274	275	279	280	282	282	285	288	294	279
9.	Chalakudy	286	292	293	293	293	294	296	298	297	300	303	309	296
10.	Trichur	282	286	286	286	288	289	292	294	296	300	304	309	293
11.	Palghat	281	286	287	287	290	293	294	295	297	301	306	311	294
12.	Malappuram	273	277	278	280	283	288	291	295	297	301	306	311	290
13.	Kozhikode	275	279	278	299	281	283	285	288	288	291	296	301	285
14.	Mappady	284	286	287	287	288	291	295	296	297	302	307	312	294
15.	Cannanore	271	276	276	277	277	279	282	285	287	291	296	303	284

TABLE 4.1.2

Average cost of living Indices 1983-84 (Old series)

Sl. No.	*Centre*	*July*	*August*	*September*	*October*	*November*	*December*	*January*	*February*	*March*	*April*	*May*	*June*	*Average*
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
1.	Trivandrum	2413	2465	2474	2491	2509	2552	2578	2604	2604	2630	2665	2699	2557
2.	Quilon	2485	2536	2545	2553	2562	2571	2588	2596	2596	2639	2673	2724	2589
3.	Punalur	2363	2405	2397	2413	2430	2439	2447	2455	2455	2480	2506	2548	2441
4.	Alleppey	2414	2448	2440	2448	2448	2482	2499	2508	2499	2516	2542	2585	2468
5.	Kottayam	2441	2503	2503	2520	2538	2581	2590	2616	2616	2666	2695	2756	2585
6.	Munnar	2168	2184	2184	2192	2216	2248	2256	2280	2272	2312	2328	2376	2251
7.	Ernakulam	2366	2402	2402	2419	2428	2464	2472	2490	2490	2517	2543	2596	2466
8.	Chalakudy	2511	2564	2573	2573	2573	2581	2599	2616	2608	2634	2660	2713	2600
9.	Trichur	2470	2505	2505	2505	2523	2532	2558	2575	2593	2628	2663	2707	2563
10.	Kozhikode	2621	2659	2649	2659	2678	2697	2716	2745	2745	2773	2821	2869	2719

Base for all centrs except Kozhikode 1939—100

For Kozhikode 1935—100

4.2. Parity Index

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

For the construction of the index the following important crops are considered.

1. Paddy
2. Coconut
3. Arecanut
4. Cashewnut
5. Tapioca
6. Ginger
7. Pepper
8. Banana
9. Sugar-cane

The indices of parity between prices received and prices paid by the farmers during each month of the years 1982-83 and 1983-84 are given in table 4.2.1 below:—

TABLE 4.2.1

Index numbers of parity

(*Base:* 1952-53 = 100)

Moth	*Index numbers of parity*	
	1982-83	1983-84
July	87	97
August	87	98
September	86	98
October	86	101
November	86	112
December	87	115
January	88	105
February	88	106
March	86	105
April	91	104
May	94	102
June	97	116

The index of parity was showing signs of improvement during 1982-83 as against a declining trend over the past few years. But during the months from October 1983-84, it has surpassed the base year indices for the first in a few years time. It may be observed that the productivity of most of the crops considered for the index has fell sharply during the year under review due to adverse weather conditions of the past year.

4.3. Quarterly average retail prices

The district-wise quarterly average retail prices of 12 important commodities for the year 1983-84 are given in table 4.3.

1. Rice (Fair price/Kg.)

The fair price of rice varied from Rs. 2.10 in Ernakulam during the third quarter to Rs.2.38 in Idukki during the first two aquarters.

2. *Tapioca (Raw/Kg.)*

The price of tapioca ranged between Re. 0.60/Kg. in the first quarter in Palghat and Rs.1.50 in Cannanore during the last two aquarters of the year. The ruling price of this commodity for all the quarters was highest in Cannanore. The price in all the Centres was comparably low during the first quarter.

3. *Blackgram/Kg.*

The price of black gram ranged between Rs. 4.89/Kg. in Trichur during the second quarter and Rs. 7.80/Kg. in Idukki during the last quarter of the year 1983-84.

4. *Coconut oil /litre*

The price of coconut oil fluctuated between Rs. 15.65/litre in Trivandrum during the first quarter and Rs. 35.52/litre in Alleppey during the last quarter of 1983-84. The price of this commodity was lowest during the first quarter in all the centres.

5. *Gingelly oil/litre*

The price of gingelly oil ranged between Rs. 15.26/litre, in Kozhikode during the first quarter and Rs. 21.30/litre in Malappuram during the last quarter of the year under review.

6. *Chillies/Kg.*

The price of chillies ranged between Rs. 8.07/Kg. in the first quarter at Alleppey and Rs. 15.01 at Trivandrum.

7. *Coconut/dozen*

The price of this commodity showed a steadily increasing trend in all the centres from quarter to quarter. The price of a dozen coconuts ranged between Rs.15.60 at Trivandrum during the first quarter and Rs. 48 in Wynad during the last quarter of the year.

8. *Sugar (Fair price/Kg.)*

The fair price of sugar ranged between Rs. 3.75 during the first quarter and Rs. 4 in the last quarter in all the Centres of the State.

9. *Tea/Kg.*

The tea prices also maintained a bullish trend throughout the year in all Centres except Wynad. The price of tea fluctuated between Rs. 25.08/Kg. in Alleppey during the first quarter and Rs. 39.08/Kg. in Trivandrum district during the last quarter of the year.

10. *Coffee powder/Kg.*

The price of coffee showed a steadily increasing trend in all the centres except Idukki and Wynad. While the price at Idukki was steady at Rs.17/Kg., the price fluctuated at Wynad. The highest price of Rs. 29.47 per Kg. was quoted from Trivandrum during the last quarter.

11. *Tobacco/Kg.—Vadakkan*

The price of this commodity ranged between Rs.10/Kg. at Trivandrum and Quilon during the first quarter and Rs.23.18/Kg. in Wynad during the last quarter. The price of this commodity was steady at Quilon for the first three quarters.

12. *Tobacco/Kg. (Jaffna)*

The lowest price of Rs. 9/Kg. was for this variety was quoted from Trivandrum during the first quarter as against the maximum price of Rs. 21.23/Kg. quoted from Wynad during the last quarter.

4.4. Export of Agricultvral commodities

The details of exports of agriculutral commodities from the ports of Kerala during the year 1983-84 are furnished in table 4.4

TABLE 4.3.1.

Quarterly average retail price at District Headquarters for 1893-84

Commodity	*Quarter*	*Trivandrum*	*Quilon*	*Alleppey*	*Kottayam*	*Idukki*	*Ernakulam*	*Trichur*	*Palghat*	*Malappuram*	*Kozhikode*	*Wynad*	*Cannanore*
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Rice—F.P./Kg.	I	2.32	2.31	2.32	2.32	2.38	2.32	2.31	2.32	2.32	2.32	2.35	2.32
	II	2.32	2.31	2.32	2.38	2.32	2.32	..	2.32	2.32	..	2.35	2.32
	III	..	..	2.24	2.21	..	2.20	2.22	..	2.27	..	..	2.27
	IV	..	2.26	2.26	2.26	..	..	2.26	..	..	..	..	2.27
Tapioca/Kg.	I	0.70	1.17	1.00	1.01	1.20	1.23	1.37	0.60	1.06	1.27	1.20	1.29
	II	1.10	1.20	1.00	1.20	1.42	1.20	1.26	0.66	1.20	1.30	1.30	1.41
	III	0.93	1.20	1.00	1.19	1.46	1.20	1.42	0.91	1.20	1.30	1.25	1.50
	IV	0.74	1.08	1.00	1.08	1.42	1.02	1.23	0.93	1.17	1.18	1.25	1.50
Blackgram/Kg.	I	5.95	5.91	6.16	6.29	6.84	5.72	5.73	6.44	6.41	5.17	5.70	4.80
	II	6.20	6.00	5.66	5.58	6.24	5.52	4.89	6.20	6.44	5.25	5.70	4.95
	III	6.45	6.07	6.29	5.99	7.02	5.52	5.06	6.57	6.55	5.25	5.70	5.50
	IV	6.71	6.63	6.50	6.59	7.80	6.17	5.51	6.94	6.97	5.45	5.97	5.50
Coconut oil/Ltr.	I	15.65	20.89	23.35	23.60	21.91	22.66	20.40	20.69	20.69	20.84	22.64	20.73
	II	24.05	26.53	25.82	26.08	26.74	27.80	26.02	25.77	25.94	25.77	27.19	25.29
	III	31.86	30.03	29.48	30.56	31.27	..	28.80	29.54	29.53	29.75	32.09	29.27
	IV	33.51	31.85	35.52	32.49	33.54	..	31.33	31.72	32.13	31.80	34.00	32.19

Gingelly oil/Ltr.	I	17.08	18.45	21.02	18.95	17.34	18.07	17.52	16.60	17.00	15.26	18.28	16.79
	II	17.73	18.54	15.91	17.06	17.39	18.64	18.31	16.79	17.27	16.02	18.15	16.86
	III	19.76	19.93	17.65	18.56	18.76	..	20.06	18.38	18.93	17.65	19.54	18.30
	IV	20.32	21.09	18.93	..	20.75	..	20.91	19.81	21.30	18.59	20.91	19.77
Chillies/Kg.	I	15.31	9.00	8.07	9.28	7.91	9.03	9.75	9.23	8.35	9.13	11.78	9.05
	II	12.65	10.61	10.10	11.14	8.63	9.65	11.69	11.07	9.71	11.99	12.26	10.95
	III	12.83	11.00	10.98	11.63	10.03	9.91	12.19	11.03	9.33	10.53	11.75	10.58
	IV	14.50	12.64	12.33	13.00	11.82	10.92	13.99	13.03	11.34	12.70	12.93	13.26
Coconut/Doz.	I	15.60	22.72	26.67	23.40	29.69	24.87	22.80	23.51	19.28	21.37	29.56	22.05
	II	26.99	30.19	32.50	34.53	39.98	31.68	30.60	32.17	25.32	26.00	36.06	26.97
	III	29.64	32.95	35.58	40.45	40.32	37.00	34.24	43.05	33.92	34.30	41.60	32.96
	IV	31.28	37.20	40.93	47.70	45.50	41.10	40.37	41.70	38.40	37.28	48.00	38.44
Sugar (F.P.)/Kg.	I	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75
	II	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75
	III	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92
	IV	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
Tea/Kg.	I	..	35.97	25.08	34.30	25.80	35.10	34.85	35.39	33.33	35.29	32.00	34.33
	II	35.94	36.73	..	35.62	..	35.60	34.85	35.73	36.04	36.40	31.00	35.63
	III	37.70	38.50	..	36.94	..	37.64	37.28	37.70	37.60	37.70	32.50	37.35
	IV	39.08	39.00	..	36.94	..	37.64	37.40	38.82	38.80	38.26	32.89	37.35

TABKE 4.3.1. (*Contd*).

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Coffee Powder/Kg.	I	25.11	23.86	23.50	18.70	17.00	23.46	23.50	23.00	23.47	23.72	23.50	23.58
	II	23.87	24.94	24.54	24.94	17.00	24.75	26.63	24.73	24.16	25.15	24.38	24.52
	III	27.35	26.96	27.53	27.75	17.00	27.57	27.37	27.15	23.17	28.25	21.02	27.49
	IV	29.47	28.75	29.00	28.00	17.00	29.00	26.30	27.50	23.50	29.50	..	29.00
Tobacco-Vadakkan/ Kg.	I	110.00	10.00	14.00	14.50	12.17	13.00	14.00	12.87	13.33	15.74	16.33	16.33
	II	14.00	10.00	12.00	14.16	14.75	13.60	14.00	16.00	14.67	17.63	17.00	18.92
	III	14.00	10.00	12.00	14.00	14.75	16.00	15.67	17.25	16.00	18.00	17.55	20.00
	IV	14.06	10.67	13.50	15.06	15.37	16.13	16.00	17.97	16.00	18.63	23.18	21.70
Tobacco-Jaffna)Kg.	I	9.00	13.33	13.79	14.00	16.45	15.00	15.90	..	15.00	..	14.33	..
	II	12.00	13.50	13.50	..	18.00	15.00	16.00	..	16.67	..	15.00	..
	III	12.00	13.25	13.50	14.00	17.75	16.00	19.30	..	18.00	..	15.55	..
	IV	12.00	13.73	12.50	15.06	18.00	16.13	20.00	..	18.00	..	21.23	..

TABLE 4.4

Foreign Exports from the Ports of Kerala 1983-84

Sl. No.	Commodity		1983-84	
			Quantity	*Value (Rs. in lakhs)*
1.	Cardamom	M.T.	34118.22	15819.11
2.	Cashew kernels	,,	1711.20	85.92
3.	Cashewshell oil	,,	28671.43	8145.49
4.	Coffee	,,	15125.93	1070.40
5.	Coir and Coir products	,,	14137.76	1656.96
6.	Ginger	,,	3423.31	979.41
7.	Lemongrassoil	,,	110.62	122.25
8.	Marine products	,,	31182.27	13749.78
9.	Oilcake	,,	0.80	1.70
10.	Pepper	,,	27310.54	5475.93
11.	Rubber manufactures	,,	527.20	167.94
12.	Tea	,,	42589.10	13071.21
13.	Wood and timber	,,	..	66.13
14.	Sundries (Miscellaneous)	,,	..	11940.02

45. 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 55°F to 95°F 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 traingular 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 rows 5′ apartwith 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 throughout 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 that attacks the tea bush. Tea mosquito, the red spider and thrips are some of the important pests attacking the crops.

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

From the garden to market.—The leaves plucked form tea garden have to undergo 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 furnance 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 cultivation 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 percent 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 resistance against extrems 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 aetitude 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°F. 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 beds. It is essential that the nursery beds 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 mannured 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 bloosoming season will adversely affect the yield.

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

From garden to the markket:—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 charries are automatically removed. Then those charries 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 barries 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. India's place in the world acreage under rubber is comparatively very low. India's production comes 4.6 per cent of the total world out put of natural rubber. Before a tyre factory was established in India in 1938 the raw rubber was exported to foreign countries.

Climate.—Rubber usually grows in the tropical belt lying within 150 N and 100 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 not too swampy is suited for cultivating rubber.

Planting.—Young plants or seeds are planted in pits of about 18" x 18". 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 meadi which cause secondary leaf fall. These diseases 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 sharpe 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 1150 F to 1200 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 world 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 dsitributed 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 meal and pottasium chlorate is also considered to be a good manure,

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

From the esrate to the market:—The capsules of the cardamom are dried in the sun or specially built dry houses by using artificial heat. Usually3-4 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 prdouce retains the mucilaginous coating on the seeds and possesses 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 prodcuce.

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 cardom and (3) seeds. The quality of cardamom varies according to place and variety of the seed.

The middle east and Sweeden 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 iportant spices is produced mainly by Inia 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 wines. Jack and mango trees are commonly used as support for wines. 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 harvestting 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 1/4 lb to 2 lbs 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 live up to 60 years.

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

Disease.—The major diseases that affect pepper is pollu by which the pepper berries are rendered hollow and root wilt.

From garden to market.—The dried , black pepper is graded and packed. The pepper is generaly 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 Sierra leons. 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 onslaught 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 harvestking is done by digging out the rhizomes.

Manure.—Usually cattle manures are used.

Yield.—The yield 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 as soft root. The colour of the green plants is changed into pale yellow and the production goes down. Use of mercuric chloride 0.05 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 Bordaux 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 times 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&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, Yeman and United Kingsom.

7. *Lemongrass*

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, stapi". The important lemongrass growing areas are Ceylon, Java, West Indies, Malaya, Guatemala and India. Guatemala and India are holding almost a monopoly in the world market. In India Kerala is the most important producer of this crop. The major lemongrass growing areas are Kuruppampadi, Odakkali, Thodupuzha, Muvattupuzha, Wynad, Taliparamba etc. At Odakkalai there is a lemon grass oil research station.

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

Sloil.—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 is 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 transplanting 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, quantiy of citral.

Harvesting.—Generally hervesting 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:

Ist year	1½	drozen bottles of 22 oz. each.
2nd,,	2½	,,
3rd ,,	2	,,
4th ,,	2	,,
5th ,,	2	,,

From the garden to the market.—Now in Kerala we are using an old country method for destilling the lemongrass oil. The old apparatus consists of copper boiler, condenser (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 heated 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 hot 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 capcity of 40 to 45 gallons. Lemongrass oil is mainly exported to U.S.A. and U.K.

4.5 Classification of soil

District	*Type of soil*	*Details of distribution*
Trivandrum	1. Fairly rich brown loam of laterite 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 parts of Quilon taluk.
	2. Laterite soil	Kottarakkara, and parts of Kunnathur and Pathanapuram taluks.
	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 oil	Shertallai and Ambalapuzha taluks.
	3. Clay loam with much of acidity	Kuttanad
	4. Laterite soil	Chengannur and part of Mavelikkara
Kottayam	1. Laterite soil	Part of Meenachil Changanacherry a nd Kottayam taluks.
	2. Alluvial soil	Parts of Changanaserry, and Kottayam taluks.
Idukki	1. Laterite soil	Peermade and Thodupuzha taluks.
	2. Alluvial soil	Deviklam and Udumbanchola taluks.

Ernakulam	1.	Laterite	Moovattupuzha and part of Kunnathunad.
	2.	Sandy loam	Parur, Cochin and Kanayannur taluks.
	3.	Alluvial	Part of Alwaye and Kunnathunad.
Trichur	1.	Sandy loam	Parts of Mukundapuram, Trichur and Chowghat taluks
	2.	Laterite	Eastern parts of Trichur and Western portion of Talappilly.
	3.	Grante	Northern part of Talappilly.
	4.	Clay	Back water area in Chowghat and part of Mukundapuram.
Palghat	1.	Sandy soil	Riverside areas
	2.	Laterite	Ottappalam, Perinthalmanna, Mannarghat and Palghat taluks.
	3.	Black soil	North eastern portion Chittoor taluk.
Malappuram	1.	Sandy soil	Coastal areas of the district.
	2.	Laterite	Major parts ofthe district barring coastal areas.
Kozhikode	1.	Laterite	Major parts of the district barring coastal areas.
	2.	Sandy	Coastal areas.
Wynad	1.	Laterite	Most parts of the district
Cannanore	1.	Laterite	Major parts of the district barring coastal areas.
	2.	Sandy	Coastal areas.

4.7. Conversion ratio between the raw materials and the processed product

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 cotten 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 ,,
Sesamum:	Oil to seeds crushed	40 ,,
	Cake to seeds crushed	60 ,,
Caster seeds	Oil seeds crushed	37 ,,
	Cake to seeds crushed	63 ,,
Coconuts:	Coprà to nuts one ton copra	6775 nuts
	Oil to copra crushed	62 per cent
	Cake to copra crushed	38 ,,
Neem seed:	Oil to kernel crushed	45 to 50 per cent
	Cake to kernels crushed	50 to 55 ,,
Sugar:	Gur from cane crushed	10 ,,
	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 ,,
Cahsewnuts:	Cashew kernels	25 per cent of cahsew nut
Butter	Butter from mixed milk	6.3 per cent
Ghee	Ghee from mixed milk	5.3 ,,

4.8. Average analysis of important fertilisers

Sl. No.	Name of fertiliser	Nitrogen (N. per cent	Phosphate ($P^2 O^5$)	Potash ($K^2 O$)
(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	1.0
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

4.9. Insect pests affecting paddy crops, their distribution and some practical methods of control

Sl.No...	*Name of post*	*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 1.5kg., 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 suspectable 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 up to flowering.
3.	Rice bug (leptocorisa acuta)	Sucks 'milk' of tender grains leaving them chaffy	Dust B.H.C. or spray endrin or prarathion 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 parathion at above, doses
5.	Rice case worm Nymphua depunctalis	Caterpillar in lead case defoliates	do.

(1)	(2)	(3)	(4)
6.	Paddy gall fly (Diptera)	The maggott bores into central shoot and cause the formation of elongated hollow gall called 'silver shoot'	Spray endrin or parathion at 250 gm. a.i. per hectare 4 times at weekly intervals from 15th day after transplantation. Set up light traps
7.	Paddy Mealy bug	Lives within leaf sheaths in colonies sucking sap causing stunting of crop	Spray parathion at 250 gm. a.i. per hectare phosphamidon (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 Cnaphalocrocis 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.

4.10 List of Rainguage Stations in Kerala

Trivandrum

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

Quilon

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

Pathanamthitta

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

Alleppey

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

Idukki

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

Ernakulam

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

Trichur

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

Kottayam

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

Malappuram

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

Waynad

1. Vythiri
2. Mananthoddy
3. Kuttiyadi (Dam)
4. Kuttiyadi (P.H.)
5. Peria
6. Chedleth

Kasargode

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

Palghat

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

Kozhikode

1. Kozhikode
2. Quilandy
3. Badagara
4. Muthanga
5. Kuppady

Cannanore

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

4.11 Glossary of English, Botanical and Malayalam names of crops

Sl. No.	*English name*	*Malayalam name*	*Botanical name*
1.	Paddy	Nellu	Oryza Sativa
2.	Ragi	Koovaraku	Eleusine Coracana
3.	Jowar	Cholam	Sorghum Valgare
4.	Bajra	Kambu	Ponnistum Typhodem
5.	Kodamillet	Vargu	Paspalum Scrobculatum
6.	Chama	Chama	Panicum Miliare
7.	Wheat	Gothampu	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 Savitivum
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.	Cinnamon	Karukapotta	Cinnamomum Zolanica
13.	Clove	Grampu	Eugnnia Caryophyllate
14.	Cinchona	Cinchona	Cinchona Officinalis
15.	Arecanut	Adacka	Areca Catechu

Sl. No.	*English name*	*Malayalam name*	*Botanical name*
		Fruits	
1.	Banana	Vazha	Musa Paradisiaca
2.	Plantain	Vazha	Mussepientium
3.	Bread fruit	Seemaplanvu	Artocarpusincisa
4.	Bullocks heart	Malamumthiri	Anonarreticulate
5.	Cashew	Kasumavu	Anacardium Occidentale
6.	Grape vine	Munthiri	Vitis Vinifere
7.	Custardapple	Seetha Pazham	Anona Squamosa
8.	Guava	Pera	Psidium Guajava
9.	Jujube	Elantha	Aiz rphus jujuba
10.	Jack fruit	Plavu	Artocarpus Integriofolia
11.	Lime	Naranga	Citrus Aurantifollia
13.	Mango	Mavu	Mangifer Indica
14.	Papaya	Pappaka	Carica Pappaya
15.	Pineapple	Kaithachakka	Ananas sativa
16.	Pomegramate	Mathalam	Punica Cranatum
17.	Sapota	Sapota	Achras Achras Sapota
18.	Pomello	Bamplimas	Citrus Mahima
19.	Orange	Orange	Citrus retiaulate
20.	Mangosteen	Mangosteen	Garcimia mangesteens
		Vegetables	
1.	Tapioca	Maracheeni	Manihot Utilissima
2.	Elephantear	Chembu	Celocasianitiquorum
3.	Elephant foot	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 Campestria
9.	Carrot	Carrot	Daucus Carota
10.	Bed pumpkin	Vellarimathan	Cucurbita Maxiem
11.	Brinjal	Vuzhuthana	Solamum Malengena
12.	Tomato	Thakkali	Lydcoperseum esculentum
13.	Amaranthus	Cheera	Amaranthus Spp
14.	Lady's finger	Venda	Abelmoschus esaulenlus
15.	Bitter grourd	Pavakka	Mamordica Charantia
16.	Bottle gourd	Churakka	Lagenaria Siceraria
17.	Snake gourd	Padavalanga	Trichosanthese angunia
18.	Ridge gourd	Peechanga	Luffaacutanglnata

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