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GOVERNMENT OF KERALA

**SEASON AND CROP REPORT
OF
KERALA STATE
1977-78**

**DIRECTORATE OF ECONOMICS AND STATISTICS
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SEASON AND CROP REPORT
< OF
KERALA STATE

1977-78

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1982

SEASON AND CROP REPORT 1977-78

FOREWORD

This is the 19th report of the series of season and crop reports relating to Kerala State. It deals with the different aspects of the agricultural economy of the State pertaining to the year 1977-78. The report is divided into four parts as detailed below:

Part I	..	Narrative part
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Trivandrum.

Dr. P. A. NAIR,
Director.

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6. Land utilisation
7. Area under crops
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9. Weather and crop condition
10. Production of important crops
11. Farm price of certain commodities
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SEASON AND CROP REPORT FOR KERALA 1977-78

1. *General.*—Kerala with a geographical area of 38,885 sq. km. is one of the smallest states of Indian Union. It lies in the south-west corner of India between 8° 18' and 12° 48' north latitudes and 74° 52' and 77° 22' east longitudes and occupies 1.2% of the total geographical area of the country. The state has a long coast line of 580 km. and the width of the state varies from 180 km. in the middle to 32 km. in the extremities.

The physical configuration of the state is singularly diversified. The forest clad westernghats from the eastern boundary of the state. From the westernghats the country undulates to the west presenting a series of hills and valleys intersected by a number of rivers and streams. The west coast of the state is more or less flat. Topographically these characteristics demarcate the state into three natural regions viz. the highland, the midland, the low land and are responsible for the diversity in the plant growth. The aids of irrigation facilities like major and minor irrigation, and the hydroelectric projects have helped to make vast progress especially in agricultural sphere which is being noticed in the high proportion of land use. The highland is most suited for the cultivation of plantation crops like tea, rubber, coffee and cardamom. They are being extensively cultivated in a wide area earning much foreign exchange. The midland region is famous for its diversity in the cropping pattern. Rice is grown in the valleys, while tapioca, coconut, arecanut, rubber, pepper etc. are cultivated in the slopes. The lowland has monopolised for the cultivation of coconut and rice.

Agriculture is the stable occupation of the majority of the people in Kerala. As a result of green revolution vast developments in various sphere in agriculture are being made. Even though a large number of crops is brought under cultivation, paddy and coconut stand in the foremost among them. Agriculture research paved the way for many types of high yielding varieties of almost all crops especially in paddy and coconut. Paddy is cultivated in three seasons, viz., Autumn (Virippu), Winter (Mundakan) and Summer (Punja). During Autumn and Winter, paddy is cultivated more extensively than during the summer season. Other important seasonal crops cultivated in the state are tapioca, groundnut, pulses, tubers, Sesamum and ginger. Important annual crops grown in the state are banana and plantains, sugarcane and pineapple. The major perennial crops grown in the state are coconut, arecanut, cashew and pepper in addition to plantation crops such as tea, coffee, rubber and cardamom, jack and mango are also grown extensively in the state.

A heavy rainfall, a warm humidity of atmosphere and a fairly uniform temperature throughout the year are the characteristic climatic features of the state. The state has a normal rainfall of about 300 mm. per annum. This climatic condition is highly favourable for our agricultural field.

For administrative purposes the state is divided into 11 districts and 57 taluks. The districts are Trivandrum, Quilon, Alleppey, Kottayam, Idukki, Ernakulam, Trichur, Palghat, Malappuram, Kozhikode and Cannanore.

2. *Population.*—The population of the state as per 1971 census is 213·47 lakhs and the density of population is 548 per sq. km. The estimated population for 1976 is 237·37 lakhs. The district-wise distribution of population and density per sq. km. as per 1971 census are given below:

TABLE I

<i>District</i>	<i>Population 1971 Census (lakhs)</i>	<i>Density per sq. km. (1971 census)</i>
(1)	(2)	(3)
Trivandrum	.. 21·99	1,003
Quilon	.. 24·13	522
Alleppey	.. 21·26	1,128
Kottayam	.. 15·39	679
Idukki	.. 7·65	149
Ernakulam	.. 21·64	914
Trichur	.. 21·29	702
Palghat	.. 16·85	383
Malappuram	.. 18·56	510
Kozhikode	.. 21·06	565
Cannanore	.. 23·65	415
Kerala	.. 213·47	549

The per capital and available for cultivation in the state is 0·10 hectare and the per capita cultivated land is 0·09 hectares.

In literacy Kerala is the leading state in India. According to 1971 census the percentage literacy in the State is 60·16 and this is more than double the All India rate of 29·32.

3. *Rainfall.*—The yearly normal rainfall of the State is 3017·6 mm. It varies from 2001·6 mm. in Trivandrum District to 3796·0mm. in Kozhikode District. The seasons are mainly controlled by the two

periods of rainfall, viz., the south-west-monsoon (from June to August) and north-east monsoon (from October to December). June to September is the season when nearly two thirds of the annual rainfall is received. Two essential features of the distribution of the rainfall are its progressive increase from south to north and a similar increase from stations on the coast to stations at the foot of the ghats. During the period under review the state faced heavy floods in certain parts of Kerala and it resulted in the heavy damages to some crops. The normal and actual rainfall for the year are furnished in the following table.

TABLE II

Sl. No.	District	Normal rainfall in mm.	Actual rainfall in mm. (1977-78)
(1)	(2)	(3)	(4)
1	Trivandrum	2001.6	1920.4
2	Quilon	2760.2	2637.0
3	Alleppey	3012.0	2952.0
4	Kottayam	3462.6	3343.1
5	Idukki	2898.9	2725.4
6	Ernakulam	3548.5	3648.6
7	Trichur	3177.4	3502.8
8	Palghat	2397.7	2340.9
9	Malappuram	2900.1	3130.1
10	Kozhikode	3796.0	5239.6
11	Cannanore	3437.9	4337.1
	State average	3017.6	3222.5

The monthly normal and actual rainfall are given in Table 1.1 and 1.2 of Part III.

4. *Soil*.—The different types of soils seen in the state are classified as follows:—

1. The hilly and forest soil all along the eastern part of the State.
2. The sandy soil of the coastal belt.
3. The laterite soil of the midland.
4. The black soil occurring as patches is seen in the eastern border of Palghat District.
5. The peat or kari soil is seen in Alleppey District.
6. Alluvial soil is seen along the southern and eastern parts of Vembanad lake and in small patches in Trivandrum District.
7. The red soil found in the extreme tip of Trivandrum District.

5. *Communication.*—The state is blessed with a large number of roads, waterways, railways and airways with abundant facilities for transport. The state is connected with the neighbouring states by roadways as well as railways. By implementing the broadgauge system, the state is easily connected with other states, which is a notable event in the progress of rail transport. Inland water transport is successfully maintained throughout the state by the backwater and canals. Among the twelve state ports in the state there are 3 intermediary 8 minor and one major ports which play a vital role in the commercial development of the state. There are two Aerodromes one at Trivandrum and the other at Cochin. Aerodrome at Trivandrum was declared as an international airport in the year 1976 with ample facilities, with provides enough possibilities for tourism in the state. Modern air services are being scheduled systematically from the State. Consequently airways also plays a vital role in the development of the state.

6. *Land utilisation.*—The land utilisation particulars of the state relating to 1977-78 have been furnished in Table A of the summary tables with district-wise breakup in Table 2.1 of the detailed tables. Prior to 1975-76 estimates on various parameters relating to agricultural statistics were framed on the basis of the data collected annually through land utilisation surveys organised by the department. The estimates so obtained at taluk or even at district level could not be assured of the desired precision due to the small sampling fraction adopted for these survey. The quality and the coverage of the data was not much dependable. It was in this context that the Government of India came up to finance a scheme for establishing an agency in the state for reporting agricultural statistics as part of an All India Scheme for improvement of agricultural statistics namely the "Timely Reporting Survey". The survey was started in the State in 1975-76 and 10 per cent of the villages (134) were enumerated. In the year 1977-78, 20 per cent of the villages (265) were selected and enumerated. The estimates from 1975-76 have more precision. The particulars of area under different types of use are given below:

1. *Total area of the state.*—The state has a total area of 3,885,497 hectares according to village papers. The district-wise area of the state is furnished in the table given below (Table III):

TABLE III

District-wise area of the state

District	Area in hectares (as per village records)	Percentage	Area as per 1971 census
Trivandrum	.. 218,600	5.6	219,200
Quilon	.. 474,290	12.2	462,300
Alleppey	.. 182,270	4.7	188,400

District	Area in hectares (as per village records)	Percentage	Area as per 1971 census
Kottayam	219,550	5.7	219,600
Idukki	515,048	13.2	508,700
Ernakulam	235,319	6.1	237,700
Trichur	299,390	7.7	303,200
Palghat	438,980	11.3	440,000
Malappuram	363,230	9.3	363,800
Kozhikode	371,150	9.6	372,900
Cannanore	567,670	14.6	570,600
State	3,885,497	100.0	3,886,400

2. *Forest.*—The total forest area of the State is 1,081,509 hectares i.e. 27.3 per cent of total geographical area. District-wise details for 1976-77 and 1977-78 are given below:

TABLE IV
Area under forests

District	Area under forest (hectares)	
	1976-77	1977-78
Trivandrum	49,861	49,861
Quilon	236,048	236,048
Alleppey	518	518
Kottayam	8,141	8,141
Idukki	260,993	260,993
Ernakulam	8,123	8,123
Trichur	103,619	103,619
Palghat	136,257	136,257
Malappuram	103,417	103,417
Kozhikode	90,876	90,876
Cannanore	83,656	83,656
State	1,081,509	1,081,509

3. *Land put to non-agricultural uses.*—The area of the land put to non-agricultural uses in the state during the year 1977-78 is 257,276 hectares where as the estimate for the previous year was 260,388 hectares. It shows that there is a slight decline in the area put to non-agricultural uses. The district-wise breakup is furnished in the Table V. Alleppey, Ernakulam, Palghat and Cannanore are the districts having a large area under non-agricultural uses.

TABLE V

Land put to non-agricultural uses

District	Area under non-agricultural uses (hectares)	
	1976-77	1977-78
Trivandrum	16,999	16,640
Quilon	24,269	24,372
Alleppey	27,855	30,230
Kottayam	17,686	16,416
Idukki	13,411	13,570
Ernakulam	29,380	27,610
Trichur	18,986	20,310
Palghat	31,587	32,685
Malappuram	14,157	16,667
Kozhikode	21,474	21,688
Cannanore	44,584	37,088
Total	260,388	257,276

4. *Barren and uncultivable land.*—The area under this category is 75,382 hectares as against 78,837 in 1976-77. About 3/4 of the area under this category falls in the District of Idukki, Palghat and Cannanore.

5. *Permanent pastures and grazing land.*—The estimated area under this class during the year under report is 10,616 hectares, where as the area for the previous year is 16,095 hectares. Idukki, Cannanore and Palghat District account for the major portion of the area under this category.

6. *Land under miscellaneous tree crops.*—The area under this item is estimated as 67,960 hectares during the year 1977-78 whereas the area for the previous year is 72,668 hectares. More than 75 per cent of the area under this class is situated in Idukki, Cannanore and Kozhikode Districts.

7. *Cultivable waste land.*—The estimated area under cultivable waste during the year is 118,256 hectares whereas the area for the previous year was 115,726 hectares. The district-wise breakup is given in the following Table VI. Major portion of Idukki, Palghat, Malapuram and Cannanore falls under this category.

TABLE VI

District	Area under cultivable waste land (hectares)	
	1976-77	1977-78
Trivandrum ..	1,017	2,331
Quilon ..	1,395	1,217
Alleppey ..	2,068	2,792
Kottayam ..	1,947	1,407
Idukki ..	36,384	39,952
Ernakulam ..	5,316	6,172
Trichur ..	4,968	5,295
Palghat ..	18,406	20,080
Malappuram ..	13,157	13,172
Kozhikode ..	6,610	5,852
Cannanore ..	24,458	19,986
State	115,726	118,256

8. *Fallow land other than current fallow.*—An area of 27,118 hectares is estimated to be under this category as against 22,264 hectares for the previous year.

9. *Current fallow.*—It is estimated that an area of 46,111 hectares is under current fallow in the state during this year. The corresponding estimate for the previous year was 37,409 hectares. There is an additional area of 8,702 hectares left as current fallow during the year.

TABLE VII

District	Current fallow (hectares)	
	1976-77	1977-78
Trivandrum ..	1,172	2,411
Quilon ..	1,654	1,834
Alleppey ..	2,013	5,435
Kottayam ..	1,856	3,783
Idukki ..	1,318	1,149
Ernakulam ..	4,637	4,171
Trichur ..	4,067	4,501
Palghat ..	6,942	6,508
Malappuram ..	3,621	7,825
Kozhikode ..	1,572	2,495
Cannanore ..	6,557	5,999
State	37,409	46,111

10. *Net area sown.*—The estimates of the year under net area sown show a slight increase when compared to that of the previous year. The area under this item occupies 55.65 per cent of the total area of the State and 75.20 per cent of the total cropped area. The percentage of net area sown to the total geographical area is highest in Kottayam District followed by Alleppey, Ernakulam, Kozhikode districts. The district-wise area for 1976-77 and 1977-78 are given below:

TABLE VIII

District	Net area sown (hectares)	
	1976-77	1977-78
Trivandrum ..	146,033	144,010
Quilon ..	205,671	206,137
Alleppey ..	148,010	141,530
Kottayam ..	185,012	184,109
Idukki ..	156,499	157,871
Ernakulam ..	181,334	182,622
Trichur ..	160,082	159,792
Palghat ..	220,408	216,260
Malappuram ..	213,425	207,110
Kozhikode ..	235,165	232,911
Cannanore ..	348,962	368,917
State ..	2,200,601	2,201,269

11. *Area sown more than once.*—The area sown more than once is the State during 1977-78 is 722,535 hectares. This is slightly less than the previous years' estimate of 73,284 hectares. The district-wise details are presented in Table IX. The extent of area sown more than once is highest in Quilon followed by Palghat and Trivandrum Districts.

TABLE IX

District	Area sown more than once (hectares)	
	1976-77	1977-78
Trivandrum ..	95,637	82,830
Quilon ..	130,378	118,453
Alleppey ..	76,383	79,629

TABLE IX

(cont.)

District	Area sown more than once (hectares)	
	1976-77	1977-78
Kottayam ..	73,332	33,508
Idukki ..	1,222	1,919
Ernakulam ..	56,353	71,607
Trichur ..	72,491	74,194
Palghat ..	88,659	101,776
Malappuram ..	69,812	70,384
Kozhikode ..	45,057	49,646
Cannanore ..	21,525	18,589
State ..	732,849	722,535

(12) *Total cropped area.*—The total cropped area of the State during 1977-78 is estimated as 2,923,804 hectares, which forms 75.24 per cent of the total area of the State. The corresponding figure for 1976-77 is 2,933,450 hectares. The district-wise distribution is given in Table X.

TABLE X

District	Total cropped area (hectares)	
	1976-77	1977-78
Trivandrum ..	241,670	226,840
Quilon ..	336,049	324,590
Alleppey ..	226,393	221,159
Kottayam ..	258,344	237,617
Idukki ..	157,721	159,790
Ernakulam ..	237,687	254,229
Trichur ..	232,573	233,986
Palghat ..	309,067	318,036
Malappuram ..	283,237	277,494
Kozhikode ..	280,222	282,557
Cannanore ..	370,487	387,506
State ..	2,933,450	2,923,804

Though Cannanore, Quilon, and Palghat rank in the extent of total cropped area in the districts, Alleppey, Ernakulam, Kottayam and Trivandrum rank in the percentage of total cropped area to the geographical area of the districts. The total cropped area is found to be more than the geographical area in Trivandrum, Alleppey, Kottayam, Ernakulam whereas it is only less than 1/3 of the geographical area in Idukki District.

(13) *Total cropped area and net area sown*;— District-wise distribution of the net area sown and total, cropped area is given in Table XI.

TABLE XI

Total cropped area and net area sown

<i>District</i>	<i>Net area sown (hectares)</i>	<i>Total cropped area hectares</i>	<i>Percentage of total cropped area to net area sown</i>
Trivandrum ..	144,610	226,840	1.57
Quilon ..	206,137	324,590	1.57
Alleppey ..	141,530	221,159	1.56
Kottayam ..	184,109	237,617	1.29
Idukki ..	157,871	139,790	1.01
Ernakulam ..	182,622	254,229	1.39
Trichur ..	159,792	233,986	1.46
Palghat ..	216,260	318,036	1.47
Malappuram ..	207,110	277,494	1.33
Kozhikode ..	232,911	282,557	1.21
Cannanore ..	368,917	387,506	1.05
State ..	2,201,269	2,923,804	1.32

The percentage of total cropped area to net area sown is highest in Quilon District and Trivandrum District which shows that the intensity of cultivation is maximum in Quilon and Trivandrum Districts and next to Quilon, and Trivandrum come Alleppey and Palghat.

(14) The district-wise gross area under seasonal, annual and perennial crops during 1977-78 is given in Table XII below:

TABLE XII

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

<i>Sl. No.</i>	<i>District</i>	<i>Annual</i>	<i>Seasonal</i>	<i>Perennial</i>	<i>Grand Total</i>
1.	Trivandrum ..	5,171	90,771	130,898	226,840
2.	Quilon ..	7,435	146,196	170,959	324,590
3.	Alleppey ..	6,320	126,562	88,277	221,159
4.	Kottayam ..	6,419	86,081	145,117	237,617
5.	Idukki ..	5,156	30,862	123,772	159,790
6.	Ernakulam ..	6,218	128,179	119,832	254,229
7.	Trichur ..	5,936	135,786	92,264	233,986
8.	Palghat ..	4,487	225,708	87,841	318,036
9.	Malappuram ..	5,511	127,132	144,851	277,494
10.	Kozhikode ..	4,720	69,171	208,666	282,557
11.	Cannanore ..	7,291	115,016	255,199	387,506
	Total ..	64,664	1,281,464	1,577,676	2,923,804

Of the gross area under cultivation during the year 53·96 per cent are under perennial crops, 43·83 per cent under seasonal crops and 2·21 per cent under annual crops. In the case of perennial and annual crops there is no difference between gross area and net area. Hence it can be seen that perennial and annual crops occupies about $\frac{2}{3}$ of the net area under cultivation. In Alleppey, Trichur and Palghat the gross area under seasonal crops is more than $\frac{1}{2}$ of the gross area under cultivation in the district.

(15) The District-wise distribution of the area under single double, and tripple crop of paddy 1977-78 in the wet lands in the State is not estimated.

7. *Area under crops.*—Agricultural crops in the State are broadly classified into food crops and non-food crops. The details of area under food crops in the State have been furnished in Table C of the summary tables and district-wise area in Table 3·1 of the detailed Tables.

Food crops

The area under food crops in each district and percentage of that to the total cropped area in the district are as follows:

TABLE XIII

Sl. No.	District	Total cropped area (hectares) 1977-78	Area under food crops (hectares) 1977-78	Percentage	Area under food crops as percentage to total cropped area
				of area under food crops in each district to the State total	
(1)	(2)	(3)	(4)	(5)	(6)
1	Trivandrum ..	226,840	132,053	7.19	58.21
2	Quilon ..	324,590	192,358	10.47	59.26
3	Alleppey ..	221,159	151,145	8.22	68.34
4	Kottayam ..	237,617	122,617	6.67	51.60
5	Idukki ..	159,790	97,685	5.31	61.13
6	Ernakulam ..	254,229	165,906	9.03	65.26
7	Trichur ..	233,988	171,389	9.33	73.25
8	Palghat ..	318,036	255,436	13.90	80.32
9	Malappuram ..	277,494	183,672	9.99	66.19
10	Kozhikode ..	282,557	128,804	7.01	45.59
11	Cannanore ..	387,506	236,551	12.87	61.04
	State ..	2,923,804	1,837,616	100.00	62.85

The area under food crops is maximum in Palghat District followed by Cannanore and Quilon Districts. The percentage of area under food crops to total cropped area is also highest in Palghat District. The relative position of some of the important food crops during 1977-78 to that of 1976-77 is given in the following paragraphs.

(1) *Paddy*.—The area under paddy during the year under report is estimated as 840,374 hectares as against 854,374 hectares during 1976-77.

TABLE XIV

Sl. No.	District	Area under paddy (hectare)	
		1976-77	1977-78
(1)	(2)	(3)	(4)
1	Trivandrum ..	37,976	34,529
2	Quilon ..	49,657	50,383
3	Alleppey ..	88,591	90,907
4	Kottayam ..	49,247	43,528

TABLE XIV—(cont.)

Sl. No.	District	Area under paddy (hectare)	
		1976-77	1977-78
(1)	(2)	(3)	(4)
5	Idukki ..	13,724	13,805
6	Ernakulam ..	99,327	99,243
7	Trichur ..	118,065	119,768
8	Palghat ..	171,022	171,908
9	Malappuram ..	91,580	98,400
10	Kozhikode ..	51,726	49,380
11	Cannanore ..	81,459	78,523
	State ..	854,374	840,374

The area under cultivation of paddy for 1977-78 is 14,000 hectares less than that in the previous year. This area is left as current fallow or cultivable waste land during the year. The area under paddy is largest in Palghat District and the smallest in Idukki. Palghat District alone accounts for 1/5th of the total area under paddy. District-wise percentage distribution of area under paddy and the percentage of area under paddy to total cropped area are furnished below:

TABLE XV

Percentage distribution of area under paddy to total cropped area

Sl. No.	District	Area under paddy (hectares)	Percentage to total	Percentage of area under paddy to total cropped area
(1)	(2)	(3)	(4)	(5)
1	Trivandrum ..	34,529	4.11	15.22
2	Quilon ..	50,383	5.99	15.52
3	Alleppey ..	90,907	10.82	41.10
4	Kottayam ..	13,528	5.18	18.33
5	Idukki ..	13,805	1.64	8.64
6	Ernakulam ..	99,243	11.81	39.04
7	Trichur ..	119,768	14.25	51.18
8	Palghat ..	171,908	20.46	54.05
9	Malappuram ..	88,400	10.52	31.86
10	Kozhikode ..	49,380	5.88	17.48
11	Cannanore ..	78,523	9.34	20.26
	State ..	840,374	100.00	28.74

(2) *Other cereals and millets.*—Besides, Paddy, Jowar, Ragi, Chama etc. are also cultivated in the State. The area under these crops during 1977-78 comes to 6008 hectares. Out of this 3,416 hectares come, under millets. Palghat District stands first in the area under cultivation of cereals and millets.

(3) *Pulses.*—During the year under report the area of the pulses is estimated as 36,733 hectares as against 36,529 hectares in 1976-77. Palghat District leads in the cultivation of pulses. In the case of other districts the area is more or less the same.

(4) *Sugar crops.*—The area under these crops is 20,011 hectares during the year. Under this the area of sugarcane is 6,625 hectares and 13,386 hectares are Palmyrah. About $\frac{1}{3}$ of the total area under this crop is in Alleppey District followed by Idukki and Palghat.

(5) *Pepper.*—Pepper is cultivated in 101,045 hectares during the year as against 108,666 hectares in the previous year. The estimate of area under cultivation shown a slight decline when compared to the previous year.

(6) *Chillies.*—This crop is cultivated only in Palghat, Malappuram Kozhikode and Cannanore Districts. The area under the crop during the year is 1,215 hectares as against 2,889 hectares in 1976-77, the extent of cultivation being much less than that in the previous year.

(7) *Ginger.*—Ginger is cultivated in an area of 12,672 hectares during 1977-78 as against 10,347 hectares in 1976-77. In almost all the districts ginger is cultivated, but the important ginger growing districts are Kottayam, Ernakulam, Kozhikode and Quilon. In Trivandrum, ginger is cultivated only in a small area. Ginger is being exported in large quantity from this State and it also helps in earning our foreign currency.

(8) *Turmeric.*—Turmeric is cultivated in 3,674 hectares during 1977-78 as against 2,355 hectares during 1976-77.

(9) *Cardamom.*—The area under cardamom comes under 52,008 hectares as against 51,681 hectares during the previous year. Idukki is the major cardamom producing district. About 90 per cent of the area of cardamom cultivation comes under Idukki.

(10) *Arecanut.*—The estimated area under arecanut for the year is 62,427 hectares as against 68,356 hectares in the previous year. Even though arecanut is cultivated in all districts fairly on a large scale Cannanore, Malappuram, Trichur, Ernakulam districts occupy about 50 per cent of the area under report.

(11) *Mango.*—The area under mango is 62,198 hectares during this year as against 67,098 hectares during 1976-77. The area of

cultivation is more or less the same in all the districts. The estimated area under mango has declining from 67,098 in 1976-77 to 62,198 hectares during this year.

(12) *Jack*.—Jack is cultivated on a large scale in all the districts. The area under the crop during the year is 61,790 hectares.

(13) *Banana*.—A consistently upward trend is observed in the area under cultivation of this crop. The total area under banana is estimated as 10,379 hectares during 1977-78 as against 11,162 hectares during 1976-77. But during this year the area of cultivation decreased from that of the previous year.

(14) *Other plantain*.—The area under plantains is 39,721 hectares as against 40,535 hectares.

(15) *Cashew*.—The upward trend noticed in the area under cashew during 1977-78 has been continued this year also. The total area under cashew is estimated as 126,963 hectares as against 113,326 hectares during 1976-77. The major cashew producing districts are Cannanore, Malappuram and Trichur. About 75 per cent of the total area under the crop is in Cannanore, Malappuram and Trichur Districts. Cashew is also reported to be grown in 3,334 hectares in forest land. A tremendous increase is being noticed in the export of cashew which earns much foreign currency for the country.

(16) *Tapioca*.—Tapioca is an important food crop in the State and it is extensively cultivated in almost all the districts. It is an important substitute for rice among the poor. Quilon and Trivandrum Districts stand first in the cultivation. The total area of tapioca is 289,722 hectares throughout the State during 1977-78 as against 323,278 hectares during the previous year.

B. Non-food crops

The non-food crops cover only 37.15 per cent of the total cropped area of the State. The total area under non-food crops during 1977-78 is estimated as 1,086,188 hectares as against 1,064,559 hectares during 1976-77. The changes in area under certain crops during 1977-78 compared to that of the previous year is given below:

(1) *Groundnut*.—This crop is cultivated only in Palghat District. The crop is cultivated in 12,655 hectares in 1977-78 against 16,622 hectares during the previous year.

(2) *Sesamum*.—It is mainly cultivated in Quilon and Alleppey Districts. About 1/2 of the total area under the crop is in these two districts. The total area under this crop is 17,549 as against 15,970 hectares in the previous year.

(3) *Coconut*.—Coconut is the most important non-food crop of the State. It is used for both domestic consumption and for manufacturing industries. About 62 per cent of the area under non-food crops and 23 per cent of the total cropped area fall under this category. It is cultivated fairly on a large scale in all the districts. Kozhikode District stands first in the extent of area under the crop followed by Cannanore, Quilon, Trivandrum, Malappuram. The estimates for the year 1977-78 under coconut is 673,479 hectares as against 694,985 hectares in the previous year. In the previous year Quilon was the first district in the extent of coconut cultivation. But during this year Kozhikode stands first, Quilon being the III rank.

(4) *Cotton*.—Palghat is the main cotton growing district in the State. It accounts for 5,286 hectares during the year under report as against 7,249 hectares during the previous year.

(5) *Tobacco*.—Tobacco is cultivated only in Cannanore district. The area under the crop is estimated as only 404 hectares in the district. The area for the previous year is 539 hectares:

(6) *Tea*.—The area under the crop during the year under report is estimated to be 36,112 hectares as against 36,161 hectares in the previous year. Idukki is the important tea growing district. About 67 per cent of the total area under the crop is in Idukki District.

(7) *Coffee*.—Coffee is another plantation crop of the State. Among the districts Kozhikode occupies the first place in the extent of cultivation of coffee with more than 50 per cent of the total area under the crop. The crop has cultivated in 52,644 hectares. The area during the previous year was 40,502 hectares. There is a slight increase in the area during the current year. Cannanore District stands II in the cultivation of coffee.

(8) *Rubber*.—Kerala holds a monopoly for the rubber cultivation in India. It is cultivated extensively in all districts. The area under rubber during the year is 212,271 whereas the area of the previous year was 209,723 hectares. Kottayam, Quilon, Cannanore and Ernakulam are the leading districts in rubber cultivation.

8. *Irrigation*.—The net area irrigated in the State during the year is estimated as 228,184 hectares. Government canals are the major source of irrigation. About 90,000 hectares have been irrigated by private tanks and wells and Minor and Lift Irrigation (Government Scheme). During the year 10.37 per cent of the net area sown is brought under irrigation. The statement which shows the source of water supply and net area irrigated in 1977-78 is given in Table B.

9. *Weather and crop conditions*.—The State received the benefit of both the monsoons and hence complete failure of rain is unknown. This does not however rule out the possibility of the seasonal

distribution of rain being unfavourable to the agriculturists. Generally there was heavy rain in September and October throughout the State and it causes heavy damage to almost all the crops especially paddy cultivation. The weather and crop conditions during the year under review in each district are described in the following paragraphs.

Trivandrum.—Rainfall condition during kharif season was above normal and the condition of crops were also satisfactory in all the taluks in Trivandrum District. But there was heavy rain during September and October and it slightly affected the production of paddy in kharif season in all taluks. During rabi season the weather condition was satisfactory and there was sufficient rainfall during the season and the production of crops were also satisfactory. The production of summer paddy was not appreciable due to pest attack and untimely rain experienced in Chirayinkil Taluk and in other taluks the production of summer crop was adversely affected by pest attack.

Quilon.—There was heavy rainfall during kharif season and it affected agricultural operations in certain parts of the district, but no damages which caused except in Pathanapuram and Pathanamthitta Taluks. During the rabi season, inadequate rainfall in the beginning of cropping season and the heavy rain at the time of harvest caused damages to crops namely paddy (summer), tapioca, banana etc. in Quilon Taluk. In all other taluks the crop condition was more or less the same.

Alleppey.—The south-west monsoon was very late in the district. In July and August, incessant and excessive rains have been received. As a result, the presence of chaffs was comparatively high in paddy and yield had fallen in Chengannur, Mavelikkara Taluks. Draught conditions in flowering stage, also affected the Autumn paddy. In Rabi season, the flood and cyclone occurred in October and November caused damages in Mundakan crop in almost all the taluks in Alleppey District. The weather condition was favourable to summer paddy. Slight damages had occurred in tapioca and the conditions of seasonal crops such as sugarcane, banana, tubers were fairly good and that of perennial crops such as coconut, arecanut and pepper were normal.

Kottayam.—The weather conditions were favourable to all taluks in the district during kharif season and the production and yield rate are more or less the same when compared to that of the previous year. During Rabi season there was heavy and continuous rain and this badly affected autumn paddy in the low lying areas and other parts of the district except Vaikkom and Meenachil Taluks. A cyclonic wind was reported to have occurred and this has caused much damage to agricultural crops.

Idukki.—The south-west monsoon was very late in the district and it caused some delay in sowing the crops especially paddy. But it did not affect the yield rate except in Devicolam and Peermade. Climatic conditions were favourable for the standing crops like Tapioca, Tubers, Rubber, Coconut, Ginger, Turmeric etc. in all the Taluks. But during Rabi season, high rainfall and flood caused low yield rate of paddy in Devicolam and Peermade Taluks. The heavy rain badly affected arecanut, coffee and cardamom crops also.

Ernakulam.—The moderate rainfall during May and June was helpful for tubers, ginger, turmeric and tapioca. For autumn paddy the rain was favourable and yield rate is high due to the irrigation facilities available in the district. A slight damage was reported to winter paddy in Parur and Kothamangalam Taluks. The crop conditions in all Taluks were good when compared to those of previous year.

Trichur.—There was sufficient rainfall during kharif and Rabi season in one or two Taluks. But the heavy rain slightly affected the agricultural operations for autumn crop of paddy in Trichur and Thalappally Taluks. As a result the yield rate of paddy decreased when compared to that of the previous year. The condition of kharif crops like tapioca, vegetables etc. was generally good. The yield rate of the summer crop of paddy was normal. The condition of perennial crops was quite satisfactory.

Palghat.—In both khariff and Rabi seasons, rainfall and crop conditions were highly favourable for the high yield rate of paddy in almost all the Taluks. In Mannarghat Taluk in khariff seasons the yield rate was low due to draught and in Ottappalam Taluk the paddy was damaged due to flood. The crop condition of all other Taluks were good.

Malappuram.—During khariff seasons, heavy rainfall was reported from almost all the taluks of the district. During Rabi season, the rainfall was normal, but slight draught is experienced in Perinthalmanna Taluk. In certain areas the crop was damaged by the attack of pests. The increase in price of fertilisers and insecticides caused the cultivators much difficulty in purchasing and applying them to the crops which to some extent decreased the Production.

Kozhikode.—The rainfall during the khariff season was heavy in Kozhikode Taluk and it affected the production of all types of crops. The crop condition in rabi season was normal but average production of all types of crops were bad. Heavy and stagnating rain at the beginning of the monsoon led to decrease in the production of paddy, pepper, arecanut and ginger. The time of tapping of rubber was constrained due to continuous rain.

Cannanore.—There was heavy rain during khariff season followed by flood in many parts of the district. Continuous rain during the late khariff season caused damages in the low lying areas of Kasargod, Talipparamba, and Cannanore. Heavy loss to paddy, banana, coconut and arecanut was reported. Pepper was affected by heavy damages due to flood and pests.

Production of Important crops.—The production of important crops in the State is furnished in Table 'D' of the summary tables. District-wise production estimates have been furnished in Table 4.1 of the detailed tables. The production of important crops is indicated below.

(1) *Paddy.*—The total production of rice in the State during 1977-78 is 1,294,635 tonnes as against 1,254,003 tonnes in the previous year. There is a slight increase in the production when compared to that of the previous year in spite of flood and draught during this year. Palghat District stands first in the production of rice. The District-wise details of production of rice are furnished in the following Table.

TABLE XVI
District-wise production of rice

District	Production of Rice (Tonnes)	
	1976-77	1977-78
Trivandrum ..	53,036	46,765
Quilon ..	66,649	71,796
Alleppey ..	162,025	160,018
Kottayam ..	78,138	69,060
Idukki ..	23,783	22,813
Ernakulam ..	137,213	141,437
Trichur ..	148,172	144,157
Palghat ..	301,308	361,048
Malappuram ..	110,050	114,561
Kozikode ..	54,985	58,788
Cannanore ..	118,639	104,192
State ..	<u>1,254,003</u>	<u>1,294,635</u>

The season-wise production of rice for the two years are as follows:

TABLE XVII

Season-wise production of rice

Season	Rice production (Tonnes)	
	1976-77	1977-78
Autumn ..	487,647	551,792
Winter ..	587,737	539,190
Summer ..	178,619	183,653
Total ..	<u>1,254,003</u>	<u>1,294,635</u>

(2) *Pulses*.—The production of pulses during this year is 16,091 tonnes as against 15,539 tonnes in the previous year. There is a slight increase in the production of pulses when compared to that of the previous year.

(3) *Sugarcane*.—The production of gur is estimated to be 37,755 tonnes during 1977-78 showing a decrease of 2,705 tonnes from the previous year.

(4) *Black pepper*.—The production of black pepper is estimated as 20,146 tonnes during 1977-78. The estimate of the previous year was 24,497 tonnes. Kozhikode, Cannanore and Quilon are the major pepper producing districts.

(5) *Dry ginger*.—The production of dry ginger during 1977-78 is 32,107 tonnes whereas it was 25,447 tonnes in the previous year which shows an increase of 6,660 tonnes from the previous year. About 30 per cent of the total production is concentrated in Kottayam District.

(6) *Turmeric (cured)*.—During 1977-78 the production of turmeric was estimated as 3,547 tonnes against 2,213 tonnes in the previous year, which shows an increase of 1334 tonnes during this year.

(7) *Cardamom (Processed)*.—The production of cardamom during 1977-78 was estimated as 2,900 tonnes against 1,420 tonnes in the previous year. During this year the production of cardamom is doubled from the previous year. About 83 per cent of the production is from Idukki District which is the major cardamom producing centre.

(8) *Betelnuts*.—During the period under report the arecanut production is estimated as 1,0548 millions.

(9) *Banana*.—The production of banana in the State during 1977-78 is estimated as 130679 tonnes. The estimate for the previous year was 81326 tonnes. There is a vast increase in the production of banana during this year. In almost all the districts, the production of banana is more or less the same. Kottayam District stands first and it accounted for 1/6th of the production.

(10) *Other plantains*.—The production of plantains has increased 484548 tonnes during this year (1977-78) from 309283 tonnes in the previous year. This shows that the cultivation of plantain has slightly increased in the State.

(11) *Cashewnut*.—During 1977-78 the production of cashewnut was 84727 tonnes. This shows a decrease in production to the extent of 2533 tonnes from that of the previous year. About 50 per cent of the cashewnut in the State is produced in Cannanore District.

(12) *Tapioca*.—The production of tapioca was estimated as 4188566 tonnes during this year 1977-78. In the previous year the production was 5125524 tonnes. There was a decrease of about 936958 tonnes in the production during 1977-78. Quilon is the major tapioca producing district in the State. The district-wise yield rates for 1976-77 and 1977-78 are furnished below:

The production estimates were assessed by using the results of the crop cutting experiments conducted by the Bureau.

TABLE XVIII

Yield rate of tapioca (Tonnes per hectare)

District	1977-78	1976-77
Trivandrum ..	14.05	14.20
Quilon ..	12.65	16.48
Alleppey ..	14.90	15.12
Kottayam ..	16.48	20.18
Idukki ..	19.25	18.95
Ernakulam ..	17.68	15.00
Trichur ..	18.32	14.55
Palghat ..	14.58	16.42
Malappuram ..	11.85	11.75
Kozhikode ..	14.38	11.28
Cannanore ..	16.25	18.18
State ..	14.46	15.85

(13) *Groundnut*.—The production of groundnut for the year is 13288 tonnes as against 17453 tonnes in the previous year.

(14) *Sesamum*.—During 1977-78 the production of sesamum was estimated as 4431 tonnes as against 4450 tonnes during this year.

(15) *Coconut*.—The quantity of coconut produced during 1977-78 is estimated as 3053 million nuts whereas the production in the previous year was 3348 million nuts.

(16) *Cotton*.—The cotton produced during 1977-78 is estimated as 7369 bales of 170 kg.

(17) *Tobacco*.—This crop is cultivated only in Cannanore District. The total production during the year is 768 tonnes.

(18) *Tea*.—The estimated production of tea for the year is 51983 tonnes during 1977-78 whereas it was 41644 tonnes in the previous year.

(19) *Coffee*.—The production of coffee has increased from 15030 tonnes in 1976-77 to 27645 tonnes during 1977-78.

(20) *Rubber*.—The production of rubber during 1977-78 is estimated as 135907 tonnes as against 139349 tonnes in the previous year. There is a slight decrease in the production.

11. *Farm price of certain commodities*.—The average farm prices of certain commodities are given in Table F of the summary tables and 5-1 of the detailed tables.

12. *Agricultural wages*.—District-wise and class-wise details of agricultural wages are given in Table 6-1.

13. *Livestock, Poultry and agricultural implements*.—The details relating to these items have been furnished in Table G of the summary Tables and 7-1 of detailed tables.

14. *Sowing, harvesting and peak marketing periods*.—The information on these topics has been furnished in Table 4 of the summary Tables.

PART II

Summary Tables

- A. Classification of area.
- B. Sources of Irrigation.
- C. Area under crops.
- D. Production of important crops.
- E. Average yield per hectare of certain crops.
- F. Average price and value of production.
- G. Livestock, Poultry and Agricultural Machinery.
- H. Sowing, harvesting and peak marketing seasons.



TABLE A

Classification of area (hectares)

<i>Head of classification</i>	<i>Area</i>	<i>Percentage</i>
1. Total area by village papers ..	3,885,497	100
2. Forests ..	1,081,509	27.84
3. Land put to non-agricultural uses ..	257,276	6.62
4. Barren and uncultivable lands ..	75,382	1.94
5. Permanent pastures and other grazinglands ..	10,616	0.27
6. Land under miscellaneous tree crops ..	67,960	1.75
7. Cultivable waste lands ..	118,256	3.04
8. Current fallow ..	46,111	1.19
9. Other fallows ..	27,118	0.70
10. Net area sown ..	2,201,269	56.65
11. Total cropped area ..	2,923,804	75.25
12. Area sown more than once ..	722,535	18.60

TABLE B

Source of water supply and net area (hectare) in irrigated during 1977-78

I. Net area irrigated by		95,775
1. Government canals ..		4,866
2. Private canals ..		8,057
3. Government tanks and wells ..		46,542
4. Private tanks and wells ..		
5. Minor and lift irrigation (government scheme) ..		41,906
6. Other source ..		31,038
Total ..		<u>228,184</u>

Percentage of area irrigated to net area sown .. 10.37

TABLE C

Area under crops in Kerala (hectare) 1977-78

	<i>Name of crop</i>	<i>Area (hectare)</i>
Cereals and millets	1. Paddy	840,374
	2. Jowar	1,926
	3. Ragi	1,940
	4. Other cereals and millets	2,592
	5. Total cereals and millets	846,382
Pulses	6. Tur	3,020
	7. Other pulses	36,713
	8. Total pulses	36,733
Sugar crops	9. Sugar cane	6,625
	10. Palmyrah	13,386
	11. Total sugar crops	20,011
Spices and condiments	12. Pepper	101,045
	13. Chillies	1,215
	14. Ginger	12,672
	15. Turmeric	3,674
	16. Cardamom	52,008
	17. Arecanut	62,427
	18. Other condiments and spices	4,800
	19. Total condiments and spices	237,841
	Fresh fruits	20. Mango	62,198
21. Jack		61,790
22. Banana		10,379
23. Other plantain		39,721
24. Pineapple		6,485
Dried fruits	25. Other fruit trees	24,297
	26. Cashew	126,963
	27. Total fruits	331,833
Total vegetables	28. Tapioca	289,722
	29. Sweet potato	4,997
	30. Tubers	32,905
	31. Other vegetables	12,470
	32. Total vegetables	364,816
	33. Other food crops (Tamarind)	10,018
	34. Total food crops	1,837,616
Oil seeds	35. Coconut	673,479
	36. Sesamum	17,549
	37. Ground nut	12,655
	38. Other oil seeds	2,511
Fibres	39. Total oil seeds	706,194
	40. Cotton	5,286

TABLE C—(cont.)

	<i>Name of crop</i>	<i>Area (hectare)</i>
Drugs, narcotics and plantation crops	41. Tobacco	404
	42. Tea	36,112
	43. Coffee	52,644
	44. Rubber	212,271
	45. Total	301,431
Other non-food crops	46. Fodder grass	1,214
	47. Green manure crops	11,813
	48. Lemon grass	6,930
	49. Betal leaves	1,454
	50. Other crop	48,809
	51. Total	67,220
	52. Total non-food crops	1,086,188
	53. Total area under all crops	2,923,804
	54. Area sown more than once	722,535
	55. Net area sown	2,201,269

TABLE D

Production of important crops in Kerala 1977-78

<i>Sl. No.</i>	<i>Name of crops</i>	<i>Units</i>	<i>Quantity</i>
(1)	(2)	(3)	(4)
1.	Rice	Metric tonnes	1,294,635
2.	Paddy	"	1,970,434
3.	Jowar	"	863
4.	Ragi	"	1,191
5.	Tur	"	..
6.	Other pulses	"	16,091
7.	Sugar cane (Gur)	"	37,755
8.	Pepper (black)	"	20,146
9.	Chillies (Dry)	"	1,121
10.	Ginger (Dry)	"	32,107
11.	Turmeric	"	3,547
12.	Cardamom	"	2,900
13.	Arecanut (Betal nuts)	Million nuts	10,548

TABLE D—(cont.)

<i>Sl. No.</i>	<i>Name of crops</i>	<i>Unit</i>	<i>Quantity</i>
(1)	(2)	(4)	(5)
14.	Banana	Tonnes	130,679
15.	Other plantain	In metric tonnes	484,548
16.	Cashew nuts	"	84,727
17.	Tapioca (Raw)	"	4,188,566
18.	Sweet potatoes	"	22,490
19.	Groundnut	"	13,288
20.	Sesamum	"	4,411
21.	Coconut	In million nut	3,053
22.	Cotton	(Bales of 170 kg.)	7,369
23.	Tobacco	In metric tonnes	768
24.	Coffee	"	27,645
25.	Tea	"	51,983
26.	Rubber	"	135,907

TABLE E

Average yield per hectare of certain crops for the year 1977-78

<i>Name of crop</i>	<i>Unit</i>	<i>1976-77</i>	<i>1977-78</i>
(1)	(2)	(3)	(4)
1. Paddy	kg.	2,234	2,344
2. Jowar	"	448	448
3. Ragi	"	893	799
4. Sugar cane (Gur)	"	5,641	5,699
5. Pepper (black)	"	225	199
6. Ginger (Dry)	"	2,459	2,534
7. Turmeric (cured)	"	940	965
8. Cardamom (processed)	"	28	56
9. Arecanut	Nuts/hect.	165,355	168,965
10. Banana	Kg.	7,285	12,590
11. Other plantain	"	7,630	12,198
12. Cashewnut	"	770	667
13. Tapioca (Raw)	"	15,855	14,457
14. Groundnut	"	1,050	1,050
15. Sesamum	"	279	252
16. Coconut	"	4,817	4,533
17. Cotton	"	230	237
18. Tea	"	1,152	1,439
19. Coffee	"	371	525
20. Rubber	"	664	640

TABLE F

Average farm price and value of production of certain commodities

Sl. No.	Name of crop	Unit	Average farm price (Rs.) weighted average	Value of production (Rs. in lakhs)
(1)	(2)	(3)	(4)	(5)
1.	Paddy	Qtl.	130.69	25,751.602
2.	Coconut (with husk)	1000 nos.	987.17	30,138.300
3.	Areca nut (Ripe)	1000 "	41.08	4,333.118
4.	Tapioca (Raw)	Qtl.	28.89	12,100.77
5.	Cashewnut	"	535.28	4,535.27
6.	Banana	1000 nos.	330.89	4,324.03
7.	Pepper (black)	Qtl.	1,606.39	3,236.23
8.	Ginger	"	1,222.93	3,926.46
9.	Sugar cane	M.T.	126.83	478.85

TABLE G

Number of livestock, poultry and agricultural machinery

1. Cattle	Male over 3 years	a. Breeding	4800	3462
		b. Working	371972	353672
		c. Others	14822	13980
		Total	391594	371114
	Female over 3 years	a. Breeding		
		1. In milk	606192	705040
		2. Dry	578827	585474
		3. Not calved	101849	74794
		b. Working	7646	2569
		c. Others	5657	3103
	Total	1300171	1370980	
	Young stock	1164555	1263965	
	Total cattle	2856320	3006059	
2. Buffaloes	Male over 3 years	a. Breeding	2185	1777
		b. Working	211467	210199
		c. Others	12077	6798
		Total	225729	218774

TABLE G—(cont.)

	Females over 3 years	a. Breeding:		
		1. In milk	83188	86698
		2. Dry	53671	85646
		3. Not calved	10495	9013
		b. Working	6066	5039
		c. Others	2360	1196
		Total	155780	157592
		Young stock	90238	78034
		Total buffaloes	471747	454400
3.	Goat	a. One year and above	839053	956695
		b. Below one year	628604	726602
		Total	1467657	1683297
4.	Sheep	a. One year and above	6991	
		b. Below one year	3330	
		Total	10321	2546
5.	Horse and Ponies	a. 3 years and above	333	
		b. Below 3 years	118	
		Total	451	90
6.	Mules		14	..
7.	Donkey		861	266
8.	Camels		11	
9.	Pigs		129087	..
		Total livestock	4936469	172375
10.	Poultry	a. Fowls	11844548	12956186
		b. Ducks	301941	429569
		c. Others	965	3095
11.	Ploughs	a. Wooden	393714	316975
		b. Iron	35103	69191
12.	Carts		16245	20525
13.	Sugarcane crushers	a. Power	96	459
		b. Bullocks	301	863
14.	Oil engine		186469	28759
15.	Electric pumps		9983	25973
16.	Tractors		2752	783

TABLE H

Sowing, harvesting and peak marketing seasons of principal crops in Kerala State 1977-78

Crop Calendar: State—Kerala.

Sl. No.	Name of crop	Season	Sowing	Period of flowering	Harvesting	Peak marketing
1	2	3	4	5	6	7
1	Rice	Autumn Winter Summer	April-July August-November October-December January-March	July-October October-January January-March March-May	August-October November-January March-May	September-November December-March March-June
2	Ragi	I Crop II Crop	April-July September-October May-June December	October-November September-October January-February July-November	September-November December-January October-November February	April-July September-November December-January October-November
3	Small millets	III Crop Autumn Summer	April-July January-February May-August	March June-September September-November	September-December April August-October October-January	December-January April August-October December-January
4	Redgram	Autumn Winter Summer	February-March February-April September-November	May March-April October-November	May April to June November-January	June May-June November-February April
5	Horsegram	Autumn Winter Summer	December-February June-August October	January-April August-September November	April August-September November-December	September-October November-December March-April
6	Greengram	Autumn Winter Summer	January March-June September-October	February-April July-August October-November	March-April June-September November-December	September-October November-December March-April
7	Blackgram	Summer Autumn Winter	April-July September-December December-March	July-August October-November January-April	July-September November-December January-October	September-October December-January July-November
8	Other pulses	Autumn Winter Summer	April-July September-December December-March	July-August October-December January-April	November-February February-June	December-March April

TABLE H—(cont.)

	Name of crop	Season	Sowing	Period of flowering	Harvesting	Peak marketing
1	2	3	4	5	6	7
9	Sugarcane	Autumn Winter Summer	October-February November-March June-October	.. .. September-October	October-December December-February October-January	November-December January-February January
10	Ginger	Autumn Winter	March-July March-June	.. ..	November-February December-February	December-February December-March
11	Pepper	Winter Summer	June-August July	July-October July-September	November-February January-April	November-March March-May February-March
12	Cotton	Winter	June-October	November-December	December-March	July-October
13	Sesamum	Autumn Winter	April-August August-October	July-September October-December	August-October December-April	December-February March-May
14	Sweet potatoes	Summer Autumn Winter	December-February April-July October-November	February-April	March-May September-November January-February	November-February February-March November-March
15	Turneric	..	April-July	..	March-June	April-June
16	Lemon grass	..	December-March April-July May-June	.. .. ..	November-February July-November January-February	November-March July-November January-February
17	Tapioca	Autumn Winter Summer	July-October March-May June-October	.. .. ..	April-May July-August November-March	April-May July-September December-February
18	Wet land	..	October-November	December	March-July	March-July
19	Mango	..	..	June	April-May September	April-May September
20	Tender Arc- canut	..	..	..	..	..
20	Tubers	Autumn Winter	February-March March-April	.. ..	July-September November-January	August-September December-January
21	Banana	Autumn Winter	August-September December-January	April-May August-October	July-August November-January	July-August December-January
22	Tobacco	Winter	November-December	..	March-April	May-June

PART III

Detailed Tables

- 1.1. Normal Rainfall
- 1.2. Average monthly Rainfall
- 2.1. Classification of area in each District
- 2.2. Classification of area as percentage to total area according to village papers
- 3.1. Area under crops in each District
- 3.2. Percentage of area under crops to the total cropped area in each District
- 4.1. Out-turn of important crops in each District
- 5.1. Average farm price of Certain Commodities
- 6.1. Agricultural Wages
- 7.1. Number of Livestock, Poultry and Agricultural Machinery and implements.



Normal rainfall in Kerala (m.m.) (1977-78)

Serial number	District	July	August	September	October	November	December	January	February	March	April	May	June	Total
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	Trivandrum ..	257.4	204.5	168.9	280.2	210.2	70.1	21.2	18.0	48.0	118.1	213.9	391.1	2001.6
2	Quilon ..	449.6	318.1	226.1	344.9	242.9	63.4	24.1	32.1	83.6	166.3	260.3	547.4	2760.2
3	Alleppey ..	552.3	370.3	272.7	330.2	219.4	64.1	25.9	29.3	59.0	133.5	291.5	663.8	3012.0
4	Kottayam ..	657.7	447.5	296.5	383.8	244.7	73.6	28.8	30.3	85.4	176.9	324.1	713.3	3462.6
5	Idikki ..	655.1	432.9	262.7	304.4	195.8	68.8	31.1	24.1	44.6	111.7	200.9	556.7	2898.8
6	Ernakulam ..	785.3	518.0	293.9	359.7	212.6	54.2	16.8	22.4	51.6	129.5	308.4	796.1	3548.5
7	Trichur ..	761.4	458.6	250.3	307.5	158.3	30.3	9.3	8.8	28.6	86.6	274.3	803.4	3177.4
8	Palghat ..	649.9	363.0	169.5	257.2	140.9	29.7	9.8	9.3	27.0	79.6	158.4	503.4	2397.7
9	Malappuram..	787.0	405.0	198.8	290.0	163.8	30.9	6.7	6.5	19.3	78.7	211.0	702.4	2900.1
10	Kozhikode ..	1117.4	599.2	262.4	290.2	163.7	34.2	10.4	7.6	20.0	92.4	254.0	944.5	3796.0
11	Cannanore ..	1063.5	584.8	239.4	218.0	106.0	22.8	5.3	4.8	11.1	58.6	200.6	923.0	3437.9
	State ..	636.4	422.6	242.0	306.9	190.9	51.2	18.5	19.3	46.4	115.6	245.0	672.8	3017.6

TABLE 1-2
Average monthly rain fall statement for 1977-78

Serial number	District	July	August	September	October	November	December	January	February	March	April	May	June	Total
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	Trivandrum ..	175.2	97.5	106.0	527.7	202.7	18.2	7.7	22.6	66.8	76.6	388.0	231.4	1920.4
2	Quilon ..	343.6	145.0	160.9	533.3	317.9	9.9	0.7	22.3	117.9	176.3	450.3	356.9	2637.0
3	Alleppey ..	517.4	223.9	199.1	500.4	337.4	14.7	..	17.6	51.2	70.1	484.0	536.2	2952.0
4	Kottayam ..	560.4	271.4	238.3	512.5	282.8	19.4	1.0	34.0	80.7	90.8	643.1	608.0	3343.1
5	Idikki ..	628.9	234.6	239.3	406.3	215.7	9.7	0.2	15.6	38.9	106.7	266.1	563.4	2725.4
6	Ernakulam ..	643.7	233.9	176.0	420.3	498.5	..	22.0	21.6	15.0	42.1	630.4	945.1	3648.6
7	Trichur ..	892.6	238.1	211.6	476.9	513.7	..	..	16.5	23.0	32.1	263.1	835.2	3502.8
8	Palghat ..	493.2	185.8	183.7	388.0	361.7	..	..	8.7	9.5	73.2	147.3	489.8	2340.9
9	Malappuram ..	697.4	205.3	172.0	489.2	422.3	..	..	5.0	..	40.0	278.0	820.9	3130.1
10	Kozhikode ..	1592.1	389.4	288.8	516.3	498.3	..	..	3.7	..	0.6	535.3	1415.1	5239.6
11	Cannanore ..	1374.5	307.8	206.1	320.4	297.0	1.2	..	..	2.0	22.2	471.6	1334.3	4337.1
	State ..	719.9	230.3	198.0	463.0	358.9	6.7	3.2	15.2	36.8	66.4	414.3	709.4	3222.5

TABLE 2-1
Total area and classification of area in each District of Kerala during the year 1977-78

Serial number	1	2	3	4	5	6	7	8	9	10	11	12	13	14
District	Total geographical area according to village papers	Forest	Land put to non-agricultural use	Barren and uncultivable land	Permanent pastures and other grazing land	Land under miscellaneous tree crops and groves not included in net area sown	Cultivable waste land	Fallow lands other than current fallow	Current fallow	Net area sown	Area sown more than once	Total cropped area		
1	218600	49861	16640	1466	50	274	2331	1557	2411	144010	82830	226840		
2	474290	236098	24372	2802	50	401	1217	1429	1834	260137	118453	324590		
3	182270	518	30230	650	21	231	2792	863	5435	141530	79629	221159		
4	219550	8141	16416	1788	152	459	1407	3295	3783	184109	53508	237617		
5	515048	260993	13670	17346	5308	17739	39952	1120	1149	157871	1919	159790		
6	235319	8123	27610	1561	284	2653	6172	2123	4171	182622	71607	254229		
7	298390	103619	20310	3055	267	1542	5295	1009	4501	159792	74194	233986		
8	438980	136257	32685	11273	1164	9395	20080	5358	6508	216260	101776	318036		
9	363230	103417	16667	6930	690	2970	13172	4449	7825	207110	70384	277494		
10	371150	90876	21688	4073	409	11409	5852	1437	2495	232911	99696	282557		
11	567670	83656	37088	24438	2221	20887	19986	4478	5999	368917	18589	387506		
State	3885497	1081509	257276	75382	10616	67960	118256	27118	46111	2201269	722395	2923804		

TABLE 2-2
Classification of area as percentage of total area according to village papers 1977-78

Serial number	District	3	4	5	6	7	8	9	10	11	12	13	14
		Total geographical area according to village papers	Forest	Land put to non agricultural use	Pasture and uncultivable land	Permanent pastures and other grazing land	Land under miscellaneous tree crops and groves not included in net area sown	Cultivable waste land	Fallow lands other than current fallow	Current fallow	Net area sown	Area sown more than once	Total cropped area
1	Trivandrum	100	22.81	7.61	0.67	0.02	0.13	1.07	0.71	1.10	65.88	37.89	103.77
2	Quilon	100	49.77	5.14	0.59	0.01	0.08	0.26	0.30	0.39	43.46	24.98	68.44
3	Alleppey	100	0.28	16.59	0.36	0.01	0.13	1.53	0.47	2.98	77.65	43.69	121.34
4	Kottayam	100	3.71	7.48	0.81	0.07	0.21	0.64	1.50	1.22	83.86	24.37	108.23
5	Idukki	100	50.67	2.63	3.37	1.03	3.44	7.76	0.23	0.22	30.65	0.37	31.02
6	Ernakulam	100	3.46	11.73	0.66	0.12	1.13	2.62	0.20	1.77	77.61	30.43	108.04
7	Trichur	100	34.61	6.78	1.02	0.09	0.52	1.77	0.34	1.50	53.37	24.78	78.15
8	Palghat	100	31.04	7.45	2.57	0.27	2.14	4.57	1.22	1.48	49.26	23.19	72.45
9	Malappuram	100	28.46	4.59	1.90	0.19	0.82	3.69	1.22	2.18	57.02	19.38	76.40
10	Kozhikode	100	24.48	5.84	1.11	0.11	3.07	1.58	0.39	0.67	62.75	13.38	76.13
11	Cannanore	100	14.74	6.53	4.30	0.39	3.68	3.52	0.79	1.06	64.99	3.27	68.26
	State	100	27.83	6.62	1.94	0.27	1.75	3.04	0.71	1.19	56.65	18.60	75.25

TABLE 3-1

Area under crops in each district of Kerala (1977-78)
(Area in Hectares)

Serial number	District	Food crops cereals											
		Paddy			Other cereals				Pulses				
		Autumn	Winter	Summer	Total	Jowar	Ragi	Other cereals and millets	Total cereals and millets	Tur	Other pulses	Total pulses	Total foodgrains
1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	Trivandrum	16496	16048	1935	34529	..	19	..	34548	..	3525	3525	38073
2	Quilon	24246	25124	1013	50383	..	13	..	50396	..	3284	3284	53680
3	Alleppey	31703	31750	27454	90907	..	..	..	90907	..	2153	2153	92027
4	Kottayam	13581	14393	13554	43528	..	..	..	43528	..	2141	2141	45681
5	Idikki	6584	6840	381	13805	..	411	254	14477	..	1045	1045	100503
6	Ernakulam	42329	39537	17377	99243	3	14	198	99458	..	3215	3215	123096
7	Trichur	44479	56299	18990	119768	1839	43	70	119881	3020	7299	10319	186859
8	Palghat	36701	81089	4118	171908	..	879	1914	176540	..	2621	2621	91081
9	Malappuram	42104	40316	5780	88400	..	15	45	88460	..	1432	1432	50842
10	Kozhikode	12822	29920	6638	49380	..	28	2	49410	..	5878	5878	84655
11	Cannanore	42066	29343	7114	78523	77	68	109	78777	..	..	..	..
	State	365111	370859	104404	840374	1926	1490	2592	846382	3020	33713	36733	883115

TABLE 3-1—(cont.)

Serial number	District	Food crops cereals										Total
		Sugar crops			Condiments and spices							
		Sugarcane	Others palmyrah	Total sugar crops	Pepper	Chillies	Ginger	Turmeric	Cardamom	Betal nuts	Other condiments and spices	
15	16	17	18	19	20	21	22	23	24	25		
1	Trivandrum	30	578	608	5700	..	97	11	164	3174	76	9222
2	Quilon	1083	137	1220	10071	..	1047	98	149	5598	245	17208
3	Alleppey	2054	17	2071	5083	..	310	19	..	2921	88	8421
4	Kottayam	142	587	729	13058	..	3426	936	..	2576	609	20605
5	Idiikki	1996	211	2207	10350	..	918	168	43354	1245	153	5688
6	Ernakulam	32	497	529	7069	..	2387	1050	..	7337	1102	18945
7	Trichur	8	806	814	3116	..	155	106	..	7694	198	11276
8	Palghat	1255	7678	8933	1246	108	484	242	3456	1874	560	7969
9	Malappuram	7	1791	1798	3992	155	776	120	184	9285	125	14637
10	Kozhikode	4	508	512	18253	143	2179	494	3390	6335	210	30984
11	Cannanore	14	576	590	23107	309	913	420	1305	14338	1434	42386
..	State	6625	13386	20011	101045	1215	12672	3674	52008	62427	4300	237841

TABLE 3.1—(cont.)

Food crops cereals

Serial number	District	Fresh fruits and dried fruits								Vegetables		
		Mango	Jack	Banana	Other plantain	Cashew	Other fruit trees	Pineapple	Total fruits	Tapioca	Sweet potatoes	Tubers
1	Trivandrum	7803	7762	482	4285	5396	2027	327	27482	50568	128	1399
2	Quilon	7037	7038	1245	3995	9420	1622	876	31233	79365	53	6601
3	Alleppey	4325	4325	641	3088	3283	1590	456	17708	23469	26	5049
4	Kottayam	4928	4454	1440	2623	1096	1614	289	18271	30714	56	3569
5	Idukki	1461	1299	155	2623	866	2855	380	9639	9733	72	1618
6	Ernakulam	5233	5236	1253	3833	4810	2081	485	23336	14985	205	2934
7	Trichur	4837	4838	1092	4296	6140	2017	265	23769	7610	29	2076
8	Palghat	4927	5808	589	2368	13133	3086	331	30171	12553	1368	2678
9	Malappuram	6606	5480	1297	8292	22756	1609	961	41421	27489	1787	2369
10	Kozhikode	7864	7858	599	3056	4380	2476	961	27194	11807	159	2932
11	Cannanore	7675	7692	1586	4540	55683	3320	1113	81609	21329	1114	1677
	Sate	62198	81790	10379	39721	126963	24297	6485	331833	289722	4997	32905

TABLE 3.1—(cont.)

Serial number	Food crops cereals									
	Vegetables					Oil seeds				
	Tamarind	Other vegetables	Total vegetables	Total fruits and vegetables	Total food crops	Coconut	Sesamum	Groundnut	Other oil seeds	Total
37	38	39	40	41	42	43	44	45	46	
1	1440	3033	56668	84150	132053	75806	10	..	544	76360
2	1083	1915	89017	120250	192358	87563	4650	..	155	92368
3	236	2138	30918	48626	151145	69354	4384	..	202	63940
4	452	2540	37331	55602	122617	51300	180	..	389	51869
5	88	1522	13033	22672	97685	14257	309	..	71	14637
6	756	3713	22593	45929	165906	57304	2591	..	241	60136
7	1082	1634	12434	36203	171389	49641	1706	..	163	51510
8	2557	2348	21504	51675	255436	18937	1125	12655	504	33221
9	1126	1954	34735	76156	183672	65621	2158	..	18	67797
10	606	3768	19272	46466	128804	99440	88	..	38	99566
11	592	2599	27311	108920	236551	94256	348	..	186	94790
State	10018	27174	364816	696649	1837616	673479	17549	12655	2511	706194

TABLE 3.1—(cont.)

Drugs narcotics and plantation crop.

Serial number	Districts	Tobacco	Tea	Coffee	Rubber	Lemon grass	Cocoa	Total	Cotton
		47	48	49	50	51	52	53	54
1	Trivandrum	..	1070	48	8031	14	76	9239	..
2	Quilon	..	2007	107	34759	36	180	37089	..
3	Alleppey	..	..	19	3865	14	903	4801	..
4	Kottayam	..	2327	1240	55404	53	1162	60186	..
5	Idukki	..	24023	4542	15721	1694	428	46408	..
6	Ernakulam	..	30	172	20845	1028	1767	23842	..
7	Trichur	..	438	33	8947	25	388	9328	..
8	Palghat	..	662	1643	9125	48	101	11579	..
9	Malappuram	..	174	..	17594	18	43	17829	..
10	Kozhikode	..	3885	27671	17045	1206	296	50103	..
11	Cannanore	..	1496	17169	20935	2794	716	43514	..
	State	404	36112	52644	212271	6930	6057	314418	5286

TABLE 3.1—(cont.)

Serial number	District	Drugs, narcotics and plantation crop							Total cropped area
		Betel leaves	Fodder crop	Green manure crop	Other non-food crop	Total	Total non food crops	Total	
		55	56	57	58	59	60	61	
1	Trivandrum	147	116	212	8713	9188	94787	226840	
2	Quilon	236	232	977	1930	2775	132232	324690	
3	Alleppey	81	85	176	931	1273	70014	221159	
4	Kottayam	98	312	291	2244	2945	115000	337617	
5	Idukki	2	257	266	335	1060	62105	159790	
6	Ernakulam	148	60	288	3849	4345	88323	264229	
7	Trichur	55	14	160	1030	1259	62597	233986	
8	Palghat	15	8	2767	10224	17800	62500	318036	
9	Malappuram	534	2	4082	3578	8156	93822	277494	
10	Kozhikode	100	11	1928	2048	4087	153753	282557	
11	Cannanore	38	117	1166	11330	12651	150955	387506	
	State	1454	1214	11813	45809	65576	1086188	2923804	

TABLE 3-2
Percentage of area under crops to total cropped area in each District 1977-78

District	Food crop										
	1	2	3	4	5	6	7	8	9	10	11
	Total cropped area	Total food crops	Total non-food crops	Net area sown	Area sown more than once	Rice	Others	Total cereals and millets	Total pulses	Total foodgrains	
Trivandrum	100	58.21	41.79	63.49	36.51	15.22	0.01	15.23	1.55	16.78	
Quilon	100	59.26	40.74	63.51	36.49	15.52	0.01	15.53	1.01	16.54	
Alleppey	100	68.34	31.66	63.99	36.01	41.10	..	41.10	0.51	41.61	
Kottayam	100	51.60	48.40	77.48	22.52	18.32	..	18.32	0.91	19.23	
Idukki	100	61.13	38.87	98.80	1.20	8.64	0.42	9.06	1.34	10.40	
Ernakulam	100	65.26	34.74	71.83	28.17	39.04	0.08	39.12	0.41	39.53	
Trichur	100	73.25	26.75	68.29	31.71	51.19	0.05	51.24	1.37	52.61	
Palghat	100	80.32	19.68	68.00	32.00	54.05	1.46	55.51	3.24	58.76	
Malappuram	100	66.19	33.81	74.64	25.36	31.86	0.02	31.88	0.94	32.82	
Kozhikode	100	45.59	54.41	82.43	17.57	17.48	0.01	17.49	0.51	18.00	
Cannanore	100	61.04	38.96	95.20	4.80	20.26	0.07	20.33	1.52	21.85	
State	..	62.85	37.15	75.29	24.71	28.74	0.21	28.95	1.26	30.21	

TABLE 3-2—(cont.)

District	Sugar crops			Condiments and spices							Fresh fruits		
	Sugarcane	Others	Total	Pepper	Ginger	Cardamom	Betel nut	Turmeric and chillies and others	Total spices	Mango	Jack		
												12	13	14	15	16	17	18	19	20	21	22
Trivandrum	0.01	0.26	0.27	2.51	0.04	0.07	1.40	0.04	4.06	3.22	3.42		
Quilon	0.33	0.04	0.37	3.10	0.32	0.05	1.72	0.11	5.30	2.17	2.17		
Alleppey	0.93	0.01	0.94	2.30	0.14	..	1.32	0.05	3.81	1.96	1.96		
Kottayam	0.06	0.25	0.31	5.49	1.44	..	1.09	0.65	8.67	2.08	1.87		
Idukki	1.25	0.13	1.38	6.48	0.57	27.13	0.78	0.20	35.16	0.92	0.81		
Ernakulam	0.01	0.20	0.21	2.78	0.94	..	2.89	0.85	7.46	2.06	2.06		
Trichur	0.01	0.35	0.35	1.33	0.07	..	3.29	0.23	4.82	2.07	2.07		
Palghat	0.39	2.42	2.81	0.39	0.15	1.09	0.59	0.29	2.51	1.55	1.83		
Malappuram	0.00	0.65	0.65	1.44	0.28	0.07	3.35	0.14	5.28	2.38	1.97		
Kozhikode	0.00	0.18	0.18	6.46	0.77	1.20	2.24	0.30	10.97	2.78	2.78		
Cannanore	0.00	0.15	0.15	5.96	0.24	0.34	3.71	0.69	10.94	1.98	1.96		
State	0.23	0.46	0.69	3.46	0.43	1.78	2.14	0.33	8.14	2.13	2.11		

TABLE 3.2—(cont.)

District	Fresh fruits and dried fruits						Vegetables					
	Banana	Other plantain	Cashew	Other fruit trees	Pineapple	Total fruit trees	Tapioca	Sweet potato	Tubers	Tamarind	Other vegetables	Total vegetables
	23	24	25	26	27	28	29	30	31	32	33	34
Trivandrum	1.61	1.85	2.38	0.89	0.15	12.12	22.34	0.06	0.62	0.62	1.34	24.98
Quilon	1.61	1.23	2.90	0.50	0.27	9.62	24.45	0.02	2.04	0.33	0.59	27.43
Alleppey	1.69	1.39	1.48	0.72	0.12	8.01	10.61	0.01	2.28	0.11	0.97	13.98
Kottayam	2.48	1.31	0.46	0.68	0.24	7.69	12.93	0.02	1.50	0.19	1.07	15.71
Idukki	1.73	1.64	0.54	1.79	0.38	6.03	6.09	0.05	1.01	0.06	0.95	8.16
Ernakulam	2.00	1.45	1.89	0.79	0.21	9.18	5.89	0.08	1.16	0.30	1.46	8.89
Trichur	2.33	1.83	2.62	0.97	0.08	10.16	3.25	0.01	0.89	0.46	0.70	5.31
Palghat	0.93	0.74	4.13	0.89	0.08	9.49	3.95	0.43	0.84	0.80	0.74	6.76
Malappuram	0.93	2.98	8.20	0.58	0.01	14.03	9.91	0.85	0.64	0.41	0.71	12.52
Kozhikode	1.29	1.08	1.55	0.88	0.34	9.62	4.18	0.06	1.04	0.21	1.33	6.82
Cannanore	1.58	1.17	14.37	0.86	0.29	21.04	5.50	0.29	0.43	0.15	0.68	7.05
State	1.21	1.35	4.34	0.83	0.22	11.34	9.91	0.17	1.13	0.34	0.93	12.48

TABLE 3.2—(cont.)

District	Total fruits and vegetables		Total food crops		Non-food crops					Drugs, narcotics and plantation crops			
	35	36	37	38	39	40	41	42	43	44	46	Total	
												Coconut	Sesamum	Groundnut	Other oil seeds
Trivandrum	37.10	58.21	33.42	0.00	..	0.24	33.66	..	0.47	0.02	46	3.54	
Quilon	37.04	59.26	26.98	1.43	..	0.05	28.46	..	0.62	0.03	46	10.71	
Alleppey	21.99	68.34	26.84	1.98	..	0.09	28.91	..	..	0.01	46	1.71	
Kottayam	23.40	51.60	21.59	0.08	..	0.16	21.83	..	0.98	0.52	46	23.32	
Idukki	14.19	61.13	8.92	0.19	..	0.04	9.16	..	15.03	2.84	46	9.84	
Ernakulam	18.07	65.26	22.54	1.02	..	0.09	23.63	..	..	0.07	46	0.82	
Trichur	15.47	73.25	21.22	0.73	..	0.07	22.01	..	0.19	0.01	46	3.82	
Palghat	16.25	80.32	5.95	0.35	3.98	0.16	10.45	..	0.21	0.52	46	2.87	
Malappuram	27.44	66.19	23.65	0.78	..	0.01	24.43	..	0.06	..	46	6.34	
Kozhikode	16.44	45.59	35.19	0.03	..	0.01	35.24	..	1.37	9.79	46	6.03	
Cannanore	28.11	61.04	24.32	0.09	..	0.05	24.46	0.10	0.39	4.43	46	5.40	
State	23.83	62.85	23.03	0.60	3.98	0.09	24.15	0.10	1.24	1.80	46	7.26	

TABLE 3.2—(cont.)

District	Drugs, narcotics and plantation crops										Total cropped area
	Lemongrass	Cocoa	Total	Cotton	Betelnuts	Fodder crops	Green manure crops	Other non-food crops	Total	Total non-food crops	
	46	47	48	49	50	51	52	53	54	55	56
Trivandrum	0.01	0.03	4.07	..	0.06	0.05	0.09	3.84	4.05	41.79	100
Quilon	0.01	0.06	11.43	..	0.07	0.07	0.30	0.41	0.83	40.74	100
Alleppey	0.01	0.41	2.18	..	0.04	0.04	0.08	0.42	0.58	31.66	100
Kottayam	0.02	0.49	25.33	..	0.04	0.13	0.12	0.94	1.23	48.40	100
Idukki	1.06	0.27	29.04	..	0.001	0.16	0.17	0.33	0.66	38.87	100
Ernakulam	0.01	0.70	9.38	..	0.06	0.02	0.11	1.51	1.70	34.74	100
Trichur	0.01	0.16	4.20	..	0.02	0.01	0.07	0.44	0.54	26.75	100
Palghat	0.02	0.03	3.64	1.66	0.004	0.02	0.71	3.21	5.60	19.68	100
Malappuram	0.01	0.02	6.42	..	0.19	0.00	1.47	1.29	2.95	33.81	100
Kozhikode	0.43	0.10	17.73	..	0.04	0.001	0.68	0.72	1.44	54.41	100
Cannanore	0.72	0.18	11.23	..	0.01	0.03	0.30	2.92	3.26	38.96	100
State	0.24	0.21	10.75	0.18	0.05	0.04	0.40	1.57	2.24	37.15	100

TABLE 4.1
Outturn of important Crops

District	Cereals and millets (Tonnes)						Ragi	Other cereals and millets	Tur	Pulses (Tonnes)	
	Rice			Total	Jowar	Other pulses				Sugar-cane (gur)	
	Autumn	Winter	Summer								
1	2	3	4	5	6	7	8	9	10	11	
Trivandrum	22886	22847	1032	46765	..	16	..	..	1785	148
Quilon	32571	38528	597	71796	..	11	..	..	1459	4910
Alleppey	42670	51285	66963	160018	..	..	..	..	473	10553
Kottayam	23401	21970	23689	69060	..	..	..	..	634	786
Idukki	9885	13598	330	22813	..	354	152	..	1628	12239	
Ernakulam	64306	51602	26330	141437	..	12	127	..	553	198	
Trichur	44590	67408	32159	144157	..	51	45	..	1047	33	
Palghat	195649	159538	5861	361048	324	607	1229	731	3546	3770	
Malappuram	53639	52203	8719	114561	..	13	29	..	973	44	
Kozhikode	9736	40856	8096	58888	..	26	1	..	374	25	
Cannanore	52360	40355	11577	104192	35	101	70	..	3619	49	
State	551792	559190	183653	1294635	863	1191	1653	731	16091	3775	

TABLE 4.1.—(cont.)

District	Spices and condiments (tonnes)					Fresh fruits and dried fruits				Raw cashew
	Black pepper	Dry chillies	Dry ginger	Curd turmeric	Processed cardamom	Betel-nuts (No. in millions)	Banana	Other plantains	Jack (No. in '000)	
Trivandrum	1271	..	228	11	9	386	5831	50789	25653	3923
Quilon	2689	..	2915	113	8	679	12481	43386	26132	8940
Alleppey	1027	..	728	19	..	321	7854	32214	18087	2505
Kottayam	1319	..	11388	804	..	239	20614	66625	17353	746
Idukki	1232	..	2075	172	2418	156	1811	36250	4240	581
Ernakulam	1767	..	5905	1034	..	1269	14644	52972	25316	2506
Trichur	676	..	155	85	..	1574	17297	45177	18849	3629
Palghat	158	96	779	184	193	280	8107	30100	24998	5883
Malappuram	687	120	1006	96	10	1619	16573	34513	38790	7373
Kozhikode	5969	115	4920	477	189	1418	6906	35981	35911	5208
Cannanore	3351	790	2008	552	73	2607	18561	56541	36722	49433
State	20146	1121	32107	3547	2900	10548	130679	484548	272051	84727

TABLE 4.1—(cont.)

District	22	23	24	25	26	27	28	29	30	31
	Tapioca	Sweet potato	Groundnut	Sesamum	Coconut (million nuts)	Cotton (Bales of 170 kg.)	Tobacco	Tea	Coffee	Rubber
Trivandrum	711885	576	..	2	320	..	..	1119	18	5146
Quilon	1003967	839	..	1097	357	..	..	852	40	22749
Alleppey	349688	117	..	789	283	..	..	..	7	2787
Kottayam	506167	252	..	40	192	..	..	844	468	34766
Idukki	187360	324	..	68	40	..	..	37506	1712	10446
Ernakulam	264935	923	..	808	276	..	..	..	65	13131
Trichur	139415	131	..	464	311	..	..	971	12	6133
Palghat	183023	6156	13288	297	62	7369	..	1389	1380	4933
Malappuram	325745	8043	..	630	266	..	..	127	..	10984
Kozhikode	169785	716	..	26	524	..	..	7184	14775	11276
Cannanore	346596	5013	..	210	422	..	768	1991	9168	13556
State	4188566	22490	13288	4431	3053	7369	768	51983	27645	135907

Average farm prices (Harvest Price) 1977-78

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District	Paddy Qtl.	Coconut 100 Nos.	Arcanutt 100 Nos.	Tapioca Qtl.	Cashew- nut Qtl.	Banana 100 Nos.	Pepper Qtl.	Ginger Qtl.	Sugarcane M.T.
1	2	3	4	5	6	7	8	9	10
Trivandrum	150.33	90.66	4.27	24.72	511.25	39.00	1572.29	..	..
Quilon	139.03	96.32	4.09	24.33	511.30	35.81	1538.61	1200.15	120.00
Alleppey	125.53	99.04	4.38	26.46	524.74	35.30	1586.94	..	130.00
Kottayam	121.94	103.66	3.98	28.32	555.00	33.96	1576.22	1219.13	..
Idukki	140.27	118.09	4.09	27.34	547.33	30.25	1615.04	1116.82	..
Ernakulam	136.69	11.62	4.44	27.17	520.00	32.74	1632.30	1270.94	..
Trichur	124.84	107.28	5.75	33.08	530.00	35.97	1620.43	..	..
Palghat	125.66	99.64	4.15	32.11	530.00	31.11	1633.88	1294.58	..
Malappuram	147.44	101.35	3.81	37.13	515.00	31.17	1627.15	1243.75	..
Kozhikode	135.59	91.73	2.69	30.80	530.00	27.74	1641.52	1236.15	..
Canthamfore	121.53	95.64	3.83	44.24	548.58	29.43	1601.88	1228.33	..
State average	130.69	987.17	41.08	28.89	535.28	330.89	1606.39	1222.93	126.83

TABLE 6.1
Agricultural wages 1977-78
Skilled Labours: (I) Carpenter

District	July	August	September	October	November	December	January	February	March	April	May	June
1	2	3	4	5	6	7	8	9	10	11	12	13
Trivandrum	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
Quilon	14.50	14.50	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00
Alleppey	14.50	14.50	14.50	14.50	14.50	15.00	15.50	15.00	15.00	15.00	15.00	15.00
Kottayam	14.75	14.75	14.75	14.75	14.75	14.75	14.75	14.75	14.75	14.75	14.75	14.75
Idukki	..	..	..	..	..	..	..	..	..	..	..	..
Ernakulam	14.13	14.13	14.13	14.13	14.13	14.13	14.13	14.13	14.13	14.13	14.13	14.13
Trichur	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00
Palghat	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
Malappuram	13.50	13.50	14.00	14.00	14.50	14.50	14.50	15.00	15.00	15.00	15.00	15.00
Kozhikode	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	13.50	13.50	13.50
Cannanore	14.50	14.50	14.50	14.50	14.50	14.50	14.50	14.50	14.50	15.00	15.00	15.00

TABLE 6.1—(cont.)

Skilled Labours: (2) Mason

District	July	August	September	October	November	December	January	February	March	April	May	June
1	2	3	4	5	6	7	8	9	10	11	12	13
Trivandrum	12-00	12-00	12-00	12-00	12-00	12-00	12-00	12-00	12-00	12-00	12-00	12-00
Quilon	14-50	14-50	15-00	15-00	15-00	15-00	15-00	15-00	15-00	15-00	15-00	15-00
Alleppey	14-50	14-50	14-50	14-50	14-50	15-00	15-00	15-00	15-00	15-00	15-00	15-00
Kottayam	14-75	14-75	14-75	14-75	14-75	14-75	14-75	14-75	14-75	14-75	14-75	14-75
Idukki	..	..	..	..	..	..	..	..	..	..	..	..
Ernakulam	13-63	14-13	14-13	14-13	14-13	14-13	14-13	14-13	14-13	14-13	14-13	14-13
Trichur	15-00	15-00	15-00	15-00	15-00	15-00	15-00	15-00	15-00	15-00	15-00	15-00
Palghat	12-00	12-00	12-00	12-00	12-00	12-00	12-00	12-00	12-00	12-00	12-00	12-00
Malappuram	13-50	13-50	14-00	14-00	14-50	14-50	14-50	15-00	15-00	15-00	15-00	15-00
Kozhikode	14-50	14-50	14-50	14-50	14-50	14-50	14-50	14-50	14-50	14-00	14-00	14-00
Cannanore	14-50	14-50	14-50	14-50	14-50	14-50	14-50	14-50	14-50	15-00	15-00	15-00

TABLE 6.1—(cont.)
 Skilled Labours: (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	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00
Quilon	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00
Alleppey	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00
Kottayam	7.25	7.25	7.25	7.25	7.25	7.25	7.25	7.25	7.25	7.25	7.25	7.25
Idukki	..	..	..	..	..	..	..	..	..	..	..	..
Ernakulam	9.75	9.75	9.75	9.75	9.75	9.75	9.75	9.75	9.75	9.75	9.75	9.75
Trichur	8.50	8.50	8.50	8.50	8.50	8.50	8.50	8.50	8.50	8.50	8.50	8.50
Palghat	6.75	6.75	6.50	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25
Malappuram	9.00	9.00	9.50	9.50	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00
Kozhikode	9.00	9.00	9.00	9.00	9.00	9.00	9.00	9.00	9.00	9.00	9.00	9.00
Cannanore	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.50	12.50	12.50

TABLE 6.1—(cont.)

B. Women

District	1	2	3	4	5	6	7	8	9	10	11	12	13
		July	August	September	October	November	December	January	February	March	April	May	June
Trivandrum	..	7-00	7-00	6-50	6-50	6-50	6-50	6-50	6-50	6-50	6-50	6-50	6-50
Quilon	..	6-00	6-00	6-50	6-50	6-50	6-50	6-50	6-50	6-50	6-50	6-50	6-50
Alleppey	..	5-75	5-75	5-75	5-75	5-75	6-25	6-75	6-75	6-75	6-75	6-75	6-75
Kottayam	..	5-25	5-25	5-25	5-25	5-25	5-25	5-25	5-25	5-25	5-25	5-25	5-25
Idukki
Ernakulam	..	6-25	6-25	6-25	6-25	6-25	6-25	6-25	6-25	6-25	6-25	6-25	6-25
Trichur	..	5-38	5-38	5-38	5-38	5-38	5-38	5-38	5-38	5-38	5-38	5-38	5-38
Palghat	..	5-72	5-72	5-50	5-25	5-25	5-25	5-25	5-25	5-25	5-25	5-25	5-25
Malappuram	..	7-00	7-00	6-75	6-75	6-75	6-50	6-50	6-50	6-50	6-50	6-50	6-50
Kozhikode	..	7-00	7-00	7-00	7-00	7-00	7-00	7-00	7-00	6-63	6-63	6-63	6-63
Cannanore	..	5-25	5-25	5-75	5-75	5-75	5-50	5-50	5-50	5-50	5-50	5-50	5-50

TABLE 7.1
Number of livestock, poultry and agricultural machinery and implements in Kerala
(1972 Census)

Serial number	District	Cattle										
		Males over three years					Females over three years					
		Breeding	Working	Others	Total	Milk	Breeding (dry)	Not calved	Working	Others		
3	4	5	6	7	8	9	10	11				
1	Trivandrum	117	8267	957	9341	55342	34342	3745	20	92		
2	Quilon	326	26177	1201	27704	97473	97440	7826	26	228		
3	Alleppey	272	6799	643	7714	93328	85097	12249	..	52		
4	Kottayam	336	8147	819	9302	74050	65134	6615	113	569		
5	Idikki	412	8712	1542	10666	44450	36244	3936	112	544		
6	Ernakulam	546	53604	1826	55976	65246	47768	6214	218	384		
7	Trichur	272	32534	1451	34257	54502	3423	3874	23	130		
8	Palghat	248	52074	5184	57506	57591	41071	4260	1038	223		
9	Malappuram	209	58573	2236	61018	32834	25895	3982	878	258		
10	Kozhikode	254	35888	2645	38787	54789	49506	9785	108	331		
11	Cannanore	470	53241	5132	58843	75435	68742	12308	33	242		
	State	3462	344016	23636	371114	705040	585474	74794	2569	3103		

TABLE 7.1—(cont.)

Serial number	District	Cattle				Buffaloes					
		Females over three years		Males over three years		Females over three years		Males over three years		Females over three years	
		Total	Young stock	Total	Breeding	Working	Others	Total	Breeding (dry)	Not calved	
		12	13	14	15	16	17	18	19	20	
1	Trivandrum	93541	74216	177098	281	10985	339	11605	7401	814	
2	Quilon	202993	190804	421501	66	9449	194	9709	5981	599	
3	Alleppey	190726	159427	357867	35	3832	257	4123	2362	471	
4	Kottayam	146481	137754	293537	121	2294	135	2550	1857	313	
5	Idukki	85286	72210	168162	200	2313	352	2865	3125	747	
6	Ernakulam	119830	121637	297443	60	15968	223	16251	2384	285	
7	Trichur	92314	92994	220065	79	23451	587	24127	7012	1255	
8	Palghat	104183	97235	258924	183	77896	2011	80090	10478	1586	
9	Malappuram	63847	60105	184970	366	34368	889	35623	5642	1269	
10	Kozhikode	114519	102469	255775	106	11276	466	11798	2991	407	
11	Cannanore	156760	155114	370717	280	18407	1345	20032	6413	1267	
	State	1370980	1263965	3006059	1777	210199	6798	218774	55646	9013	

TABLE 7.1—(cont.)

Serial number	District	Buffaloes										Sheep			
		Females over three years										Total	One year and above	Below one year	Total
		Working	Others	In milk	Total	Young stock	Total								
		21	22	23	24	25	26	27	28	29					
1	Trivandrum	105	64	12001	20385	7483	39473	..	..	..	91	
2	Quilon	56	41	7553	14230	5741	29680	..	..	..	..
3	Alleppey	20	32	2870	5755	1269	11148	..	..	..	..
4	Kottayam	62	35	3233	5500	1769	9819	..	..	..	..
5	Idikki	247	190	4660	8969	4279	16113	..	..	..	..
6	Ernakulam	164	31	6315	9179	3260	28690	..	..	..	..
7	Trichur	229	69	12514	21079	12508	57714	..	..	..	..
8	Palghat	2006	480	13253	27803	19156	12704	..	..	..	..
9	Malappuram	1809	127	8796	17643	10725	63991	..	..	..	..
10	Kozhikode	205	67	5729	9399	3681	24878	..	..	..	..
11	Cannanore	136	60	9774	17650	8163	45845	..	..	..	..
	State	5039	1196	86698	157592	78034	45400	..	..	..	..	2546

TABLE 7.1—(cont.)

Serial number	District	Goats					Horses and Ponies												
		One year and above	Below one year	Total	3 years and above	Below 3 years	Total	Mules	Donkey	Camels									
											30	31	32	33	34	35	36	37	38
1	Trivandrum	88235	68258	156493	..	..	23	..	..	..	..	..	..	..	..	..	..	..
2	Quilon	114477	93673	208150	..	..	..	..	..	..	..	..	..	..	..	..	..	..
3	Alleppey	65297	51058	116355	..	..	..	..	..	..	..	..	..	..	..	..	..	..
4	Kottayam	99913	62847	162760	..	..	..	..	..	..	..	..	..	..	..	..	..	..
5	Idikki	55794	33299	89093	..	..	..	..	..	..	..	..	..	..	..	..	..	..
6	Ernakulam	85083	71197	156280	..	..	..	..	..	..	..	..	..	..	..	..	..	..
7	Trichur	88623	74140	162763	..	..	..	..	..	..	..	..	..	..	..	..	..	..
8	Palghat	82916	55756	138672	..	..	..	..	..	..	..	..	..	..	..	..	..	..
9	Malappuram	99316	70342	169658	..	..	..	..	..	..	..	..	..	..	..	..	..	..
10	Kozhikode	83844	67916	151760	..	..	..	..	..	..	..	..	..	..	..	..	..	..
11	Cannanore	93197	78116	171313	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	State	956695	726602	1683297	90	266	..

TABLE 7.1—(cont.)

Serial number	District	Poultry					Plough		
		Pigs	Total livestock	Fowls	Ducks	Others	Total	Wooden	Iron
		39	40	41	42	43	44	45	46
1	Trivandrum	11644	384731	1114273	7884	248	1122405	9056	5788
2	Quilon	2523	661945	1373435	19762	62	1399309	19266	20519
3	Alleppey	509	485881	1545893	159617	261	1705771	15101	60506
4	Kottayam	55727	521886	1132951	50660	476	1184087	7255	880
5	Idiikki	39643	313185	613230	9691	283	623204	6114	862
6	Ernakulam	22780	50513	1444649	105935	355	1330939	45357	6701
7	Trichur	1985	442530	1247528	30690	106	1278324	27777	3968
8	Palghat	1378	528505	985379	10289	724	1004392	71888	16711
9	Malappuram	77	418709	1335887	8784	61	1362432	48314	1051
10	Kozhikode	9055	441522	1006589	11184	377	1018150	18995	3291
11	Cannanore	27116	615006	1132622	7073	142	1139837	47652	2914
	State	172375	5319033	12956186	429569	3095	13388850	316975	69191

TABLE 7.1—(cont.)

Serial number	District	Sugar cane						Ghanis			
		Carts	Power	Bullocks	Oil engine	Electric pumps	Tractors	More than 4.5 kg.	Less than 4.5 kg.	Persian wheels	
		47	48	49	50	51	52	53	54	55	
1	Trivandrum	2371	6	96	233	150	32	50	23	132	
2	Quilon	1918	17	36	287	289	32	15	14	93	
3	Alleppey	1237	53	107	2034	1205	158	163	132	3397	
4	Kottayam	732	20	139	768	409	64	39	48	854	
5	Idikki	250	39	111	242	172	28	13	20	102	
6	Ernakulam	1017	55	115	3976	10882	157	27	12	402	
7	Trichur	2322	29	56	3735	6971	101	31	19	658	
8	Palghat	9236	95	44	3839	3516	619	30	9	72	
9	Malappuram	476	101	31	3770	920	16	27	2	48	
10	Kozhikode	631	2	45	966	431	80	103	72	281	
11	Cannanore	340	42	83	8909	1028	45	87	49	75	
	State	20525	459	863	28759	25973	1332	585	400	6114	



PART IV

Appendices

1. Working class cost of living indices.
2. Parity index.
3. Quarterly retail prices.
4. Statement of consumer price index numbers for 1977-78.
- 4.1. Statement showing the consumer price index numbers from July 1977 to June 1978.
5. Export of agricultural commodities.
6. Notes on certain crops.
 1. Tea
 2. Coffee
 3. Rubber
 4. Cardamom
 5. Pepper
 6. Ginger
 7. Lemongrass
7. Classification of soil in Kerala.
8. Conversion ratio between the raw materials and the processed products.
9. Average analysis of important fertilisers.
10. Insects pests affecting paddy crop, their distribution and some practical methods of control.
11. List of centres selected for recording meteorological information.
12. Glossary of English, Botanical and Malayalam names.

1. *Working class of living indices.*—The consumer price index for the State was revised with effect from August 1975 with base 1970=100 on the basis of a family budget survey conducted by the Bureau. For the purpose of comparison, the cost of living indices for the year were estimated for the old base with the linking factors. The average consumer price index numbers in the selected 10 centres of the State during the year 1976-77 and 1977-78 are given in the following Tables:

TABLE I

Estimated working class cost of living indices

Sl. No.	Centre	Average cost of living indices	
		1976-77 Rs.	1977-78 Rs.
(1)	(2)	(3)	(4)
1	Trivandrum	1,385.50	1,385.58
2	Quilon	1,384.83	1,383.50
3	Punalur	1,345.67	1,322.83
4	Alleppey	1,359.33	1,344.50
5	Kottayam	1,349.67	1,364.08
6	Munnar	1,374.50	1,378.58
7	Ernakulam	1,392.25	1,391.42
8	Trichur	1,393.25	1,395.50
9	Chalakydy	1,391.33	1,390.67
10	Kozhikode	1,546.58	1,561.58

Except Kozhikode. For all centres base 1939=100
for Kozhikode base=

As comparable figures were not available in respect of the 5 centres newly added since August 1975 estimates were made only for the 10 centres. Month-wise details of the consumer price for 10 centres for the Agricultural year 1977-78 is given in Table I of Appendix. Statement showing the consumer price index numbers from July 1977 to June 1978 with base 1970=100 is also given in Table 1.1. The indices show a gradual decline during the year.

2. *Parity Index*.—The index of parity between prices received and prices paid by the farmers during each month of the year 1976-77 and 1977-78 is given below:

TABLE II

Index of Parity

Month	1976-77	1977-78
(1)	(2)	(3)
July	103	103
August	100	100
September	103	100

Month (1)		1976-77 (2)	1977-78 (3)
October	..	104	98
November	..	106	102
December	..	104	103
January	..	103	103
February	..	102	102
March	..	102	102
April	..	106	106
May	..	106	104
June	..	103	103
Average			

3. *Quarterly retail prices.*—The trend of quarterly retail prices of 12 important commodities is presented in the following paragraphs. District-wise quarterly retail prices have been given in Table II.

(1) *Rice.*—The price of rice per kg. varied from Rs. 1.62 to Rs. 1.64 during the 1st quarter. During the other periods the price of rice is varied from Rs. 1.61 to 1.65 per kg. in all districts. In Idikki District, the price of rice was Rs. 1.65 during the 1st and 2nd and 3rd quarters. In the 4th quarter, the price decreased to Rs. 1.61 per kg.

(2) *Chillies.*—The price of chillies fluctuated between Rs. 8.45 per kg. to Rs. 11.88 per kg. The maximum price is reported from Trivandrum during the 2nd quarter and the minimum at Alleppey in the 1st quarter.

(3) *Tapioca.*—The lowest price of Re. 0.33 per kg. was reported from Trivandrum District. The highest price of Re. 0.77 per kg. was reported in Cannanore District throughout the year.

(4) *Blackgram.*—The price of blackgram varied within the range of Rs. 3.02 per kg. in Alleppey to Rs. 4.36 in Malappuram. The price of blackgram in all Districts is more or less the same.

(5) *Tea.*—The highest price of Rs. 20.40 per kg. is in Alleppey in the 4th quarter. In almost all the districts, the price is more or less the same except Idikki district.

(6) *Coffee.*—The price of this commodity fluctuated between Rs. 16.00 per kg. to Rs. 19.64. The highest price was reported in Quilon District in the 4th quarter. In all the districts, the price of coffee is increased in the 4th quarter. In Idikki, the price of coffee is low when compared to that of the other districts.

(7) *Sugar.*—The price of sugar varies from 2.15 per kg. to Rs. 2.30 in almost all the districts.

8. *Coconut Oil*.—The price of coconut oil varied from Rs. 9.72 per litre at Alleppey to Rs. 12.72 per litre in the 2nd quarter at Trivandrum and Ernakulam.

9. *Gingelly oil*.—The highest price of Rs. 11.46 per litre was reported from Cannanore District in the 1st quarter. The lowest price of Rs. 8.73 per litre was reported from Malappuram in the 2nd quarter.

10. *Coconut*.—The price of coconut per dozen fluctuated between 10.59 at Trivandrum during the 1st quarter and 17.90 in Idikki during the 3rd quarter. The price of coconut is highest in Idikki, Ernakulam, Kottayam and Trichur.

11. *Tobacco (Jafna)*.—The price varied within Rs. 10.50 to 16.00 per kg. The price of tobacco is not reported from Palghat, Malappuram, Kozhikode and Cannanore. The highest price is reported from Idikki and lowest from Trivandrum.

12. *Tobacco (Vadakkan)*.—The highest price quoted was Rs. 18.30 per kg. and lowest was Rs. 8.50. These were reported from Ernakulam and Trivandrum.

4. Statement of consumer price index numbers for the year 1977-78 (Estimated indices on the lease of the old series)

Serial number	Centre	July 1977	Augst. 1977	Sept. 1977	Oct. 1977	Nov. 1977	Dec. 1977	Jan. 1978	Feb. 1978	March 1978	April 1978	May 1978	June 1978	Average
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	Trivandrum	1378	1369	1378	1378	1369	1386	1395	1378	1378	1386	1403	1429	
2	Quilon	1389	1381	1389	1389	1381	1389	1381	1364	1364	1372	1389	1414	
3	Punalur	1338	1330	1330	1321	1305	1321	1330	1305	1305	1313	1330	1346	
4	Alleppey	1345	1345	1354	1354	1345	1354	1345	1320	1311	1328	1354	1379	
5	Kottayam	1345	1345	1345	1345	1337	1354	1363	1354	1363	1380	1406	1432	
6	Munnar	1366	1366	1374	1374	1374	1390	1397	1382	1374	1374	1382	1390	
7	Ernakulam	1393	1384	1393	1393	1384	1393	1393	1375	1375	1384	1402	1428	
8	Chalakudy	1376	1367	1376	1367	1376	1385	1394	1385	1394	1402	1420	1446	
9	Trichur	1382	1373	1382	1382	1382	1390	1399	1382	1390	1408	1425	1451	
10	Kozhikode	1559	1550	1559	1550	1540	1550	1550	1540	1550	1569	1597	1625	

TABLE 4.1

Statement showing the consumer price index number from July 1977 to June 1978

Sl. No.	Centre	Statement showing the consumer price index number from July 1977 to June 1978												Average
		July 1977	Augst. 1977	Sept. 1977	Oct. 1977	Nov. 1977	Dec. 1977	Jan. 1978	Feb. 1978	March 1978	April 1978	May 1978	June 1978	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	Trivandrum	160	159	160	160	159	161	162	160	160	161	163	166	
2	Quilon	164	163	164	164	163	164	163	161	161	162	164	167	
3	Punalur	161	160	160	159	157	159	160	157	157	158	160	162	
4	Alleppey	159	159	160	160	159	160	159	156	155	157	160	163	
5	Kottayam	155	155	155	155	154	156	157	156	157	159	162	165	
6	Mundakayam	157	156	156	155	154	156	157	154	163	154	156	158	
7	Munnar	172	172	173	173	173	175	176	174	173	173	174	175	
8	Ernakulam	159	158	159	159	158	159	159	157	157	158	160	163	
9	Chalakudy	158	157	158	157	158	159	160	159	160	161	163	166	
10	Trichur	159	158	159	159	159	160	161	159	160	162	164	167	
11	Paighat	160	160	160	161	162	163	163	160	158	161	163	164	
12	Malappuram	161	161	163	163	163	164	164	162	160	160	163	165	
13	Kozhikode	165	164	165	164	163	164	164	163	164	166	169	172	
14	Meppadi	166	166	168	167	169	169	168	166	166	167	169	170	
15	Cannanore	158	158	158	158	157	158	159	158	159	162	165	167	

TABLE 3
Quarterly average retail price at district headquarters for 1977-78

Commodity	Quarter	3	4	5	6	7	8	9	10	11	12	13
Coconut (per dozen)	I	10.59	11.86	12.19	13.24	15.72	14.40	11.86	12.85	11.09	11.29	11.00
	II	13.41	13.76	13.95	16.60	17.80	15.95	15.91	12.42	13.93	12.52	13.95
	III	12.57	13.19	12.65	15.15	17.90	15.85	15.13	14.95	13.62	13.48	13.13
	IV	11.77	13.31	13.38	14.90	17.56	15.60	15.38	14.88	13.46	13.27	14.31
Coconut oil/litre	I	10.80	9.97	9.72	10.01	10.37	11.16	10.39	10.48	10.03	10.05	11.20
	II	12.72	11.57	11.29	11.67	11.88	12.72	11.83	11.70	11.51	11.34	12.60
	III	11.94	10.69	10.47	10.94	11.74	11.95	11.10	10.98	10.87	10.87	11.92
	IV	11.67	10.60	10.70	11.01	11.51	12.08	11.18	11.05	10.94	10.94	11.02
Rice (F.P.) kg. Medium	I	1.62	1.62	1.62	1.62	1.65	1.62	1.62	1.64	1.62	1.62	1.62
	II	1.62	1.62	1.62	1.62	1.65	1.62	1.62	1.64	1.62	1.62	1.62
	III	1.62	1.62	1.62	1.62	1.65	1.62	1.62	1.64	1.62	1.62	1.62
	IV	1.62	1.64	1.62	1.62	1.61	1.63	1.62	1.62	1.62	1.64	1.62
Blackgram/kg.	I	3.81	3.64	3.46	3.55	4.27	3.59	3.40	3.75	4.36	4.10	3.40
	II	3.69	3.53	3.18	3.43	4.18	3.23	3.30	3.43	4.16	3.51	3.32
	III	3.56	3.44	3.02	3.27	3.96	3.23	3.33	3.45	4.02	3.45	3.34
	IV	3.85	3.66	3.44	3.56	4.13	3.46	3.36	3.64	4.30	3.43	3.38
Gingelly oil/litre	I	11.06	10.97	10.22	9.77	10.35	11.33	10.40	9.96	9.58	9.44	11.46
	II	10.26	10.07	9.73	9.40	9.72	10.58	9.71	9.19	8.73	8.90	11.35
	III	11.11	10.57	8.85	9.77	10.23	11.14	10.25	9.56	9.26	9.45	11.16
	IV	10.76	10.49	8.66	9.53	9.91	11.16	10.02	9.26	9.20	8.75	10.95
Tapioca/kg.	I	0.46	0.49	0.51	0.49	0.50	0.55	0.47	0.46	0.45	0.50	0.74
	II	0.33	0.49	0.49	0.48	0.50	0.53	0.41	0.45	0.44	0.50	0.75
	III	0.36	0.46	0.46	0.50	0.50	0.48	0.39	0.41	0.45	0.41	0.77
	IV	0.40	0.40	0.48	0.53	0.50	0.49	0.41	0.46	0.50	0.50	0.73

TABLE 3—(cont.)

Commodity	Quarter	3	4	5	6	7	8	9	10	11	12	13
Sugar (F.P.)	I	2.15	2.15	2.15	2.15	2.15	2.15	2.15	2.15	2.15	2.15	2.15
	II	2.15	2.15	2.15	2.15	2.15	2.15	2.15	2.15	2.15	2.15	2.15
	III	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20
	IV	2.30	2.30	2.30	2.30	2.30	2.30	2.30	2.30	2.30	2.30	2.30
Chillies/kg.	I	9.67	9.36	8.45	9.01	8.88	9.15	9.85	9.35	8.56	8.68	9.25
	II	11.58	10.41	10.12	10.48	9.70	10.60	11.01	10.83	9.77	10.15	10.73
	III	11.62	9.73	9.96	10.85	10.78	10.63	10.83	10.24	10.40	9.81	10.33
	IV	9.38	9.13	8.59	9.25	8.58	9.44	9.85	8.91	8.94	8.65	8.84
Coffee powder/kg.	I	18.30	18.30	18.30	18.30	16.00	18.50	18.30	18.30	18.30	18.30	18.30
	II	18.30	18.30	18.30	18.30	16.00	18.50	18.30	18.30	18.31	18.30	18.30
	III	18.30	18.46	18.30	18.30	16.00	18.50	18.30	18.30	18.26	18.30	18.30
	IV	19.03	19.64	19.20	19.20	16.00	19.04	19.40	19.41	19.20	19.15	19.23
Tea/kg.	I	18.62	18.84	19.30	19.30	13.88	18.84	18.84	18.72	18.90	18.56	19.30
	II	18.62	18.84	19.30	19.30	13.88	18.84	18.84	18.84	18.90	18.56	19.30
	III	18.15	18.60	18.96	18.96	14.57	18.45	17.84	18.50	18.61	18.56	19.24
	IV	18.94	19.12	20.40	19.86	15.79	19.21	19.19	19.40	19.10	18.56	19.00
Tobacco/kg. (Jaffna)	I	10.50	11.53	12.53	13.51	15.00	14.93	12.50	..	..	..	..
	II	11.13	10.63	10.83	12.36	15.00	14.20	12.50	..	..	..	..
	III	13.83	13.13	12.96	14.00	15.00	15.00	12.63	..	..	..	..
	IV	13.13	11.27	11.96	13.16	16.00	15.00	13.00	..	..	..	..
Tobacco/k.g. (Vadakkau)	I	8.50	11.00	11.01	14.20	16.33	13.93	11.50	12.60	13.00	15.06	14.40
	II	9.13	10.63	10.04	12.10	16.56	18.39	11.50	10.20	13.00	10.98	12.80
	III	11.66	13.13	11.16	12.50	14.00	14.00	11.50	11.06	12.73	12.46	12.64
	IV	11.33	11.27	11.00	11.50	14.00	14.58	11.50	11.25	12.10	11.51	13.00

TABLE 5

Foreign export from the Ports of Kerala 1976-77 and 1977-78

Serial number	Commodity	Unit	1976-77		1977-78	
			Quantity	Value Rs.	Quantity	Value Rs.
1	2	3	4	5	6	7
1	Cardamon	Qtls.	2060	377.35	3453	457.40
2	Cashew kernels	M.T.	46288	11,421.62	28288	10,089.30
3	Cashew shell oil	Ltrs. (1000)	3547	75.27	2542	125.40
4	Coffee	M.T.	12616	4,548.09	13849	4,442.24
5	Coir and coir products	M.T.	45203	2,341.04	43773	2,447.80
6	Ginger	M.T.	1686	250.91	6409	926.02
7	Lemon grass oil	Ltrs. (1000)	244	158.35	55	35.59
8	Marine products	M.T.	29621	7,231.74	34439	8,290.82
9	Oil cake	M.T.	1036	18.99	Nil	Nil
10	Pepper	M.T.	20191	4,076.79	21512	4,338.89
11	Rubber manufacture	M.T.	53870	162.42	N.A.	148.29
12	Tea	M.T.	8925	1,627.00	47912	10,510.91
13	Wood and timber	M.T.	N.A.	1,576.28	N.A.	1,221.91
14	Miscellaneous items	M.T.	N.A.	5,745.28	N.A.	3,729.58

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 contributes 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 3,000 feet to 5,000 feet, above mean sea level.

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

Planting.—After removing the forest growth and providing for roads, drains and buildings sites the planting is done. The actual spacing of the plants will depend upon the layout of the land used for cultivation. They are usually planted in square rectangular or triangular pattern suitably spaced so that when mature they cover the ground almost completely without overcrowding and providing for a coverage of about 3,000 plants per acre. "Hedge planting" i.e., planting in rows 5' apart with a spacing of 2 feet 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 these plants are removed from the nursery after 6 to 18 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 up to fourteen days whereas in the plains the period is only seven or eight days.

Manure.—The important manures used are mixtures of nitrogen phosphorus and potash. In some estates ammonium sulphates is also widely used.

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

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

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

From the garden to the market.—The leaves plucked from the tea gardens 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 a hessian cloth rack for a period of eighteen hours for eliminating moisture so that it can be rolled easily. The next stage is called rolling. A rolling machine specilly 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 take from the rolls breakers and put in the fermentation room. Fermentation is a process of oxidation where the leaves undergo a chemical change. The green colour of tea leaves change into reddish hue of copper. The next process is known as drying. Hot air (200° to 230°) from the drier furnace is forced into the chamber where the leaves are dried.

The last two processes are grading and packing. There are two important classification of grades. They are leaf grades and broken grades. The former group is mainly divided into Orange Pekoe and Pekoe Souchong, Broken Orange Pekoe, Broken Pekow, Broken Souching. 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 a small quantity. In this process the fresh leaf is subject to heat treatment by steaming or roasting. The green leaf after the heat 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 was begun in Southern Arabia. Coffee an important plantation crop was introduced in India from Arabia. The production of Coffee in India is only 1 per cent of the world production. There are two main species of coffee grown in India, namely, Arabica

and Robusta. Robusta flourishes at lower levels and has more power of resistance against extremes of climate and 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 altitude is ranging between 1,500 and 6,000 feet, above mean sea level. The most suitable altitude is between 2,500 feet to 5,000 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 intermitten showers in March and April and heavy rainfall in July and August constitute ideal condition 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 clayloam 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, 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 manured well and watered frequently.

In the second method of propagation lower branches of the tree are bent down under the earth for at least 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 are pruned at a height of fifteen feet to enable easy plucking of the berries.

Plucking.—Coffee plants begin to bear fruit with in 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.

Manure.—The important manures used for the coffee plants are superphosphate, ammonium sulphate, copper sulphate and urea.

Yield.—Under good climatic conditions a coffee plant yields $\frac{1}{2}$ to 2 lbs. of green coffee in a season. Good yield may be obtained from

a plant for a period of 20 to 30 years. Excessive rains or want of rains in the blossoming season will adversely affect the yield.

Diseases.—The following diseases are prevalent in the coffee estates. They are (1) Coffee stem borer, (2) Shot hole borer, (3) Leaf disease, (4) Root-rot, (5) Die-Back, (6) Chlorosis and (7) Green bug.

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

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

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

3. Rubber

In India attempts were first made to plant rubber in Belgium 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 to 2.2 per cent of the total world output of natural rubber. Before a tyre factory was established in India in 1938 the raw rubber was exported to the foreign countries. Owing to a record production of rubber on the one hand and the lower off take by the industry on the other, rubber experienced a problem of surplus in the last one or two years. Consequently rubber growers in the country were confronted with a perceptible fall in rubber prices. Even State intervention by way of fixation of a floor price and the entry of the State Trading Corporation into the market could not solve the problem to any considerable extent.

Climate.—Rubber usually grows in the tropical belt lying within 15°N and 10° S of the equator and usually at an altitude of 1000 ft. 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 stiff alluvial soil which is neither too steep nor too swampy is suited for cultivating rubber.

Planting.—Young plants or seeds are planted in pits of about 18" × 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 'Odium hevea' and 'Phytophthora 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 Rot 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 portions 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 shadow pans. For removing water and for getting a definite shape the coagulum 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 sheets are placed in specially constructed houses, known as smoke houses, and hot air with temperature of 115° to 120°F is allowed to circulate in the room. This is done for 15 days. The colour of the sheet will change into black from white. There are three important types of rubber, smoked sheet, late crape and scrap rubber.

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% of the world out put 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 the cardamom cultivation is a warm and humid atmosphere with a temperature ranging between 50°–95°F. It is cultivated in the shades of huge forest trees. Cardamom plants require a fairly well distributed and annual rainfall of 60–80 inches. The best altitude for cardamom planting is between 2500 to 5000 ft.

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 trees providing shades are not cut down. Small pits of 2 ft. squares and one foot deep are dug, the distance between one pit and the next varying from 3 to 10 ft. thus providing for about 700 pits in one acre of land. During the month of May or June when the south-west monsoon 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 diseases. 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 third 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 the plant.—Nine years are the average life of the plant.

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

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

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

Sometimes 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 grade (1) green cardamom (2) white or bleached cardamom and (3) seeds. The quality of cardamom varies according to place and variety of the seed.

The middle-east and Sweden absorb a large quantity of the export of cardamom from India.

5. Pepper

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

Climate.—Pepper being a rain fed 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, red loam or sandy loam soils, the first being the most suitable.

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

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

Yield.—The yield mainly depends upon the fertility of the soil and the locality. The yield at the first harvest is generally poor. Full yield can be expected from the seventh year. Usually in an acre there will be 300 to 400 standards where pepper is cultivated on a plantation scale. The average yield per standard varies between $\frac{1}{4}$ lb. to 2 lb. of dried produce.

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

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

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

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

Ginger dry

The three important ginger growing regions are India, Jamaica and Sierra Leona. Of these ginger producing regions the best variety is seen in Jamaica and Sierra Leona.

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 trained 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 harvesting 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. Here 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 are 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 a preventive measure. Another important disease is known as 'varmicularia'. The leaves become covered with yellowish and brownish spots and gradually dry up. Spraying and Bordezux mixture is suggested in such cases.

From garden to the market.—Dry ginger as a market produce is prepared as follows:—

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 sometimes 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, Arabia and United Kingdom.

Lemongrass oil

Lemongrass oil which is an important raw material for the perfumery soap and cosmetic industries is extracted by distilling the leaves of the grass 'cymbopogon flexuosus stapf'. 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 area are Kuruppampadi, Odakkali, Thodupuzha, Muvattupuzha, Wynad, Thaliparamba, etc. At Odakkali, there is a lemongrass oil research station.

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

Soil.—It flourishes in hard laterite soils.

Cultivation.—Fertile hill slopes with hard laterite soils are selected for the cultivation. During February–March the site selected is first cleared of all undergrowth of 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 quantity of citral.

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

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

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

- 1st year 1½ dozen bottles of 22 oz. each
- 2nd year 2½ dozen bottles of 22 oz. each
- 3rd year 2 dozen bottles of 22 oz. each
- 4th year 2 dozen bottles of 22 oz. each
- 5th year 2 dozen bottles of 22 oz. each

From the garden to the market.—Now in Kerala we are using an old country method for distilling 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 fire wood. After sometime 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 tub. Then it is separated from water.

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

6. Classification of soils in Kerala

<i>District</i>	<i>Type of soil</i>	<i>Details of distribution</i>
(1)	(2)	(3)
Trivandrum	1. Fairly rich brown loam of laterite origin 2. Sandy loam 3. Richest dark brown loam of granite origin	Middle part of the district Western coastal region Eastern hilly part of the district
Quilon	1. Sandy loam 2. Laterite soil 3. Hill and forest soil	Karunagappally and part of Quilon Taluk Kottarakara, Kunnathur and part of Quilon, Pathanapuram and Pathanamthitta Taluks Part of Pathanapuram and Pathanamthitta Taluk
Alleppey	1. Sandy loam 2. Sandy soil 3. Clay loam with much of abidity 4. Laterite soil	Karthigappally and Mavelikara Taluks Sherthallai and Ambalapuzha Taluks Kuttanad Chengannur and part of Mavelikara
Kottayam	1. Laterite soil 2. Alluvial soil	Peermade and part of Meenachil, Changanacherry and Kottayam Taluks Vaikom parts of Changanacherry and Kottayam, Devikulam and Udumbanchola
Ernakulam	1. Laterite 2. Sandy loam 3. Alluvial	Thodupuzha and Muvattupuzha and part of Kunnathunad Parur, Cochin and Kanayannur Part of Alwaye and Kunnathunad
Trichur	1. Sandy loam 2. Laterite 3. Granite 4. Clay 5. Alluvial soil	Part of Mukundapuram, Trichur and Chowghat Taluks Eastern area of Trichur and Western portion of Talappally Northern part of Talappilly Backwater area in Chowghat and part of Mukundapuram Portion of Chowghat and Kunnathunad Taluk
Palghat	1. Laterite 2. Sandy 3. Black soil	Interior regions of the district Along coastal and riverside areas North-Eastern portion of Chittur Taluk
Kozhikode	1. Laterite 2. Sandy	Major part of the district barring coastal area Coastal strip
Cannanore	1. Laterite 2. Sandy	Major part of barring coastal area Coastal area

7. Conversion ratio between the raw materials and the processed products

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

8. Average analysis of important fertilisers

<i>Sl. No.</i>	<i>Name of Fertiliser</i>	<i>Nitrogen (N%)</i>	<i>Phosphate (P₂O₅%)</i>	<i>Potash (K₂O%)</i>
(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	..	18.0	..
11.	Super Phosphate—Double	..	35.0	..
12.	Super Phosphate	..	45.0	..
13.	Rock Phosphate	..	28.3	..
14.	Hyper Phosphate	..	27.3	..
15.	Sulphate of Potash	..	..	48.0
16.	Muriate of Potash	..	..	50.0
17.	Groundnut Cake	7.0	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—0.6	..	..
26.	Horse Manure	0.8—0.6	..	..
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

9. Insect Pest affecting Paddy Crops, their distribution and some practical methods of Control

Sl. No.	Name of pest	Nature of damage	Control of measures
(1)	(2)	(3)	(4)
1.	Paddy Rice Swarming Cater pillar	Defoliation Plants reduced to stumps nursery and early growing stages attached	Spray D.D.T. at 1.5 kg a.i. per Ha. or endrin at 250 gm. a.i. per Ha.
	Spodopiarra Mauritaa	Cater pillar bores into stem causing 'dead hearts' 'whitecar heads	Set light traps in the field to catch and destroy moths. Collect egg masses from nursery plants and destroy them spray endrin or parathion at 250 gm. a.i. per Ha. at intervals of 15-20
2.	Rice stem borer Cryporysa (Schoenobius) inercialis	All stages of plants susceptible to attack	days starting from 15th day after showing and up to flowering
3.	Rice bug Leptocoris acuta	Sucks 'milk' of tender grains leaving them chaffy	Dust B.H.C. or spray endrin or parathion at doses given above
4.	Rice Hispa Dieladispa (Hispa) armigera	Adults feed or green matter of leaves and grubs mine leaves	Spray D.D.T., endrin or parathion at above doses
5.	Rise case worm Nymbhula depunctalis	Cater pillar in lead-case difoliates	..
6.	Paddy gall fly pacy diplosis or Yae	Maggot bores into central shoot and induces information elongated hallice gall called silver shoot	Spray endrin or parathion at 250 gm. a.i. per Ha. 4 times at weekly intervals, from 15th day after transplantation. Set up light traps.
7.	Pady mealy bug	Lives within leaf-sheaths in colonies sucking sap causing stupting of crop	Spray parathion at 250 gm. a.i. per Ha. Phosphamidon (Dimicro 100 per cent) solun at 100 M.I., per Ha. or Dimethoate (Rogar at 312 ml. per Ha).
8.	Paddy leaf hoppers	Cause weakening of crop by disaping in colonies	Dust B.H.C.
9.	Paddy leaf roller Onaphalocrocis medinalis	Cater pillar 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.

List of Centres selected for recording meteorological information in Kerala for the year 1971-72

TRIVANDRUM DISTRICT :

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

ERNAKULAM DISTRICT :

1. Malayattur
2. Parur
3. Perumbavoor
4. Alwaye
5. Neriamangalam
6. Moovattupuzha
7. Karikode
8. Ernakulam
9. Cochin-b
10. Port of Cochin (b)

QUILON DISTRICT :

1. Pathanamthitta
2. Konni
3. Adoor
4. Karunagappally
5. Punalur
6. Kottarakkara
7. Aryankavu
8. Quilon
9. Nilamel
10. Paravur
11. Kayamkulam (AM)

TRICHUR DISTRICT :

1. Cranganore
2. Mukundapuram
3. Trichur
4. Thalappilly
5. Ollukkara (AM)
6. Pecchi (AM)

PALGHAT DISTRICT :

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

KOTTAYAM DISTRICT:

1. Chinnar
2. Marayoor
3. Munnar
4. Devikulam
5. Vandanmattu
6. Vaikom
7. Palai
8. Ettumanoor
9. Kumily
10. Kottayam
11. Peermade (Taluk)
12. Peermade (Residency)
13. Kanjirappally
14. Changanacherry
15. Velloor
16. Kottayam (AM)

MALAPPURAM DISTRICT :

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

KOZHIKODE DISTRICT :

1. Kozhikode
2. Vithiri
3. Quilandi
4. Badagara
5. Kuttiyadi

ALLEPPEY DISTRICT :

1. Arukutty
2. Sherthallai
3. Alleppey (b)
4. Ambalapuzha
5. Thiruvalla
6. Chengannoor
7. Haripad
8. Mavelikkara
9. Kayamkulam

CANNANORE DISTRICT :

1. Kasargod
2. Thaliparamba
3. Cannanore
4. Hosdru
5. Tellicherry
6. Irrikkur
7. Payyannur
8. Mananthody
9. Mahe
10. Kasargod (AM)

Non-reporting Rainauge stations, Schedule I

RIVANDRUN DISTRICT :

1. Aruvikara
2. Vamanapuram
3. Nedumangad

QUILON DISTRICT :

4. Kulathupuzha
5. Kottarakkara

KOTTAYAM DISTRICT :

6. Kottayam
7. Palom
8. Kumarakom

ALLEPPEY DISTRICT :

9. Alleppey

ERNAKULAM DISTRICT :

10. Puthencruz
11. Kuthattukulam
12. Kolani

TRICHUR DISTRICT :

13. Pazhayannur

PALGHAT DISTRICT :

14. Nemmara
15. Nelliampathy
16. Nattukal

KOZHIKODE DISTRICT :

17. Kuttiadi
18. Ambalavayal
19. Kuppadi
20. Muthunga
21. Lakkidi
22. Thagarappady

CANNANORE DISTRICT :

23. Manjeswar
24. Vemom (Mananthody)
25. Thirunelli (Mananthody)
26. Konnath
27. Chandanathode
28. Peria
29. Chedloth Range
30. Thaliparamba
31. Cannanore

Non-reporting Railway Rainauge stations

1. Kollengode
2. Thenmalai
3. Quilon
4. Trichur
5. Alwaye
6. Angadipuram

7. Calicut
8. Panthalayani
9. Olavakkot
10. Shoranur
11. Cannanore

11. Glossary of English Botanical and Malayalam

Names of Crops

Sl. No.	English Name	Malayalam Name	Botanical Name
(1)	(2)	(3)	(4)
CEREALS			
1	Paddy	Nellu	Oryza Sativa
2	Ragi	Koovaraku	Eleusine Coracana
3	Jowar	Cholam	Sorghum Valgare
4	Bajra	Kambu	Pennisetum Typhodeum
5	Kodamillet	Vargu	Paspalum Scrobiculatum
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	Saccharum Officinarum
2	Palmyrah	Karimpana	Borassus flabellifer

CONDIMENTS AND SPICES

1	Chilly	Mulagu	Capsium Spp
2	Turmeric	Manjal	Cureuma longa
3	Cardamom	Elem	Elatteria Cardamom
4	Coriander	Kothamalli	Coriandrum Sativum
5	Mustard	Kadugu	Brassica Spp
6	Pepper	Kurumulagu	Piper Nigrum
7	Cumin	Jeerakam	Cuminummoymium
8	Garlic	Veluthulli	Allium Sativum
9	Long pepper	Thippilli	Piperlongum
10	Ginger	Inchi	Zingiber Officinale
11	Nutmeg	Jathi	Myristica Fragrans
12	Cinnamon	Karukappatta	Cinnamomum Zeylanica
13	Clove	Grampu	Eugenia Caryophyllata
14	Cinchona	Cinchona	Cinchona Officinalis
15	Arecanut	Adacka	Areca Catechu

FRUITS

1	Banana	Vazha	Musa Paradisiaca
2	Plantain	Vazha	Musepiantum
3	Bread fruit	Seemaplavu	Artocarpusincisa
4	Bullacks heart	Malamumthiri	Anonareticulata
5	Cashew	Kasumavu	Anacardium Occidentale
6	Grape vine	Mumthiri	Vitis Vinifere
7	Custardapple	Seetha Pazham	Anona squamosa
8	Guava	Pera	Psidium Guajava
9	Jujube	Alantha	Zizyphus Jujuba
10	Jack fruit	.Chakka	Artocarpus Integrifolia

(1)	(2)	(3)	(4)
11	Lemon	Naranga	Citrus Lemon
12	Lime	Naranga	Citrus Aurantifolia
13	Mango	Manga	Mangifera indica
14	Papaya	Pappakka	Carica Papaya
15	Pineapple	Kaithachakka	Ananas Sativa
16	Pomogramate	Mathalam	Punica Grantum
17	Sapota	Sapota	Achras Sapota
18	Pomello	Bamplimas	Citrus Maxima
19	Orange	Orange	Citrus retiaulate
20	Mangoesteen	Mangoesteen	Garcinia mangosteen

VEGETABLES

1	Tapioca	Maracheeni	Manihot Utilissima
2	Elephantear	Chembu	Colocasia antiquorum
3	Elephant foot	Chena	Amorphophallus Campanulatus
4	Potato	Uralakizhangu	Solanum tuberosum
5	Sweet Potato	Cheenikizhangu	Ipomoea batatas
6	Radish	Mullangi	Raphanus sativus
7	Yam	Kachil	Dioscorea Spp
8	Turnip	Secma Mullangi	Brassica Campestris Varsapa
9	Carrot	Carrot	Daucus Carota
10	Bed pumpkin	Vellarimathan	Cucurbita Maxima
11	Brinjal	Vazhuthana	Solanum Malengena
12	Tomato	Thakkali	Lycopersum esculentum
13	Amaranthus	Cheera	Amaranthus Spp
14	Lady's finger	Venda	Abelmoschus esculentus
15	Bitter gourd	Pavakka	Mamordica Charantia
16	Bottle gourd	Churakka	Lagenaria Siceraria
17	Snake gourd	Padavalanga	Trichosanthes anguina
18	Ridge gourd	Pecchanga	Luffa acutangulata
19	Smooth gourd	Chorakka	Luffa cylindrica
20	Ash gourd	Kumbalanga	Ben measa
21	Little gourd	Kowva	Coccinia cordifolia
22	Cluster bean	Kothavara	Cyamopsis psoralodea
23	Sword bean	Vellaringa	Canavalia esculenta
24	French bean	Beans	Phaseolus vulgaris
25	Karileaf	Karivappila	Murraya Zoonigari
26	Beet root	Beet root	Beta Vulgaris
27	Cabbage	Muttakose	Brassica Oleracea
28	Gauliflower	Gauliflower	Brassica Celeracea
29	Cucumber	Vellarikka	Cucumis Celeracea
30	Musk Melon	Thaikumbalam	Cucumis melo
31	Pumpkin	Mathanga	Cucurbitapepo
32	Indian Bean	Amara	Dolichos lablab
33	Drum stick	Muringa	Moringa Pterigoasperma
34	Onion	Ulli	Allium Cepa
35	Roseapple	Jampa	Engenia Jamos

OIL SEEDS

1	Coconut	Thengu (Nalikeram)	Cocosmucifera
2	Groundnut	Nilakkadala	Arachis Hypogea
3	Sesamum	Ellu	Sesamum Spp
4	Mustard	Kadugu	Brassica Spp
5	Castor	Avanakku	Ricinus Communis

(1)	(2)	(3)	(4)
FIBRES			
1	Cotton	Paruthi	Gossypium Spp
2	Jute	Chanam	Corechoreus capsularis
3	Sunhemp	Kattuchanam	Crotalarie juncca
4	Sisal hemp	Kallarvazha	Agava Spp

DRUGS

1	Tobacco	Pukayila	Nicotiana tobaccum
2	Opium	Karuppu	Palayar somniferum
3	Cocoa	Cocoa	Theobrama cocoa

PLANTATION CROPS

1	Tea	Theyila	Camellia thea
2	Coffee	Coffee	Coffee arabica
3	Rubber	Rubber	Hevea brasiliensis

FODDERS

1	Bermudagrass	Karuka pullu	Cynodom dacylom
2	Guinea Grass	Kuthirappullu	Panicum maximum

TIMBER

1	Teak	Thekku	Tectoma grandis
2	Ebony	Karimaram	Diosphyros assimills
3	Jungle jack	Anjili	Artocarpus hirsuta
4	Poonspar	Kattupunna	Cabophyplum tomentoze
5	Cotton tree	Elavu	Bombax malabaricum
6	Perumaram	Perumaram	Ailanthus excellsa
7	Karimaruthu	Karimaruthu	Calophyslum tomentosam
8	Maruthu	Maruthu	Topaniculata
9	Chula maruthu	..	Tatravancorensis
10	Karanjili	..	Dip terocarpus indices
11	Indian mahagam	Mahagani	Cedrella toona
12	Mangotree	Mavu	Magifera indica
13	Kulamavu	Kulamavu	Buchanania latifoli
14	Iron wood tree	Kadamuram	Kylie dolabrief ormis
15	Puli	Puli	Albizzia oderatima
16	The write sitis tree	Karimthakara	Albizzia provera
17	Siris tree	Vaga	Lebbek app
18	Ventek	Venthekku	Lagerstroecnia lanceo lata
19	Manja Kadambu	Manja Kadambu	Adina cordifolla
20	Pala	Pala	Alsonia Scholaris
21	Kumbil	Kumbil	Omelina arborea
22	Mull vengai	Mullu venga	Bridelia retush
23	Mahogana	Mahogany	Saictenia mahogani
24	Bombay bag rose wood	Etti	Dalbergia latifolia
25	Jack tree	Plavu	Artocarpus integrifolia
26	Majadi	Manjadi	Adennathera pavonina

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