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GOVERNMENT OF KERALA

**SEASON AND CROP REPORT  
OF  
KERALA STATE**

**1969-70**

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Government of Kerala  
1973

**Bureau of Economics and Statistics  
Trivandrum**

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**SEASON AND CROP REPORT**  
**OF**  
**KERALA STATE**

1969-70

*Bureau of Economics and Statistics*  
*Trivandrum*

## SEASON AND CROP REPORT—1969-70

### FOREWORD

This Report is the Eleventh in the series of Season and Crop Reports relating to Kerala State. It deals with the different aspects of Agricultural Economy of the State pertaining to the year 1969-70.

The report consists of four parts viz. I. Narrative part, II. Summary Tables, III. Detailed Tables and IV. Appendices.

Trivandrum,  
13-5-1971.

N. GOPALAKRISHNAN NAIR,  
*Additional Director.*

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# CONTENTS

## PART I

### Report.

1. General
2. Population
3. Rainfall
4. Soil
5. Communication facilities
6. Land Utilisation
7. Area under crops
8. Irrigation
9. Weather and Crop condition
10. Production of important crops
11. Farm price of certain commodities
12. Agricultural wages
13. Livestock, Poultry and Agricultural implements
14. Sowing, Harvesting and Peak marketing periods.

## PART II

### Summary tables.

- A. Classification of Area
- B1. Source of Irrigation
- B2. Area under crops irrigated
- C. Area under crop
- D. Production of Important crops
- E. Average yield of certain crops
- F. Average price and value of production
- G. Livestock, poultry and agricultural machinery
- H. Sowing, harvesting and peak marketing seasons of principal crops.

## 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 of 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.

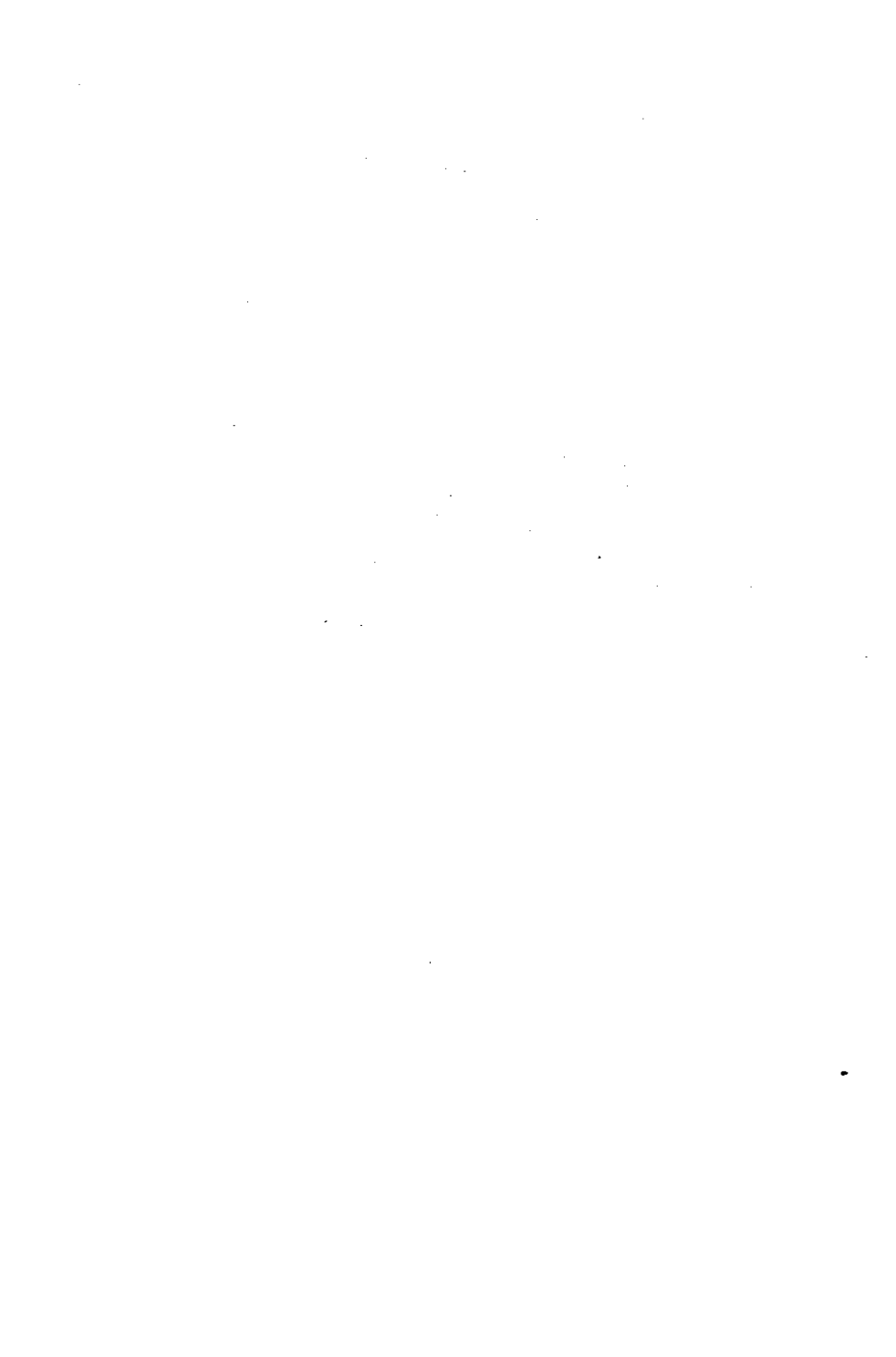
## PART IV

**Appendices.**

1. Working class cost of Living Indices
2. Parity Index
3. Quarterly Retail Prices
4. Export of Agricultural commodities
5. Notes on certain crops
  1. Tea
  2. Coffee
  3. Rubber
  4. Cardamom
  5. Pepper
  6. Ginger
  7. Lemongrass
6. Classification of soils in Kerala
7. Conversion ratio between the raw materials and the processed product
8. Average analysis of important fertilisers
9. Insect pest affecting paddy crop, their, distribution and some practical methods of control
10. List of centres selected for recording meteorological information
11. Glossary of English, Botanical and Malayalam names of crops
12. Graphs and Charts

**PART I**  
**R E P O R T**

1. General
  2. Population
  3. Rainfall
  4. Soil
  5. Communication facilities
  6. Land Utilisation
  7. Area under Crops
  8. Irrigation
  9. Weather and Crop Condition
  10. Production of important crops
  11. Farm price of certain commodities
  12. Agricultural Wages
  13. Lives'ock, Poultry and Agricultural Implements
  14. Sowing, Harvesting and Peak marketing period
-



# SEASON AND CROP REPORT FOR KERALA STATE 1969-70

## GENERAL

The State of Kerala which lies in the south west corner of India accounts for 1.3% of the total area of India. It lies between  $8^{\circ} 18'$  and  $12^{\circ} 48'$  north latitudes and  $74^{\circ} 52'$  and  $77^{\circ} 22'$  east longitudes. It has a coastal length of 580 K. M. and its width varies from 130 K. M. in the middle to 32 K. M. in the extremities. The area of the State is 38855 sq. kilometres.

The diversified physical configuration of the State has created the three geographical divisions of the State viz the highland, the midland and the lowland. The highland forms the eastern boundary of the State. From there the land undulates to the west. The lowland is a narrow strip of land bordering the Arabian Sea. The land lying amidst these is called the midland.

The Plantation crops are mainly cultivated in the highland region. Paddy and coconut are the important crops grown in the lowland. In the midland a number of crops are commonly cultivated. Paddy, tapioca, coconut, arecanut, pepper, sugarcane and ginger are some of the crops grown in this region. Thus the diversity in crops and heterogeneity in cultivation are the keynotes of the State's agriculture, which is the main occupation of the people. Paddy is the most important crop of the State. There are three crops for paddy, viz—Autumn (Virippu), Winter (Mundaken) and Summer (Punja). Seasonal crops like tapioca, groundnut, cotton, turmeric, ginger, pulses, sugarcane and perennial and semi-perennial crops like coconut, arecanut, cashew, pepper plantation crops like rubber, tea, coffee and cardamom are also predominantly cultivated in the State.

The State has a normal rainfall of about 3000 mm per annum. The State gets sufficient rain from the two monsoons viz south-west and North-east monsoons. There are 44 rivers running through the State. Of these, 41 are west flowing and three east flowing. There are a large number of backwaters connected by a network of canals in the State which provide easy and ample communication and transport facilities.

The State is divided into 10 Districts and 56 taluks for administrative convenience. The Districts are Trivandrum, Quilon, Alleppey, Kottayam, Ernakulam, Trichur, Palghat, Malappuram, Kozhikode and Cannanore. There are 1204 Revenue Villages, 951 Panchayats, 3 Corporations and 27 municipalities in the State.



## 2. POPULATION

As per the 1961 Census, the population of Kerala was 169.04 lakhs and the density per Sq. K. M. was 435. The estimated population as on 1st March 1969 was 206.74 lakhs. The density per sq. K. M. was 532.

The district-wise details of Population are given below.

**District-wise Distribution of Population in 1961 and  
Estimated Population during 1969.**

TABLE 1

District	Population (in lakhs)	
	1961 census	1st March 1969
(1)	(2)	(3)
Trivandrum	17.45	22.20
Quilon	19.41	24.75
Alleppey	18.11	21.26
Kottayam	17.33	21.94
Ernakulam	18.60	22.22
Trichur	16.40	19.49
Palghat	17.77	20.07
Kozhikode	26.17	32.43
Cannanore	17.80	22.38
State	169.04	206.74

The per capita land available for cultivation is only 0.12 hectare and the per capita cultivated area is 0.11 hectare. Kerala leads the other States with respect to literacy standards. The percentage of literacy in Kerala is 46.8 as against the All India average of 24.4%. The male and female literacy standards in Kerala are 55.0 and 38.9 while the All India averages are 34.4% and 12.9% respectively.

## 3. RAINFALL

The normal rainfall in the State varies between 2000 and 3600 m. m. The normal and actual rainfall during 1969-70 are given below.

TABLE II

District	Normal rainfall (in m. m.)	Actual rainfall 1969-70 (in m. m.)
(1)	(2)	(3)
Trivandrum	2002	1732
Quilon	2761	2390
Alleppey	3021	2824
Kottayam	2995	2730
Ernakulam	3578	3499
Trichur	3159	2753
Palghat	2459	2332
Kozhikode	3461	3122
Cannanore	3438	2872
State	2986	2695

The detailed statements showing the normal and average monthly rainfall in different districts are given in Tables 1.1 and 1.2 respectively.

## 4. SOIL

Different categories of soil are seen in the State. They can be classified as noted below.

- (1) The hilly and forest soil seen all along the eastern portion of the State.
- (2) The sandy soil seen all along the coastal belt.
- (3) The laterite soil in the midland portion.
- (4) The black soil which occurs as a patch in the eastern border of Palghat District.
- (5) The peat or kari soil in Alleppey District.
- (6) The alluvial soil which is seen along the southern and eastern parts of Vembanad lake and in small patches in Trichur Districts.
- (7) The red soil in the extreme tip of Trivandrum taluk.

The detailed classification of soil is given in the Appendix.

## 5. COMMUNICATION FACILITIES

As far as communication facilities are concerned, the State is placed in an advanced position. There is a good system of roads which connects the State with others and links the parts within. Eventhough the railways do not reach the interior parts of the State, there is a rail link from Trivandrum in the south to Kasargod and Hosdurg in the North. The Water Transport system also contributes much to the development of the State. There are a number of navigable rivers, canals and lakes which facilitate easy transportation of goods. The State is linked to other States by Airways also. There are daily air services from Trivandrum to Ernakulam, Madras, Bombay etc.

## 6. LAND UTILISATION

The land utilisation particulars of the State for a number of years i. e., from 1952-53 to 1969-70 are furnished in Table A of the summary Tables and district-wise details for the year 1969-70 are given in Table 2.1 of the detailed tables.

### 1. Total area of the State

The total area of the State according to village papers is 3858523 hectares. The District-wise break up of this area is furnished below :

TABLE III

District	Area in hectares	Percentages
(1)	(2)	(3)
Trivandrum	216096	5.6
Quilon	469051	12.2
Alleppey	186790	4.8
Kottayam	626225	16.2
Ernakulam	317428	8.2
Trichur	294262	7.6
Palghat	510424	13.2
Kozhikode	661586	17.2
Cannanore	576661	15.0
State	3858523	100.0

## 2. Forests.

The area under forests during 1969-70 is 1055733 hectares. The District-wise area under forests during 1968-69 and 1969-70 are as shown below.

TABLE IV

District	Area of forests (Hectares)	
	1968-69	1969-70
Trivandrum	44537	44537
Quilon	210857	210783
Alleppey	513	513
Kottayam	252964	252964
Ernakulam	55212	55212
Trichur	132376	132373
Palghat	99663	99663
Kozhikode	193756	193756
Cannanore	65932	65932
STATE	1055810	1055733

## 3. Land put to non-agricultural uses

The area put to non-agricultural uses during the current year is 267665 hectares as against 250945 hectares during last year.

The District-wise figures for the above are furnished below:—

TABLE V

District	Area under non-agricultural uses (Hectares)	
	1968-69	1969-70
(1)	(2)	(3)
Trivandrum	17025	17081
Quilon	16234	17046
Alleppey	12660	12913
Kottayam	16332	17312
Ernakulam	24169	26530
Trichur	16208	16305
Palghat	63793	70810
Kozhikode	32920	34306
Cannanore	51604	55362
STATE	250945	267665

#### 4. Barren and uncultivable land:

During the year under review, 73805 hectares are treated as barren and uncultivable land, while the corresponding figure for last year was 79959 hectares.

#### 5. Permanent pastures and grazing land:

The area under this category is 27800 hectares during the year 1969-70.

#### 6. Land under Miscellaneous tree crops:

The land under miscellaneous tree crops has decreased from 150277 hectares in 1968-69 to 140235 hectares in 1969-70.

#### 7. Cultivable waste land:

The extent of cultivable waste land has been reduced from 89263 hectares in 1968-69 to 81275 hectares in 1969-70. The district-wise details of area are furnished below:—

TABLE VI

District	Cultivable waste land (hectares.)	
	1968-69	1969-70
(1)	(2)	(3)
Trivandrum	633	567
Quilon	2444	2347
Alleppey	1001	892
Kottayam	16575	16075
Ernakulam	5748	3663
Trichur	1909	1797
Palghat	19238	18095
Kozhikode	20890	20006
Cannanore	20828	17833
STATE	89263	81275

Compared to other districts especially Malabar Districts, Trivandrum has only very negligible area under this category of land. Palghat Kozhikode and Cannanore account for 69% of the cultivable waste land in the State.

#### 8. Fallow land other than current fallow:

'Other fallows' during the year under review cover 22866 hectares of land in the State while the figure was 27630 hectares during last year. Trichur District has the lowest area under this category. The Malabar Districts account for 69% of the total area.

### 9. Current fallow:

The area under current fallows during 1969-70 is 23242 hectares while it was 23154 hectares, during 1968-69. The district-wise break-up of area is as follows:—

TABLE VII

District	Current fallows (Hect.)	
	1968-69	1969-70
(1)	(2)	(3)
Trivandrum	281	253
Quilon	480	425
Alleppey	344	458
Kottayam	3159	3258
Ernakulam	2883	3204
Trichur	1847	1681
Palghat	4197	4281
Kozhikode	5492	5410
Cannanore	4471	4272
<b>STATE</b>	<b>23154</b>	<b>23242</b>

### 10. Net area sown:

Net area sown in the State has increased from 2153685 hectares in 1968-1969 to 2165902 hectares in 1969-70. The District-wise figures of net area sown are furnished below:—

TABLE VIII

District	Net area sown (in hectares)	
	1968-69	1969-70
(1)	(2)	(3)
Trivandrum	151523	151546
Quilon	223400	225304
Alleppey	167167	167100
Kottayam	321076	321998
Ernakulam	217242	217429
Trichur	138001	137990
Palghat	276564	277117
Kozhikode	364935	370409
Cannanore	293777	297009
<b>STATE</b>	<b>2153685</b>	<b>2165902</b>

### 11. Area sown more than once:

Area sown more than once during 1969-70 is 750186 hectares while it was 699078 hectares during last year, the increase being 7%.

The area in each District is as follows:—

TABLE IX

District	Area sown more than once (hect.)	
	1968-69	1969-70
(1)	(2)	(3)
Trivandrum	83707	84375
Quilon	122161	126759
Alleppey	68708	69065
Kottayam	53076	50475
Ernakulam	57341	63132
Trichur	92578	98415
Palghat	107066	112000
Kozhikode	64816	75268
Cannanore	49625	70697
STATE	699078	750186

The extent of multiple cropping is found to be the highest in Quilon District followed by Palghat District.

### 12. Total cropped area:

The total cropped area increased from 2852763 hectares in 1968-69 to 2916088 hectares in 1969-70. There is an increase of 63325 hectares over last year.

In order to study the intensity of cropping in each district a comparative study of net area sown and total cropped area is attempted in the following table:

TABLE X

District	Net area sown (hect.)	Total cropped area (hect.)	Percentage of total cropped area to net area sown
(1)	(2)	(3)	(4)
Trivandrum	151546	235921	156
Quilon	225304	352063	156
Alleppey	167100	236165	141
Kottayam	321998	372473	116
Ernakulam	217429	280561	129
Trichur	137990	236405	171
Palghat	277117	389117	140
Kozhikode	370409	445677	120
Cannanore	297009	367706	124
STATE	2165902	2916088	135

## 7. AREA UNDER CROPS

The details of area under food and non-food crops in the State are given in Table C of the summary Tables and the district-wise break-up is given in table 3.1 of the detailed tables.

### (A) Food Crops:

The area under food crops in the State during 1969-70 is 1844205 hectares while it was 1820856 hectares in 1968-69. This accounts for 63% of the total cropped area in the State.



The district-wise area under food crops and the percentages to total cropped area are as follows:—

TABLE XI

District	Total cropped area (hect.)	Area under food crops (hect.)	Percentage to Total	Area under food crops as percentage to total cropped area
(1)	(2)	(3)	(4)	(5)
Trivandrum	235921	148904	8.2	63.1
Quilon	352063	220186	11.9	62.5
Alleppey	236165	144574	7.8	61.2
Kottayam	372473	196037	10.6	52.6
Ernakulam	280561	162567	8.8	57.9
Trichur	236405	170540	9.3	72.1
Palghat	389117	309838	16.8	79.6
Kozhikode	445677	247938	13.4	55.6
Cannanore	367706	243621	13.2	66.3
STATE	2916088	1844205	100.0	63.2

Nearly 80% of the total cropped area in Palghat District is under food crops.

1. *Paddy*.—The area under Paddy rose from 873871 hectares in 1968-69 to 874059 hectares in 1969-70. The District-wise changes in area under the crop during these two years are as given below.

TABLE XII

District	Area under Paddy (Hect.) 1968-69	1969-70
(1)	(2)	(3)
Trivandrum	39962	39489
Quilon	51785	51884
Alleppey	86713	85240
Kottayam	49886	50081
Ernakulam	93994	93691
Trichur	114371	113311
Palghat	211352	211326
Kozhikode	128155	130384
Cannanore	97653	98653
STATE	873871	874059

The area under Paddy is highest in Palghat District followed by Kozhikode and Trichur Districts.

The district-wise percentage distribution of area under Paddy and the percentage of area under Paddy to total cropped area in each district have been worked out in the following Table.

TABLE XIII

District	Area under paddy (hect.)	Percentage to total	Percentage to total cropped area in the District
(1)	(2)	(3)	(4)
Trivandrum	39489	4.5	16.7
Quilon	51884	5.9	14.7
Alleppey	85240	9.8	36.1
Kottayam	30081	5.7	13.4
Ernakulam	93691	10.7	33.4
Trichur	113311	13.0	47.9
Palghat	211326	24.2	54.3
Kozhikode	130384	14.9	29.3
Cannanore	98653	11.3	26.8
State	874059	100.0	30.0

In Palghat District more than 54% of the total cropped area is under Paddy cultivation. Trichur stands second to Palghat having nearly 48% of the total cropped area, under Paddy.

2. *Other cereals and millets:* Other cereals and millets are cultivated in 6683 hectares during 1969-70. Out of this, 5041 hectares are under Ragi and 1519 under Jowar.

3. *Pulses:* The area under pulses in 1969-70 is 42345 hectares. This crop is most extensively cultivated in Palghat District. Next in importance comes Trichur followed by Quilon District.

4. *Sugarcane:* In 7785 hectares, sugarcane is cultivated in the State during 1969-70. Alleppey District is the major sugarcane growing District in the State.

5. *Pepper:* Cannanore is the most important District with regard to cultivation of Pepper. Nearly 44% of the total area of pepper in the State is in this District. The total area under this crop during the year 1969-70 is 118045 hectares.

6. *Chillies:* During the current year, Chillies are cultivated in 3192 hectares in the State. The cultivation of the crop is confined to Palghat, Kozhikode and Cannanore Districts.

7. *Ginger*: The area under ginger cultivation has increased from 11423 hectares in 1968-69 to 11522 hectares in 1969-70.

8. *Turmeric*: The area under Turmeric in the State in 1969-70 is 4339 hectares.

9. *Cardamom*: The area under cardamom is the same as that during last year viz., 47026 hectares.

10. *Arecanut*: The area under arecanut has increased from 81182 hectares in 1963-69 to 83680 hectares in 1969-70. Trichur, Kozhikode and Cannanore are the important Districts with regard to the cultivation of this crops.

11. *Mangoes*: 60261 hectares are under Mango cultivation in the State during the year under review.

12. *Banana*: The area under Banana cultivation is 10146 hectares in 1969-70 while it was 9849 hectares in 1968-69.

13. *Other Plantains*: Other Plantains are cultivated in 43349 hectares during this year.

14. *Cashew*: More than one-third of the area under cashew trees lies in Cannanore District. The area under this crop has increased from 96019 hectares in 1968-69 to 98984 hectares in 1969-70.

15. *Tapioca*: Tapioca which is an important food of the people is largely cultivated in all the Districts in the State. Quilon is the most important District with regard to Tapioca cultivation. The area under this crop during 1969-70 is 295585 hectares in the State.

## B. Non-Food Crops:

1. *Ground nut*: Ground-nut is cultivated in Palghat District only. The area of the crop is 13118 hectares in 1969-70.

2. *Sesamum*: There is a fall in the area under sesamum from 11995 hectares in 1968-69 to 11824 hectares in 1969-70.

3. *Coconut*: Coconut is largely cultivated in all the districts. Kozhikode District stands first in coconut cultivation. Coconut trees occupy 66% of the total area under non-food crops in the State.

4. *Cotton*: There is no change in the area under cotton cultivation in the State during this year when compared to last year. The area is 6299 hectares. Out of this, 6151 hectares are in Palghat District.

5. *Tobacco*: Only in Cannanore District, Tobacco is being cultivated. The area under tobacco cultivation during 1969-70 is 623 hectares.

6. *Tea*: The area under Tea in Kerala during the current year is 38295 hectares. Out of this, 27797 hectares i.e., 73% of the total area is in Kottayam District.

7. *Coffee*: Coffee is cultivated in 28873 hectares during 1969-70 while the area under coffee cultivation during last year was 26468 hectares. 65% of the total area lies in Kozhikode District.

8. *Rubber*: The area under Rubber showed an increase from 168534 hectares in 1968-69 to 175190 hectares in 1969-70. Kottayam, Quilon, Ernakulam and Kozhikode are major growing districts.

### 8. IRRIGATION

The net area irrigated in the State during the year under report is 422969 hectares while it was 418060 hectares during 1968-69. Government canals form the major source of irrigation in the State. The percentage of net area irrigated to net area sown is 19.5.

The gross area irrigated in the State during 1969-70 is 589329 hectares. The percentage of gross area irrigated to total cropped area in the State is 20.21. The source-wise and crop-wise irrigated area are given in Tables B-1 and B-2 of the summary tables respectively.

### 9. WHETHER AND CROP CONDITIONS

#### Trivandrum District:

Moderate rainfall was observed in Trivandrum District during the agricultural year 1969-70. No heavy rainfall was reported from any taluk in the District. There was no damage caused due to excess of rain or drought. No attack of pests also was reported from any taluk during the year for the Kharif crop. The yield of Rabi crop was comparatively better than that of the previous year. The whether and crop conditions were favourable to all crops in the District.

#### Quilon District :

During the kharif season the rainfall conditions were favourable when compared to the previous year. The rainfall was moderate during the Rabi season also. During the summer season, Paddy crop was badly affected in Kottarakkara Taluk.

The heavy rainfall at the commencement of the year caused great loss to paddy cultivation in Pathanamthitta and Kunnathur Taluks. Further, high yielding varieties of paddy cultivated in large extents during the Autumn season in Quilon, Karunagapally, Pathanamthitta and Kunnathur Taluks were attacked by paddy bugs, pests and stem borer. In Kottarakkara and Pathanapuram Taluks also the paddy crop was affected by some diseases.

The Rabi season was favourable to all crops in the District. The condition of seasonal crops also was normal during the year.

#### Alleppey District :

The rainfall was rather heavy and as a result, low-lands of Kuttanad, Ambalapuzha, Thiruvella, Chengannur, Mavelikkara and Karthigappally taluks were under flood. The yield of kharif paddy has gone down considerably in Thiruvella, Chengannur and Mavelikkara taluks due to heavy rain and flood.

Rainfall was inadequate during the Rabi season. This had adversely affected the yield rate of Paddy. Pest attack was slightly prevalent all over the District. Inadequate rainfall had affected coconut, arecanut, tapioca and sugarcane in all taluks of the District.

#### **Kottayam District :**

The rainfall conditions were satisfactory both during Kharif and Rabi seasons. Except in Vaikom taluk where the crops were seriously affected by pest attack, the crop conditions were good in all the taluks in the District.

#### **Ernakulam District :**

There was normal rainfall through out the year in the District. Condition of crops also was normal both during Kharif and Rabi seasons. There was pest attack on Paddy crop in some taluks in the District which resulted in loss to some extent.

#### **Trichur District :**

There was moderate rain during the sowing period of Virippu crop. But there was heavy rain during the latter part of July 1969 which resulted in floods in several parts of the District. Rainfall was regular in Mukundapuram and Cranganore taluks. During Rabi season rainfall was moderate.

The Virippu crop was affected by heavy rains in Trichur, Talappally and Chowghat Taluks and there was loss of crop to some extent. The crop was affected by pests also. During the Rabi season, the yield was better than that of the previous year. The condition of crops like coconut, arecanut, banana, tapioca etc., also was favourable during the year.

There was no considerable loss of crops during the year in this District.

#### **Palghat District :**

During both Kharif and Rabi seasons, there were no abnormal rainfall conditions in the District. No damage was caused to crops either due to flood or drought. The rainfall and weather conditions were conducive to the crops like coconut, arecanut, tapioca, pepper, ginger, groundnut etc.

#### **Kozhikode District :**

The rainfall conditions were satisfactory in all the taluks in the District. During the year losses of crops and other damages due to flood and other natural calamities were negligible. In general the weather and other conditions were favourable to almost all crops.

#### **Cannanore District :**

Rainfall was rather heavy in almost all the taluks in the District during the Karif season. In Cannanore, Taliparamba and Tellicherry taluks there was flood due to heavy rain and crops like paddy, banana and tapioca were affected.

During the Rabi season the weather conditions were satisfactory. The production of crops was good as the climatic conditions were favourable to crops. The yield rate of paddy also was fair.

### 10. PRODUCTION OF IMPORTANT CROPS

The production trend of all important crops in the State for the last few years is given in Table D of the Summary Tables. The district-wise details of production are given in Table 4.1 of the detailed tables.

#### 1. Paddy:

The total production of rice in the State during 1969-70 is 1226413 tonnes while it was 1251354 tonnes in 1968-69. The district-wise production estimates of rice are as follows:—

TABLE XIV

District	Production of rice (Tonnes)	
	1968-69	1969-70
Trivandrum	56692	56933
Quilon	80489	67321
Alleppey	128374	132542
Kottayam	79064	72867
Ernakulam	126382	109211
Trichur	144811	146417
Palghat	373422	374453
Kozhikode	134915	130353
Cannanore	126705	136311
<b>STATE</b>	<b>1251354</b>	<b>1226413</b>

The season-wise production figures of paddy for 1968-69 and 1969-70 are furnished below:

TABLE XV

Crop	Rice Production (Tonnes)	
	1968-69	1969-70
Autum	521258	521443
Winter	571748	526570
Summer	158348	178400
<b>STATE</b>	<b>1251354</b>	<b>1226413</b>

The production of winter paddy has decreased when compared to last year. This is due to the fall in production in Quilon, Kottayam and Ernakulam Districts. The severe rain at the flowering stage, change from the use of high yielding variety to local variety by some cultivators and pest attack may be attributed to this fall in production.

**2. Pulses:**

The production of pulses during 1969-70 is 15955 tonnes as against 16757 tonnes in 1968-69.

**3. Sugarcane:**

50131 tonnes of Sugarcane (gur) are produced during the current year. The production during 1968-69 was 50304 tonnes.

**4. Black Pepper:**

The out-turn of black pepper during 1969-70 is 24402 tonnes as against 24646 tonnes during the previous year.

**5. Dry Ginger:**

The production of dry ginger in the State has increased from 10839 tonnes in 1968-69 to 11997 tonnes in 1969-70. Kottayam and Kozhikode Districts are the major ginger producing districts.

**6. Turmeric (cured):**

The production of cured turmeric in the State is 3580 tonnes during 1969-70.

**7. Cardamom (Processed):**

1074 tonnes of cardamom are produced in the State during the year under review.

**8. Betelnuts (Million nuts):**

The production of betelnuts has increased from 12289 million nuts during 1968-69 to 12661 million nuts during the current year.

**9. Banana:**

Quilon, Kottayam, Kozhikode and Cannanore Districts are important Banana growing Districts. The production of the crop during 1969-70 is 73924 tonnes while it was 71760 tonnes during last year.

**10. Other Plantains:**

The production of other plantains during the year under review is 331014 tonnes. This shows an increase from 318719 tonnes during last year.

**11. Cashew nut :**

Cannanore District stands first with regard to cashew nut production in the State. The production of cashew nut during 1969-70 is 111033 tonnes while it was 107732 tonnes during 1968-69.

**12. Tapioca :**

There is an appreciable increase in the production of tapioca when compared to the previous year. The production has increased from 4081115 tonnes in 1968-69 to 4665764 tonnes in 1969-70.

The district-wise yield rate of tapioca is given in the following table:

TABLE XVI

District	Yield rate of tapioca (Tonnes/hect.)
Trivandrum	13.08
Quilon	16.23
Alleppey	23.92
Kottayam	18.59
Ernakulam	12.71
Trichur	11.69
Palghat	12.23
Kozhikode	16.14
Cannanore	12.47
STATE	15.78

13. **Groundnut :**

Groundnut is grown only in Palghat District. The production during 1969-70 is 19349 tonnes as against 24029 tonne in 1968-69.

14. **Sesamum :**

The production of sesamum during the year under review is 3840 tonnes while it was 3961 tonnes during 1968-69.

15. **Coconut (Million nuts)**

The production of coconuts has increased from 3834 million nuts in 1968-69 to 3956 million nuts in 1969-70. Kozhikode stands first with regard to production of coconuts in the State.

16. **Cotton :**

5057 bales of cotton are produced during the current year. Out of this, 4850 bales have been produced in Palghat District.

17. **Tobacco:**

Tobacco is produced only in Cannanore District. The production is 833 tonnes during 1969-70.

18. **Tea:**

The production of tea in the State during 1969-70 is 40900 tonnes, while it was 44781 tonnes during last year.

19. **Coffee:**

The production of coffee has registered an increase from 11988 tonnes during 1968-69 to 12470 tonnes during 1969-70.

20. **Rubber:**

Kottayam is the major rubber producing district in the State. Production of rubber during 1969-70 is 76897 tonnes.



## 21. Lemongrass Oil:

There is no change in the production of lemongrass oil in the State when compared to the previous year. Production is estimated at 1602 tonnes during the year under review.

## 11. FARM PRICES OF CERTAIN COMMODITIES

The average farm prices of certain commodities are given in Table F of the summary tables and Table 5.1 of the detailed tables. The value of production of these commodities is dealt with in Table F.

## 12. AGRICULTURAL WAGES

District-wise and class-wise statements showing agricultural wages are given in Table 6.1.

## 13. LIVESTOCK, POULTRY AND AGRICULTURAL IMPLEMENTS

The details regarding these are furnished in Table G of the summary tables and table 7.1 of the detailed tables. The figures relate to 1961 and 1966 Livestock Censuses.

## 14. SOWING, HARVESTING AND PEAK MARKETING PERIODS

A detailed statement on this is given in Table H of the summary tables.

**PART—II****SUMMARY TABLES**

- A. Classification of Area
  - B1. Source of Irrigation
  - B2. Area under crops irrigated
  - C. Area under crop
  - D. Production of Important crops
  - E. Average yield of certain crops
  - F. Average price and value of production
  - G. Livestock, Poultry and Agricultural machinery
  - H. Sowing, Harvesting and Peak marketing seasons of Principal crops
-



TABLE—A

## Classification of Area (Area in Hectares)

Head of Classification	1952-53		1955-56		1960-61		1965-66	
	Area	%	Area	%	Area	%	Area	%
	2	3	4	5	6	7	8	9
Total area by village papers	3808861	100.00	3808861	100.00	3858523	100.00	3858523	100.00
Forests	947251	24.87	1007624	26.46	1056143	27.37	1055076	27.34
Land put to non-agricultural use	205011	5.38	204971	5.38	209486	5.43	228230	5.92
Bareen & uncultivable land	214849	5.64	204328	5.36	146120	3.79	109925	2.85
Permanent pastures and other grazing land	55722	1.46	47080	1.24	4439	1.15	27800	0.72
Land under miscellaneous tree crops	186322	4.89	197011	5.17	202194	5.24	200005	5.18
Cultivable waste	181578	4.77	151602	3.98	140898	3.65	107950	2.80
Current fallow	44010	1.16	56552	1.48	60961	1.58	33220	0.86
Other fallows	197259	5.18	108524	2.85	66409	1.72	31980	0.83
Net area sown	1776859	46.65	1831169	48.08	1931773	50.07	2064337	53.50
Total cropped area	2089109	54.85	2178310	57.19	2341200	60.68	2551344	66.12
Area sown more than once	312249	8.20	347141	9.11	409427	10.61	487007	12.62

TABLE—A (contd.)

Head of Classification	1966-67		1967-68		1968-69		1969-70	
	Area	%	Area	%	Area	%	Area	%
	10	11	12	13	14	15	16	17
I								
Total area by village papers	3858523	100.00	3858523	100.00	3858523	100.00	3858523	100.00
Forests	1055832	27.36	1055811	27.36	1055810	27.36	1055733	27.36
Land put to non-agricultural uses	235321	6.10	240830	6.24	250945	6.50	267565	6.94
Barren & uncultivable land	100437	2.60	91830	2.38	79959	2.07	73805	1.91
Permanent pastures & other grazing land	27800	0.72	27800	0.72	27800	0.72	27800	0.72
Land under miscellaneous tree crops	181842	4.71	161862	4.20	150277	3.90	140235	3.64
Cultivable waste	105651	2.74	98556	2.55	89263	2.31	81275	2.11
Current fallow	26446	0.69	23333	0.61	23154	0.60	22866	0.59
Other fallows	33965	0.88	29656	0.77	27630	0.72	23242	0.60
Net area sown	2091229	54.20	2128845	55.17	2153685	55.82	2165902	56.13
Total cropped area	2640500	68.43	2777931	71.99	2873074	74.46	2916088	75.57
Area sown more than once	549271	14.23	643080	16.82	719389	18.64	750186	19.44

TABLE—B1  
Sources of Water Supply and Net area Irrigated (In hectares)

Sources	1955-56	1960-61	1965-66	1966-67	1967-68	1968-69	1969-70
	2	3	4	5	6	7	8
Net area irrigated by:							
1. Government canals	67368	133049	168977	179000	182960	189290	193496
2. Private canals	5738	5738	7689	10160	10160	10160	10160
3. Tanks	41598	46952	59736	72280	70500	71360	72031
4. Wells	2032	2032	4030	5460	5460	5450	5460
5. Other sources	130940	130940	121406	126510	141430	141790	141822
6. Total	247676	318711	361838	393410	410510	418060	422969
Percentage of net area irrigated to net area sown	1353	16.57	17.53	18.81	19.28	19.41	19.53
Area irrigated more than once in an year	101766	137545	147123	133390	161690	164800	166360
Total irrigated area	349442	456256	508961	526800	572290	582860	589329
Percentage of total irrigated area to total cropped area	16.04	19.42	19.95	20.09	20.75	20.43	20.21

TABLE—B2

## Gross area irrigated in Kerala (In hectares)

Name of crop	1955—56		1960—61		1965—66		1966—67		1967—68		1968—69		1969—70	
	Area	%	Area	%	Area	%	Area	%	Area	%	Area	%	Area	%
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Paddy	240986	69.0	347799	76.2	405920	79.8	424120	80.5	459720	80.4	470110	80.7	476579	80.9
Sugarcane	2796	0.8	3650	0.8	4306	0.8	4290	0.8	4290	0.7	4290	0.7	4290	0.7
Other Food Crops	66163	18.9	63310	14.3	56049	11.0	55690	10.6	55690	9.7	55690	9.5	55690	9.5
Total Food Crops	309945	88.7	416759	91.3	466275	91.6	484100	91.9	519700	90.8	530090	90.9	536559	91.1
Total Non-food Crops	39497	11.3	39497	8.7	42686	8.4	42700	8.1	52500	9.2	52770	9.1	52770	8.9
All Crops	349442	100.0	456256	100.0	538961	100.0	526800	100.0	572200	100.0	582860	100.0	589329	100.0





TABLE—C Cont.

1	2	3	4	5	6	7	8	9
Banana	31014**	47067**	10014	10626	9204	8785	9849	10146
Other Plantains	..	..	34410	37153	36385	40633	41739	43349
Other fresh fruits	35080	50940	58154	64393	65553	64839	61952	63593
Cashewnuts	35409	37464	54138	87366	90559	94990	96019	98960
Other dried fruits	16396	6051	24	24	24	24	24	24
Total fruits	172195	200940	218458	263738	265660	275759	273765	278292
Tapioca	204723	222132	242201	229684	244647	297646	296661	295585
Sweet potatoes	6117	8401	8031	8211	8617	8797	7413	6051
Other vegetables	39785	39786	25014	28654	30577	36670	31976	31686
Total vegetables	250625	270319	275247	266549	283841	343113	336050	333322
Total food crops	1424536	1507809	1565057	1635326	1695351	178328	1841167	1844205
Groundnut	11053	13197	16030	15215	13745	13714	1318	13118
Castor	672	703	214	355	374	273	124	362
Sesamum	18562	20125	12087	11950	12070	11163	11995	11824
Coconut	430401	447945	500758	586313	609583	638722	686063	707844
Other oil seeds	10801	11205	9699	11299	11128	10774	7844	9298
Total oil seeds	471489	493175	538788	625132	646900	674646	719167	742446
Cotton	6406	8767	7160	7160	6625	6625	6299	6299
Other fibres	..	67	36	36	36	36	36	36
Total Fibers	6406	8834	7196	7196	6661	6661	6335	6335
Tobacco	523	571	743	705	712	698	670	623
Tea	44986	39883	37631	39470	39799	39282	41158	38295
Coffee	12599	14295	16798	23602	25152	26468	27673	28873
Rubber	62586	64708	122865	149634	153357	162932	168534	175190
Other Drugs & Plantation crops	2040	101	1406	1406	1406	1406	1406	1406
Total Drugs & Plantation crops	122734	119558	179443	214817	220426	230786	239446	244387

TABLE—C Cont.

1	2	3	4	5	6	7	8	9
Fodder crops	605	605	466	462	462	670	471	474
Green manure crops	1448	1448	1429	13525	15814	25916	20833	20186
Lemongrass	NA	14085	25712	24036	24036	24036	24036	24036
Other non-food crops	61889	32796	28103	30850	30850	31934	21619	34019
Total non-food crops	664572	670501	783799	916018	945149	994649	1031907	1071883
Total area under all crops	2089108	2178310	2348856	255134	2640500	2777931	2873074	2916088
Area sown more than once	312249	347141	425134	487001	549271	6-9086	719389	750186
Net area sown	1776859	1831169	1923722	2064337	2091229	2128845	2153685	2165902

\* Area under pepper has been revised on the basis of the Pepper Survey conducted in the State from 1966-68.

\*\* Banana including Plantain.

TABLE D

## Production of important crops in Kerala

N.ame of crops	Unit	1952-53	1955-56	1960-61	1965-66	1966-67	1967-68	1968-69	69-70
1	2	3	4	5	6	7	8	9	10
Rice	'000 tonnes	722	884	1068	997	1084	1124	1251	1226
(Paddy)	"	(1099)	(1345)	(1625)	(1518)	(1650)	(1711)	(1904)	(1867)
Jowar	Tonnes	4.96	833	640	450	450	450	450	554
Ragi	"	5548	6213	8006	7084	7113	7046	7062	7553
Tur	"				3994	3950	3570	3509	3495
Other Pulses	"	13637*	17556*	17546*	13907	13121	13173	13248	12460
Surricane (Gur)	"	29464	33982	38090	40948	54902	499 3	50304	50131
Pepper (Black)	"	22627	27672	27026	21685	25400@	25408@	24646@	24402
Chillies (Dry)	"	N.A.	N.A.	2225	2025	2105	2121	2069	2331
Ginger (Dry)	"	10175	11111	11263	11190	11 54	11117	1083.9	11997
Turmeric (cured)	"	5056	5101	4181	3766	3747	3725	3.47	3580
Cardamom	"								
(processed)	"	1231	1259	1280	1606	1606	1606	1055	1074
Arcanut	"								
(Betelnut)	Million nuts	4448	6460	7737	9681	10683	11473	12289	12661
Banana	Tonnes	208745**	316794**	651.0	77421	67060	64008	71760	73921
Other plantain	"			262766	283701	277836	310274	3187 9	331014
Cashewnut	"	54751	58786	84630	98025	101607	106578	107732	1111033
Tapioca (Raw)	'000 tonnes	1514	1594	1683	3096	3410	4198	4081	4666
Sweet Potatoes	Tonnes	N.A.	N.A.	N.A.	40644	42655	43546	36695	29952
Groundnut	"	13937	14468	13797	25220	23601	24675	24029	19349

TABLE D—Contd.

1	2	3	4	5	6	7	8	9	10
Sesamum ..	Tonnes	5927	6460	2586	2365	2400	2629	3961	3840
Cocoonut ..	Million nuts	2978	3099	3229	3293	3525	3593	3834	3956
Cotton ..	Bales of 180 Kg.	6934	9444	10481	6933	6458	6461	5556	5067
Tobacco ..	Tonnes	..	700	1006	911	920	902	911	838
Tea ..	"	30220	30396	40373	39154	44130	43189	44781	40200
Coffee ..	"	5110	6253	7409	9878	10513	11458	11983	12470
Rubber ..	"	19261	21174	23045	46953	50495	59978	66473	76897
Lemongrass Oil ..	"	.	1016	1703	1602	1602	1602	1602	1602

N. A. Not available.

\* Total pulses (Tur + other pulses)

\*\* Banana including other plantain.

@ Production has been revised on the basis of Pepper Survey conducted in the State during 1966-68.



TABLE F

Average price and total value of production 1969-70

Name of crop	Unit	Average farm price Rs.	Value of production Rs. in lakhs
1	2	3	4
1. Paddy	Tonne	1003.10	18723.87
2. Coconut (with husk)	1000 nuts	498.40	19716.70
3. Arecanut (ripe)	"	40.20	5089.72
4. Tapioca (raw)	Tonne	184.80	8622.33
5. Cashewnut	"	1464.20	1625.75
6. Banana	1000 Nos.	171.80	838.21
7. Pepper (black)	Tonne	5595.40	1365.39
8. Ginger (Dry)	"	8661.30	1039.10
9. Sugarcane	"	739.50	370.72

TABLE G

## Number of Livestock, Poultry and Agricultural Machinery

Sl. No.			1961 Census	1966 Census	
1	2	3	4	5	
1	Cattle	Male over 3 years	(a) Breeding	29319	19387
			(b) Working	515241	491281
			(c) Others	21471	8855
		Total		566031	519523
		Female over 3 years	(a) Breeding	(1) In Milk	428194
	(2) Dry			502935	592972
	(3) Not calved			217277	133999
	(b) Working		11274	3605	
	(c) Others		12306	5247	
	Total		1161986	1219242	
Young Stock		1025148	1117962		
Total cattle		2753165	2856727		
2	Buffaloes	Males over 3 years	(a) Breeding	10627	6106
			(b) Working	267871	241048
			(c) Others	6614	6696
		Total		285112	253850
		Females over 3 years	(a) Breeding	(1) In Milk	59542
	(2) Dry			49341	52777
	(3) Not calved			16846	9119
	(b) Working		7266	4589	
	(c) Others		2188	1580	
	Total		135113	134770	
Young Stock		64864	82615		
Total Buffaloes		485089	471235		

TABLE G—(Contd.)

1	2	3	4	5
3	Sheep	(a) One year and above (b) Below one year	18949 5292	7920 3599
		Total	24241	11519
4	Goats	(a) One year and above (b) Below one year	869414 442848	757766 431452
		Total	1312262	1189218
5	Horse and Ponies	(a) 3 years and above (b) Below 3 years	366 42	372 54
		Total	408	426
6	Mules		31	8
7	Donkeys		377	310
8	Camels		..	4
9	Pigs		122381	111928
		Total Livestock	4697954	4641375
10	Poultry	(a) Fowls (b) Ducks (c) Others	8703664 387072 ..	9587286 318751 2950
11	Ploughs	(a) Woo 'en (b) Iron	562281 6441	475930 17179
12	Carts		21037	16309
13	Sugarcane crushers	(a) Power (b) Bullocks	175 1071	457 989
14	Oil Engines		3372	6824
15	Electric pumps		2565	4869
16	Tractors		276	418

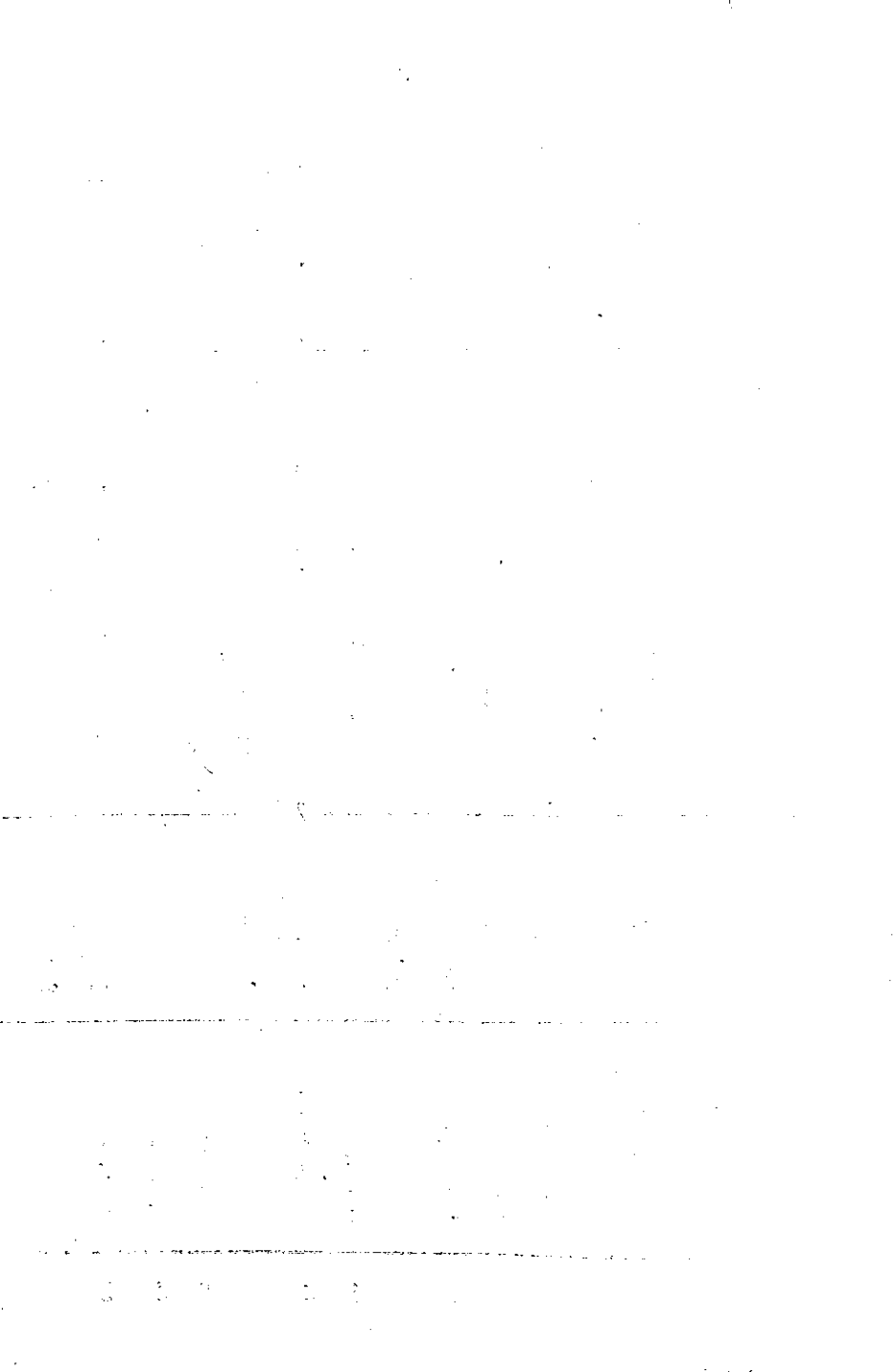


TABLE H  
Sowing, harvesting and peak marketing seasons of principal crops in Kerala State

Sl. No.	Crop	3	Sowing	Harvesting	Peak marketing
1		3	4	5	6
1	Rice	Autum Winter Summer	April-June August-October November- December January-March April-July September-October	August-October December-February February-March April-May	September-October January-February March-April May-June
2	Ragi	1st crop 2nd crop	May September	August-October December-January	September-October December-January
3	Small Millets (Samai)	Kharif Rabi	May September	August December	August December
4	Redgram	1st crop 2nd crop 3rd crop	May-June August-October February	August-September November-January April	September-October January April
5	Horsegram	1st crop 2nd crop	August-October February-March	November-January April-May	January-February May-June
6	Greengram		May-June	August-September	September-October
7	Blackgram	1st crop 2nd crop	May-June October-November	August-October January-February	October February
8	Other pulses	..	May-June October	August-September December-January	August-September January

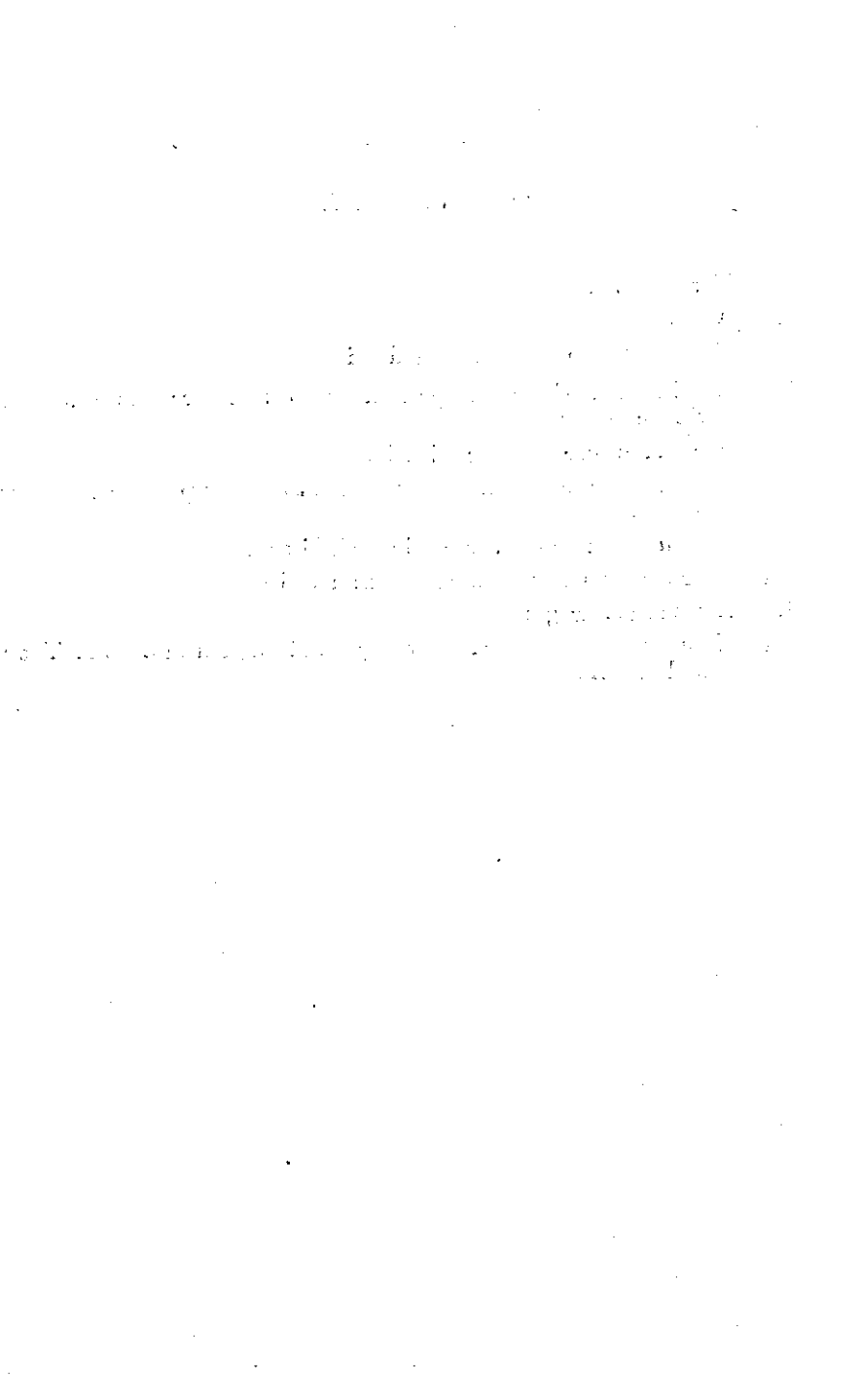
TABLE H—(Contd.)

1	2	3	4	5	6
9	Sugarcane	1st crop 2nd crop	November-February January-March	October-December December-February	November-December February
10	Ginger (raw)	..	April-May	November-January	December-January
11	Pepper	..	..	November-January	December-January
12	Sesamum	1st crop 2nd crop 3rd crop	August-October December-January February-March	December-January March-April June-July	December-January April-May July-August
13	Cotton		August-September	February-March	February-March
14	Sweet Potatoes	1st crop 2nd crop 3rd crop	June-July September-October November-December April-May	September-October December-January February-March December-January	September-October December-January February-March
15	Turmeric	..	..	December-January	January-February
16	Lemongrass	..	..	June-September	September
17	Tapioca	1st crop 2nd crop 3rd crop	October-November March-May July-September	August-September November-January May-July	August-September December-January June-July



**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
-



**TABLE-1.1**  
**Normal Rainfall in Kerala (in Millimetres)**

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
Trivandrum	257.4	204.5	168.9	280.2	210.2	70.1	21.2	18.0	48.0	118.1	213.9	391.1	2001.6
Quilon	449.6	318.1	226.1	344.9	242.9	64.8	24.1	32.1	84.6	166.3	260.3	547.4	2761.2
Alleppey	548.1	371.3	272.3	328.1	224.0	64.0	27.6	31.6	59.7	134.1	293.7	666.1	3020.6
Kottayam	628.0	412.4	263.5	330.8	213.6	72.2	31.2	27.0	59.5	133.1	237.4	585.8	2994.5
Ernakulam	785.9	523.5	296.6	365.7	216.9	54.6	18.0	23.6	54.4	136.1	310.1	792.1	3577.5
Trichur	747.6	441.7	245.5	305.7	163.5	32.8	10.1	9.2	28.4	91.1	283.5	800.3	3159.4
Palghat	657.1	361.9	175.7	257.4	144.3	30.4	9.1	9.3	26.6	80.0	175.2	532.2	2459.2
Kozhikode	1005.9	530.5	239.2	286.6	160.1	33.4	9.0	6.8	18.4	84.0	233.5	853.9	3461.3
Cannanore	1063.5	584.7	239.4	218.0	106.0	22.8	5.3	4.8	11.2	58.6	200.6	923.0	3437.6
State Average	682.6	416.5	236.4	301.9	186.8	49.4	17.3	18.0	43.4	111.3	245.4	676.9	2985.9

TABLE-1.2

## Average monthly Rainfall in Kerala during 1969-70 (in millimetres)

District	July-'69	August-'69	September-'69	October-'69	November-'69	December-'69	January-'70	February-'70	March-'70	April-'70	May-'70	June-'70	Total-1969-'70
1	2	3	4	5	6	7	8	9	10	11	12	13	14
Trivandrum	295.0	182.5	99.9	316.4	131.1	96.5	9.5	9.5	67.4	104.3	210.2	209.9	1732.2
Quilon	602.0	208.9	152.6	277.2	76.5	52.7	13.0	39.6	65.3	171.5	271.3	459.2	2389.8
Alleppey	780.6	276.6	233.1	291.4	107.5	89.4	21.5	5.6	19.6	122.3	276.2	600.1	2823.9
Kottayam	827.9	294.9	187.7	244.5	144.1	76.4	27.8	60.3	20.3	180.6	184.1	481.6	2730.2
Ernakulam	978.3	400.4	258.5	302.4	171.4	88.2	36.1	19.8	37.7	139.3	317.2	749.5	3498.8
Trichur	940.9	348.0	178.8	181.8	81.7	30.4	..	..	8.9	106.8	353.3	522.2	2752.8
Palghat	754.7	182.4	147.9	251.8	111.1	43.5	2.1	..	..	143.6	232.3	462.2	2331.6
Kozhikode	1071.7	351.8	271.5	158.9	109.9	57.3	..	..	..	108.7	420.2	572.3	3122.3
Cannanore	913.2	328.0	301.8	127.5	144.8	80.6	..	..	..	59.8	311.8	604.5	2872.0
STATE	796.0	285.9	203.5	239.1	119.8	68.3	12.2	15.0	24.4	126.3	286.3	518.0	2694.8

TABLE-2.1  
Total area and Classification of area in each District of Kerala during the Year  
1969-70 (Area in hectares)

District	Total geographical area according to village papers										Total cropped area	
	1	2	3	4	5	6	7	8	9	10		11
	Forests	Land put to non-agri- cultural uses	Barren & unculti-va- ble Land	Permanent pastures & other grazing land	Land under mi-ella- mous tree crops not in- cluded in net area sown	Cultivable waste	Fallow land other tha current fallow	Current fallow	Net Area sown	Area sown more than once		
Trivandrum	216096	44537	17081	605	550	226	567	741	253	151546	84375	235921
Quilon	469051	210783	17046	9226	1300	1735	2347	885	425	225304	126759	352063
Alleppey	186790	513	12913	650	250	2875	892	1199	458	167100	69065	236165
Kottayam	626225	252964	17312	7585	3500	2242	16075	1291	3058	321998	50475	372473
Ernakulam	317428	55212	26530	4787	2010	1874	3663	2729	3204	217429	63132	280561
Trichur	94262	132373	16305	1958	500	1287	1797	371	1681	137990	98415	236405
Palghat	51024	99663	70810	14498	5000	17414	18095	3546	4781	277117	112000	389117
Kozhikode	661506	193756	34306	12142	2700	18462	20006	4395	5410	370409	75268	44677
Cannanore	576661	65932	55362	22354	12000	94130	17833	7769	4272	297009	70697	367706
STATE	3853523	1055733	267665	73805	27800	140235	81275	22866	23242	2165902	750186	2916088



Classification of area as percentage to total area according to Village Papers

District	Classification of Area											Total cropped area	
	Area according to village papers	1	2	3	4	5	6	7	8	9	10		11
		Forests	Land put to non-agri-cultural uses	Permanent Barren and uncultivable land	Permanent pastures & other grazing land	Land under misc. tree crops not included in net area sown	Cultivable Waste	Fallow land other than current fallow	Current fallow	Net area sown	Area sown more than once		
Trivandrum	100	20.61	7.90	0.28	0.26	0.10	0.26	0.34	0.12	70.13	39.05	109.18	
Quilon	100	44.94	3.63	1.97	0.28	0.37	0.50	0.19	0.09	48.03	27.02	75.05	
Alleppey	100	0.27	6.91	0.35	0.13	1.54	0.48	0.61	0.24	89.47	36.97	126.44	
Kottayam	100	40.40	2.76	1.21	0.56	0.36	2.57	0.20	0.52	51.42	8.06	59.48	
Ernakulam	100	17.39	8.36	1.51	0.63	0.59	1.15	0.86	1.01	68.50	19.89	88.9	
Trichur	100	44.98	5.54	0.67	0.17	0.44	0.61	0.13	0.57	46.89	33.44	80.33	
Palghat	100	19.53	13.87	2.84	0.98	3.41	3.55	0.69	0.84	54.29	29.94	84.23	
Kozhikode	100	29.29	5.19	1.83	0.41	2.79	3.02	0.66	0.82	55.90	11.38	67.37	
Cannanore	100	11.43	9.60	3.88	2.08	16.32	3.09	1.35	0.74	51.51	12.25	63.76	
STATE	100	27.36	6.94	1.91	0.72	3.64	2.11	0.59	0.60	56.13	19.44	75.57	

TABLE—3 1  
Area under crops in each District of Kerala during the year 1969-70 (Area in Hectares)

District	Food crops											
	Cereals						Pulses					
	Rice ( <i>Oryza Sativa</i> )						Other cereals and millets		Other pulses			
	Autumn	Winter	Summer	Total	Jowar	Ragi	Milletts	Milletts	Tur	Kharif	Rabi	Total
	1	2	3	4	5	6	7	8	9	10	11	12
Trivandrum ..	18462	20201	826	39489	..	..	..	39489	..	1169	1409	2578
Quilon ..	21324	29340	1220	51884	..	459	..	52543	..	4740	2724	7464
Alleppey ..	20554	22982	41704	85240	..	..	50	85290	..	..	5.6	546
Kott.y.m ..	7898	24679	17504	50081	..	..	742	50823	210	281	171	452
Ernakulam ..	40993	42394	10304	93691	..	43	309	94043	69	641	1198	1839
Trichur ..	38494	61499	13318	113311	..	1212	..	114523	..	2450	5497	7947
Palgh.t ..	116805	89462	5059	211326	1519	832	4283	217960	4861	33.8	4289	7637
Kozhikode ..	63320	61909	5155	130384	..	1551	1249	133184	2146	261	3286	3547
Cananore ..	65897	29705	3051	98653	..	944	50	99647	164	1641	1244	2885
STATE ..	393747	382171	98141	874059	1519	5041	6683	887302	7450	14531	20364	34895

TABLE—3. 1—(Contd.)

District	Food Crops													Total		
	Total pulses			Total Food Grain			Sugar Crops			Condiments & Spices						
	13	14	15	16	17	18	19	20	21	22	23	24	25			
Trivandrum	2578	42067	..	420	420	10233	..	..	..	..	4817	4261	19311			
Quilon	7464	59807	904	212	1116	5783	..	176	..	..	8342	356	17861			
Alleppey	546	85836	4075	31	4106	1504	..	60	28	..	4248	1122	6962			
Kottayam	662	51485	1048	482	1530	17028	..	3585	1141	42666	5299	2351	72070			
Ecnakulam	1908	95931	407	499	906	8271	..	1083	372	1042	9172	2'32	22072			
Trichur	7947	122470	407	1293	1293	745	..	76	..	..	12266	1834	14981			
Palghat	12498	230458	1018	3558	4576	3480	830	1814	1329	1847	6790	2894	18984			
Kozhikode	5693	138877	333	1380	1381	19411	662	4269	1236	1079	19395	902	46954			
Cannanore	3049	102696	333	163	496	51590	1700	459	233	392	13351	201	67926			
STATE	42345	929647	7785	8038	15823	118045	3192	11522	4339	47026	83680	19317	287121			

Table 3.1 (Contd.)

District	Food Crops											
	Fresh Fruits					Dried Fruits				Vegetables		
	Mangoes	Citrus fruits	Banana	Other plantation	Others	Total	Cashew nut	Others	Total fruits	Total fruits	Leafy veg.	Potatoes - Sweet-
	26	27	28	29	30	31	32	33	34	35	36	37
Trivandrum	8028	..	679	3872	6335	18914	4160	..	4160	23074	62937	79
Quilon	9928	..	1679	3829	6208	21644	10285	..	10285	31929	101813	328
Alleppey	4573	..	653	2515	8686	16527	3550	..	3550	20077	24008	112
Kottayam	6809	..	1490	4556	10644	23499	1490	..	1490	24989	37107	413
Ernakulam	6454	..	810	3229	7336	17829	7685	..	7685	25514	15552	189
Trichur	5049	..	1361	5282	3251	14943	7600	..	7600	22543	7439	71
P lghat	5895	..	282	7006	4859	18042	9528	..	9528	27570	20628	3928
Kozhikode	8231	96	1726	6816	7468	24337	16512	12	16524	40861	17342	314
Cannanore	5294	1863	1466	6144	8806	23573	38150	12	38162	61735	8759	617
STATE:	60261	1959	10146	43349	63593	179308	98960	24	98984	278292	295585	6051

TABLE 3.1—(Contd.)

District	Food Crops										Non-Food Crops				Total
	Vegetables.					Oil Seeds					Fibres				
	Onions	Others	Total	Total fruits and vegetables	Total food crops	Groundnut	Castor	Sesamum	Coconut	Others	Total	Cotton	Others	Total	
Trivandrum	9	1007	64032	87106	148904	..	9	33	76137	981	77160	..	..	..	
Quilon	7	7325	109473	141402	220186	..	34	3588	91732	98	95452	..	..	..	
Alleppey	45	3428	27593	47670	144574	..	40	3683	82468	427	86618	..	..	..	
Kottayam	41	8402	45963	70952	196037	..	76	70	75705	3578	79429	..	..	..	
Ernakulam	11	2372	18124	43638	162567	..	104	899	63758	1850	66611	..	..	..	
Trichur	..	1743	9253	31796	170540	..	11	1160	50451	1802	53424	49	..	49	
Palghat	50	3644	28250	55820	309838	13118	70	1568	34063	407	49226	6151	..	6151	
Kozhikode	17	2193	19866	60727	247938	..	..	5131	38599	43	139155	99	..	99	
Cannanore	8	1384	10768	72503	243621	..	18	310	94931	112	95371	..	36	36	
STATE	188	31498	333322	611614	1844205	13118	362	11824	707844	9298	742446	6299	36	6335	

TABLE 3.1—(Contd.)

District	Non-Food Crops										Net Area sown			
	Drugs, Narcotics and Plantation Crops					Green manure crops						Total non-food crops	Total Area sown under all crops	Area sown more than once
	Tobacco	Tea	Coffee	Rubber	Others	Total	For or crops	Other non-food crops	Total non-food crops					
52	53	54	55	56	57	58	59	60	61	62	63	64		
Trivandrum	..	1076	3	6821	..	7900	21	790	1146	87017	235921	84375	151546	
Quilon	..	2755	267	30653	..	33675	11	273	2466	131877	352063	126759	225304	
Alleppey	..	..	..	3446	..	3446	151	556	820	91591	236165	69065	167100	
Kottayam	..	27797	2131	54281	..	84209	14	4327	8457	176436	372473	50475	321998	
Ernakulam	..	187	262	26140	..	26589	216	4040	20538	117994	280561	63132	217429	
Trichur	..	466	..	8214	..	8680	25	454	3233	65865	236405	98415	137990	
Palghat	..	606	3713	8637	372	13328	24	4435	6115	79279	389117	112000	277117	
Kozhikode	..	4018	18726	22239	1034	46017	8	4204	8256	197739	445677	75268	370409	
Cannanore	623	1390	3771	14759	..	20543	4	1107	7024	124085	367706	70697	297009	
STATE	623	38295	28873	175190	1406	244387	474	20186	58055	1071883	2916088	750186	2165902	

TABLE 3.2  
Percentage of Area under Crops to the total cropped area in each District

District	Total cropped area	Total food crops	Total non-food crops	Net area sown	Area sown more than once	Cereals and Millets			Total pulses	Total food grains	Sugar
						Rice	Others	Total			
1	2	3	4	5	6	7	8	9	10	11	12
Trivandrum	100	63.12	36.88	64.24	35.76	16.74	..	16.74	1.09	17.83	0.18
Quilon	100	62.54	37.46	64.00	36.00	14.74	0.13	14.87	2.12	16.99	0.32
Alleppey	100	61.22	38.78	70.76	29.24	36.09	0.02	36.11	0.24	36.35	1.74
Kottayam	100	52.63	47.37	86.45	13.55	13.45	0.06	13.51	0.31	13.82	0.41
Ernakulam	100	57.94	42.06	77.50	22.50	33.39	0.13	33.52	0.68	34.20	0.32
Trichur	100	72.14	27.86	58.37	41.63	47.93	0.51	48.44	3.36	51.80	0.55
Palghat	100	79.63	20.37	71.22	28.78	54.31	1.70	56.01	3.21	59.22	1.18
Kozhikode	100	55.63	44.37	83.12	16.88	29.26	0.63	29.89	1.27	31.16	0.31
Cannanore	100	66.25	33.75	80.77	19.23	26.83	0.27	27.10	0.83	27.93	0.14
STATE	100	63.24	36.76	74.28	25.72	29.98	0.45	30.43	1.45	31.88	0.54

TABLE 3.2—(Contd.)

District	Condiments & Spices						Fresh Fruits				Dried fruits (cashewnuts)			Vegetables		
	Pepper	Cardamom	Belanuts	Others	Total	Mangoes	Banana including plantain	Others	Total	21	22	23	24	25	Total	
																20
Trivandrum	4.34	..	2.04	1.81	8.19	3.40	1.93	2.69	8.02	1.76	9.78	26.68	0.46	27.14		
Quilon	1.64	..	2.37	1.06	5.07	2.82	1.57	1.76	6.15	2.92	9.07	28.92	2.17	31.09		
Alleppey	0.64	..	1.80	0.51	2.95	1.94	1.38	3.68	7.00	1.50	8.50	10.17	1.51	11.68		
Kottayam	4.57	11.45	1.42	1.91	19.35	1.83	1.62	2.86	6.31	0.40	6.71	9.96	2.38	12.34		
Ernakulam	2.94	0.37	3.27	1.29	7.87	2.30	1.44	2.61	6.35	2.74	9.09	5.54	0.92	6.46		
Trichur	0.32	..	5.19	0.83	6.34	2.14	2.81	1.37	6.32	3.22	9.54	3.15	0.76	3.91		
Palghat	0.89	0.47	1.75	1.77	4.88	1.51	1.87	1.25	4.64	2.45	7.09	5.30	1.96	7.26		
Kozhikode	4.35	0.24	4.35	1.59	10.53	1.85	1.92	1.69	5.46	3.71	9.17	3.89	0.57	4.46		
Cannanore	14.01	0.11	3.63	0.71	18.46	1.44	2.07	2.90	6.41	10.38	16.79	2.38	0.55	2.93		
STATE	4.05	1.61	2.87	1.31	9.84	2.06	1.83	2.26	6.15	3.40	9.55	10.14	1.29	11.43		



TABLE 3.2—(contd.)

District	Total fruits & vegetables		Oil seeds					Fibres (cotton)	Drugs, Narcotics and plantation crops					Other non-food crops		Total non-food crops
	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
																Sesamum
Trivandrum	36.92	63.12	..	32.27	..	0.43	32.70	.	0.46	..	2.89	..	3.35	0.83	36.88	
Quilon	40.16	62.54	1.02	26.06	..	0.03	27.11	..	0.78	0.08	8.71	..	9.57	0.78	37.46	
Alleppey	20.18	61.22	1.56	34.92	..	0.20	36.68	..	..	..	1.46	..	1.46	0.64	38.78	
Kottayam	19.05	52.63	..	20.32	..	1.00	21.32	..	7.47	0.57	14.57	..	22.61	3.44	47.37	
Ernakulam	15.55	57.94	0.32	22.73	..	0.69	23.74	..	0.07	0.09	9.32	..	9.48	8.84	42.06	
Trichur	13.45	72.14	0.49	21.34	..	0.77	22.60	0.02	0.20	..	3.47	..	3.67	0.57	27.86	
Palghat	14.35	79.63	0.40	8.75	3.37	0.13	12.65	1.58	0.15	0.95	2.22	0.11	3.43	2.71	20.37	
Kozhikode	13.63	55.63	0.11	31.10	..	0.01	31.22	0.02	0.90	4.20	4.99	0.23	10.32	2.81	44.37	
Cannanore	19.72	66.25	0.08	25.82	..	0.04	25.94	0.01	0.37	1.03	4.01	0.17	5.58	2.22	33.75	
STATE	20.98	63.24	0.40	24.28	0.45	0.33	25.46	0.22	1.31	0.99	6.01	0.07	8.33	2.70	36.76	

TABLE 4.1

## District-Wise Production of Important Crops in Kerala During the Year 1969-70.

District	Rice (Tonnes)			4	5	6	7	8	9	10	
	Autumn		Summer								Total
	1	2	3								4
Trivandrum	23454	32773	711	56938	..	..	..	..	1002	..	
Quilon	24328	41717	1266	67321	..	517	..	..	2648	5585	
Alleppey	19203	27058	86281	132542	..	..	19	..	221	23375	
Kottayam	10074	33745	29048	72867	..	..	342	79	119	7539	
Ernakulam	46858	47908	14445	109211	..	27	138	22	571	2492	
Trichur	46246	75136	25035	146417	..	1387	..	..	2972	..	
Palghat	200907	163340	10206	374453	554	1439	2373	2256	2572	9082	
Kozhikode	55238	67874	7241	130353	..	2550	620	1052	1302	..	
Cannanore	95135	37009	4167	136311	..	1633	23	86	1053	2058	
STATE	521443	526570	178400	1226413	554	7553	3515	3495	12460	50131	

TABLE 4.1—(contd.)

District	11	12	13	14	15	16	17	18	19	20
	Black pepper (tonnes)	Dry chillies (tonnes)	Dry Ginger (tonnes)	Cured Turmeric (tonnes)	Processed cardamom (tonnes)	Betelnuts (Million nuts)	Banana (tonnes)	Other plantain (tonnes)	Cashew-nut (raw) (tonnes)	Tapioca (tonnes)
Trivandrum	3721	..	..	..	..	749	4947	29567	4668	823216
Quilon	2199	..	267	..	..	1680	12233	29238	11540	1652425
Alleppey	342	..	83	24	..	661	4758	19968	3983	574271
Kottayam	5139	..	4245	982	817	532	10856	34790	1672	689819
Ernakulam	2291	..	1149	276	61	1108	5902	24657	8623	197666
Trichur	326	..	65	..	..	1825	9916	40333	8527	86962
Palghat	517	440	1740	980	114	857	2055	53498	10690	252280
Kozhikode	2644	416	4073	1108	60	3580	12576	52047	18526	279900
Cannanore	7223	1475	375	210	22	1669	10681	46916	42804	109225
STATE	24402	2331	11997	3580	1074	12661	73924	331014	111033	4665764

TABLE 4.1 (contd.)

District	21	22	23	24	25	26	27	28	29	30
	Sweet potatoes (Tonnes)	Ground nut (Tonnes)	Sesamum (Tonnes)	Coconut (Million nuts)	Cotton (Bales of 180 Kg.)	Tobacco (Tonnes)	Tea (Tonnes)	Coffee (Tonnes)	Rubber (Tonnes)	Lemongrass oil (Tonnes)
Trivandrum	391	..	16	468	..	..	961	2	3413	1
Quilon	1624	..	1360	517	..	..	1976	34	14447	3
Alleppey	554	..	840	551	..	..	..	..	1567	1
Kottayam	2044	..	28	366	..	..	28716	984	23973	107
Ernakulam	936	..	377	374	..	..	187	61	9442	783
Trichur	351	..	587	319	78	..	871	..	5037	43
Palghat	19444	19349	406	133	4850	..	955	2200	4218	11
Kozhikode	1554	..	133	865	139	..	5357	7637	10120	341
Cannanore	3054	..	99	363	..	838	1177	1552	4680	312
STATE	29952	19349	3340	3956	5067	838	40200	12470	76397	1602

TABLE 5.1  
Average farm (harvest price) in Rupees for certain commodities for the year 1969-70

Sl. No.	District	Paddy Ql.	Cocoanut 100 Nos.	Arcacant 100 Nos.	Tapioca Ql.	Cashewnut Ql.	Banana 100 Nos.	Pepper Ql.	Ginger Ql.	Sugarcane (M.T.)
1	2	3	4	5	6	7	8	9	10	11
1	Trivandrum	119.33	44.45	4.26	18.12	120.00	18.85	539.42	..	..
2	Quilon	127.59	47.80	4.77	19.45	145.83	18.42	523.18	..	73.53
3	Alleppey	108.17	49.96	4.71	20.24	144.38	16.53	..	..	..
4	Kottayam	103.20	52.78	3.88	18.49	143.35	19.16	553.46	836.01	..
5	Ernakulam	110.65	56.06	4.03	18.79	..	15.32	555.18	878.75	..
6	Trichur	97.56	52.19	4.95	17.29	142.22	17.76	516.20	..	..
7	Palghat	89.84	51.60	4.13	12.27	153.00	18.14	580.00	..	74.20
8	Kozhikode	94.52	49.37	3.34	13.53	131.61	14.84	582.89	892.66	..
9	Cannanore	98.11	48.38	3.27	24.67	155.42	16.19	577.59	874.85	..
	STATE	100.31	49.84	4.02	18.48	146.42	17.18	559.54	866.13	73.95
	Average (S. A.)									

TABLE 6.1

Statement showing daily wages of various kinds of Labours

Carpenter

Centre	July 1969	August 1969	September 1969	October 1969	November 1969	December 1969	January 1970	February 1970	March 1970	April 1970	May 1970	June 1970	Average
	2	3	4	5	6	7	8	9	10	11	12	13	14
Trivandrum	6.50	6.50	6.50	6.50	6.50	7.00	7.00	7.00	7.00	7.00	7.00	7.00	6.79
Quilon	7.56	7.56	7.56	7.56	7.56	7.56	7.56	7.56	7.56	7.56	7.56	7.56	7.56
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	8.00
Kottayam	7.38	7.38	7.38	7.38	7.38	7.38	7.38	7.38	7.38	7.38	7.38	7.38	7.38
Ernakulam	7.75	7.75	7.75	7.75	7.75	7.75	7.75	7.75	7.75	7.75	7.75	7.75	7.75
Trichur	7.45	7.95	7.95	7.95	7.95	7.95	7.95	7.95	7.95	7.95	7.95	7.95	7.91
Palghat	6.25	6.25	6.25	6.25	6.25	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.10
Kozhikode	6.83	6.83	6.83	6.83	6.83	7.00	7.00	7.00	7.00	7.00	7.00	7.17	6.94
Cannanore	6.93	6.93	6.93	6.93	7.16	7.16	7.16	7.16	7.16	7.16	7.16	7.38	7.10

TABLE 6.1—(contd.)

Mason

I	2	3	4	5	6	7	8	9	10	11	12	13	14
Trivandrum	6.50	6.50	6.50	6.50	6.50	7.00	7.00	7.00	7.00	7.00	7.00	7.00	6.79
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	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	8.00
Kottayam	7.38	7.38	7.38	7.38	7.38	7.38	7.38	7.38	7.38	7.38	7.38	7.38	7.38
Ernakulam	7.75	7.75	7.75	7.75	7.75	7.75	7.75	7.75	7.75	7.75	7.75	7.75	7.75
Trichur	6.90	7.90	7.90	7.90	7.90	7.90	7.90	7.90	7.90	7.90	7.90	7.90	7.81
Palghat	6.25	6.25	6.25	6.25	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.08
Kozhikode	6.58	6.58	6.58	6.58	6.75	6.75	6.75	6.75	6.75	6.75	6.75	6.75	6.69
Cannanore	6.18	6.18	6.18	6.18	6.41	6.56	6.56	6.56	6.56	6.56	6.56	6.56	6.50





TABLE 7.1  
 Number of Livestock, Poultry and Agricultural machinery and implements  
 in Kerala (1966 Census)

District	Cattle												Total
	Males over three years						Females over three years						
	Breeding	Working	Others	Total	In Milk	Breeding Dry	Not Calved	Working	Others	Total	Young Stock		
1	2	3	4	5	6	7	8	9	10	11	12		
Trivandrum	1446	16446	381	18273	30385	29310	6305	157	257	66414	63897	148584	
Quilon	1850	49302	806	51958	59342	83004	16771	140	489	159746	148507	360211	
Alleppey	1150	16614	530	18294	57952	85002	23027	157	723	166861	140938	326093	
Kottayam	2443	29888	1230	33561	72778	89466	20446	231	611	183532	165177	382270	
Ernakulam	1671	80268	885	82824	44791	52299	11592	559	525	109766	110441	303031	
Trichur	815	55245	506	56566	37196	34631	6328	237	310	78702	86576	221844	
Palghat	1794	80308	980	83082	55867	57337	9204	1008	421	123837	115980	322899	
Kozhikode	4503	95010	1682	101195	57577	78429	20863	608	576	158053	132511	391759	
Cannanore	3715	68200	1855	73770	67531	83494	19463	508	1335	172331	153935	400036	
STATE	19337	491281	8855	519523	483419	592972	133999	3605	5247	1219242	1117962	2856727	

TABLE 7.1—(Contd.)

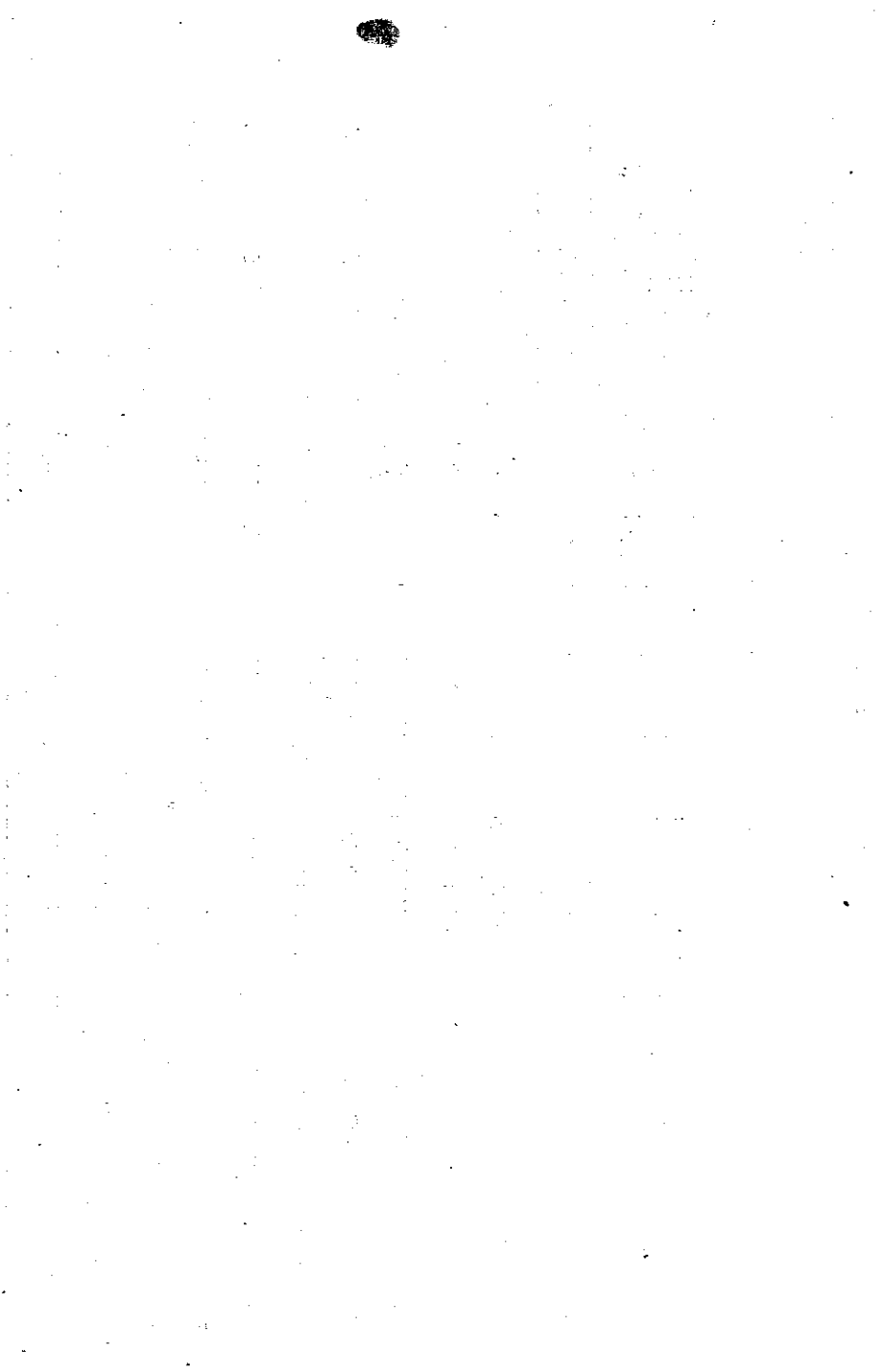
District	Buffaloes												Total	
	Males over three years						Females over three years							Young Stock
	Breeding	Working	Others	Total	In milk	Breeding Dry	Not Calved	Working	Others	Total	Total			
												13		
Trivandrum	818	14358	1049	16225	8746	7035	1309	395	160	17645	8871	42741		
Quilon	608	10287	878	11773	4806	4338	714	124	113	10095	5156	27024		
Alleppey	218	7908	313	8439	2171	2586	410	40	45	5252	1913	15604		
Kottayam	350	4930	519	5799	3872	3063	699	145	132	7911	4500	18210		
Ernakulam	179	10387	618	11184	4204	1988	362	189	42	6785	3098	21067		
Trichur	393	34087	867	35347	10835	6323	1200	355	236	18949	11743	66039		
Palghat	996	113529	1009	115334	13732	10584	1344	1579	305	27544	25199	168277		
Kozhikode	1346	28129	935	30510	10459	8948	1694	1448	317	22866	12799	66175		
Cananore	1098	17433	508	19039	7880	7912	1387	314	230	17723	9336	46098		
STATE	6106	241048	6696	253850	66705	52777	9119	4589	1580	134770	82615	471235		

TABLE 7.1—(Contd.)

District	Sheep			Goats			Horse & Ponies			Mules	Donkeys	Camels	Pigs	Total Live stock
	One year & above	Below one year	Total	One year & above	Below one year	Total	3 years & above	Below 3 years	Total					
Trivandrum	425	302	727	78340	49950	128290	62	2	64	3	5	3	3799	324216
Quilon	1730	849	2579	84568	52576	137144	10	..	10	..	..	..	598	527566
Alleppey	635	485	1170	50591	29643	80234	10	1	11	..	2	..	170	423284
Kottayam	517	296	813	103748	56275	160023	66	12	78	1	118	..	63515	625028
Ernakulam	360	223	583	89068	54347	143415	19	..	19	..	..	..	37473	505588
Trichur	79	33	112	72559	43182	115741	16	5	21	..	2	1	1450	405210
Palghat	3618	1162	4780	108946	49371	158317	121	23	144	..	183	..	369	654969
Kozhikode	55	53	108	106009	57970	163979	35	3	38	4	..	..	1234	623297
Gauna ore	451	196	647	63937	38133	102075	33	8	41	..	..	..	3320	552217
STATE	7920	3599	11519	757766	431452	1189218	372	54	426	8	310	4	111928	4641375

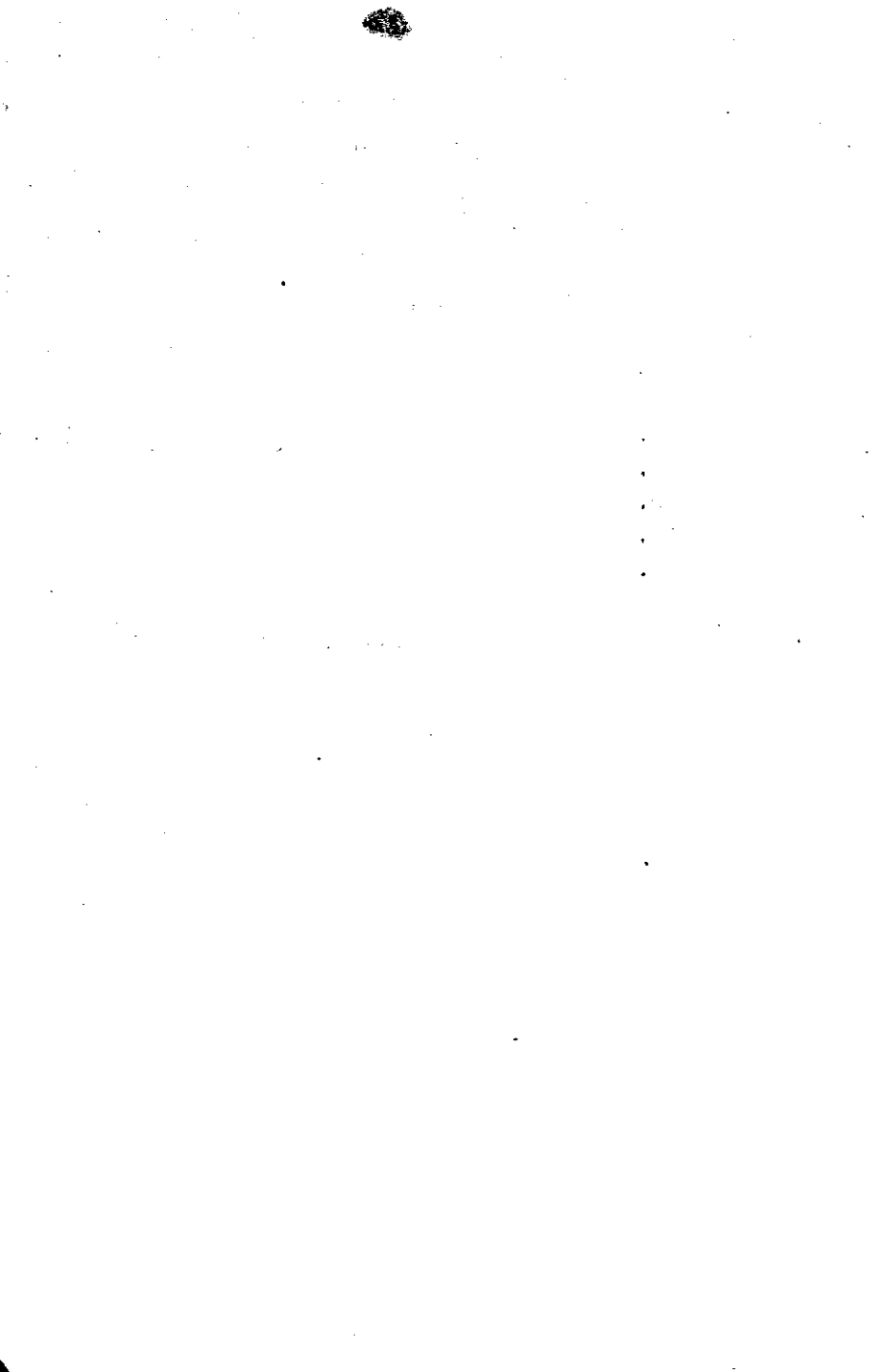
TABLE 7.1—(Contd.)

District	Poultry				Plough		Carts	Sugarcane crushers		Oil Engines	Electric pump	Tractors	Ghanis		Persian wheel
	Fowls	Ducks	Others	Total	Wooden	Iron		Power	Bullocks				More than 5 Kg.	Less than 5 Kg.	
Trivandrum	799963	3778	166	803907	20060	1222	1218	15	41	9	5	7	39	14	39
Quilon	972924	4606	130	977660	37978	3325	1702	48	94	15	32	23	81	110	358
Alleppey	971776	168312	219	1140307	18235	3329	911	63	65	441	405	57	127	142	8868
Kottayam	1307984	59929	690	1368603	24037	660	1012	48	230	124	258	61	28	52	464
Ernakulam	1250254	54543	1012	1305809	63879	2016	739	38	143	646	1276	35	26	41	473
Trichur	1000114	21198	224	1021536	49481	1711	2247	62	164	1116	1940	75	56	54	551
Palghat	941566	2564	207	944337	134976	2069	7440	139	118	1481	739	108	48	31	191
Kozhikode	1517189	3048	157	1520394	72009	1433	595	25	59	1122	138	26	205	132	36
Cannanore	825516	773	145	826434	55275	914	445	19	75	1870	76	26	82	52	7
STATE	9587286	318751	2950	9908987	475930	17179	16309	457	989	6824	4869	418	692	628	10987



**PART IV**  
**APPENDICES**

1. Working class cost of living indices
  2. Parity Index
  3. Quarterly Retail price
  4. Export of Agricultural commodities
  5. Notes on certain crops
    1. Tea
    2. Coffee
    3. Rubber
    4. Cardamom
    5. Pepper
    6. Ginger
    7. Lemongrass
  6. Classification of soils in Kerala
  7. Conversion ratio between the raw materials and the processed product
  8. Average analysis of important fertilisers
  9. Insect, pest affecting paddy crop, their distribution and some practical methods of control
  10. List of centres selected for recording meteorological information
  11. Glossary of English, Botanical and Malayalam names of crops
  12. Graphs and Charts.
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## I. WORKING CLASS COST OF LIVING INDICES

The average consumer price index numbers in 13 elected centres of the State during the years 1968-69 and 1969-70 are furnished in the following table.

TABLE I

<i>Centres</i>	<i>Average cost of Living Indices</i>	
	1968-69	1969-70
1. Trivandrum	811	850
2. Quilon	800	834
3. Punalur	773	819
4. Alleppey	800	837
5. Changanacherry	810	850
6. Shertailai	788	819
7. Kottayam	824	856
8. Munnar	741	780
9. Alwaye	800	843
10. Ernakulam	819	863
11. Trichur	820	851
12. Chalakudy	831	863
13. Kozhikode	878	930

The month-wise details are given in Table I of the appendix.

## II. PARITY INDEX

The index of parity between prices received and paid by the farmers during each month is given below for the years 1968-69 and 1969-70.

TABLE II

	<i>Index of Parity</i>	
	1968-69	1969-70
July	91	92
August	92	90
September	93	95
October	93	95
November	92	96
December	89	96
January	88	97
February	88	100
March	88	102
April	89	102
May	89	108
June	92	110
Average	90	99

It is learnt from the above that the position of farmers has improved in 1969-70 when compared to the previous year.



### III. QUARTERLY RETAIL PRICES

The quarterly retail prices of 12 important commodities are dealt with in the following paragraphs. The districtwise details of the prices of these commodities for the four quarters of the year 1969-70 are given in Table III.

1. *Rice*.—The price of Rice remained more or less the same viz. Rs. 1.03 throughout the year in all Districts except for a slight increase in the fourth quarter.

2. *Chillies*.—The price of Chillies has increased during the second and third quarters of the year in all the Districts. When compared to the previous year the price has registered considerable increase during this year. The maximum price has been recorded in Palghat District during the third quarter—the price being Rs. 8.38/kg. The minimum price recorded was Rs. 5.19 per kg.

3. *Tapioca*.—The price of tapioca was the highest in Cannanore District during all the quarters of the year. The maximum price was 49 P. per kg.

4. *Black gram*.—The price of Black gram was comparatively high in Palghat District during all the quarters. The price of the commodity in the State varied between Rs. 1.19 and Rs. 1.52/kg. during the year.

5. *Tea*.—The price of tea is higher in Trivandrum and Trichur Districts. The price varied in the range of Rs. 5.88 and Rs. 11.52 per kg. during 1969-70.

6. *Coffee*.—The price of Coffee is the highest in Trivandrum District during all the quarters of the year. Coffee is found cheaper in Alleppey District where the price remained Rs. 8/kg. throughout the year. The price in the State varied between Rs. 8.00 and Rs. 12.20/kg.

7. *Sugar*.—The price of Sugar was more or less the same in all the Districts throughout the year.

8. *Coconut Oil*.—The price of coconut oil fluctuated in the range of Rs. 4.64 and Rs. 6.55/litre during the period under reference.

9. *Gingelly Oil*.—The maximum price viz. Rs. 6.52/Litre has been recorded in Trivandrum District and the minimum price viz. Rs. 4.95/Litre in Trichur District.

10. *Coconut*.—The price of coconut is seen the highest in Kottayam District during all the quarters of the year—the maximum price being Rs. 79.97 for 100 nuts. The minimum price has been recorded in Trivandrum District viz Rs. 39.77/100 nuts.

11. *Tobacco (ordinary)*.—The highest price is noticed in Ernakulam District (Rs. 8.55/kg.) In Kozhikode District also the price is higher compared to others.

12. *Tobacco (Jaffna)*.—The price of this variety is not available for the Malabar Districts. The highest price viz. Rs. 13.00/kg. prevailed in Trichur District during all the four quarters of the year.

*Export of Agricultural Commodities*.—Foreign exports of Agricultural Commodities from the ports of Kerala for the year 1969-70 are furnished in Table IV.

TABLE I  
Statement of consumer price index numbers for the agricultural year 1969-70

Sl. No.	Centre	July 1969	Aug. 1969	Sept. 1969	Oct. 1969	Nov. 1969	Dec. 1969	Jan. 1970	Feb. 1970	March 1970	April 1970	May 1970	June 1970	Average
1	Trivandrum	852	846	835	842	847	853	853	863	845	848	857	863	850
2	Quilon	833	826	814	821	828	835	836	848	832	837	845	851	834
3	Punalur	818	813	800	807	813	819	821	831	815	820	831	838	819
4	Alleppey	839	835	823	829	834	838	839	848	831	834	841	847	837
5	Changanacherry	853	847	837	842	847	851	849	861	843	847	855	862	850
6	Kottayam	860	856	841	846	851	856	855	866	851	856	865	874	856
7	Alwaye	842	838	828	835	839	843	843	854	838	843	851	850	843
8	Ernakulam	860	855	845	851	858	864	866	878	860	864	871	878	863
9	Trichur	864	856	845	852	859	865	863	874	857	861	867	873	851
10	Chalakudy	868	861	847	854	860	866	863	875	857	861	869	876	863
11	Munnar	785	777	765	770	776	778	782	791	774	775	785	797	780
12	Sherthalai *	822	816	802	807	812	819	822	832	815	819	829	837	819
13	Kozhikode †	929	921	907	916	924	930	933	947	928	934	943	950	930

\* (Base—August 1939 = 100) † (Base—Average prices for the year ended 1936 = 100)

TABLE II

Index Numbers of Parity Between Prices Received and paid by Farmers 1968-69 and 1969-70

Years	July	August	September	October	November	December	January	February	March	April	May	June	Average
1968-69	91	92	93	93	92	89	88	88	88	89	89	92	90
1969-70	92	90	95	95	96	96	97	100	102	102	108	110	99

TABLE III  
Quarterly retail prices of certain commodities in each District (1969-70 July to June)

Sl. No.	Name of Commodity	Unit	Quarter	5	6	7	8	9	10	11	12	13
1	Coconut	100	I	39.77	41.26	49.83	59.55	49.79	46.50	45.88	40.08	45.54
II			47.04	50.05	49.82	71.44	63.15	55.18	56.99	48.17	60.83	
III			49.24	51.83	59.19	74.09	60.61	54.66	58.64	59.11	56.08	
IV			49.50	58.54	61.74	79.97	65.76	61.57	62.97	59.73	63.95	
2	Coconut oil	Ltr.	I	5.15	5.10	4.64	5.00	5.00	5.12	5.11	4.98	4.98
II			6.27	6.29	5.68	6.01	6.03	6.20	6.18	5.88	5.96	
III			6.37	6.29	5.75	6.13	6.12	6.22	6.31	6.03	6.18	
IV			6.46	6.55	6.04	6.35	6.30	6.56	6.55	6.26	6.36	
3	Rice (F. P.)	Kg.	I	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03
II			1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03
III			1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03
IV			1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
4	Blackgram	Kg.	I	1.49	1.45	1.42	1.48	1.40	1.33	1.51	1.33	1.38
II			1.40	1.39	1.29	1.41	1.35	1.19	1.44	1.22	1.21	
III			1.45	1.40	1.33	1.43	1.37	1.21	1.49	1.27	1.34	
IV			1.52	1.46	1.41	1.48	1.42	1.29	1.51	1.26	1.33	

TABLE III (Contd.)

1	2	3	4	5	6	7	8	9	10	11	12	13
5	Gingelly oil	Ltr.	I II III IV	6.52 5.61 5.79 5.95	6.42 5.91 5.92 6.03	6.02 5.27 5.45 5.61	5.92 5.32 5.53 5.72	5.93 5.28 5.76 5.98	5.77 4.95 5.56 5.76	6.19 5.41 5.74 5.96	6.16 5.30 5.63 5.89	5.83 5.63 5.90 6.00
6	Tapioca	Kg.	I II III IV	0.20 0.20 0.23 0.24	0.24 0.25 0.27 0.28	0.24 0.25 0.25 0.25	0.32 0.34 0.32 0.31	0.23 0.25 0.27 0.27	0.24 0.21 0.25 0.25	0.21 0.22 0.24 0.20	0.23 0.20 0.23 0.26	0.49 0.45 0.47
7	Sugar (F. P.)	Kg.	I II III IV	1.79 1.80 1.81 1.87	1.79 1.80 1.80 1.87	1.79 1.80 1.80 1.87	1.79 1.80 1.81 1.87	1.79 1.80 1.81 1.87	1.79 1.80 1.80 1.87	1.79 1.80 1.80 1.87	1.79 1.80 1.80 1.87	1.79 1.80 1.80 1.87
8	Chillies	Kg.	I II III IV	5.93 7.48 7.93 5.59	5.47 6.83 7.61 5.38	5.19 6.76 7.27 5.56	5.52 6.91 7.72 5.62	5.42 7.19 7.77 5.82	5.47 7.42 7.80 5.80	6.03 7.38 8.38 6.27	5.47 6.80 7.34 5.41	5.91 5.97 7.45 5.66
9	Coffee powder	Kg.	I II III IV	11.95 11.92 11.98 12.20	9.46 9.50 9.55 9.96	8.00 8.00 8.00 8.05	8.55 8.64 8.82 9.12	8.08 8.07 8.33 8.54	9.60 9.60 9.74 9.85	9.12 9.27 9.40 9.92	8.15 8.15 8.09 8.14	9.48 9.50 9.46 9.96

TABLE III (Contd.)

1	2	3	4	5	6	7	8	9	10	11	12	13
10	Tea	Kg.	I II III IV	10.80 10.80 10.97 11.52	8.10 8.17 8.24 8.75	6.50 6.48 6.36 6.50	6.54 6.54 6.61 6.65	6.94 6.78 6.78 6.91	10.70 10.70 10.95 11.50	8.18 7.78 7.92 8.25	6.20 5.88 6.18 6.48	8.80 7.00 8.96 9.07
11	Tobacco (Jaffna)	Kg.	I II III IV	8.25 8.21 8.04 8.50	8.64 8.63 8.63 8.72	8.66 8.75 8.56 8.69	8.23 7.83 7.90 8.00	9.88 9.69 9.67 9.67	13.00 13.00 13.00 13.00	.. .. .. ..	.. .. .. ..	.. .. .. ..
12	Tobacco (ordinary)	Kg.	I II III IV	6.50 6.54 6.75 6.75	6.25 6.25 6.25 6.25	7.25 6.92 6.66 6.85	7.99 7.80 7.81 7.84	8.55 8.16 8.00 8.00	7.25 7.19 6.75 7.13	6.73 6.50 6.50 6.27	8.34 8.05 8.02 8.02	6.78 *5.17 6.29 6.24

\* Change in variety.

TABLE IV

## Foreign export from the Ports of Kerala 1969-70

Sl. No.	Commodity	Unit	Quantity	Value (Rs. in lakhs)
1	Cardamom	Tonne	450	359.86
2	Cashew kernels	"	56415	5363.89
3	Cashew shell oil	'000 Ltrs.	6903	84.92
4	Coffee	Tonne	15775	904.58
5	Coir and Coir products	"	51841	1311.44
6	Ginger	"	926	95.88
7	Lemongrass oil	'000 Ltrs.	209	97.69
8	Marine products (including frog legs)	Tonne	20852	2600.23
9	Oil cake	"	2784	14.00
10	Pepper	"	19772	1561.71
11	Rubber manufactures	Val.	..	16.45
12	Tea	Tonne	40316	2316.57
13	Wood and timber	Val.	..	553.71
14	Sundries	..	..	1172.65
	Total	.	..	16453.58

## 5. NOTES ON CERTAIN CROPS IN KERALA

## I. 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% 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 attitudes ranging from 3000 feet to 5000 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 building 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 patterns suitably spaced

so that when mature they cover the ground almost completely without overcrowding and providing for a coverage of about 3000 plants per acre. 'Hedget planting' i.e. planting in rows 5 ft. apart with a spacing of 2 ft. 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 upto fourteen days whereas in the plains the period is only seven or eight days.

*Manure*: The important manures used are mixtures of nitrogenous phosphorous and potash. In some estates ammonium sulphate is also widely used.

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

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

*Life of the plant*: The average life of a tea plant varies from sixty to eighty years. But it will depend upon various factors such as soil erosion due to heavy rains, climatic conditions, etc.

*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 racks 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 specially made for this purpose with pressure adjustments is used to twist the leaves for breaking the leaf cells so that the leaf juices ooze out. Then the rolled leaves are taken from the rolls breakers and put in the fermentation room. Fermentation is a process of oxidation where the leaves undergo a chemical change. The green colour of tea leaves changes in 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 Pekoe, Broken Orange Pekoe, Broken Pekoe, Broken Sou-chong. 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 straming 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% 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 ranging between 1500 and 6000 feet above mean sea level. The most suitable altitude is between 2500 ft. to 4500 ft.. It needs a well distributed rainfall of about 60 to 80 inches per annum and a distinct rainy and dry season with a minimum average temperature of 70°F. A good dry spell from about December to March with a few intermittent showers 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, 1936, Government of India).

*Soil* : Coffee requires sandy soils or clay loam soils with a good sub-soil drainage system.

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

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

Shade trees are provided in coffee plantation for protection of the 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 within 5 to 7 years of planting. The colour of the berries is green at first. The colour slowly changes to golden and then to bright red. These red cherries are plucked up by hand. Several pluckings are necessary before a crop is completely harvested.

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

*Yield.*—Under good climatic conditions a coffee plant yields  $\frac{1}{2}$  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 Belgaum and Ratnagiri in the Bombay State. 94% of the total area under rubber is in the Kerala State. 92% of the total production of the 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% 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. Consumption of rubber in the country is on the increase and the production has begun to lag behind the demand.

*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 f. 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" x 18". The planting season is from May to September. Usually 150 to 200 plants are planted in an acre.

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

*Diseases.*—There are two serious leaf diseases of rubber now prevailing in India. They are 'Oidium 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 Bast' 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 output of this valuable spice is produced in India. India's competitors are Ceylon, Indo-China and Guatemala. Cardamom possess an aromatic odour and it is commonly used for flavouring and medicines.

*Climate.*—The best climate suitable for 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 annual rainfall of 60-80 inches. The best attitude 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 feet deep are dug, the distance between one pit and the next varying from 8 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 is the average life of the plant.

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

*Diseases.*—The most important have 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 reguing of affected plants. Another menance is that caused by Thrips, mite, etc. Dusting the plants with gamaxene is the remedy.

*From the estate to 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 sun-light, 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 product 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.

They are graded. There are three important grades (1) Green cardamom (2) White or bleached cardamom and (3) Seeds. The quality of cardamom varies according to place and variety of the seed. The middle-east and Sweden absorb a large quantity of the exports of cardamom from India.

## 5. PEPPER

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

*Climate.*—Pepper being a rain-bed 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 crops 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 picking 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 becomes black. Some times the skin of the ripe berries is removed before drying. This kind 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.

## 6. GINGER (DRY)

The three important ginger growing regions are India, Jamaica and Sierra-Loona. Of these ginger producing regions the best variety is seen in Jamaica and Sierra-Loona. 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 (under-ground 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 of 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 1000 lbs. per acre.

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

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

## 7. LEMONGRASS OIL

Lemongrass oil which is an important raw material for the perfumery soap and cosmetic industries is extracted by distilling the leaves of the grass 'cymbopogon, Flexrosus, 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 areas are Kuruppampadi, Odakkali, Thodupuzha, Muvattupuzha, Wynad, Thuliparamba 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 given better quality of oil containing greater quantity of citral.

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

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

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

1st year 1½ dozen bottles of 22 oz. each

2nd „ 2½ „ „

3rd „ 2 „ „

4th „ 2 „ „

5th „ 2 „ „

*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 tub. 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>
Trivandrum	1. Fairly rich brown loam of laterite origin	Middle part of the District
	2. Sandy loam	Western coastal region.
	3. Richest dark brown loam of granite origin	Eastern hilly part of the District.
Quilon	1. Sandy loam	Karunagapally and part of Quilon Taluks.
	1. Laterite soil	Kottarakkara, Kunnathur and part of Quilon, Pathanapuram and Pathanamthitta Taluk.
	3. Hill and forest soil	Part of Pathanapuram and Pathanamthitta Taluks.
Alleppey	1. Sandy loam	Karthigapally & Mavelikara Taluks
	2. Sandy soil	Sherthalai & Ambalapuzha Taluks.
	3. Clay loam with much of abidity	Kuttanad.
	4. Laterite soil	Chengannur and part of Mavelikkara.
Kottayam	1. Laterite soil	Peermade and part of Meenachil, Changanacherry and Kottayam Taluks.
	2. Alluvial soil	Vaikom parts of Changanacherry and Kottayam, Devikulam and Udumbanchola.
Ernakulam	1. Laterite	Thodupuzha and Muvatupuzha and part of Kunnathunad.



<i>District</i>	<i>Type of Soil</i>	<i>Details of distribution</i>
	2. Sandy loam	Parur, Cochin and Kanayannur.
	3. Alluvial	Part of Alwaye and Kunnathunad.
Trichur	1. Sandy loam	Part of Mukundapuram Trichur and Chowghat Taluks
	2. Laterite	Eastern area of Trichur and Western portion of Talappally
	3. Granite	Northern part of Talappilly
	4. Clayey	Backwater area in Chowghat and Part of Mukundapuram.
	5. Alluvial soil	Portion of Chowghat and Kunnathunad Taluks
Palghat	1. Laterite	Interior regions of the District
	2. Sandy	Along coastal and river side areas.
	3. Black soil	North-Western portion of Chittur Taluk.
Kozhikode	1. Laterite	Major part of the District barring coastal area.
	2. Sandy	Coastal strip.
Cannanore	1. Laterite	Major part of barring coastal area.
	2. Sandy	Coastal area.

#### 7. CONVERSION RATIO BETWEEN THE RAW MATERIALS AND THE PROCESSED PRODUCT

<i>Rice.</i>	Rice (cleaned) production $\frac{2}{3}$ paddy production	
<i>Cotton</i>	Cotton lint production $\frac{1}{3}$ of kapas production	
	Cotton seed production $\frac{2}{3}$ of kapas production	
		2 times of cotton lint production
<i>Groundnut.</i>	Kernel to nuts in shell	70%
	Oil to nuts in shell	28%
	Oil to kernels crushed	60%
	Cake to kernels crushed	60%
<i>Sesamum</i>	Oil to seeds crushed	40%
	Cake to seeds crushed	60%

<i>Castor seed.</i>	Oil to seeds crushed	37%
	Cake to seeds crushed	63%
<i>Cocoanuts.</i>	Copra to nuts one ton copra	6775 nuts
	Oil to copra crushed	62%
	Cake to copra crushed	38%
<i>Neem seed.</i>	Oil to kernel crushed	45 to 50%
	Cake to kernels crushed	50 to 55%
<i>Sugar.</i>	Gur from cane crushed	10%
	Crystal sugar from gurrefined	62.40%
	Crystal sugar from cane crushed	9.97%
	Khandasari sugar from gur refined	37.5%
	Molasses from cane crushed	3.5%
<i>Cashewnuts.</i>	Cashew kernels	25% of cashewnut
	Butter from mixed milk	6.3%
	Ghee from mixed milk	5.3%

### B. AVERAGE ANALYSIS OF IMPORTANT FERTILISERS

Sl. No.	Name of Fertiliser	Nitrogen (N%)	Phosphatic (P 205%)	Potash (K 20%)
(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	20.00	..	..
9.	Urea	46.00	..	..
10.	Super Phosphate—Single	..	18.00	..
11.	Super Phosphate—double	..	35.00	..
12.	Super Phosphate—Triple	..	45.0	..
13.	Rock Phosphate	..	28.3	..
14.	Hyper phosphate	..	27.3	..
15.	Sulphate of Potash	..	..	48.00
16.	Muriate of Potash	..	..	50.00
17.	Groundnut cake	7.00	1.5	1.3
18.	Castor cake	4.3	2.0	1.0
19.	Mustard cake	4.5	1.5	..
20.	Muhua cake	2.5	0.8	1.8

(1)	(2)	(3)	(4)	(5)
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	0.8-1.06	..	..
26.	Horse manure	0.8-1.6	..	..
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

## Control measures

## Nature of damage

## Sl. No. Name of pest

(1)	(2)	(3)	(4)
1.	Paddy Rice Swarming caterpillar	Defoliation Plants reduced to stumps Nursery & early growing stages attached	Spray DDT at 1.5 kg. per Ha or endrin at 250 gm. a. i. per Ha.
	Spodoptera Mauritii	Caterpillar bores into stem causing 'dead hearts' and 'white ear heads'.	
2.	Rice stem borer (Cyperysa (Schecnobius) incertulas)	All stages of plants susceptible to attack	Set light traps in the field to catch and destroy moths. Collect egg masses from nursery plants & destroy them spray endrin or parathion at 250 gm. a. i. per Ha at intervals of 15-20 days starting from 15 th days after sowing and upto flowering
3.	Rice bug Leptocorisa acuta	Sucks 'milk' of tender grains leaving them chaffy.	Dust BHC or spray endrin or parathion at doses given above
4.	Rice Hispa Di cladispa (Hispa) armigera	Adults feed on green matter of leaves and grubs mine leaves	Spray DDT, endrin or parathion at above doses
5.	Rices case worm Nymphula depunctalis	Caterpillar in lead-case defoliates	.. .. .
6.	Paddy gall fly pacy diplosis or Y3ae.	Maggot bores into central shoot and induces information of elongated halloe gall called 'silver sheet'	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.

(1)	(2)	(3)	(4)
7.	Paddy mealy bug	Lives within leaf-sheaths in colonics Sucking sap causing stunting of crop	Spray parathion at 250 gm. a. i. per Ha phosphamidon (Dimecron 100%) solun at 100 MI, per Ha or Dimethoate (Rogor at 312 ml. per Ha)
8.	Paddy leaf hoppers and Jassids.	Cause weakening of crop by desapp- ping in colonics	Dust BHC
9.	Paddy leaf roller Onaphalocrois medinalis	Caterpillar feeds leaves and feeds on green matter. Attacked fields show white patches	Dust BHC or spray DDT at doses given above.

10. LIST OF CENTRES SELECTED FOR RECORDING  
METEOROLOGICAL INFORMATION IN KERALA  
DURING 1968-69.

*Trivandrum District*

- 1 Ponmudi
- 2 Varkala
- 3 Attingal
- 4 Nedumangad
- 5 Trivandrum-b
- 6 Neyyattinkara
- 7 Parasala
- 8 Trivandrum (Aerodrome-b)

*Quilon District*

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

*Alleppey District*

- 1 Arukutty
- 2 Sherthallai
- 3 Alleppey-b
- 4 Ambalapuzha
- 5 Thiruvalla
- 6 Chengannur
- 7 Haripal
- 8 Mavelikara
- 9 Kayamkulam

*Kollayam District*

- 1 Chinnar
- 2 Murayur
- 3 Munnar
- 4 Devikulam
- 5 Vandanmedu
- 6 Vaikona
- 7 Palai

- 8 Ettumanoor
- 9 Kumili
- 10 Kottayam
- 11 Peermade (Taluk)
- 12           " (residency)
- 13 Kanjirappally
- 14 Changanacherry
- 15 Velloor

*Ernakulam District*

- \*1 Malayattur
- 2 Parur
- 3 Perumbavoor
- 4 Alwaye
- 5 Muvattupuzha
- 6 Neriamangalam
- 7 Karikode
- 8 Ernakulam
- 9 Cochin-b
- 10 Port of Cochin-b

*Trichur District*

- 1 Crangannore
- 2 Mukundapuram
- 3 Trichur
- 4 Thalappally
- 5 Ollukkara (A.M)
- 6 Pecchi (A.M)

*Palghat District*

- 1 Alathur
- 2 Palghat-b
- 3 Parali
- 4 Ottappalam
- 5 Cherplasserry
- 6 Mannarghat
- 7 Perinthalmanna
- 8 Ponnani
- 9 Chittoor
- 10 Patambal (A.M)

*Kozhikode District*

- 1 Manjeri
- 2 Thirurangadi
- 3 Kozhikode-b
- 4 Nilambur

- 5 Vythiri
- 6 Quilandy
- 7 Badagara
- 8 Kuttiadi

*Cannanore District*

- 1 Kasargode
- 2 Thaliparamba
- 3 Cannanore
- 4 Hosdurg
- 5 Tellicherry
- 6 Irikkur
- 7 Payyanmur
- 8 Mananthodi
- 9 Mahe
- 10 Kasargode (A.M)

NON-REPORTING RAINGUAGE STATIONS

SCHEDULE I

*Tribandrum District*

1. Aruvikara
2. Vamanapuram
3. Nedumangad

*Quilon District*

4. Kulathupuzha
5. Kottarakkara

*Kottayam District*

6. Kottayam
7. Pallom
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. Kuppady
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. Taliparamba
31. Cannanore

## NON-REPORTING RAILWAY RAINGUAGE 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, MALAYALAM &amp; NAMES OF CROPS

<i>Sl. No.</i>	<i>English name</i>	<i>Malayalam name</i>	<i>Botanical name</i>
(1)	(2)	(3)	(4)

**Cereals**

1	Paddy	Nellu	<i>Oryza Sativa</i>
2	Ragi	Koovaraku	<i>Eleusine Coracana</i>
3	Jowar	Cholam	<i>Sorghum Vulgare</i>
4	Bajra	Kambu	<i>Pennisetum typhodem</i>
5	Kodamiller	Varagu	<i>Paspalum scrobiculatum</i>
6	Chama	Chama	<i>Panicum miliare</i>
7	Wheat	Gottampu	<i>Triticum vulgare</i>
8	Barley	Barley	<i>Hordeum vulgare</i>
9	Maize	Mokka Cholam	<i>Zea mays</i>

(1)	(2)	(3)	(4)
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### Pulses

1	Blackgram	Uzhunnu	<i>Phaseolus mungo</i>
2	Green gram	Cherupayar	<i>Phaseolus aureus</i>
3	Horsegram	Muthira	<i>Dolichos biflorus</i>
4	Redgram	Thuvira	<i>Cajanus cajan</i>
5	Cow pea	Perumpayar	<i>Vigna sinensis</i>

### Sugar

1	Sugarcane	Karimbu	<i>Saccharum officinarum</i>
2	Palmyrah	Karimpana	<i>Borassus flabellifer</i>

### Condiments & Spices

1	Chilli	Mulagu	<i>Capsicum spp</i>
2	Turmeric	Manjal	<i>Curuma longa</i>
3	Cardamom	Elam	<i>Elatteria cardamomum</i>
4	Corriander	Kothumalli	<i>Oriandrum Sativum</i>
5	Mustard	Kadugu	<i>Brassica spp</i>
6	Pepper	Kurumulagu	<i>Pipernigrum</i>
7	Cumin	Jeerakam	<i>Cuminum cyminum</i>
8	Garlic	Veluthulli	<i>Allium sativum</i>
9	Ginger	Iachi	<i>Zingiber officinale</i>
10	Long pepper	Thippili	<i>Piperlongum</i>
11	Nutmeg	Jathi	<i>Myristica fragrans</i>
12	Cinnamon	Karukapatta	<i>Cinnamomum Zeylanica</i>
13	Clove	Grampu	<i>Eugenia Cryophyllata</i>
14	Cinchona	Cinchona	<i>Cinchona officinalis</i>
15	Arecanut	Adacka	<i>Areca catechu</i>

### Fruits

1	Banana	Vazha	<i>Musa Paradisiaca</i>
2	Plantain	Vazha	<i>Musasopientum</i>
3	Bread fruit	Seemaplavu	<i>Artocarpus incisa</i>
4	Bullocks heart	Malamumthiri	<i>Anona ticulata</i>
5	Cashew	Kasumavu	<i>Anacardium Occidentale</i>
6	Grape vine	Munthiri	<i>Vitis Vinifera</i>
7	Custardapple	Seetha Pazham	<i>Anona Sguamosa</i>
8	Guava	Pera	<i>Psidium Guajava</i>
9	Jujube	Elantha	<i>Ziz Yphus Jujuba</i>
10	Jack fruit	Plavu	<i>Artocarpus Integrifolia</i>
11	Lemon	Naranga	<i>Vitruve lemon</i>
12	Lime	Naranga	<i>Citus Aurantifolia</i>
13	Mango	Mavu	<i>Mangifera indica</i>
14	Papaya	Pappaka	<i>Carica Papaya</i>

(1)	(2)	(3)	(4)
15	Pineapple	Kaithachakka	Ananas Sativa
16	Pomogramate	Mathalam	Punica Granatum
17	Sapota	Sapota	Achras Sapota
18	Pomollo	Bamplimas	Citrus Maxima
19	Orange	Orange	Citrus reticulata
20	Mangoesteen	Mangoesteen	Garcinia mangostena

### Vegetables

1	Tapioca	Maracheeni	Manihot Utilissima
2	Elephantear	Chembu	Colocasia antiquorum
3	Elephant foot	Chena	Amorphophallus Campanulatus
4	Potato	Urulakizhangu	Solanum tuberosum
5	Sweet Potato	Chennikuzhangu	Ipomoea batatas
6	Radish	Mullangi	Raphanus sativus
7	Yam	Kachil	Dioscorea Spp
8	Turnip	Seema Mullangi	Brassica Campestris Varsapa
9	Carrot	Carrot	Daucus Carota
10	Red pumpkin	Vellarimathan	Cucurbita Maxima
11	Brinjal	Vazhuthana	Solanum Nelongena
12	Tomato	Thakkali	Lycopersum esculentum
13	Amaranthus	Cheera	Amaranthus Spp
14	Lady's finger	Venda	Abolmoschus esculentus
15	Bitter gourd	Pavakka	Momordica Charantia
16	Bottle gourd	Churakka	Lagenaria Siccarnaria
17	Snake Gourd	Padavalanga	Trichosanthes anguina
18	Ridge Gourd	Peechanga	Luffa acutangulata
19	Smooth Gourd	Chorakka	Luffa Cylindrica
20	Ash gourd	Kukbalanga	Benincasa
21	Little gourd	Kowva	Coccinia cordifolia
22	Cluster bean	Kothavara	Cyamopsis Psoralodes
23	Sword bean	Vollarianga	Canavalia cusiformis
24	Frenchbean	Beans	Phaseolus vulgaris
25	Karilaf	Karivappila	Murraya Zocnigari
26	Beet root	Beet root	Beta Vulgaris
27	Cabbage	Muttakose	Brassica Oleracea
28	Cauliflower	Cauliflower	Brassica Cloracea
29	Cucumber	Vellarikka	Cucumis Sativus
30	Musk Melon	Thaikumbalam	Cucumis melo
31	Pumpkin	Mathanga	Cucurbitapepe
32	Indian Bean	Amara	Dolichos lablab
33	Drum stick	Muringa	Moringa Pterigosperma
34	Onion	Ulli	Allium Cepa
35	Roseapple	Jampa	Engenia James

(1)	(2)	(3)	(4)
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**Oil Seeds**

1	Cocoonut	Thengu (Nalikeram)	Cocos nucifera
2	Sesamum	Ellu	Sesamum Spp
3	Groundnut	Nilakkadala	Arachis Hypogea
4	Mustard	Kadugu	Brassica Spp
5	Caster	Avanakku	Ricinus communis

**Fibres**

1	Cotton	Paruthi	Gossypium Spp
2	Jute	Chanam	Corechoreus capsularis
3	Sunhemp	Kattuchanam	Crotalaria juncea
4	Sisal hemp	Kallarvazha	Agava Spp

**Drugs**

1	Tobacco	Pukayila	Nicotiana tabaccum
2	Opium	Karuppu	Palayar somniferum
3	Cocca	Cocoa	Theobroma cocoa

**Plantation Crops**

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

**Fodders**

1	Bermuda grass	Karuka pullu	Cynodom declylom
2	Guinea grass	Kuthirappulu	Panicum maximum

**Timber**

1	Teak	Theikku	Tectoma grandis
2	Ebony	Karimaram	Diesphyres assimills
3	Jungle Jack	Anjili	Artocarpus hirsuta
4	Poonsper	Kattupunna	Cabophyplum tomentose
5	Cotten tree	Elavu	Bombax malabaricum
6	Perumoram	Perumaram	Ailanthus excelsa
7	Karimaruthu	Karimaruthu	Calophyllum tomentosam
8	Maruthu	Maruthu	T. Paniculata
9	Chula maruthu	..	T. Travancorensis
10	Karanjili	..	Dip terocarpus indices
11	Indian mahogam	Mahagani	Cedrella toona
12	Mangotree	Mavu	Magifera indica
13	Kulamavu	Kulamavu	Buchanania latifolia

(1)	(2)	(3)	(4)
14	Iron wood tree	Kadamuram	<i>Xylia dolabrief ormic</i>
15	Puli	Puli	<i>Albizzia oderatima</i>
16	The write sitis tree	Kacimthakara	<i>Albizzia procera</i>
17	Siris tree	Baga	Lebbek spp
18	Venteak	Ven thekku	<i>Lagerstreenia lanceolata</i>
19	Manja kadambu	Manja kadambu	<i>Adifia cerdifella</i>
20	Pala	Pala	<i>Alstenia scholaris</i>
21	Sumbil	Kumbil	<i>Gmelina arborea</i>
22	Mull vengai	Mullu venga	<i>Bridelia retush</i>
23	Manogana	Mahogany	<i>Saietenia mahogani</i>
24	Bombay bag rose wood	Eitti	<i>Delbergia latifolia</i>
25	Jack tree	Plavu	<i>Artocarpus integrifolia</i>
26	Majadi	Manjadi	<i>Adennathera pavonina</i>

1493

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