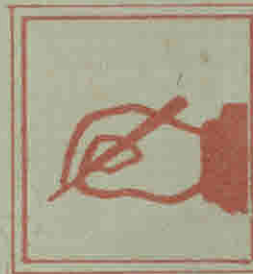


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**Report on Cost of Cultivation
of Important Crops
in Kerala 1997-98**



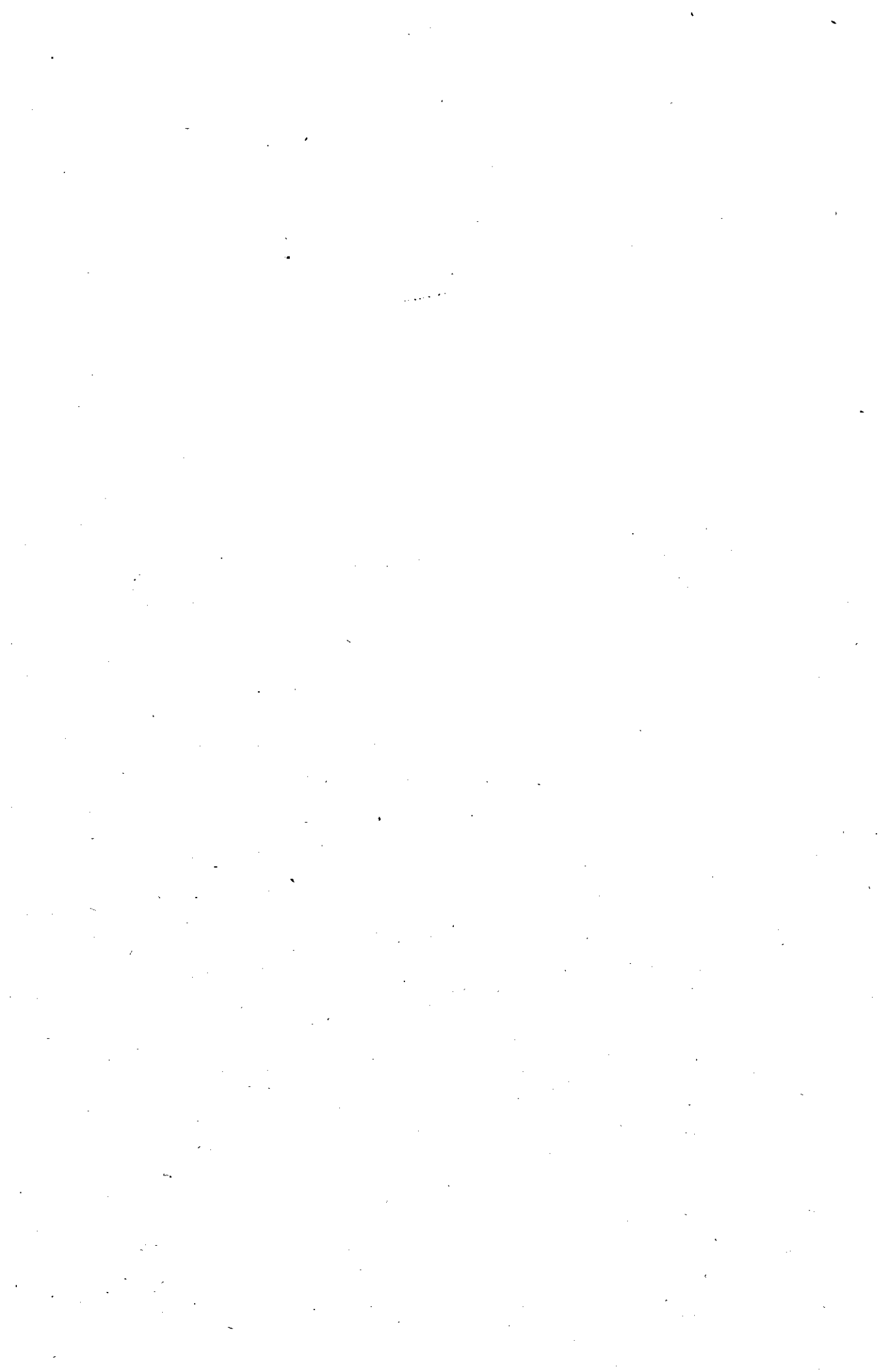
**Department of Economics and Statistics
Thiruvananthapuram
2001**

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**REPORT ON COST OF CULTIVATION
OF IMPORTANT CROPS
IN KERALA 1997- 98**

**Department of Economics and Statistics
Thiruvananthapuram
March 2001**



Preface

The time series data on Cost of Cultivation of Important crops in the State is being used by administrators for fixing support prices in the event of fall in farm prices. Regular basic data is also very helpful for piloting various developmental schemes on agriculture. The same is also used as an input for estimating certain parameters for computing State Income.

This report is based on 18th round of the survey on cost of cultivation of important crops conducted during 1997-98. The crops covered during this round are Paddy (three seasons), Coconut, Arecanut, Banana, Pepper, Ginger and Pineapple.

The tabulation and consolidation of data were done in the 'Cost of Cultivation Section' and the report was prepared by Smt. T. Bhavana, Deputy Director, under the guidance of the senior officers of the Department. Suggestions for improvement are solicited.

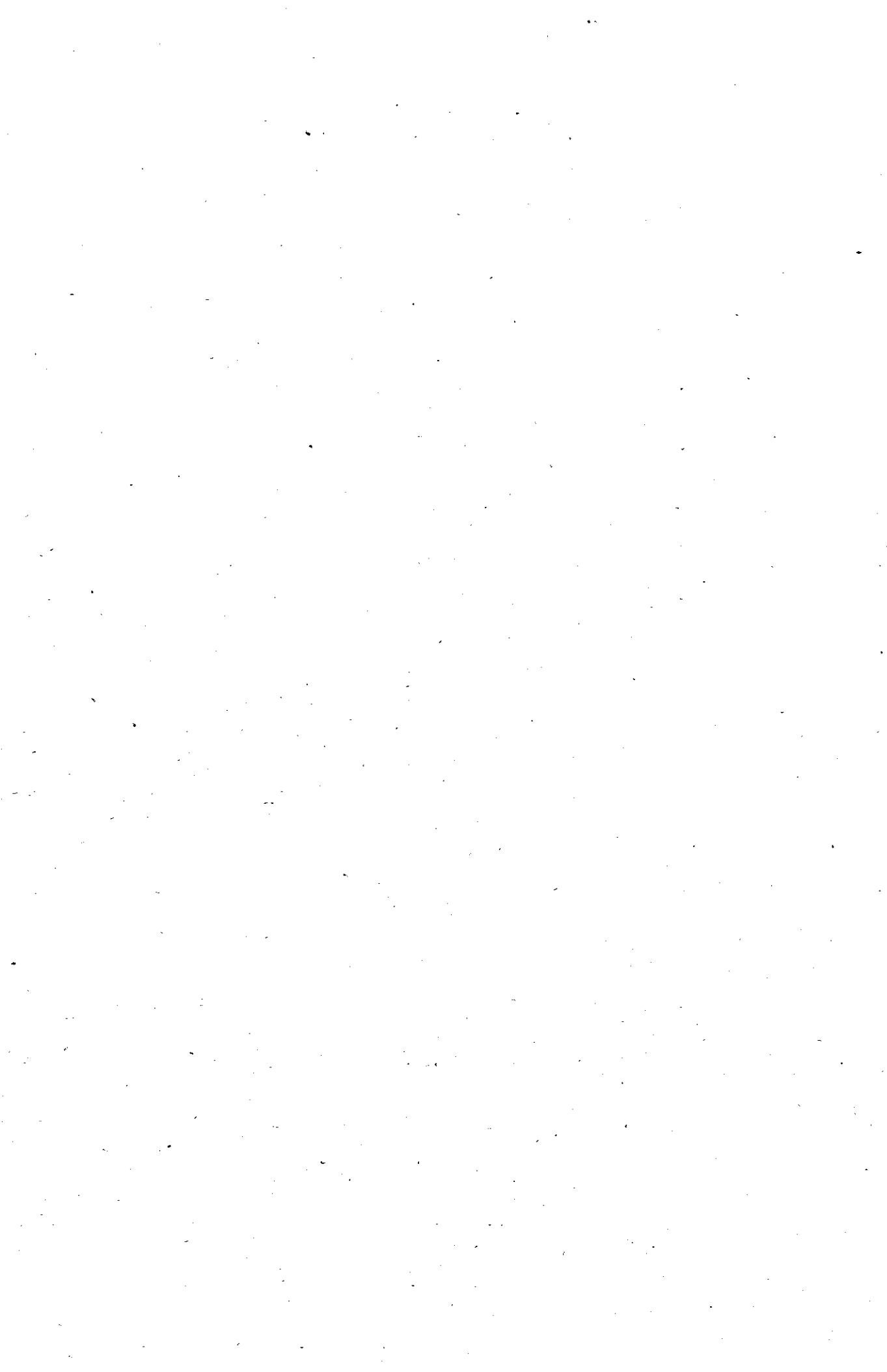
A. Meera Sahib
Director

Thiruvananthapuram



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Chapter - 1

General

1.1 Introduction

Agriculture being the primary occupation of the community, maximization of output and profit in farming is essential to meet the increased food requirement of the growing population. High yield from the cultivation depends largely on the vagaries of nature and Agro-climatic conditions. The gain or loss of cultivation of a crop is also determined on the basis of the cost of various inputs used and the value of the main product and the by-products received from it. In order to chalk out various schemes in Agricultural sector and for fixing the floor and support prices, proper assessment of the cost of cultivation and value of product is necessary. With this end in view, Government of Kerala in GO (Rt) 466/79/Plg dated 27-10-1979 sanctioned a scheme for an annual survey on cost of cultivation of important crops in Kerala. The present report relates to the 17th round of survey conducted during 1997-98.

The crops covered during the period under study are given below.

- | | |
|----------------------|------------|
| 1. Paddy (3 seasons) | 2. Coconut |
| 3. Arecanut | 4. Banana |
| 5. Pepper | 6. Ginger |
| 7. Pine apple | |

1.2. Objectives

This survey was mainly intended for estimating the cost of cultivation per hectare of important crops and for comparing the cost under different concepts over a period.

1.3 Staff

(a) Headquarters staff

- | | |
|-----------------------|-------|
| 1. Research Assistant | 1 No. |
| 2. U.D. Compiler | 1 No. |

(b) Field staff

- | | |
|---------------------------|---------|
| 1. U.D. Investigator | 14 Nos. |
| 2. L.D. Investigator (HG) | 28 Nos. |

(4 posts were shifted to the Directorate for the consolidation of the report)

1.4 Period of the Survey

The period of the survey was from 1-7-97 to 30-6-98.

1.5 Design of the Survey

The survey covered all the districts of Kerala by selecting 38 taluks, which are important growing centres of different selected crops. From each selected taluks two investigator zones were selected using simple random sampling method.

Selection of Cultivators

In each selected investigator zone a list of cultivators growing paddy in the previous autumn season will be prepared from the last years Form I Diary of the EARAS. From this list of paddy growing cultivators last Autumn in seasons 5 cultivators will be selected at random for the current years cost of cultivation study in Autumn paddy. Similar procedure is adopted for the selections of cultivators for winter and summer paddy respectively by preparing a list of

paddy growing plots in winter and summer of the previous Timely Reporting Survey round in the zone.

In the case of cultivators selected for cost of cultivation study in Autumn paddy possess suitable number of plots with other a specified crop in stipulated area they may be selected for the cost of cultivation study on other crops like Coconut, Arecanut, Banana, etc.

If sufficient number of suitable plots are not available with the cultivators selected for autumn paddy, the required number of plots for crops other than paddy will be selected from the list of wet and dry land plots of the same investigator zone in the last year. If the selected Investigator zone in the taluk does not provide the required number of plots for these crops another Investigator zone in the taluk will be selected at random for selection of the remaining required number of plots/cultivators for the study on other crops.

The number of holdings selected for each crop in a taluk is as follows.

1. Paddy	Autumn	10	(5 holdings each from one investigator zone)
	Winter	10	-do-
	Summer	10	-do-
2. Coconut		10	-do-
3. Arecanut		10	-do-
4. Banana		5	(Minimum 2 holdings in one Investigator zone)
5. Pepper		5	-do-
6. Ginger		5	-do-
7. Pine apple		5	-do-

A holding was considered for the study only if it contained at least 25 cents under the crops in the case of paddy. Perennial crops like Coconut, Arecanut and Pepper the holdings should have 25 trees/plant with atleast 50% bearing. Pineapple holdings should have 50 number of plants. If these criteria for the selection is strictly followed, it is difficult to get sufficient number of plots. In such extra-ordinary situation purposive selection is resorted to get adequate representation of such crops.

The holding size group of a crop was determined on the basis of the area under the crops under study in the holding as shown below:

Size group	Holding size	
	Paddy	Other crops
1. Small	< 0.40 ha.	< 0.2 ha.
2. Medium	0.40 to < 2 ha.	0.2 to < 0.8 ha.
3. Large	≥ - 2 ha.	≥ 0.80 ha.

Note: < - less than

≥ - Creates than on equal to

1.6 Schedules

Their schedules were designed for the survey

- | | |
|--------------|--|
| Schedule 1 | This schedule is used for listing the plots for selection of holdings and recording the details of the selected holdings. |
| Schedule 2 | This schedule is needed for recording details of the cultivator's household, area of holdings, inventory of agricultural implements, live stocks, etc. |
| Schedule III | In this schedule the cultivation expenses incurred for a crop in each fortnight is reported. |

1.7 Field work

Fieldwork was done by 38 Investigators in 38 selected taluks, one Investigator in each taluk. The investigator visited the selected holdings every fortnight and recorded fortnightly operations in the Schedule III. The fieldwork was supervised by Taluk Statistical Officer at the Taluk level and by Deputy Director/District Officer at District level.

1.8 Processing and Analysis of Data

The compilation and tabulation were done at District level by the Investigators posted for the survey. The state level consolidation of the data is done at the Directorate and report writing and analysis are done at the Directorate.

1.9 Method of Estimation of cost

A Concept of Cost

Different cost concepts, cost 'A' cost 'B1' cost 'B' and cost 'C' have been followed in the analysis as shown below.

Cost 'A'

Cost 'A' consists of cash and kind expenses (paid out costs) actually incurred by the cultivators.

This includes

- | | |
|---------|--|
| I. | Hired human labour |
| II. | Animal labour |
| III. | Machine labour |
| IV. | Seed/seedlings |
| V. | Farmyard manure & Chemical fertilizers |
| VI. | Plant protection |
| VII. | Land tax |
| VIII. | Irrigation cess |
| IX. | Repair and maintenance charges of implements machinery and buildings |
| X. | Interest in working capital |
| XI. | Other expenses. |
| Cost B1 | Cost "A" + Interest on fixed assets (excluding land) |
| Cost B | Cost 'B1' + Interest on land value |
| Cost C | Cost 'B' + imputed value of family labour |

(b) Procedure for imputation of value of owned inputs

In the production process certain inputs from home stock are used. In order to estimate the cost of cultivation it is necessary to impute the value of these inputs. The procedure used for the imputation of value of such home stock inputs is indicated below:

- | | | |
|------|--------------------------------------|---|
| I. | Family labour | Imputed on the basis of average wage rate per work hour of hired labour. |
| II. | Owned and exchange human labour | The rate of wages per hour for hired human labour is taken for imputing the value of own stock and exchange human labour. |
| III. | Owned and exchanges animal labour | The charges paid per hour for hired animal labour is taken for imputing the value of owned and exchanges animal labour. |
| IV. | Owned and exchange of machine labour | The hire charges per hour for machine labour has been taken |

V.	Implements	Repair and maintenance charges of implements
VI.	Owned seed	Farm produced (home grown) seed has been imputed at the prices prevalent in the investigator zone concerned at the time of sowing.
VII.	Farm produced manure	Imputed at the rate prevalent in the zone concerned
VIII.	Interest on fixed capital	Interest on the present value of fixed assets such as land farm, building, implements, machinery, irrigation structure equipments and livestock (only draught animals) at the rate of 10% per annum has been calculated (In the case of paddy 5% per annum is taken)
IX.	Interest in working capital	Interest has been charged at the rate of 10% per annum on the working capital, cash and kind expenses excluding items in respect of which payments are generally made after harvest (ie. rent, land tax, etc.) incurred during the period of cultivation.
X.	Payments of kind	The payments in kind have been evaluated at the market prices prevalent in the locality at the time of payment. Perquisites have been included in the payments in kind calculated at the market prices.

C. Allocation of joint cost to different crops

Some of the inputs used for the cultivation of one crop are common for many other crops also. For the purpose of computing the cost share of individual crops, the cost of such inputs is apportioned in the following manner.

- | | | |
|----|--|--|
| 1. | Repair and maintenance charges of implements | In proportion to the area under the crop |
| 2. | Interest on own fixed capital (excluding land) | In proportion to the area under the crop |
| 3. | Interest in land value | Interest in the value of land under the crop |

(d) Procedure for valuation of farm assets

- | | | |
|----|---|---|
| 1. | Own farm buildings (cattle shed, storage shed etc.) | Valuated at prices prevailing in the locality |
| 2. | Implement and other machinery | Valuated at prevalent market prices |
| 3. | Live stock (only draught animal) | Valuated at prevalent market prices |

In calculating the cost of production of paddy crop in each season the interest on land value at the rate of 10% per annum for the period of 6 months is taken into account. The land value is estimated at the current market rate in the different areas. There is a controversy in the assessment of land value. The land value is increasing considerably. If the actual value is taken for calculating the interest in land value, no cultivation is profitable in the State. However, there is always tendency to under report the land value. It is therefore necessary to evolve a method or criteria to estimate the land value reasonably while calculating the cost of cultivation of crop.

Chapter 2

Results of the Survey

Paddy is cultivated in the State in three seasons viz. Autumn (Virippu), Winter (Mundakan) and Summer (Punja)

The following table gives the total cropped area and the area under paddy crops for three seasons during 1997-98.

Table 1 – Area under paddy during 1997-98

Total cropped area (in lakh Hectare.)	Area under paddy (in lakh hectare)			
	Autumn	Winter	Summer	Total
29.69	1.48 (4.98)	1.84 (6.20)	0.62 (2.09)	3.94 (13.27)

Source: Agricultural Statistics of Kerala 1997-98

(Figures in brackets give the percentage of paddy in each seasons to the total cropped area). Out of the three seasons of paddy Autumn (virippu) and Winter (Mundakan) are the most important seasons were paddy produce yield maximum.

The following table shows the percentage of area under paddy crop in each season to the total gross area under paddy.

Table 2 – Percentage of area under paddy in each season to the gross area under paddy during 1997-98

Percentage of area under paddy			
Autumn	Winter	Summer	Total
37.56	46.70	15.74	100

From the above table it is seen that 84% of the paddy area in autumn and winter seasons.

The rice production in the State during the year under study stood at 7.64 lakh tonnes and its productivity of three seasons are given below.

Table 3 – Production of rice during the year 1997-98 (in lakh tonnes)

Season	Production of rice (Lakh tones)	Percentage
Autumn	2.85	37.31
Winter	3.42	44.76
Summer	1.37	17.93
Total	7.64	100.00

Table 4 – Average productivity of paddy during 1997-98

Season	Average Productivity (kg/ha)
Autumn	1971
Winter	1895
Summer	2220
Total	1975

The productivity of summer paddy is higher than that of other seasons.

Out of the total irrigated cropped area, 48.5% percentage constitutes under paddy, which is shown below.

Table 5 – Percentage of area irrigated under paddy (area in hectare)

Area irrigated	Total cropped area irrigated	Percentage
202143	417082 Ha	48.46

(i) Autumn paddy

The total number of holding selected for the cost of cultivation study on autumn paddy were 380. They were scattered in all 38 selected taluks of the State. The number of holdings selected and the area under the crop in each holding size class viz. small, medium and large are given below.

Table 6 – Area under Autumn paddy during the year 1997-98

Holding size class	No. of selected holdings	Area under the crop in the sample (Hectare)	Percentage	Area per holding (hectare)
Small	219	48.35	23.34	0.22
Medium	127	87.93	42.46	0.69
Large	24	70.82	34.20	2.95
Total	370	207.10	100.00	0.56

The holdings under report had a total operational area of 207.10 Hectare and the average size of holding was 0.56 Hectare.

A. Cost of cultivation

The estimated per hectare cost of autumn paddy cultivation is furnished below.

Table 7 – Cost of cultivation per hectare of Paddy (autumn) during 1997-98

Sl. No	Component of different cost concept	Cost per hectare	Percentage distribution of cost
1	Hired human labour	8763	58.11
2	Animal labour	757	5.02
3	Machine labour	989	6.56
4	Seed/Seedlings	903	5.99
5	Farmyard, manure and chemical fertilizers	2224	14.75
6	Plant protection	200	1.33
7	Land tax and irrigation cess	28	0.18
8	Repair and maintenance charges	217	1.44
9	Interest on working capital	706	4.68
10	Other expenses	292	1.94
11	Cost A (1 to 10)	15079	100.00
12	Interest on fixed capital	839	
13	Cost B1 (11+12)	15918	
14	Interest on land value	18525	
15	Cost B (13+14)	34443	
16	Imputed value of Household labour	777	
17	Cost C (15+16)	35220	

The share of hired human labour during the year 1997-98 to the total cost 'A' in autumn paddy cultivation was 58%. Animal labour and machine labour constituted to 5% and

7% respectively. Human labour cost, which is the major component of the paddy cultivation, consists of hired human labour, exchange labour and family labour. Among these irrespective of the size group of holdings hired human labour formed a major portion.

The following table illustrates the percentage of hired human labour hours engaged in Autumn Paddy cultivation to the total labour hours.

Table 8 – Percentage of hired human labour hours to total human labour hours

Sex	Holding size class			
	Small	Medium	Large	All size
Male	27	23	21	23
Female	60	71	76	70
Total	87	94	97	93

As usual the proportion of hired human labour to total human labour input steadily increases with the increase the size of holdings. It is seen that cultivators belonging to large size class are seen to depend for more than 97% of the requirements on hired labour. The cost of hired human labour per hectare works out to Rs.8763/-

Seed and seedlings is an important input of paddy cultivation per hectare as estimated from the survey is 6% of the total cost 'A'. For paddy cultivation home produced manure, chemical fertilizers are used, the cost of which was Rs.2224/- per hectare during this round. When compared to the previous year, the combined cost of organic manure and chemical fertilizers per hectare is seen decreased irrespective of the size of holdings. This may be due to the hike in the cost and the increase in the application of these fertilisers.

It was noted that the per hectare cost towards plant protection measures is on decreasing trend while the cost per hectare in 1996-97 was Rs.139/per hectare it was Rs.200/- in 1997-98. The percentage share of land tax and irrigation cess is nominal ie below 1%. Expenditure on repair and maintenance of implements varies from year to year and from size class to size class. It is worked out to Rs.217/- during 1997-98. It seems to be increasing as size class increasing. Interest on working capital was Rs.706/- per hectare and other expense was Rs.292/- during 1997-98.

Cost 'B1'

Cost 'B1' is estimated by adding the interest in fixed capital (excluding land) to cost 'A'. The estimated interest on fixed capital for 1997-98 is Rs.839/- and cost 'B1' is Rs.15918/-

When compared to the previous year interest on land value decreased from Rs.21822 to Rs.18525 during this year. The size class variation is seen minimum in large size class and maximum in small size class.

Cost 'B' and cost 'C'

Cost B is estimated by adding the interest on land value to cost 'B1' and cost 'C' is estimated by adding imputed value of Household labour to cost 'B'. The estimated interest on land value was Rs.18525 and imputed value of Household labour was Rs.777 during the year 1997-98 Cost B is estimated to be Rs.34443 and Cost 'C' is Rs.35220 per hectare. The following table illustrates a comparison with the previous years cost and the year under study.

Table 9 – Cost of cultivation of Autumn paddy in Rs./hectare for 1996-97 and 1997-98

Concept of cost	Year	Holding size class			
		Small	Medium	Large	All size
Cost A	1996-97	15917	12280	11509	12714
	1997-98	17379	14862	13749	15079
Cost B	1996-97	40111	35016	32592	35201
	1997-98	41154	34483	28540	34443
Cost C	1996-97	41214	35797	32701	35820
	1997-98	42763	35124	28916	35220

Compared to the previous year the cost 'A' has increased to 19% during 1997-98. But the cost 'B' and cost 'C' shows a decreasing trend to (-)2% of cost 'B' and cost 'C' respectively.

B. Output

Value of product and by product of autumn paddy cultivation for the year 1997-98 is given on the following table.

Table 10 – Value of product and by product per hectare (in Rs.) during 1997-98

Product and by product	Holding size class			
	Small	Medium	Large	All size
Paddy	13576	12224	15064	13511
Straw	3610	2922	1410	2566
Total	17186	15146	16474	16077

During the year 1997-98 the per hectare value of output is estimated to Rs.16077/- which is more than the value of output for 1996-97. It is worthy to note that the paid out cost of cultivation is also showed almost similar scale of increase. The value of product from 1990-91 is given in the following table. The table shows that the value of product has been steadily increasing except for the year 1994-95.

Table 11 – Value of product/hectare (in Rs.)

1990-91	1991-92	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98
7259	8139	10090	9417	9024	12121	14392	16077

C. Cost of production of paddy per quintal

The cost of production of paddy per qtl. Is estimated by dividing the cost of cultivation per hectare (after deducting the value of by product per hectare from the cost of cultivation per hectare) by the quantity of paddy produced per hectare.

Table 12 – Cost of production of paddy per quintal in autumn season (in Rs.)

Concept of cost	Holding size class			
	Small	Medium	Large	All sizes
Cost 'A'	599	597	457	544
Cost 'B'	1632	1578	1005	1386
Cost 'C'	1702	1610	1019	1420

When cost 'A' is considered the cost of production of paddy per qtl of Rs.544 during the period under report. The following table illustrates the comparison of cost of production of autumn paddy with the previous year.

Table 13 – cost of production per quintal of autumn paddy during 1996-97 and 1997-98 (in Rs.)

Concept of cost	1996-97	1997-98	Percentage of increase/decrease
Cost 'A'	465	544	17
Cost 'B'	1451	1386	- 5
Cost 'C'	1478	1420	- 4

(ii). Winter paddy

The study on cost of cultivation of winter paddy was conducted in 380 holdings. The sample area under winter paddy in small, medium and large size classes of holdings are given below.

Table 14 – Area under winter paddy during 1997-98

Holding size class	No. of selected holdings	Area under the crop in the sample (Hectare)	Percentage	Area per holding (hectare)
Small	216	48.37	20.70	0.22
Medium	134	97.68	41.79	0.73
Large	30	87.67	37.51	2.92
Total	380	233.72	100.00	0.62

The total operated area of the selected holdings is 233.72 hectare. The average size of holdings is 0.62 hectare.

A. Cost of cultivation

The cost of different items per hectare of cost 'A' (percentage distribution) is given below.

Table 15 – Cost of cultivation per hectare of paddy (winter) during the year 1997-98

Sl. No	Component of different cost concept	Cost per hectare	Percentage distribution of cost 'A'
1	Hired human labour	8484	56.27
2	Animal labour	659	4.37
3	Machine labour	1182	7.84
4	Seed/seedlings	851	5.64
5	Farm yard, manure & chemical fertilizers	2298	15.24
6	Plant protection	283	1.88
7	Land tax and irrigation cess	61	0.40
8	Repair and maintenance charges	224	1.49
9	Interest on working capital	704	4.67
10	Other expenses	332	2.20
11	Cost 'A' (1 to 10)	15078	100.00
12	Interest on fixed capital	838	
13	Cost B1 (11+12)	15916	
14	Interest on land value	17043	
15	Cost 'B' (13+14)	32959	
16	Imputed value of Household labour	743	
17	Cost 'C' (15+16)	33702	

The per hectare cost towards hired human labour in winter paddy cultivation comes to Rs.8484 in 1997-98. It accounts to 56% of the total cost 'A'.

The percentage of hired human labour comes to the total human labour hours is given below.

Table 16 – Percentage of hired human labour hours to total human labour hours

Sex	Holding size class			
	Small	Medium	Large	All size
Male	25.87	23.72	20.05	23.00
Female	61.26	69.63	76.01	69.68
Total	87.13	93.35	96.06	92.68

Out of the total human labour hours employed in winter paddy cultivation 93% is accounted by hired labour. Female hired labour is more than that of male labour hours. The ploughing and machine operated part of the work are attended by man and almost all other type of activities are being attended by women labourers and more over this will be also reduce the cost by way of wages.

The cost of animal labour is higher in the case of small size cultivators where as the machine labour cost is higher in the case of large cultivators. The cost of seed/seedlings is Rs.851 per hectare which is 6% of the total cost 'A'. Farmacyard manure and Chemical Fertilizers which is an important item of paddy cultivation accounts to 15%. The cost of plant protection measures is estimated at Rs.283 per hectare. The percentage share towards land tax and irrigation cess is negligible. The expenditure on repair and maintenance of implements accounts for 1%. Interest on working capital is computed at Rs.704.

Cost B1 and Cost B

Cost B1 is estimated by adding the interest on fixed capital (excluding land) to cost 'A'. It is found to be Rs.15916/-.

Cost 'B' is estimated to be Rs.32959/-. When compared to the previous round interest on land value has increased during this round.

Cost C

Cost C is estimated by adding the imputed value of Household labour to cost 'B'. It is seen as Rs.33702/-

The estimated cost of winter paddy per hectare under three major concepts of cost is given below.

Table 17 – Cost of cultivation of winter paddy (Rs./Hectare)

Concept of cost	Holding size class			
	Small	Medium	Large	All size
Cost A	17530	14983	13811	15078
Cost B	39442	35005	26618	32959
Cost C	41109	35660	26949	33702

Cost of cultivation of winter paddy 1996-97 and 1997-98 are given below.

Table 18 – Cost of cultivation of winter paddy (Rs./hectare) for 1996-97 and 1997-98

Concept of cost	Year	Holding size class			
		Small	Medium	Large	All size
Cost A	1996-97	14523	13894	13765	13903
	1997-98	17530	14983	13811	15078
Cost B	1996-97	42171	32824	27811	32577
	1997-98	39442	35005	26618	32959
Cost C	1996-97	43399	33554	28023	33194
	1997-98	41109	35660	26949	33702

B – Output

The estimated value of paddy and straw obtained from winter paddy cultivation is given below.

Table 19 – Value of output (Rs./Hectare)

Product and by product	Holding size class			
	Small	Medium	Large	All size
Paddy	13003	12703	14953	13609
Straw	5720	4768	2993	4299
Total	18723	17471	17946	17908

C. Cost of production of paddy per quintal

Cost of producing one quintal of paddy is worked out by dividing the cost of cultivation per hectare (after deducting the value of by product per hectare from the cost of cultivation per hectare) by the yield per hectare.

Table 20 – Cost of production of winter paddy (Rs./Hectare)

Concept of cost	Holding size class			
	Small	Medium	Large	All size
Cost A	513	464	433	469
Cost B	1466	1374	945	1246
Cost C	1539	1404	958	1278

The cost of production of winter paddy per quintal for 1996-97 and 1997-98 are presented below for comparison.

Table 21 – Cost of production of winter paddy per/ctl. during 1996-97 & 1997-98 (in Rs)

Concept of cost	Year		Percentage of increase
	1996-97	1997-98	
Cost A	408	469	15
Cost B	1177	1246	6
Cost C	1203	1278	6

When compared to the previous years cost of production of winter paddy per qtl. relating to cost A, B and C showed an increasing trend.

(iii) Summer paddy (punja)

The number of holdings selected for the study on cost of cultivation of summer paddy was 314 during 1997-98. The details of the holdings are given below.

Table 22 - Area under summer paddy 1997-98

Holding size class	No. of selected holdings	Area under the crop in the sample (Hectare)	Percentage	Area per holding
Small	183	48.12	22.09	0.26
Medium	97	81.49	37.41	0.84
Large	34	88.23	40.50	2.60
Total	314	217.84	100.00	0.69

The holdings selected during the period under report have a total operational area of 217.84 hectare. The average size of holdings was 0.69 hectare.

A. Cost of cultivation

The cost of cultivation per hectare of summer paddy is given in the following table.

Table 23 - Cost of cultivation per hectare of summer paddy for the year 1997-98

Sl. No	Component of different cost concept	Cost per hectare	Percentage distribution of cost 'A'
1	Hired human labour	10220	58.88
2	Animal labour	528	3.04
3	Machine labour	1030	5.93
4	Seed/seedlings	787	4.54
5	Farm yard, manure & chemical fertilizers	3012	17.35
6	Plant protection	342	1.97
7	Land tax and irrigation cess	247	1.42
8	Repair and maintenance charges	151	0.87
9	Interest on working capital	672	3.87
10	Other expenses	369	2.13
11	Cost 'A' (1 to 10)	17358	100.00
12	Interest on fixed capital	748	
13	Cost B1 (11+12)	18106	
14	Interest on land value	13232	
15	Cost 'B' (13+14)	31338	
16	Imputed value of Household labour	907	
17	Cost 'C' (15+16)	32245	

From the above table it seen that about 68% of the total cost 'A' constitutes to labour cost. When compared to the previous year hired human labour cost in large size class showed a decreasing trend.

The percentage of hired human labour hours engaged in the summer paddy cultivation during the year 1997-98 is given below.

Percentage of hired human labour hours engaged in summer paddy cultivation

Holding size class	Male	Female	Total
Small	23.05	58.29	81.34
Medium	19.35	74.00	93.35
Large	19.26	77.95	97.21
All size	20.18	71.93	92.11

During this round about 92% of the total human labour hours is hired human labour. The cost of seed/seedlings per hectare is found to be Rs.787/- during this year. It is seen that 17% of the total cost 'A' accounts to Farmyard manure and chemical fertilizers. The

expenditure towards plant protection measures estimated to 2% of the total cost 'A' and also 1.5% is spent for land tax and irrigation cess. The estimated expenditure per hectare as repair and maintenance charges of implements and machinery is found to be Rs.151 during the period under report. About 4% of the cost "A" account for interest on working capital.

Cost 'B1" and cost 'B'

Cost B1 is obtained by adding the interest on fixed capital (excluding land) to cost 'A'. The interest on fixed capital is estimated to Rs.748 and cost B1 is found to be Rs.18106 for summer paddy cultivation. The interest on land value is found to be Rs.13232 during this year and cost 'B' is estimated to be Rs.31338 as usual the imputed value of households is maximum in small size class and minimum in large size class. Cost 'C' showed a small increasing trend from Rs.31962 to Rs.32245 during this year.

The comparison of the various concepts of cost with previous year is given in the following tables.

Cost of cultivation of summer paddy Rs/Hectare for the year 1996-97 and 1997-98

Concepts of cost	Holding size class				
	Year	Small	Medium	Large	All size
Cost 'A'	1996-97	17760	16141	16650	16838
	1997-98	17946	17233	17189	17358
Cost 'B'	1996-97	37367	32569	25239	31175
	1997-98	39986	33218	27037	31338
Cost 'C'	1996-97	39175	33300	25400	31962
	1997-98	41797	31423	27345	32245

When compared to the previous years the cost "A", 'B' and cost 'C' showed a slight increasing trend i.e., cost A increasing 3%, cost B 0.5% and cost C 1% respectively.

B. Output

The estimated value of paddy and straw obtained from summer paddy cultivation is given below.

Value of product and by product per hectare for 1997-98

Holding size class				
Product by product	Small	Medium	Large	All size
Paddy	12114	14758	10334	10041
straw	4148	3091	2309	3009
Total	16262	17849	12643	13050

C. Cost of production of paddy per quintal

Cost of producing one quintal of paddy is got by dividing the cost of cultivation per hectare (after deducting the value of by product per hectare from the cost of cultivation per hectare) by the yield per hectare.

Cost of production of summer paddy per quintal

Concepts of cost	Holding size class			
	Small	Medium	Large	All size
Cost 'A'	690	615	531	598
Cost 'B'	1792	1206	883	1180
Cost 'C'	1882	1232	894	1298

A comparison between the cost of production during the year 1996-97 and 1997-98 is given in the following table.

Cost of production of paddy per quintal during the year 1996-97 and 1997-98

Concept of cost	1996-97	1997-98
Cost 'A'	435	598
Cost 'B'	888	1180
Cost 'C'	912	1218

2.2 Coconut

Coconut is an important tree crop of the state, which is cultivated in 8.84 lakhs hectare during the year 1997-98. The total area under coconut and the average yield per hectare during the period under report is given below

Area and average yield of coconut 1997-98

Area under coconut (ha)	% to total cropped area	Average yield per ha (No. of nuts)
884344	29.8	5890

From the above table it is seen that the percentage of area under coconut cultivation to total cropped area is 30% and the average yield per hectare is 5890 numbers.

For the survey on cost of cultivation 380 numbers of coconut holdings were selected for the year 1997-98. The details of these holdings according to the size class viz small medium and large are given below;

Number of holdings and area under coconut

Holding size class	No. of holdings	Area under coconut in the sample (ha)	Percentage	Area per holding (Ha)
Small	110	16.69	7.09	0.15
Medium	177	77.43	32.90	0.44
Large	93	141.26	60.01	1.52
All size	380	235.38	100.00	0.62

The selected holdings had a total area of 235.38 hectare of operational area during the year 1997-98. The average size of holdings was 0.62 hectare.

Number of bearing trees in the selected plots

Out of the total coconut trees in the selected plots 74% was found to be bearing and the remaining non-bearing. The number of bearing and non-bearing trees per hectare for the year 1997-98 is given below

Number of bearing and non bearing trees per hectare

Type of trees	No. of trees per hectare	Percentage
Bearing	169	73.48
Non-bearing	61	26.52
Total	230	100.00

A. Cost of cultivation

The cost of cultivation of coconut is estimated under the four different concepts of cost viz, cost 'A' 'B' 'C' and cost 'D'.

Cost 'A' consists of cash and other kind expenses and is worked out to Rs.13861/- per hectare during 1997-98. The estimated cost under different items of expenditure per hectare and percentage distribution of these items to total cost 'A' are given in the following table.

Cost of cultivation per hectare of coconut during the year 1997-98

Sl. No	Components of different cost concepts	Cost per hectare(Rs.)	% distribution of cost 'A'
1	Hired human labour	7200	51.94
2	Animal labour	35	0.25
3	Mechanic labour	128	0.92
4	Seed/seedlings	5	0.04
5	Farmyard, manure and chemical fertilizers	4509	32.53
6	Plant protection	17	0.12
7	Land tax and irrigation cess	41	0.30
8	Repair and maintenance charges	245	1.77
9	Interest on working capital	1234	8.90
10	Other expenses	447	3.23
11	Cost 'A'(1 to 10)	13861	100.00
12	Interest on fixed capital	1639	
13	Cost 'B1'(11+12)	15500	
14	Interest on land value	155220	
15	Cost 'B'(13+14)	170720	
16	Imputed value of Household labour	852	
17	Cost C(15+16)	171572	

Labour cost is the major component of cost 'A' which includes hired human labours animal labour and machine labour. It works out to Rs.7363/-. The percentage distribution of hired human labour participation in coconut cultivation to the total labour hours is given below for males and females separately.

Percentage distribution of hired human labour hours to the total human labour hours

Sex	Holding size class			
	Small	Medium	Large	All size
Male	64.28	70.71	79.28	74.89
Female	8.02	9.55	11.50	10.49
Total	72.30	80.26	90.78	85.38

When compared to the paddy cultivation female participation is lowest in coconut cultivation. About 85% of the total human labour hours has been shared by hired human labour. For planting new seed/seedlings only Rs.5 is spent.

Application of farmyard, manure and chemical fertilizers constitute a major share i.e. 33% of the total cost 'A'. Cost towards plant protection, land tax and irrigation cess accounts only a nominal percentage. Repair and maintenance charges is 2% of the total cost 'A' per hectare interest on working capital is estimated to Rs. 1234/-

Cost 'B1' and Cost 'B'

Cost B1 is estimated by adding the interest in fixed capital (excluding land) to cost 'A'. It is found to be Rs. 15500/-

Interest on land value is increased from Rs. 128410/- to Rs.170720/- during this round.

Cost 'C'

Cost 'C' is estimated by adding the imputed value of house hold labour to cost 'B'. It is estimated to be Rs.171572/-

Cost of cultivation of coconut per hectareduring 1996-97 and 1997-98

Cost per hectare(inRs)			
Concept of cost	1996-97	1997-98	% increase/ decrease
Cost 'A'	11142	13861	24
Cost 'B'	140844	170720	21
Cost 'C'	141382	171572	21

B. Value of product

The total value of output per hectareis seen Rs.29537/- during 1997-98

Value of output /hectare

Out put	Value (Rs.)
Product	27500
By product	2037
Total	29537

2.3 Arecanut

In Kerala Arecanut palm grows under different climate and soil conditions. The total area under arecanut cultivation during 1997-98 was 73351 hectare. The details of arecanut cultivation is given in the following table.

Area and average yield of Arecanut

Total cropped area (in Ha)	Area under Arecanut (In ha)	Average yield per hectare(Tons)	% of area under Arecanut to total cropped area
2969002	73351		2.47

From the above table it is seen that 2.5% of the total cropped area is under arecanut cultivation

Selected holdings

For the cost of cultivation of arecanut 380 holdings were selected during 1997-98. The details of these holdings in each size class are as follows.

Area under Arecanut during 1997-98

Holding size class	No. of selected holdings	Area under the crop in the sample(ha)	Percentage)	Area per holding (Ha)
Small	292	16.16	30.52	0.06
Medium	68	18.77	35.45	0.28
Large	20	18.02	34.03	0.90
Total	380	52.95	100.00	0.14

The total operational area of the selected holdings studied for the period under report was 52.95 hectare. The average size of holdings was 0.14 hectare.

A Cost of cultivation

The estimated cost of cultivation of arecanut under different cost concepts are given below:

Cost of cultivation per hectare of Arecanut during the year 1997-98

Sl. No	Components of different cost concepts	Cost per hectare (Rs.)	% Distribution of cost 'A'
1	Hired human labour	9391	44.91
2	Animal labour	22	0.10
3	Mechanic labour	836	4.13
4	Seed/seedlings	267	1.28
5	Farmyard, manure and chemical fertilizers	8408	40.21
6	Plant protection	538	2.57
7	Land tax and irrigation cess	59	0.28
8	Repair and maintenance charges	198	0.95
9	Interest on working capital	647	3.09
10	Other expenses	518	2.48
11	Cost 'A'(1 to 10)	20911	100.00
12	Interest on fixed capital	1779	
13	Cost 'B'(11+12)	22690	
14	Interest on land value	159809	
15	Cost 'B'(13+14)	182499	
16	Imputed value of Household labour	2323	
17	Cost C(15+16)	184822	

Labour cost accounts to a major component of cost 'A' in arecanut cultivation as in other crops. The per hectare cost estimated under this items is Rs.9391/- during 1997-98. The percentage of hired human labour hours engaged in arecanut cultivation to total labour hours is given below for male and female respectively.

Percentage distribution of hired human labour hours.

Sex	Holding size class			
	Small	Medium	Large	All size
Male	54.64	54.89	74.17	61.60
Female	8.40	13.14	5.37	8.97
Total	63.04	68.03	79.54	70.57

The proportion of hired human labour hours to total human labour hours is higher in large size class and lowest in small size class. Cultivators belonging to large size of holdings depends 80% of their requirement of labour in hired human labour.

The per hectare expenditure incurred towards the cost of seed/seedlings for new plantation is Rs.267/-. The cost towards farmyard manure and chemical fertilizers accounts to 40% of the total cost 'A'. The item of plant protection measures is Rs.538/- per hectare. Only a small percentage of total cost 'A' is accounted towards irrigation cess and land tax.

The estimated expenditure on repair and maintenance charges of implements machinery and buildings workout to Rs.198/- Interest on working capital and other expenses constitutes to 3% and 2% respectively.

Cost B1 and Cost B

Cost B1 is estimated by adding the interest on fixed capital to cost 'A'. It workout to Rs. 22690/- during 1997-98.

As in other crops interest on land value of arecanut cultivation also decreases as size class increases it is seen that Rs.159809/- per ha. Cost B is estimated by adding the interest on land value to cost B1 and it is worked out to Rs. 182499/-

When compared to other crops the per hectare cost of imputed value of household labour is higher in arecanut cultivation.

Cost 'C'

Cost 'C' is estimated by adding the imputed value of household labour to cost 'B'. It is estimated as Rs.184822/- during 1997-98.

B. Value of output

The value of output per hectare from arecanut cultivation is found to be Rs.49869/- during 1997-98

2.4 Banana

Banana is yet another food item of Keralites extensively cultivated in the State. The total area under ~~arecanut~~ ^{Banana} cultivation and the average yield per hectare for the year 1997-98 are given in the following table.

Area and average yield of Banana during 1997-98

Total cropped area (ha)	Area under Banana (ha)	Average yield per Ha (tones)	% of area under Banana to cropped area
2969002	31001	14.09	1.04

About 1% of the total cropped area was under ~~arecanut~~ ^{Banana} cultivation during the period 1997-98. The yield per hectare of Banana was 14.09 tones.

Selected holdings

During 1997-98 for the estimation of the cost of cultivation of Banana 181 holdings were selected for the study on cost of cultivation. The detail of these holdings in each size class is given in the following table.

Area and number of holdings selected

Size class	Area under the crop in the sample (ha)	No. of selected holdings	Percentage of selected holdings	Area per holding
Small	1128	127	35.82	0.09
Medium	17.85	52	56.77	0.34
Large	2.31	2	7.35	1.56
Total	31.44	181	100.00	0.17

The selected holdings had a total operational area of 31.44 hectare. The average size of holdings is 0.17 hectare.

Cost of cultivation of ~~arecanut~~ ^{Banana}

As in other crops the cost of cultivation of ~~arecanut~~ ^{Banana} is also estimated under three different concepts of cost (viz cost 'A' and cost 'B' cost 'C') the estimated cost of different items per hectare and their percentage distribution to the total cost 'A' is given in the following table

Cost of cultivation per hectare of ~~arecanut~~ ^{Banana} during the year 1997-98

Sl. No	Components of different cost concepts	Cost per hectare (Rs.)	% distribution of cost 'A'
1	Hired human labour	17320	28.53
2	Animal labour	15	0.03
3	Machine labour	652	1.07
4	Seed/seedlings	5306	8.74
5	Farmyard, manure and chemical fertilizers	18867	31.07
6	Plant protection	722	1.19
7	Land tax and irrigation cess	197	0.32

8	Repair and maintenance charges	1180	1.94
9	Interest on working capital	11063	18.22
10	Other expenses	5395	8.89
11	Cost 'A' (1 to 10)	60717	100.00
12	Interest on fixed capital	1624	
13	Cost 'B1' (11+12)	62341	
14	Interest on land value	124241	
15	Cost 'B' (13+14)	186582	
16	Imputed value of household labour	8612	
17	Cost C (15+16)	195194	

From the above table it is seen that labour cost is an important component of cost 'A'. It account to 29% when compared to paddy cultivation the proportion of labour cost to total cost 'A' is lower in the case of Banana cultivation. The percentage of hired human labour hours engaged in Banana cultivation to the total labour hours is given below.

Percentage distribution of hired human labour hours to total human hours

Sex	Holding size class			
	Small	Medium	Large	All size
Male	52.17	65.03	67.61	60.06
Female	6.16	9.96	12.99	8.58
Total	58.33	74.99	80.60	68.64

The percentage share of hired human labour hours to total human hours increased as size class increased. About 69% of the total human labour hours constituted for hired human labour and the remaining towards household labour hours. Female hired human labour is low in the case of Banana cultivation

For planting new plants Rs.5306/- is spent. About 31% of total cost 'A' accounted for farmyard manure and chemical fertilizers. Plant protection is yet another component of cost share to 2%. Land tax and irrigation cess, repair and maintenance charges etc. constitute to 0.32 and 2.0% respectively. The per hectare cost towards interest on working capital is Rs.5395/- and other expenses is Rs.11063/-

Cost 'B1'

Cost 'B1' is estimated by adding the interest on fixed capital (excluding land) to cost 'A'. It is Rs.62324/- during the year 1997-98. Interest on land value is showed in increasing trend, which is workedout to Rs.124241/-.

Cost 'B' and cost 'C'

Cost 'B' is estimated by adding the interest on land value to cost 'B1' and cost 'C' is estimated by adding the imputed value of household labour to cost 'B'. During this round cost 'B' is estimated as Rs.186582/- and cost 'C' is Rs.195194/-. The imputed value of household labour is Rs.8612/- per hectare.

B. Value of output

The value of output of Banana is found to be Rs.110515/- per hectare during the year 1997-98.

2.5 Pepper

Pepper is an important foreign exchange earner is largely produced from Kerala. The total area under pepper and average yield per hectare during the year 1996-97 are given in the following table

Area and Average yield of pepper

Area under pepper (ha)	Average yield of pepper kg/ha	% of area under pepper to the total cropped area
180370	255	6.07

It is seen that 6% of the gross area under crop in the state is under pepper cultivation

Selected holdings

During this round 190 holdings were selected for studying the cost of cultivation of pepper during the year 1997-98. The details are given below.

Area under pepper in the sample

Holding size class	No. of selected holdings	Total area under the crop (ha)	% to the total area of selected holdings	Area per holdings
Small	157	9.20	37.23	0.06
Medium	24	7.27	29.42	0.30
Large	9	8.24	33.35	0.92
All size	190	24.71	100.00	0.13

The operational area under the crop in the selected holdings is 24.71 hectare.

A. Cost of cultivation of pepper

The per hectare cost incurred under different components are given in the following table;

Cost of cultivation per hectare of pepper during the year 1997-98

Sl. No	Components of different cost concepts	Cost per hectare (Rs.)	% distribution of cost 'A'
1	Hired human labour	7903	52.85
2	Animal labour	6	0.04
3	Machine labour	130	0.87
4	Seed/seedlings	49	0.33
5	Farmyard, manure and chemical fertilizers	4841	32.37
6	Plant protection	126	0.84
7	Land tax and irrigation cess	47	0.31
8	Repair and maintenance charges	244	1.63
9	Interest on working capital	1333	8.91
10	Other expenses	276	1.85
11	Cost 'A' (1 to 10)	14955	100.00
12	Interest on fixed capital	1577	
13	Cost 'B' (11+12)	16532	
14	Interest on land value	115160	
15	Cost 'B' (13+14)	131692	
16	Imputed value of Household labour	1726	
17	Cost C (15+16)	133418	

Hired human labour cost, a major component of cost under pepper cultivation accounts to 53% of the total cost 'A' during this round. It showed increasing trend. The percentage of hired human labour hours engaged in pepper cultivation to the total labour hours is given below

Percentage distribution of hired human labour hours to total human labour hours

Sex	Holding size class			
	Small	Medium	Large	All size
Male	59	65	83	67
Female	11	15	13	13
Total	70	80	96	80

The percentage share of hired human labour hours to total human hours increased as size class increased. About 80% of total human labour hours constituted for hired human labour and the remaining towards house hold human labour hours. Female hired human labour is low in the case of pepper cultivation.

For planting new plants Rs.49/- is spent. About 32% of the total cost 'A' is accounted for farmyard manure and chemical fertilizers. Plant protection measures accounts nearly 1% of the total cost 'A'. Land tax and irrigation cess, repair and maintenance charges etc constitutes 0.31 and 1.63% respectively. The per hectare cost towards interest in working capital is Rs.1333/- and other expenses is Rs.276/-

Cost 'B1'

Cost 'B1' is estimated by adding the interest on fixed capital excluding land to cost 'A'. It is Rs. 16532/- during 1997-98. Interest on land value showed on increasing trend, which is worked out Rs.115160/-

Cost 'B' and 'C'

Cost 'B' is estimated by adding the interest on land value to cost 'B1' and cost C is estimated by adding the inputted value of house hold labour to cost 'B' During this round cost 'B' is Rs.131692 and cost 'C' is Rs.133418/-. The imputed value of household labour is Rs. 1726/- per hectare.

Value of output

The value of output is found to be Rs.64603/- per hectare during the year 1997-98.

2.6 Ginger

Ginger cultivation occupies an important place in the recent cropping pattern of the state. The area under this crop and its average yield per hectare of ginger is given below in the following table

Area and Average yield of ginger

Total cropped area (Ha)	Area under ginger (ha)	Average yield (ha)	% of area under ginger to total cropped area
2969002	12352	353	0.42

The total area under ginger cultivation during the year 1997-98 was 12352 hectare. The average yield per ha was 353 quintal. The percentage area of ginger cultivation to the total cropped area comes to 0.4%.

Selected holdings

The number of holdings selected for cost of cultivation study on ginger given below:

Number of holdings under Ginger cultivation

Holding size class	No. of selected holdings	Area under ginger (Ha)	%to total area	Area per holdings (ha)
Small	141	11.32	43.84	0.08
Medium	34	10.05	38.92	0.30
Large	2	4.45	17.24	2.23
All size	177	25.82	100.00	0.15

The total number of holdings selected for ginger cultivation during the year 1997-98 was 177. It covered an area of 25.82 hectare. The average area per holding was 0.15 hectare.

A. Cost of cultivation

The per hectare cost of cultivation details of ginger under different component of costs are given as follows

Cost of cultivation of per hectare of ginger during the year 1996-97

Sl. No	Components of different cost concepts	Cost per hectare(Rs.)	% distribution of cost 'A'
1	Hired human labour	14086	35.96
2	Animal labour	99	0.25
3	Machine labour	213	0.55
4	Seed/seedlings	10088	25.75
5	Farmyard, manure and chemical fertilizers	9378	23.94
6	Plant protection	567	1.45
7	Land tax and irrigation cess	99	0.25
8	Repair and maintenance charges	86	0.22
9	Interest on working capital	3544	9.05
10	Other expenses	1012	2.58
11	Cost 'A'(1 to 10)	39172	100.00
12	Interest on fixed capital	715	
13	Cost 'B'(11+12)	39887	
14	Interest on land value	82859	
15	Cost 'B'(13+14)	122746	
16	Imputed value of Household labour	4496	
17	Cost C(15+16)	127242	

The per hectare cost of hired human labour towards ginger cultivation constituted about 36% of the total cost 'A'. Animal labour and machine labour are used nominally i.e. 0.25 and 0.55 respectively. Seed and seedlings is an important input of ginger cultivation accounts 26% of the total cost 'A'. Farmyard, manure and chemical fertilizers are comes to 24% of the total cost 'A'. Cost incurred under plant protection; land tax and irrigation cess, repair and maintenance charge accounts to 1.45%, 0.25 and 0.22 respectively. Expenditure on working capital shared to 9% of the total cost 'A'

Percentage of Hired human labour hours engaged in Ginger cultivation

Holding size class	Male	Female	Total
Small	40	33	73
Medium	32	49	82
Large	32	46	78
All size	35	42	77

From the above tables about 77% of the total human labour hours is hired human labour.

Cost B1 and Cost B and Cost C

Cost B1 is obtained by adding the interest on fixed capital to cost 'A' and it is seen as Rs. 39887/-. Interest on land value is maximum in small size class and minimum in large size class. Cost B is estimated as Rs. 122746/- during the year 1997-98. The participation of household labour is maximum in small size class and minimum in large size class. Cost 'C' is estimated as Rs.127242/-.

The estimated per ha cost of cultivation of Ginger during the year 1997-98 is given below

Cost of cultivation of Ginger Rs. /ha for the year 1997-98

Concept of cost	Holding size class			
	Small	Medium	Large	All size
Cost 'A'	39710	41557	29033	39172
Cost 'B'	156468	105793	72292	122746
Cost 'C'	162780	109536	73870	127242

Output

The value of output is seen as Rs.54035/- per ha for ginger cultivation. The details for the different holding size class are given as follows

Value of product and by product per ha for the year 1997-98

Product and by product	Holding size class			
	Small	Medium	Large	All size
Product	60314	57357	30562	54035
By product	-	-	-	-
Total	60314	57357	30562	54035

2.7 Pine apple

Pine apple cultivation occupies an important place in the recent cropping pattern of the State. The area under this crop and its average yield per hectare is given in the following table.

Area and average yield of Pine apple during the year 1997-98

Total cropped area (ha)	Area under Pineapple (Hectare)	Average yield per hectare (qty)	% of area under Turmeric cultivation
2969002	9080	6149	0.31

The total area under pineapple cultivation during the year 1997-98 was 9080 hectare. The average yield per hectare was 6149 Kg. The percentage of area under pine apple cultivation to the total cropped area comes to 0.3%.

Selected holdings

The number of selected holdings for the cost study on cost of cultivation of Pineapple is 129. Details of holdings are given below.

Number of holdings under Pine apple cultivation

Size class	No. of selected holdings	Area under Pineapple (ha)	% to total area	Area per holdings (hectare)
Small	82	6.47	14.52	0.08
Medium	36	15.72	35.27	0.44
Large	11	22.38	50.21	2.03
All size	129	44.57	100.00	0.35

The total number of holdings selected for Pine apple cultivation during the year 1997-98 were 129. These holdings cover an area of 44.57 hectare. The average area per holding was 0.35.

A. Cost of cultivation details under different components of cost is given as follows.

Cost of cultivation per hectare of Pine apple during the year 1997-98

Sl. No	Components of different cost concepts	Cost per ha (Rs.)	% distribution of cost 'A'
1	Hired human labour	13527	38.62
2	Animal labour	27	0.08
3	Machine labour	614	1.75
4	Seed/seedlings	7274	20.77
5	Farmyard, manure and chemical fertilizers	8943	25.53
6	Plant protection	193	0.55
7	Land tax and irrigation cess	167	0.48
8	Repair and maintenance charges	29	0.08
9	Interest on working capital	3166	9.04
10	Other expenses	1084	3.10
11	Cost 'A'(1 to 10)	35024	100
12	Interest on fixed capital	635	
13	Cost 'B1'(11+12)	35659	
14	Interest on land value	137904	
15	Cost 'B'(13+14)	141473	
16	Imputed value of household labour	2810	
17	Cost C(15+16)	144283	

The per hectare cost towards Pine apple cultivation constituted about 39% of hired human labour to the total cost 'A'. Animal labour is negligible 0.08% in the pineapple cultivation machine labour issued nominally the per hectare cost towards this item is negligible ie. below 2% of the total cost 'A'. Seed/seedlings is an important input of Pineapple cultivation accounts to 21% of the total cost 'A'. Farm yard, manure and chemical fertilizers is another inputs comes to 26% of the total cost 'A'. Cost incurred under plant protection, land tax and irrigation cess, repair and maintenance charges, etc. accounts to only 1%. Expenditure towards interest on working capital shares to 9% of the total cost 'A'.

The percentage of hired human labour hours engaged in Pineapple cultivation during 1997-98 is given below.

Percentage of hired human labour hours engaged in Pineapple cultivation

Holding size class	Male	Female	Total
Small	53	8	61
Medium	43	26	69
Large	58	32	90
All size	55	29	84

From the above table it is seen that about 84% of the total human labour hours is hired human labours. The composition of work participation rate is also different from that of paddy cultivation etc.

Cost 'B1' and Cost 'B'

The cost B1 is obtained by adding the interest in fixed capital to cost 'A' and it is seen as Rs.35659. Interest on land value is maximum in the case of large holding size class and minimum in the case of medium size class. Considering this cost 'B' is estimated as Rs.141473 during 1997-98. The participation of household labour is maximum in small size class and minimum in the case of large size class.

The estimated per hectare cost of cultivation of Pineapple during the year,1997-98 is given below.

Cost of cultivation of Pineapple Rs./hectare for the year 1997-98

Concept of cost	Holding size class			
	Small	Medium	Large	All size
Cost 'A'	21123	22244	47886	35024
Cost 'B'	166902	131842	204472	141473
Cost 'C'	172004	135146	206298	144283

Output

The value of output is seen as Rs.59049 per hectare for Pineapple cultivation. The details for the different holding size class are given as follows.

Value of product and by product per hectare for the year 1997-98

Product and by product	Holding size class			
	Small	Medium	Large	All sizes
Pineapple	51957	42306	64956	55080
Kannu	1333	1618	6381	3969
Total	53290	43924	71337	59049

Chapter 3

Summary of findings

The data furnished in this report are collected through the cost of cultivation survey 1997-98. The crop covered in this report are paddy (Autumn, Winter and Summer), coconut, Arecanut, Banana, Pepper, Ginger and Pineapple. The summary of findings is discussed below:

1. Autumn paddy

The per hectare cost of cultivation when considered to cost 'A' during the year 1997-98 is Rs.15079/- compared to the previous year the cost 'A' has increased by 19%. The percentage increase of cost 'B' and cost 'C' is being -2%

2. Winter paddy

The estimated per hectare cost of cultivation winter paddy of cost 'A' is rs.15078/- during the period under review. When cost 'A' is considered. Hired human labour constitute 56% of the total cost 'A'. Cost 'B' and cost 'C' during 1997-98 is estimated to be Rs.32959 and Rs. 33702/- respectively.

3. Summer paddy

The component of cost 'A' relating to the summer paddy cultivation is Rs.14510/- when compared to the previous year the cost 'A' has increased to 14% cost 'B' and cost 'C' has increased by 7% and 8% respectively.

4. Coconut

The per hectare cost of cultivation of coconut is Rs.13861/- towards cost 'A', Cost 'B' and cost 'C' is Rs.170720/- and Rs.171572/-respectively. Hired human labour constitutes to 52% of the total cost 'A'.

5. Aracanut

The component of cost 'A' relating the arecanut cultivation is Rs. 20911/- as cost 'A'. The value of output per ha from Arecanut cultivation is found to be Rs.49869/- during the year 1997-98

6. Banana

The cash and other kind expenses incurred for Banana cultivation is Rs.60717 (cost A). Out of this hired human labour cost shares to 28.5%. The per hectare value of output of Banana during the year 1997-98 is Rs.110515/-.

7. Pepper

During this round 190 holding s were selected for studying the cost of cultivation of pepper during this year 1997-98. Cost 'A' per hectare comes to Rs.14955/-. The percentage share of hired human labour cost is 53%. The value of pepper is found to be Rs.64603/- per hectare during the year under review.

8. Ginger

The total number of holdings selected for ginger cultivation were 177 Nos. The per hectare cost of ginger cultivation is Rs.39172/- (cost A). The value of output is seen to be as Rs.54035/- per hectare.

9. Pineapple

The total number of holdings selected for pineapple cultivation were 129. The per hectare cost for pineapple cultivation Rs.35024/- as cost 'A'. The value of output is seen as Rs.59049/- per hectare for Pineapple cultivation.

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Appendix -1

Cost of cultivation per hectare of Autumn Paddy 1997-98 (in Rs.)

Sl. No	Components of different cost concepts	Holding size class			
		Small	Medium	Large	All size
1	2	3	4	5	6
1	Hired human labour	9928	8627	8139	8763
2	Animal labour	1535	738	249	757
3	Machine labour	971	1042	935	989
4	Seed/seedlings	944	874	912	903
5	Farmyard, manure and chemical fertilizers	2545	2335	1872	2224
6	Plant protection	152	154	289	200
7	Land tax and irrigation cess	26	23	37	28
8	Repair and maintenance charges	287	152	214	217
9	Interest on working capital	813	699	643	706
10	Other expenses	178	218	462	292
11	Cost 'A'(1 to 10)	17379	14862	13749	15079
12	Interest on fixed capital	1051	355	465	839
13	Cost 'B1' (11+12)	18430	15217	14214	15918
14	Interest on land value	22724	19266	14326	18525
15	Cost 'B'(13+14)	41154	34483	28540	34443
16	Imputed value of H.H.labour	1609	741	376	777
17	Cost 'C'(15+16)	42763	35124	28916	35220

Appendix - 2

Cost of cultivation per hectare of Winter paddy 1997-98 (in Rs.)

Sl. No	Components of different cost concepts	Holding size class			
		Small	Medium	Large	All size
1	2	3	4	5	6
1	Hired human labour	10208	8532	7480	8484
2	Animal labour	1224	689	313	659
3	Machine labour	1050	1226	1207	1182
4	Seed/seedlings	975	824	813	851
5	Farmyard, manure and chemical fertilizers	2515	2316	2158	2298
6	Plant protection	274	212	366	283
7	Land tax and irrigation cess	28	33	111	61
8	Repair and maintenance charges	216	269	158	224
9	Interest on working capital	823	699	645	704
10	Other expenses	217	183	560	332
11	Cost 'A'(1 to 10)	17530	14983	13811	15078
12	Interest on fixed capital	917	1003	457	838
13	Cost 'B1' (11+12)	18447	15986	14268	15916
14	Interest on land value	20995	19019	12350	17043
15	Cost 'B'(13+14)	39442	35005	26618	32959
16	Imputed value of H.H.labour	1667	655	331	743
17	Cost 'C'(15+16)	41109	35660	26949	33702

Appendix -3

Cost of cultivation per hectare of Summer paddy 1997-98 (in Rs.)

Sl. No	Components of different cost concepts	Holding size class			
		Small	Medium	Large	All size
1	2	3	4	5	6
1	Hired human labour	10881	10179	10018	10220
2	Animal labour	779	560	429	528
3	Machine labour	823	1048	1099	1030
4	Seed/seedlings	802	924	898	787
5	Farmyard, manure and chemical fertilizers	3175	2576	2954	3012
6	Plant protection	225	306	461	342
7	Land tax and irrigation cess	207	297	223	247
8	Repair and maintenance charges	187	215	56	151
9	Interest on working capital	645	647	706	672
10	Other expenses	222	481	345	369
11	Cost 'A'(1 to 10)	17946	17233	17189	17358
12	Interest on fixed capital	857	834	508	748
13	Cost 'B1' (11+12)	18803	18067	17697	18106
11	Interest on land value	21183	12751	9340	13232
15	Cost 'B'(13+14)	39986	30818	27037	31338
16	Imputed value of H.H.labour	1811	605	308	907
17	Cost 'C'(15+16)	41797	31423	27345	32245

Appendix -4

Cost of cultivation per hectare of Coconut 1997-98 (in Rs.)

Sl. No	Components of different cost Concepts	Size class			
		Small	Medium	Large	All size
1	2	3	4	5	6
1	Hired human labour	8767	7249	6988	7200
2	Animal labour	4	38	38	35
3	Machine labour	305	53	148	128
4	Seed/seedlings	9	8	3	5
	Farmyard, manure and chemical fertilizers	5471	4387	4462	4509
6	Plant protection	18	30	10	17
7	Land tax and irrigation cess	56	53	35	41
8	Repair and maintenance charges	362	361	112	245
9	Interest on working capital	1504	1216	1212	1234
10	Other expenses	462	396	472	447
11	Cost 'A'(1 to 10)	16958	13792	13480	13861
12	Interest on fixed capital	1822	1783	1462	1639
13	Cost 'B1' (11+12)	18780	15575	14942	15500
14	Interest on land value	178059	162487	148538	155220
15	Cost 'B'(13+14)	196839	178062	163480	170720
16	Imputed value of H.H.labour	2356	1127	523	852
17	Cost 'C' (15+16)	199195	179189	164003	171572

Appendix- 5

Cost of cultivation per hectare Arecanut – 1997-98 (in Rs.)

Sl. No	Components of different cost Concepts	Holding size class			
		Small	Medium	Large	All size
1	2	3	4	5	6
1	Hired human labour	8631	8318	11190	9391
2	Animal labour	17	32	17	22
3	Machine labour	866	1185	1530	863
4	Seed/seedlings	184	105	511	267
5	Farmyard, manure and chemical fertilizers	5510	9394	10269	8408
6	Plant protection	162	538	876	538
7	Land tax and irrigation cess	55	73	48	59
8	Repair and maintenance charges	215	126	263	198
9	Interest on working capital	752	552	650	647
10	Other expenses	501	374	683	518
11	Cost 'A' (1 to 10)	16893	20697	26037	20911
12	Interest on fixed capital	1379	2263	3012	1779
13	Cost 'B1' (11+12)	18272	22960	29049	22690
14	Interest on land value	185744	136344	160550	159809
15	Cost 'B' (13+14)	204016	159304	189599	182499
16	Imputed value of H.H.labour	3428	2847	788	2323
17	Cost 'C' (15+16)	207444	162151	190387	184822

Appendix - 6

Cost of cultivation per Hectare of Banana 1997-98 (in Rs.)

Sl. No	Components of different cost Concepts	Holding size class			
		Small	Medium	Large	All size
1	2	3	4	5	6
1	Hired human labour	17060	17970	13574	17320
2	Animal labour	25	11	-	15
3	Machine labour	1370	283	455	652
4	Seed/seedlings	5989	5056	3896	5306
5	Farmyard, manure and chemical fertilizers	20620	17012	24209	18867
6	Plant protection	716	703	896	722
7	Land tax and irrigation cess	366	109	49	197
8	Repair and maintenance charges	2290	539	701	1180
9	Interest on working capital	5440	5261	6208	5395
10	Other expenses	8621	11574	19048	11063
11	Cost 'A' (1 to 10)	62497	58518	69036	60717
12	Interest on fixed capital	1932	1001	2442	1624
13	Cost 'B1' (11+12)	64429	59519	71478	62341
14	Interest on land value	117819	131898	97071	124241
15	Cost 'B' (13+14)	182248	191417	168549	186582
16	Imputed value of household labour	12127	7130	2896	8612
17	Cost 'C' (15+16)	194375	198547	171445	195194

Appendix-7

Cost of Cultivation per hectare of Pepper 1997-98 (in Rs.)

Sl. No	2 Components of different cost concepts	Holding size class			
		Small	Medium	Large	All size
1	2	3	4	5	6
1	Hired human labour	8064	8449	7240	7903
2	Animal labour	16	-	-	6
3	Machine labour	211	176	-	130
4	Seed/seedlings	36	79	36	49
5	Farmyard, manure and chemical fertilizers	4750	3840	5797	4841
6	Plant protection	69	144	174	126
7	Land tax and irrigation cess	31	42	70	47
8	Repair and maintenance charges	236	349	81	244
9	Interest on working capital	1346	1306	1340	1333
10	Other expenses	317	368	148	276
11	Cost 'A' (1 to 10)	15076	14753	14886	14955
12	Interest on fixed capital	1581	1766	1150	1577
13	Cost 'B1' (11+12)	16657	16519	16036	16532
14	Interest on land value	156461	101921	80728	115160
15	Cost 'B' (13+14)	173118	118440	96764	131692
16	Imputed value of household labour	2955	1894	206	1726
17	Cost 'C' (15+16)	176073	120334	96970	133418

Appendix -8

Cost of cultivation per hector of Ginger - 1997-98

Sl. No	Components of different cost concepts	Holding size class			
		Small	Medium	Large	All size
1	2	3	4	5	6
1	Hired human labour	14391	15850	7953	14086
2	Animal labour	60	186	-	99
3	Machine labour	136	323	191	213
4	Seed/seedlings	9532	10455	10678	10088
5	Farmyard, manure & chemical fertilizers	9980	10940	4317	9378
6	Plant protection	347	315	1697	567
7	Land tax and irrigation cess	76	89	180	99
8	Repair and maintenance charges	105	46	8	86
9	Interest on working capital	3594	3038	2639	3544
10	Other expenses	1489	315	1370	1012
11	Cost 'A'(1 to 10)	39710	41557	29033	39172
12	Interest on fixed capital	784	554	562	715
13	Cost 'B1' (11+12)	40494	42111	29595	39887
14	Interest on land value	115674	63682	42697	82859
15	Cost 'B'(13+14)	156468	105793	72292	122746
16	Imputed value of household labour	6312	3743	1578	4496
17	Cost 'C'(15+16)	162780	109536	73870	12724

Appendix-9

Cost of cultivation per hectare of Pineapple – 1997-98 (in Rs.)

Sl. No	Components of different cost concepts	Holding size class			
		Small	Medium	Large	All size
1	2	3	4	5	6
1	Hired human labour	8906	8032	18740	13527
2	Animal labour	-	76	-	27
3	Machine labour	57	54	1168	614
4	Seed/seedlings	4454	4541	10009	7274
5	Farmyard, manure and chemical fertilizers	4976	5627	12446	8943
6	Plant protection	23	91	313	193
7	Land tax and irrigation cess	82	318	86	167
8	Repair and maintenance charges	57	13	14	29
9	Interest on working capital	1360	1992	4344	3166
10	Other expenses	1208	1500	766	1084
11	Cost 'A' (1 to 10)	21123	22244	47886	35024
12	Interest on fixed capital	794	646	394	635
13	Cost 'B' (11+12)	21917	22890	48280	35659
14	Interest on land value	144985	108952	156192	137904
15	Cost 'B' (13+14)	166902	131842	204472	141473
16	Imputed value of household labour	5102	3304	1826	2810
17	Cost 'C' (15+16)	172004	135146	206298	144283

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