Government of Kerala

Cost of Cultivation of Important Crops in Kerala 1995-96

DEPARTMENT OF ECONOMICS & STATISTICS
THIRUVANANTHAPURAM
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Preface

To achieve competitiveness in the international market is a real challenge to our rural economy. The impact of reduction of tariffs and quantitative restrictions on imports is very high on our agricultural products. Achieving export growth and integration with the world economy will be a tedious task to our State. The time series data on cost of cultivation of important crops in the State are required for administering agricultural development schemes, drawing up programmes for the diversification of cropping pattern with a view to meet the socio-economic needs of the community and to maximise the income from farming.

This report is based on the 16th round of the survey on cost of cultivation of Important Crops conducted during 1995-96. The crops covered during this round are Paddy (3 seasons), Coconut, Arecanut, Tapioca, Pepper, Ginger and Turmeric. 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 this department. Suggestions for improvement are solicited.

A. Meera Sahib
Director

Thiruvananthapuram,
16th April 2001

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Chapter – 1

General

1.1 Introduction

Agriculture being the primary occupation of the community, maximisation 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 and loss of cultivation of a crop is also determined by 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 the scheme for an annual survey on cost of cultivation of important crops in Kerala. The present report relates to the 16th round of survey conducted during 1995-96.

The crop covered during the period under study is given below.

1. Paddy (3 seasons)
2. Coconut
3. Arecanut
4. Tapioca
5. Pepper
6. Ginger
7. Turmeric

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	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 from 1-7-95 to 30-6-96.

1.5 Design of the Survey

The survey covered all the districts of Kerala by selecting 38 taluks, which are important growing centres of the 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 season 10 cultivators will be selected at random for the current years cost of cultivation study in Autumn paddy. Similar procedure is adopted for the selection of cultivations for winter and summer paddy respectively by preparing a list of paddy growing plots in winter and summer of the previous EARAS round in the zone.

In case of cultivators selected for cost of cultivation study in Autumn paddy possess suitable number of plots with other specified crops is stipulated area, they may be selected for the cost of cultivation study on other crops like Coconut, Arecanut, Tapioca, 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 crops 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.	Tapioca		5	(Minimum 2 holdings in one Investigator zone)
5.	Pepper		5	-do-
6.	Ginger		5	-do-
7.	Turmeric		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, tapioca and minor crops ie. ginger and turmeric. In the case of perennial crops like coconut, arecanut, pepper the holding should have 25 trees/plant with at least 50% bearing. If these criteria for the selection are 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 ≥ - Grater than or equal to

1.6 Schedules:

Three schedules were designed for the survey

Schedule I	This schedule is used for listing the plots for selection of holdings and recording the details of the selected holdings.
Schedule II	This schedule is used for recording details of the cultivator's households, 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

Field work 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/Statistical Inspector 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 schedules includes

I. hired human labour
II. animal labour
III. machine labour
IV. seed/seedlings
V. farmyard manure
VI. chemical fertilizers
VII. plant protection
VIII. land tax
IX. Irrigation cess
X. Repair and maintenance charges of implements machinery and buildings
XI. Interest in working capital
XII. Other expenses.

Cost B1	Cost "A" + Interest on fixed capital (excluding land)
Cost B	Cost 'B1" + Interest on land value
Cost C	Cost 'B' + inputted 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 have 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 exchange animal labour	The changes paid per hour for hired animal labour is taken for imputing the value of owned and exchange 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 production (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 in fixed capital	Interest in the present value of fixed assets such as land, farm, building, implements, machinary, irrigation structure equipments and live stock (only working animals) at the rate of 10% per annum has been calculated(for paddy it is 5%).
IX.	Interest in working capital	Interest has been charged at the rate of 10% per annum(5% for paddy) on the working capital, cash, 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 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 working 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 assessing the land value. The land value is increasing considerably. If the actual value is taken for calculating the interest in land value, no cultivation in the State will be profitable.

Chapter II

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 1995-96.

Table 1 – Area under paddy during 1995-96

Total cropped area (in lakh Hectare.)	Area under paddy (in lakh hectare)			
	Autumn	Winter	Summer	Total
30.67	1.87 (6.10)	2.25 (7.34)	0.60 (1.96)	4.72 (15.39)

Source: Agricultural Statistics of Kerala 1995-96

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 seasons to the total gross area under paddy.

Table 2 - Percentage of area under paddy in each season to the gross area under paddy 1995-96

Percentage of area under paddy			
Autumn	Winter	Summer	Total
39.62	47.67	12.71	100

From the above table it is seen that 87% of the paddy are in autumn and winter seasons.

The rice production in the State during the year under study stood at 9.53 lakh tonnes and its productivity of three seasons are given below.

Table 3 – Production of rice during the year 1995-96 (in lakh tonnes)

Season	Production of rice (lakh tones)	Percentage
Autumn	3.44	36.10
Winter	4.58	48.06
Summer	1.51	15.84
Total	9.53	100.00

Table 4 – Average productivity of paddy during 1995-96

Season	Average Productivity (kg/ha)
Autumn	1844
Winter	2039
Summer	2519

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

Out of the total irrigated cropped area 69% 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
234409	342193	68.5

(i) Autumn paddy

The total number of holdings selected for the cost of cultivation study on autumn paddy were 370 nos. They were scattered in all 38 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 1995-96

Holding size class	No. of selected holdings	Area under the crop in the sample (Hectare)	Percentage	Area per holding (hectare)
Small	200	46.53	17.85	0.23
Medium	135	105.55	40.50	0.78
Large	35	108.53	41.65	3.10
Total	370	260.61	100.00	0.70

The holdings under report had a total operational area of 260.61 Hectare and the average size of holding was 0.70 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 1995-96

Sl. No	Component of different cost concept	Cost per hectare	Percentage distribution of cost
1	Hired human labour	6590	57.24
2	Animal labour	484	4.20
3	Machine labour	743	6.45
4	Seed/Seedlings	755	6.56
5	Farmyard, manure and chemical fertilizers	1975	17.16
6	Plant protection	153	1.33
7	Land fax and irrigation cess	20	0.17
8	Repair and maintenance charges	72	0.63
9	Interest on working capital	544	4.73
10	Other expenses	176	1.53
11	Cost A (1 to 10)	11512	100.00
12	Interest on fixed capital	598	
13	Cost B1 (11+12)	12110	
14	Interest on land value	16391	
15	Cost B (13+14)	28501	
16	Imputed value of household labour	505	
17	Cost C (15+16)	29006	

The share of hired human labour during the year 1995-96 to the total cost 'A' in autumn paddy cultivation was 57%. Animal labour and machine labour constituted to 4% and 6% 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 illustrate 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	26.62	20.89	17.03	20.64
Female	62.94	71.97	78.92	72.69
Total	89.56	92.86	95.95	93.33

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 class are seen to depend for more than 93% of their requirements on hired human labour. The cost of hired human labour per hectare works out to Rs.6590/-

Seed and seedlings is an important input of paddy cultivation per hectare as estimated from the survey is 7% of the total cost 'A'. For paddy cultivation home produced manure, chemical fertilizers are used, the cost of which was Rs.1975/- per hectare during this round. When compared to the previous year, the estimated cost of organic manure and chemical fertilizers per hectare is seen decreased.

It is noted that the per hectare cost towards plant protection measures is remain the same. While the cost per hectare in 1994-95 was Rs.153/per hectare and also the same in 1995-96 ie. Rs.153/-. The percentage share of land tax and irrigation cess is nominal is below 1%. Expenditure on repair and maintenance charges of implements and machinery varies from year to year and from size class to size class. It is worked out to Rs.72/- during 1995-96. It seems to be decreasing as size class increasing. Interest on working capital was Rs.544/- per hectare and other expenses was Rs.176/- during 1995-96.

Cost 'B1'

Cost 'B1' is estimated by adding the interest on fixed capital (excluding land) to cost 'A'. The estimated interest on fixed capital for 1995-96 is Rs.598/- and cost 'B', is Rs.12110/-

When compared to the previous year interest on land value increased to Rs.16391 during this year 1995-96. In 1994-95 it was Rs. 11609/-.

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.16391/- and imputed value of household labour was Rs.505/- during the year 1995-96. Cost B is estimated to be Rs.28501/- and Cost 'C' is Rs.29006/- 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 1994-95 and 1995-96

Concept of cost	Year	Holding size class			
		Small	Medium	Large	All size
Cost A	1994-95	12253	10048	12040	11152
	1995-96	13406	11501	10946	11512
Cost B	1994-95	24460	24590	18091	23274
	1995-96	30486	30739	25648	28501
Cost C	1994-95	25249	24978	18313	23742
	1995-96	31481	31298	25878	29006

Compared to the previous year the cost 'A' has increased by 3.2% during 1995-96. The percentage increase of cost 'B' and cost 'C' are being 22.5% and 22.2% respectively.

B. Output

The value of product and by product of autumn paddy cultivation for the year 1995-96 is given on the following table.

Table 10 – Value of product and by product per hectare (in Rs.) during 1995-96

Product and by product	Holding size class			
	Small	Medium	Large	All size
Paddy	11601	11631	12911	12121
Straw	2511	1918	1153	1706
Total	14112	13549	14064	13827

During the year 1995-96 the per hectare value of output is estimated to Rs.13827/- which is more than the value of output for 1994-95. 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. In 1994-95 the value of product has been steadily decreased due to unfavorable climate conditions.

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

1990-91	1991-92	1992-93	1993-94	1994-95	1995-96
7259	8139	10090	9417	9024	12121

C. Cost of production of paddy per Qtl.

The cost of production of paddy per qtl. is estimated by dividing the cost of cultivation per hectare (after deducting the value of byproduct 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 qtl. During Autumn season (in Rs.)

Concept of cost	Holding size class			
	Small	Medium	Large	All sizes
Cost 'A'	495	417	363	409
Cost 'B'	1272	1253	907	1116
Cost 'C'	1317	1277	916	1138

When cost 'A' is considered the cost of production of paddy per qtl of Rs.409/- 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 qtl. of autumn paddy during 1994-95 and 1995-96 (in Rs.)

Concept of cost	1994-95	1995-96	Percentage of increase/decrease
Cost 'A'	490	409	-16.5
Cost 'B'	1144	1116	-2.4
Cost 'C'	1138	1138	0

11. 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 class of holdings are given below.

Table 14 – Area under winter paddy during 1995-96

Holding size class	No. of selected holdings	Area under the crop in the sample (Hectare)	Percentage	Area per holding (hectare)
Small	190	46.44	15.80	0.24
Medium	142	105.74	35.96	0.74
Large	48	141.81	48.24	2.95
Total	380	293.99	100.00	0.77

The total operated area of the selected holdings is 293.99 hectare. The average size of a sample holdings is 0.77 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 1995-96

Sl. No	Component of different cost concept	Cost per hectare (Rs.)	Percentage distribution of cost 'A'
1	Hired human labour	6795	55.70
2	Animal labour	903	7.40
3	Machine labour	781	6.40
4	Seed/seedlings	757	6.20
5	Farm yard, manure & chemical fertilizers	1827	14.97
6	Plant protection	196	1.60
7	Land tax and irrigation cess	51	0.41
8	Repair and maintenance charges	94	0.77
9	Other expenses	574	4.74
10	Other expenses	220	1.80
11	**Cost 'A' (1 to 10)**	**12198**	**100.00**
12	Interest on fixed capital	676	
13	**Cost B1 (11+12)**	**12874**	
14	Interest on land value	12609	
15	**Cost 'B' (13+14)**	**25483**	
16	Imputed value of household labour	846	
17	**Cost 'C' (15+16)**	**26329**	

The share of hired human labour during 1995-96 to the total cost 'A' in winter paddy was 56%, Animal labour 7% and machine labour 6%. Human labour cost which is the major component of the paddy cultivation consist of hired human labour, exchange labour and family labour. Among these irrespective of the size class holdings hired human labour formed the major portion.

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

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

Sex	Holding size class			
	Small	Medium	Large	All sizes
Male	27	22	15	20
Female	62	66	69	66
Total	89	88	84	86

Out of the total human labour hours employed in winter paddy cultivation 86% 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 labours 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.784/- per hectare which is 6% of the total cost A. Farmyard 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.196/- per hectare. The percentage share forwards 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.574/-.

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.12874/-.

Cost 'B' is estimated to be Rs.25483/- 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.26329/-.

The estimated cost for the 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 sizes
Cost A	14379	13535	10507	12198
Cost B	31409	28536	21370	25483
Cost C	32438	29239	22263	26329

Cost of cultivation of winter paddy for 1994-95 and 1995-96 are given below.

Table 18 – Cost of cultivation of winter paddy (Rs./hectare) for 1994-95 and 1995-96

Concept of cost	Year	Holding size class			
		Small	Medium	Large	All sizes
Cost A	1994-95 1995-96	13061 14379	10192 13535	9451 10507	11054 12198
Cost B	1994-95 1995-96	13759 31409	10678 28536	9759 21370	11619 25483
Cost C	1994-95 1995-96	14765 32438	11043 29239	9859 22263	12157 26329

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 sizes
Paddy	13131	14623	13986	14080
Straw	4278	3939	2767	3427
Total	17409	18562	16753	17507

C. Cost of production of paddy per qtl.

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 sizes
Cost A	404	343	287	325
Cost B	1085	878	689	817
Cost C	1126	904	722	848

The cost of production of winter paddy per qtl. for 1994-95 and 1995-96 are presented below for comparison.

Table 21 – Cost of production of winter paddy per/qtl. (Rs) for 1994-95 and 1995-96

Concept of cost	Year		Percentage of increase
	1994-95	1995-96	
Cost A	308	325	5
Cost B	774	817	6
Cost C	795	848	7

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 331 during 1995-96. The details of the holdings are given below.

Area under summer paddy during 1995-96

Holding size class	No. of selected holdings	Area under the crop in the sample (Hectare)	Percentage	Area per holdings
Small	204	42.77	20.74	0.21
Medium	94	66.64	32.32	0.71
Large	33	96.79	46.94	2.93
Total	331	20620	100.00	0.62

The holdings selected during the period under report have a total operational area of 206.20 hectare. The average size of holdings was 0.62 hectare.

A. Cost of cultivation

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

Cost of cultivation per hectare of summer paddy for the year 1995-96

Sl. No	Component of different cost concept	Cost per hectare	Percentage distribution of cost 'A'
1	Hired human labour	7850	51.67
2	Animal labour	558	3.67
3	Machine labour	1838	12.10
4	Seed/seedlings	909	5.98
5	Farm yard, manure & chemical fertilizers	2046	13.47
6	Plant protection	440	2.90
7	Land tax and irrigation cess	66	0.43
8	Repair and maintenance charges	216	1.42
9	Other expenses	710	4.67
10	Other expenses	560	3.69
11	**Cost 'A' (1 to 10)**	**15193**	**100.00**
12	Interest on fixed capital	568	
13	**Cost B1 (11+12)**	**15761**	
14	Interest on land value	11554	
15	**Cost 'B' (13+14)**	**27315**	
16	Imputed value of household labour	710	
17	**Cost 'C' (15+16)**	**28025**	

From the above table it is seen that about 67% 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. This is due to the decrease in the quantum of work done in summer paddy cultivation due to higher wage rate.

The percentage of hired human labour hours enged in the summer paddy cultivation during the year 1995-96 is given below.

Percentage of hired human labour hours engaged in summer paddy cultivation

Holding size class	Male	Female	Total
Small	24.94	61.50	86.44
Medium	22.58	70.91	93.49
Large	17.82	80.58	98.40
All size	21.14	72.60	93.74

During this round about 94% of the total human labour hours is hired human labour. The cost of seed/seedlings per hectare is found to be Rs.909/- during this year. It is seen that 13% of the total cost 'A' accounts to Farm yard manure and chemical fertilizers. The expenditure towards plant protection measures estimated to 3% of the total cost 'A'. Only a small percentage is expended 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.216/- during the period under report. About 5% of the cost "A' account for interest on working capital.

Cost 'B1" and cost 'B'

Cost B1 is obtained by adding the intesrest on fixed capital (excluding land) to cost 'A'. The interest on fixed capital is estimated to Rs.710/- and cost B1 is found to be Rs.15761/- for summer paddy cultivation. As usual the imputed value of household labour is maximum in the small size class and minimum in large size class. The interest on land value is found to be Rs.11554/- during the year and cost 'B' is estimated to be Rs.27315/- cost 'C' showed an increasing trend from Rs.25723/- to Rs.28025/- during this year.

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

Cost of cultivation of summer paddy Rs/ha for the year 1994-95 and 1995-96

Concepts of cost	Holding size class				
	Year	Small	Medium	Large	All sizes
Cost 'A'	1994-95	13503	13282	14648	13032
	1995-96	14967	14316	14473	15193
Cost 'B'	1994-95	28058	23919	21630	24981
	1995-96	34589	26646	23100	27315
Cost 'C'	1994-95	29321	24378	21675	25723
	1995-96	36175	27160	23556	28025

When compared to the previous years the cost "A" has increased to 17% cost 'B' by 51% and cost 'C' by 50%.

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 1994-95

Product/by product	Holding size class			
	Small	Medium	Large	All size
Paddy	15289	16857	18433	17288
straw	3860	6086	1661	3550
Total	19149	22943	20094	20838

C. Cost of production of paddy per qtl.

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 Qtl.

Concept of Cost	Holding SizeClass			
	Small	Medium	Large	All Size
Cost 'A'	370	249	346	342
Cost 'B'	1024	623	579	699
Cost 'C'	1077	639	592	720

A comparison between the cost of production during the year 1994-95 and 1995-96 is given in the following table.

Cost of production of paddy per quintal during the year 1994-95and 95-96

Concept of cost	1994-95	1995-96
Cost 'A'	353	342
Cost 'B'	751	699
Cost 'C'	776	720

2.2 Coconut

Coconut is an important tree crop of the state which is cultivated in 9.14 lakh hectare during the year 1995-96. 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 1995-96

Area under coconut (hectare)	% to total cropped area	Average yields per hectare (No. of nuts)
914370	29.81	5155

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 5155 numbers.

For the survey on cost of cultivation 380 numbers of coconut holdings were selected for the year 1995-96. 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 (hectare)	Percentage	Area per holdings(Ha)
Small	101	15.29	6.55	0.15
Medium	181	78.22	33.52	0.43
Large	98	139.84	59.93	1.43
All size	380	233.35	100.00	0.61

The selected holdings had a total area of 233.35 ha. of operational area during the year 1995-96. The average size of holdings was 0.61 ha.

Number of bearing trees in the selected plots

Out of the total coconut trees in the selected plots 72.78% was found to be bearing and the remaining non-bearing. The number of bearing and non –bearing trees per hectare for the year 1995-96 is given below

Number of bearing and non-bearing trees per hectare

Type of trees	No. of trees per hectare	Percentage
Bearing	176	72.73
Non-bearing	66	27.27
Total	242	100.00

A. Cost of cultivation

The cost of cultivation of coconut is estimated under the four different concepts of cost viz, cost 'A''B1''B' and 'C'.

Cost 'A' consists of cash and other kind expenses and is worked out to Rs.10760/- per hectare during 1995-96. 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 1995-96

Sl. No	Components of different cost concepts	Cost per hectare (Rs.)	% distribution of cost 'A'
1	Hired human labours	5182	48.16
2	Animal labour	33	0.30
3	Machine labour	217	2.02
4	Seed/seedlings		
5	Farmyard, manure and chemical fertilizers	3629	33.73
6	Plant protection	141	1.31
7	Land tax and irrigation cess	38	0.35
8	Repair and maintenance charges	162	1.51
9	Interest on working capital	960	8.92
10	Other expenses	398	3.70
11	Cost 'A'(1 to 10)	10760	100.00
12	Interest on fixed capital	1175	
13	Cost 'B' (11+12)	11935	
14	Interest on land value	115228	
15	Cost 'B'(13+14)	127163	
16	Imputed value of H.H.labour	598	
17	Cost C(15+16)	127761	

Labour cost is the major component of cost 'A' which includes hired human labour animal labour and machine labour. It works out to Rs.5432/-. 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	Lasrge	All size
Male	62.42	72.92	74.43	72.92
Female	7.64	8.71	16.15	12.80
Total	70.06	81.63	90.58	85.72

When compared to the paddy cultivation female participation is lowest in coconut cultivation. About 86% of the total human labour hours has been shared by hired human labour. For planting new seed/seedlings no amount is spent during this period.

Application of farmyard, manure and chemical fertilizers constitute a major share ie 34% 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. 960/-

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. 11935/-

Interest on land value is increased from Rs.87417/- to Rs. 115228/- 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.127761/-

Cost of cultivation of coconut per hectare during 1994-95 and 1995-96

Concept of cost	Cost per hectare (in Rs)		
	1994-95	1995-96	% increase/ decrease
Cost 'A'	8999	10760	20
Cost 'B'	97467	127163	30
Cost 'C'	98081	127761	30

B. Value of product

The total value of output per hectare is seen Rs.24989/- during 1995-96

Value of output /hectare

Out put	Value (Rs.)
Product	23806
By product	1183
Total	24989

2.3 Arecanut

In Kerala Arecanut palm grows under different climate and soil conditions. The total area under aracanut cultivation during 1995-96 was 70899 hectare. The details of arecanut cultivation is given in the following tables

Area and average yield of Arecanut

Total cropped area (in lakh/ha)	Area under Arecanut (In ha)	Average yiled per ha (Nos Millions)	% of area under Arecanut to total cropped area
30.67	70899	17429	2.31

From the above table it is seen that 2.31% of the total cropped are is under arecanut cultivation

Selected holdings

For the cost of cultivation of arecanut 380 holdings were selected during 1995-96. The details of these holdings in ecah size class as follows.

Area under Arecanut during 1995-96

Holding size class	No. of selected holdings	Area under the crop in the sample(ha)	Percentage	Area per holding (Ha)
Small	296	15.81	24.64	0.05
Medium	59	20.68	32.23	0.35
Large	25	27.67	43.13	1.73
Total	380	64.16	100.00	0.17

The total operational area of the selected holdings studied for the period under report was 64.16 ha The average size of holdings was 0.17 ha

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 1995-96

Sl. No	Components of different cost concepts	Cost per hectare (Rs.)	% distribution of cost 'A'
1	Hired human labours	7432	42.59
2	Animal labour	20	0.11
3	Machine labour	703	4.03
4	Seed/seedlings	24	0.14
5	Farmyard, manure and chemical fertilizers	5633	32.28
6	Plant protection	466	2.56
7	Land tax and irrigation cess	1181	6.77
8	Repair and maintenance charges	103	0.59
9	Interest on working capital	1469	8.43
10	Other expenses	436	2.50
11	Cost 'A'(1 to 10)	17447	100.00
12	Interest on fixed capital	1140	
13	Cost 'B'(11+12)	18587	
14	Interest on land value	108387	
15	Cost 'B'(13+14)	126974	
16	Imputed value of H.H.labour	976	
17	Cost C(15+16)	127950	

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.8155/- during 1995-96.

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	57.03	69.23	72.96	67.86
Female	10.40	13.23	18.86	14.89
Total	7.43	82.46	91.82	82.75

The proportion of hired human labour hours to total human labour hours is highest in large size class and lowest in small size class. Cultivation belonging to large size of holdings depends 92% of their requirement of labour in hired human labour.

The per hectare expenditure increased towards the cost of seed/seedlings for new plantation is nominal. The cost towards farmyard manure and chemical fertilizers accounts to 31% of the total cost 'A'. The item of plant protection measures is Rs.446/- per hectare. Only a 7% 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.103/- Interest on working capital and other expenses constitutes to 8% 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. 18587/- during 1995-96

As in other crops interest on land value for arecanut cultivation also decreases as size class increases. It is seen that Rs.108387/- per hectare.

Cost B is estimated by adding the interest on land value to cost B1 and it is worked out to Rs. 126974/-

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

Cost 'C'

Cost 'C' is estimated by adding the imputed value of H.H. labour to cost 'B'. It is estimated as Rs.127950/- during 1995-96.

B. Value of output

The value of output per hectare from arecant cultivation is found to be Rs.47315/- during 1995-96

2.4 Tapioca

Tapioca is yet another food item of Keralaties extensively cultivated in the state. The total area under tapioca cultivation and the average yield per hectare for the year 1995-96 are given in the following table.

Area and average yield of Tapioca during 1995-96

Total cropped area(Ha)	Area under tapioca (Ha)	Average yield per Ha (tones)	% of area under tapioca to cropped area
3067225	113601	22.00	3.70

About 4% of the total cropped area was under tapioca cultivation during the period 1995-96. The yield per hectare of Tapioca was22 tones.

Selected holdings

During 1995-96 for the estimation of the cost of cultivation of tapioca. 185 holdings were selected. The details 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)	% to total area of the selected holdings	No. of selected holdings	Area per holding
Small	12.29	22.07	99	0.12
Medium	25.56	45.90	70	0.36
Large	17.84	32.03	16	1.12
Total	55.69	100.00	185	0.30

The selected holdings had a total operational area of 55.69 ha The average size of holdings is 0.30 ha.

Cost of cultivation of Tapioca

As in other crops the cost of cultivation of tapioca 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 Tapioca during the year 1995-96

Sl. No	Components of different cost concepts	Cost per hectare (Rs.)	% distribution of cost 'A'
1	Hired human labours	7435	54.33
2	Animal labour	110	0.80
3	Machine labour	333	0.24
4	Seed/seedlings	566	4.14
5	Farmyard, manure and chemical fertilizers	3378	24.69
6	Plant protection	11	0.08
7	Land tax and irrigation cess	67	0.49
8	Repair and maintenance charges	140	1.02
9	Interest on working capital	419	3.06
10	Other expenses	1225	8.95
11	Cost 'A'(1 to 10)	13684	100
12	Interest on fixed capital	945	
13	Cost 'B'(11+12)	14629	
14	Interest on land value	98969	
15	Cost 'B'(13+14)	113598	
16	Imputed value of household labour	1524	
17	Cost C(15+16)	113598	

From the above table it is seen that labour cost is an important component of cost 'A'.is the labour cost with an account to 55%. When compared to paddy cultivation the proportion of labour cost to total cost 'A' is lower in the case of tapioca cultivation. The percentage of hired human labour hours engaged in Tapioca cultivation to the total labour hours is given below for males and females separately for each size class holdings.

Percentage distribution of hired human labour hours

Sex	Holding size class			
	Small	Medium	Large	All size
Male	60.67	64.27	70.55	65.57
Female	16.41	12.81	23.36	17.28
Total	77.08	77.08	93.91	82.85

The above table shows that the proportion of hired human labour to total human labour inputs steadily increase with the increases in the size of holdings

The cost towards seed/seedlings accounts to 4% and 25% is spent for farmyard manure and chemical. In tapioca cultivation cost towards plant protection measures and land tax and irrigation cess accounts below 1% each. The expenditure increased for repair and maintenance changes 1% of the total cost 'A'. The interest on working capital is estimated at Rs.1225/- per hectare. The miscellaneous expenses come to Rs. 419/- per ha. An interest calculated for fixed capital and it comes to Rs. 945/- during the period under review. The cost 'B1' and 'B' showed an increasing trend while imputed value of house hold labour showed a trend during this year. Cost 'C' is estimated to Rs. 115122/-.

The per hectare cost of cultivation estimated under different cost concepts is as follows:

Estimated cost of cultivation

Cost 'A'	13684
Cost 'B'	113598
Cost 'C'	115122

The following table illustrated the comparison between the costt of cultivation of tapioca during the year 1994-95 and 1995-96.

Cost of Tapioca cultivation per hectare during the year 1994-95 and 1995-96

Concept of cost	1994-95	1995-96	% of increase in cost of cultivation
Cost 'A'	10906	13684	25.47
Cost 'B'	89968	113598	26.26
Cost 'C'	91295	115122	26.09

The calculation of cost 'B' for tapioca is unscientific. While the paid cost (cost 'A') per hectare was only Rs.13684/-. The interest on land value (cost B) was Rs.113598/- it is 8 times more than the cost 'A'. So it is better to dispense with the cost in the computation of cost of cultivation of Tapioca

B. Output

The per hectare value of output of tapioca during 1995-96 is found to be Rs.23485/-

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 1995-96 are given in the following table

Area and Average yield of pepper

Area under pepper (ha)	Average yield of pepper	% of area under pepper to the total cropped area
191596	358	6.25

It is seen that 6.25% of the gross are under crop in the state is under pepper cultivation

Selected holdings

During this round 185 holdings were selected for studying the cost of cultivation of pepper during the year 1995-96. The details are given below;

Area under pepper in the sample

Holding size class	No. of selected holdings	Total area under the crop(he)	% to the total area of selected holdings	Area per holdings
Small	150	10.06	44.32	0.07
Medium	31	8.82	38.85	0.28
Large	4	3.82	16.83	0.96
All size	185	22.70	100.00	0.12

The operational area under the crop in the selected holdings is 22.70 ha. The average size of holding is 0.12 ha.

A. Cost of cultivation of pepper

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

Cost of cultivation per hectare of pepper during the year 1995-96

Sl. No	Components of different cost concepts	Cost per hectare (Rs.)	% distribution of cost 'A'
1	Hired human labours	4846	55.84
2	Animal labour	-	-
3	Machine labour	62	0.71
4	Seed/seedlings	21	0.21
5	Farmyard, manure and chemical fertilizers	2509	28.91
6	Plant protection	78	0.90
7	Land tax and irrigation cess	122	1.41
8	Repair and maintenance charges	140	1.61
9	Interest on working capital	765	8.82
10	Other expenses	135	1.56

11	Cost 'A'(1 to 10)	8678	100.00
12	Interest on fixed capital	1318	
13	Cost 'B'(11+12)	9996	
14	Interest on land value	80951	
15	Cost 'B'(13+14)	90947	
16	Imputed value of H.H.labour	2261	
17	Cost C(15+16)	93208	

Hired human labour cost, a major component of cost under pepper cultivation accounts to 56% of the total cost 'A' during this round. It showed an increasing trends it showed increasing trend. The percentage of hired human labour hours engaged in pepper cultivation to the total 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	55.53	52.04	32.21	51.06
Female	6.73	11.18	11.44	9.18
Total	62.26	63.22	43.65	60.24

The percentage share of hired human labour hours to total human hours increased as size class increased. About 60% 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.21/- is spent. About 29% 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 1.41% and 1.61% respectively. The per hectare cost towards interest in working capital is Rs.765/- and other expenses is Rs.135/-.

Cost 'B1'

Cost B1 is estimated by adding the interest on fixed capital excluding land to cost 'A' and it is Rs. 9996/- during 1995-96. Interest on land value showed on increasing trend, which is worked out Rs.80951/-

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 household labour to cost 'B' During this round cost 'B' is Rs 90947/- and cost 'C' is Rs 93208/- The inputted value of HH labour is Rs. 2261/- per ha.

B Value of output

The value of pepper is found to be Rs.28185/- per ha During the year 1995-96

2.6 Ginger

Ginger cultivation occupies important places in the recent cropping pattern of the state. The are 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
3067225	12925	359	0.42

The total area under ginger cultivation during the year 1995-96 was 12925 hectare. The average yield per ha was 359 qtl. The percentage area of ginger cultivation to the total cropped area comes to 0.42%

Selected holdings

The number of holdings selected for cost of cultivation study on ginger is given as follows.

Number of holdings under ginger cultivation

Holding size class	No. of selected holdings	Area under ginger (Ha)	%to total area	Area per holdings(he)
Small	141	12.23	55.97	0.09
Medium	26	8.81	40.32	0.34
Large	1	0.81	3.71	0.81
All size	168	21.85	100.00	0.13

The total number of holdings selected for ginger during the year 1995-96 was 168 It covered an area of 21.86 ha. The average area per holdings was 0.13 ha.

A. Cost of cultivation

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

Cost of cultivation of per hectare of ginger during the year 1995-96

Sl. No	Components of different cost concepts	Cost per hectare (Rs.)	% distribution of cost 'A'
1	Hired human labours	12533	30.57
2	Animal labour	97	0.24
3	Machine labour	71	0.17
4	Seed/seedlings	11994	29.25
5	Farmyard, manure and chemical fertilizers	11345	27.67
6	Plant protection	414	1.01
7	Land tax and irrigation cess	37	0.09
8	Repair and maintenance charges	53	0.13
9	Interest on working capital	3495	8.53
10	Other expenses	961	2.34
11	Cost 'A'(1 to 10)	41000	100.00
12	Interest on fixed capital	476	
13	Cost 'B'(11+12)	41476	
14	Interest on land value	79491	
15	Cost 'B'(13+14)	1209671	
16	Imputed value of H.H.labour	2125	
17	Cost C(15+16)	123092	

The per hectare cost of hired human labour towards ginger cultivation constituted about 31% of the total cost 'A'. Animal labour and machine labour are used nominally ie 0.24 and 0.17 respectively. Seed and seedlings is an important input of ginger cultivation accounts 29% of the total cost 'A'. Farm yard, manure and chemical fertilizers are comes to 28% of the total cost 'A'. Cost incurred under plant protection, land tax and irrigation cess, repair and maintenance charge accounts to 1.01%, 0.09 and 0.13 respectively. Expenditure of 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	45.78	22.12	67.90
Medium	48.60	27.61	76.21
Large	25.32	37.97	63.29
All size	47.07	25.23	72.30

From the above tables about 72% of the total human labour hours is hired human labour. The female hired labour is low in ginger cultivation

Cost B1 and Cost B and Cost C

Cost B1 is obtained by adding the interest on fixed capital (excluding land) to cost 'A' and it is seen as Rs. 41476/-. Interest on land value is maximum in small size class and minimum in large size class. Cost B is estimated as Rs. 120967/- during the year 1995-96. The participation of H.H. labour is maximum in small size class and minimum in medium size class.

The estimated per hectare cost of cultivation of ginger during the year 1995-96 is given below

Cost of cultivation of ginger Rs. /ha for the year 1995-96

Concept of cost	Holding size class			
	Small	Medium	Large	All size
Cost 'A'	38091	39960	43317	41000
Cost 'B'	117794	121174	114828	120967
Cost 'C'	122812	124322	119532	123092

Output

The value of output is seen as Rs.59945/- 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 1995-96

Product and by product	*Holding size class*			
	Small	*Medium*	*Large*	*All size*
Product	*58399*	*60353*	*79630*	*59945*
By product	-	-		-
Total	*58399*	*60353*	*79630*	*59945*

2.7 Turmeric

Turmeric is another important minor crops in the State. The total area under turmeric cultivation and average yield per ha for the year 1995-96 is given in the following table.

Area and average yield of turmeric during the year 1995-96

Total cropped area (ha)	Area under Turmeric(ha.)	Average yield per ha(qty)	% of area under Turmeric cultivation
3067225	3968	241	0.13

About 0.13% of the total cropped area was under turmeric cultivation during the year 1995-96. The yield per ha of turmeric was 241 quintal.

Selected holdings

During the year 1995-96, 74 holdings were selected for the estimation of cost of cultivation of ***turmeric.***The details of these holdings in ech size class are given in the following tables.

Area and Number of holdings

Size class	Area under Corp in the sample (ha)	No. of selected holdings	% of total are of selected holdings	Area per holdings
Small	4.22	66	89	0.06
Medium	2.11	8	11	0.26
Large	-	-	-	-
All size	6.33	74	100	0.09

The selected holdings have a total area of 6.33 hectare. The average size of holdings is 0.09 hectare.

A. Cost of cultivation of Turmeric

The cost of cultivation of turmeric is also estimated under different cost concepts of cost viz. cost 'A' cost 'B' and cost 'C'. The estimated cost of different items per hectare and their percentage of distribution to the total cost 'A' is given in the following table.

Cost of cultivation per ha of turmeric during the year 1995-96

Sl. No	Components of different cost concepts	Cost per ha 9Rs.)	% distribution of cost 'A'
1	Hired human labours	5424	39.65
2	Animal labour	-	-
3	Machine labour	36	0.26
4	Seed/seedlings	2425	17.73
5	Farmyard, manure and chemical fertilizers	3969	29.01
6	Plant protection	250	1.83
7	Land tax and irrigation cess	23	0.17
8	Repair and maintenance charges	37	0.27
9	Interest on working capital	1238	9.05
10	Other expenses	278	2.03
11	Cost 'A'(1 to 10)	13680	100.00
12	Interest on fixed capital	642	
13	Cost 'B'(11+12)	14322	
14	Interest on land value	80534	
15	Cost 'B'(13+14)	94856	
16	Imputed value of H.H.labour	4655	
17	Cost C(15+16)	99511	

From the above table it is seen that labour cost is the major component of cost 'A' which is to be 40%. Seed and seedling is another important output of Turmeric cultivation that comes to 18%. Farm yard manure and chemical fertilizers account to 29%. The cost towards plant protection accounts to below 2% of the total cost 'A'. Land tax and irrigation cess is only nominal. The expenditure towards interest on working capital shares to 9% of the total cost 'A'.

The percentage of hired human labour hours engaged in the turmeric cultivation during the year 1995-96 is given below.

Percentage of hired human labour hours engaged in Turmeric cultivation 1995-96

Holding size class	Male	Female	Total
Small	35.16	13.59	48.75
Medium	48.80	23.34	72.14
Large	-	-	-
All size	38.86	16.24	55.10

From the above table it is seen that about 55% of the total human labour hours is hired human labour. The composition of work participation rate is also different from that of paddy cultivation.

Cost 'B1' and cost 'B'

Cost 'B1" is obtained by adding the interest in fixed capital (excluding land) to cost 'A' and it seen that to Rs.14322/- Interest on land value is maximum in medium class and minimum in small size class. Considering the cost 'B' it is estimated as Rs.94856/- DURING

1995-96. The participation of household labour is maximum in the case of small size class and minimum in medium size class.

The estimated per hectare cost of cultivation of Turmeric during the year 1995-9is given below

Cost of cultivation of Turmeric per hectare for the year 1995-96

Concept of cost	Holding size class (Rs./Ha)			
	Small	Medium	Large	All size
Cost 'A'	12273	14251	-	13680
Cost 'B'	90871	100322	-	94856
Cost 'C'	96827	102714	-	99511

Output

The value of output is seen as Rs.28558/- per ha for turmeric cultivation. The details of different holdings size class are given as follows

Value of product and by product per hectare during the year 1995-96

	Holding size class			
Product/by product	Small	Medium	Large	All size
Product	24745	36182	-	28558
By product	-	-	-	-
Total	24745	36182	-	28558

Chapter III

Summary of findings

The data furnished in this report are collected through the cost of cultivation survey 1995-96. The crop covered in this report are paddy (Autumn, Winter and summer), coconut, Arecanut, tapioca, pepper, ginger and turmeric.

The summary of findings are shown below:

1. Autumn paddy

The per hectare cost of cultivation when considered to cost 'A' during the year 1995-96 is Rs.11512/- compared to the previous year the cost 'A' has increased by 15%. The percentage increase of cost 'B' and cost 'C' is being 29% and 28% respectively.

2. Winter paddy

The estimated per hectare cost of cultivation winter paddy of cost 'A' is rs.12198/- 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 1995-96 is estimated to be Rs.25483/- and Rs. 26329/- respectively.

3. Summer paddy

The component of cost 'A' relating to the summer paddy cultivation is Rs.15193/- when compared to the previous year the cost 'A' has increased 17%, cost 'B' by 51% and cost 'C' by 50% respectively.

4. Coconut

The per hectare cost of cultivation of coconut is Rs.10760/- towards cost 'A' Cost 'B' is Rs.127163/- and cost 'C' is Rs.127761/-. Hired human labour constitutes to 48% to the total cost 'A'.

5.Aracanut

The component of cost 'A' relating the aracanut cultivation is Rs. 17447/-. The value of output per ha from Aracanut cultivation is found to be Rs.47315/- during the year 1995-96.

6.Tapioca

The cash and other kind expenses incurred for tapioca cultivation is Rs. 13684/- (cost 'A') out of this hired human labour cost shares 54%. The per hectare value of output of tapioca during the year 1995-96 is to be Rs.23485/-

7. Pepper

During this round 185 holdings were selected for studying the cost of cultivation of pepper during this year 1995-96. The Cost 'A' per hectare comes to Rs.8678/-. The percentage share of hired human labour cost is 56%. The value of pepper is found to be Rs.28185/- per hectare during the year under review

8. Ginger

The total number of holdings selected for ginger cultivation were 168. The per hectare cost of ginger cultivation is Rs.31211/- (cost A). The value of output per hectare is seen to be as Rs.59945/- per hectare of ginger cultivation.

9. Turmeric

For the study of turmeric cultivation 74 holdings were selected during the year 1995-96. The per hectare cost of cultivation if Turmeric is Rs.13680/- (cost 'A'). The value of output per hectare is found to be Rs.28558/-

Appendix –1

Cost of cultivation per hectare of Autumn Paddy 1995-96 (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	7673	6310	6399	6590
2	Animal labour	765	591	261	484
3	Machine labour	754	780	701	743
4	Seed/seedlings	830	747	732	755
5	Farmyard, manure and chemical fertilizers	2276	2009	1814	1975
6	Plant protection	156	145	159	153
7	Land tax and irrigation cess	13	21	22	20
8	Repair and maintenance charges	194	182	143	72
9	Interest on working capital	629	538	514	544
10	Other expenses	116	178	201	176
11	Cost 'A'(1 to 10)	13406	11501	10946	11512
12	Interest on fixed capital	585	707	437	598
13	Cost 'B1' (11+12)	13991	12208	11383	12110
14	Interest on land value	16495	18531	14265	16391
15	Cost 'B'(13+14)	30486	30739	25648	28501
16	Imputed value of H.H.labour	995	559	232	505
17	Cost 'C'(15+16)	31481	31298	25878	29006

Appendix – 2

Cost of cultivation per hectare of winter paddy 1995-96 (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	8186	7959	5473	6795
2	Animal labour	1081	984	784	903
3	Machine labour	653	665	909	781
4	Seed/seedlings	784	816	706	757
5	Farmyard, manure and chemical fertilizers	2451	1926	1561	1827
6	Plant protection	186	141	241	196
7	Land tax and irrigation cess	53	46	56	51
8	Repair and maintenance charges	133	91	57	94
9	Interest on working capital	676	638	524	574
10	Other expenses	176	269	196	220
11	Cost 'A'(1 to 10)	14379	13535	10507	12198
12	Interest on fixed capital	771	512	852	676
13	Cost 'B1' (11+12)	15150	14047	11359	12874
14	Interest on land value	16259	14489	10011	12609
15	Cost 'B'(13+14)	31409	28536	21370	25483
16	Imputed value of H.H.labour	1029	703	893	846
17	Cost 'C'(15+16)	32438	29239	22263	26329

Appendix –3

Cost of cultivation per hectare of Summer paddy 1995-96 (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	8019	7558	7961	7850
2	Animal labour	1179	617	243	558
3	Machine labour	769	1081	865	1838
4	Seed/seedlings	868	880	947	909
5	Farmyard, manure and chemical fertilizers	2508	2441	2335	2046
6	Plant protection	269	387	551	440
7	Land tax and irrigation cess	74	75	57	66
8	Repair and maintenance charges	220	257	173	216
9	Interest on working capital	699	666	678	710
10	Other expenses	362	354	663	560
11	Cost 'A'(1 to 10)	14967	14316	14473	15193
12	Interest on fixed capital	578	591	535	568
13	Cost 'B1' (11+12)	15545	14907	15008	15761
14	Interest on land value	19044	11739	8092	11554
15	Cost 'B'(13+14)	34589	26646	23100	27315
16	Imputed value of H.H.labour	1586	514	456	710
17	Cost 'C'(15+16)	36175	27160	23556	28025

Appendix –4

Cost of cultivation per hectare of Coconut 1995-96 (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	5473	5246	5114	5182
2	Animal labour	10	23	41	33
3	Machine labour	261	153	273	217
4	Seed/seedlings	-	-	-	-
	Farmyard, manure and chemical fertilizers	3662	3408	3750	3629
6	Plant protection	17	58	215	141
7	Land tax and irrigation cess	67	39	36	38
8	Repair and maintenance charges	317	168	105	162
9	Interest on working capital	971	923	984	960
10	Other expenses	282	337	444	398
11	Cost 'A'(1 to 10)	11060	10355	10962	10760
12	Interest on fixed capital	1571	1144	1079	1175
13	Cost 'B1' (11+12)	12631	11499	12041	11935
14	Interest on land value	118094	110110	117777	115228
15	Cost 'B'(13+14)	130725	121609	129818	127163
16	Imputed value of H.H.labour	1597	815	368	598
17	Cost 'C' (15+16)	132322	122424	130186	127761

Appendix- 5

Cost of cultivation per hectare Arecanut – 1995-96 (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	6810	7888	7342	7432
2	Animal labour	-	-	30	20
3	Machine labour	461	671	856	703
4	Seed/seedlings	16	-	8	24
5	Farmyard, manure and chemical fertilizers	3401	7139	5703	5633
6	Plant protection	91	285	764	446
7	Land tax and irrigation cess	297	546	338	1181
8	Repair and maintenance charges	118	77	79	103
9	Interest on working capital	1090	1625	1543	1469
10	Other expenses	120	273	731	436
11	Cost 'A'(1 to 10)	12404	18504	17394	17447
12	Interest on fixed capital	1040	1682	1042	1140
13	Cost 'B1' (11+12)	13447	20186	18436	18587
14	Interest on land value	110090	100786	111566	108387
15	Cost 'B' (13+14)	123534	120972	130002	126974
16	Imputed value of H.H.labour	1964	980	393	976
17	Cost 'C' (15+16)	125498	121952	130395	127950

Appendix - 6

Cost of cultivation per Hectare of Tapioca 1995-96 (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	7072	6656	8810	7435
2	Animal labour	9	79	207	110
3	Machine labour	36	319	560	333
4	Seed/seedlings	784	407	643	566
5	Farmyard, manure and chemical fertilizers	3081	2844	4342	3378
6	Plant protection	19	14	-	11
7	Land tax and irrigation cess	24	42	134	67
8	Repair and maintenance charges	163	169	22	140
9	Interest on working capital	1112	1066	1536	1225
10	Other expenses	116	341	797	419
11	Cost 'A' (1 to 10)	12416	11937	17051	13684
12	Interest on fixed capital	1135	794	676	945
13	Cost 'B1' (11+12)	13551	12731	17724	14629
14	Interest on land value	123171	86949	99517	98969
15	Cost 'B' (13+14)	136722	99680	117241	113598
16	Imputed value of household labour	2019	1917	621	1524
17	Cost 'C' (15+16)	138831	101597	117862	115122

Appendix- 7

Cost of Cultivation per hectare of Pepper 1995-96 (in Rs.)

	2	Holding size class			
Sl. No	Components of different cost concepts	Small	Medium	Large	All size
1	2	3	4	5	6
1	Hired human labour	4769	4747	5275	4846
2	Animal labour	-	-	-	-
3	Machine labour	76	74	-	62
4	Seed/seedlings	35	14	-	21
5	Farmyard, manure and chemical fertilizers	2107	3349	1633	2509
6	Plant protection	66	100	59	78
7	Land tax and irrigation cess	109	179	26	122
8	Repair and maintenance charges	110	217	201	140
9	Interest on working capital	710	843	732	765
10	Other expenses	46	142	353	135
11	Cost 'A' (1 to 10)	8028	9665	8279	8678
12	Interest on fixed capital	1148	1866	1012	1318
13	Cost 'B1' (11+12)	9176	11531	9291	9996
14	Interest on land value	115613	63323	30366	80951
15	Cost 'B' (13+14)	124789	74854	39657	90947
16	Imputed value of H.H.labour	2651	2647	344	2261
17	Cost 'C' (15+16)	127440	77501	40001	93208

Appendix –8

Cost of cultivation per hectare of Ginger – 1995-96

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	12839	12045	13397	12533
2	Animal labour	117	79	-	97
3	Machine labour	103	34	-	71
4	Seed/seedlings	11683	12628	9980	11994
5	Farmyard, manure & chemical fertilizers	8926	10002	14313	11345
6	Plant protection	366	306	663	414
7	Land tax and irrigation cess	37	22	-	37
8	Repair and maintenance charges	48	27	-	53
9	Interest on working capital	3455	3628	3998	3495
10	Other expenses	517	1189	866	961
11	Cost 'A'(1 to 10)	38091	39960	43217	41000
12	Interest on fixed capital	448	580	6	476
13	Cost 'B1' (11+12)	38539	40540	43223	41476
14	Interest on land value	79255	80634	71605	79491
15	Cost 'B'(13+14)	117794	121174	114828	120967
16	Imputed value of H.H.labour	5018	3148	4704	2125
17	Cost 'C'(15+16)	122812	124322	119532	123092

Appendix-9

Cost of cultivation per hectare of Turmeric – 1995-96 (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	5016	6523	-	5424
2	Animal labour	-	-	-	-
3	Machine labour	-	107	-	36
4	Seed/seedlings	2365	246	-	2425
5	Farmyard, manure and chemical fertilizers	3174	5556	-	3969
6	Plant protection	357	37	-	250
7	Land tax and irrigation cess	22	25	-	23
8	Repair and maintenance charges	41	5	-	37
9	Interest on working capital	1110	1292	-	1238
10	Other expenses	188	460	-	278
11	Cost 'A' (1 to 10)	12273	14251	-	13680
12	Interest on fixed capital	682	301	-	642
13	Cost 'B' (11+12)	12955	14552	-	14322
14	Interest on land value	77916	85770	-	80534
15	Cost 'B' (13+14)	90871	100322	-	94856
16	Imputed value of household labour	5956	2392	-	4655
17	Cost 'C' (15+16)	96827	102714	-	99511

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