



GOVERNMENT OF KERALA

REPORT ON  
COST OF CULTIVATION  
OF  
IMPORTANT CROPS IN KERALA  
1990-91

DEPARTMENT OF ECONOMICS & STATISTICS  
THIRUVANANTHAPURAM  
1993



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## P R E F A C E

Kerala has been witnessing a stagnant, if not declining; trend in the performance of the Agriculture Sector since the last few years. One of the reasons for this stalemate is the increasing cost of cultivation coupled with the low return from this sector. It is therefore, necessary to identify the components of cost of cultivation. The cost of cultivation of various crops is also necessary to take corrective measures to improve the production and productivity by fixing minimum prices for the produce. It is in this context that the Department of Economics and Statistics on the direction of Government of Kerala conducted Survey on Cost of Cultivation of important crops every year. This report is based on the 11th round of the survey which was conducted during 1990-'91. The crops covered in this round were paddy (3 seasons), Coconut, Tapioca and Pepper which cover more than 80 per cent of the total cropped area.

38 taluks were selected for the survey and details of cost of cultivation were collected.

Smt. T. Bhavana, Research Officer prepared this report. It is hoped that this report will be useful to those who are working in this field for analysis of related issues.

Thiruvananthapuram,  
20.4.1993.

Dr. M. Kuttappan,  
DIRECTOR.

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REPORT ON THE COST OF CULTIVATION OF IMPORTANT CROPS  
IN KERALA - 1990-'91

CHAPTER I - GENERAL

1.1 Introduction:-

Government of Kerala accorded sanction for conduct of annual surveys on cost of cultivation of important crops in the State from 1980-'81 onwards, in order to fill up the data gap in the cost aspect in administering various agricultural development schemes. The present report relates to the eleventh round of the survey conducted during 1990-'91.

The following crops were covered in the study:-

- i. Paddy (3 seasons)
- ii. Coconut
- iii. Tapioca
- iv. Pepper.

1.2 Objectives:-

The main objectives of the survey were:-

- i. to estimate the cost of cultivation per hectare of different crops selected.
- ii. to compare the costs under different concepts, over a period.

1.3 Staff:-

The following staff were engaged for the survey:-

<u>Category</u>		<u>Number</u>
Field	- U.D. Investigator	14
	L.D. Investigator (4 posts were shifted to the Directorate for consolidation of the report)	28
Head Office	- Research Assistant	1
	U.D. Compiler	1

1.4 Period of the survey:-

The period of the survey was the Agricultural Year 1990-'91 (July to June).

1.5 Design of the survey:-

The present survey was conducted in 38 taluks, which are important

growing centres of the crops under study. From each selected taluk two investigator zones of the survey under the scheme were selected using simple random sampling method. The sample holding consisted of a key plot together with all the other plots (both wet and dry) possessed by the same cultivator within the taluk. The plots listed for each crop in the concerned form I diary during 1989-'90 was the frame for selection of key plots. The selection of key plots was done by simple random sampling method.

The number of holdings selected for each crops in a taluk was as follows:-

1. Paddy	-	Autumn	-	10	(5 holdings each from one Investigator Zone)
		Winter	-	10	"
		Summer	-	10	"
2. Coconut	-			10	(5 holdings each from one Investigator Zone)
3. Tapioca	-			5	(Minimum 2 holdings in one Investigator Zone)
4. Pepper	-			5	( " )

In the case of paddy, separate selection was made for all the three seasons. As regards Summer paddy, if sufficient number of holdings was not available in the selected investigator zones, another zone in the taluk was selected and the remaining number of plots were selected from that zone. If the holdings selected for Autumn paddy contained area under the other three crops also, fresh selection was not done for these crops. In such cases, the holdings selected for paddy were taken for these crops also. If sufficient number of holdings were not obtained for coconut, tapioca and pepper from the selected paddy holdings, the balance was selected from the plots listed in Form I Diary for those crops.

A holding was considered for the study only if it contained at least 25 cents under the crop in the case of Paddy and Tapioca. For Coconut and Pepper the holding should have 25 trees/plants with at least 50% bearing.

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

Size Group	Holding size	
	Paddy	Other crops
1	2	3
1. Small	<0.40 hectare	<0.20 hectare
2. Medium	Between 0.41 to <2 hectare	Between 0.21 and <0.80 hectare
3. Large	>2 hectare	>0.80 hectare

### 1.6 Schedules:-

Three schedules were designed for the survey.

Schedule - I This schedule was used for listing the plots for selection of holdings and recording the details of the selected holdings.

Schedule - II This schedule was used for recording details of the cultivator's households and details like area of holdings, inventory of agricultural implements, livestock etc.

Schedule - III This schedule was meant for recording cultivation cost, every fortnight.

### 1.7 Field work:-

Field work was done by 38 investigators posted at the rate of one investigator in each taluk. These investigators visited the selected holdings every fortnight and recorded fortnightly operations in Schedule III. The field work was supervised by Taluk Statistical Officer at the taluk level and by Deputy Director, District level Officers.

### 1.8 Analysis:-

The compilation and tabulation were done at the district level by the investigator posted for the survey. Five compilers were posted in the Directorate for the consolidation of the data at the State level. Report was also prepared in the Directorate.

### 1.9 Method of estimation of cost:-

(a) Concept of cost:- Different cost concepts, Cost 'A', Cost 'B1' and 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. Farmground 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 on working capital
- xii. Other expenses



Cost 'B1':- Cost 'A' + Interest on fixed assets (exchanging land)

Cost 'B':- Cost 'B1' + Interest on land value

Cost 'C':- Cost 'B' + Imputed value of family labour

(b) Procedure for imputation of values of owned inputs:-

Some of the inputs from homestock are used in the production process. While computing the cost of cultivation it is necessary to impute the value of these inputs. The procedure used for the imputation of values of such homestock 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 owned and exchange human labour.
- iii. Owned and exchange animal labour - The rate of charges per hour for hired animal labour is taken for imputing the value of owned and exchange animal labour.
- iv. Owned and exchange 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 rates prevalent in the Zone concerned.
- viii. Interest on owned 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.

ix. Interest on 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 in 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 market prices.

(c) Allocation of joint costs to different crops:-

Some of inputs used for the cultivation are common for some 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:-

- i. Repair and maintenance charges of implements - In proportion to the area under the crop.
- ii. Interest on owned fixed capital (excluding land) - In proportion to the area under the crop.
- iii. Interest on land value - Interest on the value of land under the crops.

(d) Procedure for evaluation of farm assets

- i. Own farm buildings (cattle sheds, storage sheds, etc.) - Evaluated at prices prevailing in the locality.
- ii. Implements and other machinery - Evaluated at prevalent market prices.
- iii. Livestock (only draught animals) - Evaluated 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.

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## CHAPTER : 2 - RESULTS OF THE SURVEY

The results of the cost studies in respect of all the crops taken up during this round are discussed hereunder.

The crops selected for this round were paddy (autumn, winter and summer), coconut, tapioca and pepper.

## 2.1 Paddy:-

Paddy is cultivated during the three seasons - autumn, winter and summer. The total area under paddy during 1990-'91 was 5.60 lakh hectares and rice production is estimated at 10.87 lakh tonnes. The area under paddy during the three seasons are given below:-

1. Area under paddy during the year 1990-'91  
(in lakh hectares)

Season	Area	Percentage to total cropped area
1	2	3
Autumn	2.36	7.81
Winter	2.59	8.58
Summer	0.65	2.15
<b>Total</b>	<b>5.60</b>	<b>18.54</b>

Source:- EARAS estimate.

The gross area under paddy was about 19% of the total cropped area as seen from the table.

## 2. Percentage of area under paddy in each season to the total area under paddy during 1990-'91

Season	Percentage
1	2
Autumn	42.14
Winter	46.25
Summer	11.61
<b>Total</b>	<b>100.00</b>

About 42% of the gross area under paddy comes under autumn, 46% under winter and about 12% under summer.

The rice production during the three seasons stood at 10.87 lakh tonnes as can be seen from the following table:-



**3. Production of rice during 1990-'91  
(in lakh tonnes)**

Season	Production of rice (lakh tonnes)	Percentage
1	2	3
Autumn	4.63	42.59
Winter	4.81	44.25
Summer	1.43	13.16
<b>Total</b>	<b>10.87</b>	<b>100.00</b>

**Source:-** EARAS estimates.

The average yield rate of paddy per hectare in each season is given in the following table.

**4. Average yield of paddy during 1990-'91**

Season	Average yield (tonne/hect.)
1	2
Autumn	1.96
Winter	1.86
Summer	2.21

About 59% of the total irrigated cropped area is under paddy.

**1. Autumn (Virippu) Paddy:-**

For the cost study of autumn paddy a total of 360 holdings were selected. The details of these holdings in each size class (viz. small, medium, large) of holdings are given below.

**5. Area under autumn paddy during 1990-'91**

Holding size class	No. of selected holdings	Area under the crop in the sample (hectare)	Percentage	Area per holding (hectare)
1	2	3	4	5
Small	198	44.95	22.01	0.23
Medium	149	104.20	51.03	0.70
Large	13	55.05	26.96	4.23
<b>Total</b>	<b>360</b>	<b>204.20</b>	<b>100.00</b>	<b>0.57</b>

The average area per sample holding under study is 0.57 hectare.

### A. Cost of cultivation

The cost of cultivation is worked out on the basis of the concepts given in the previous paragraphs. The estimated cost of cultivation of different items per hectare of autumn paddy is given below. The details of estimated cost according to size classes are given in Appendix I.

#### 6. Cost of cultivation per hectare of paddy (autumn) during the year 1990-'91

Sl. No.	Components of different cost concepts	Cost per hect. (inRs.)	%distribution of Cost 'A'
1	2	3	4
1.	Hired human labour	3263	51.87
2.	Animal labour	453	7.20
3.	Machine labour	380	6.04
4.	Seed/seedlings	482	7.66
5.	Farmyard manure & chemical fertilisers	1079	17.15
6.	Plant protection	151	2.40
7.	Land tax and irrigation cess	24	0.38
8.	Repair and maintenance charges	57	0.91
9.	Other expenses	106	1.68
10.	Interest on working capital	296	4.71
11.	Total Cost 'A' (1-10)	6291	100.00
12.	Interest on fixed capital	259	-
13.	Cost 'B1' (11+12)	6550	-
14.	Interest on land value	5309	-
15.	Cost 'B' (13+14)	11859	-
16.	Imputed value of household labour	323	-
17.	Cost 'C' (15+16)	12182	-

From the above table it is seen that total Cost 'A' of cultivation of autumn paddy per hectare works out to Rs.6291/-. About 52% of the total Cost 'A' is towards hired human labour. Animal labour and machine labour accounts to 7% and 6% respectively. The percentage of hired human labour hours to total labour hours engaged in autumn paddy cultivation in respect of males and females is given below:-

#### 7. Percentage of hired human labour hours to total human labour hours

Sex	Holding size class			
	Small	Medium	Large	All sizes
1	2	3	4	5
Male	27.51	22.09	13.93	21.92
Female	60.93	69.53	83.69	70.05
Total(hired)	88.44	91.62	97.62	91.97

The proportion of hired human labour hours is about 92% of the total human labour hours. Proportion of hired human labour to total human labour input increases with the increase in the size of holding. Cultivators belonging to large size class are seen depend for 98% of their requirement on hired labour.

The cost of animal labour steadily decreases with the increase in size class. Compared to the previous year, the cost of machine labour has increased during the period 1990-'91. The cost of machine labour is seen decreasing with the size of holding.

For seed/seedlings 8% of the Cost 'A' is accounted. It is higher in the case of large and small holdings than that of the medium holdings. Farmyard manure and chemical fertilisers forms 17% of the total Cost 'A'. It can be seen that small cultivators spend more towards labour input than medium and large size cultivators.

Plant protection measures accounted for only a small percentage i.e. 2% of the total Cost 'A'. The expenditure on land tax and irrigation cess constitute only less than 1% of the Cost 'A'. The percentage share for repair and maintenance of implements and machinery comes to about 1% of the total Cost 'A'. The average expenditure on interest payment on working capital is found to be Rs. 296 (5%) and the other expenses accounts to 2% in 1990-'91.

#### Cost 'B1'

Cost 'B1' is estimated by adding the interest on fixed capital (excluding land) to Cost 'A'. It works out to Rs.6550 for 1990-'91 as against Rs.6550 in 1989-'90.

During this round also it is seen that the interest on land value is minimum in large class and maximum in the case of small size class. It is found to be Rs.5309 during the period under review.

#### 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 human labour to Cost 'B'. Cost 'B' is found to be Rs.11859 and Cost 'C' is Rs.12182. Imputed value of household labour is highest in small size holdings, Rs.575/- per hectare while it is only Rs.39/- in large holdings. A comparative analysis of this labour input with the different size class indicate that the rate of involvement of family labour is higher in the case of small holdings and lower in the case of large holdings. This has important implication that for the large farmer, participation of the household labour is only in the form of supervision and management. The estimates of cost under the three concepts of cost relating to the year under study and to the previous year are given below.



**8. Cost of cultivation of (autumn) paddy in Rs/hect for  
1989-'90 and 1990-'91**

Concept of cost	Year	Holding size class			
		Small	Medium	Large	All sizes
1	2	3	4	5	6
Cost 'A'	1989-90	7171	6223	5294	6284
	1990-91	7772	6095	5432	6291
Cost 'B'	1989-90	13392	11537	8218	12210
	1990-91	15119	11578	9685	11859
Cost 'C'	1989-90	13925	11814	8288	12509
	1990-91	15694	11943	9724	12182

Compared to the previous year the cost of cultivation has increased nominally only in the case of Cost 'A' (0.11%). While Cost 'B' and 'C' decreased the percentage of decrease being 2.87% and 2.61% respectively.

**B. Output:-**

The value of the product and by-product of paddy cultivation viz. paddy and straw for the year under study is given in the following table.

**9. Value of product and by-product per hectare (in Rs.)  
during 1990-'91**

Product by-product	Holding size class			
	Small	Medium	Large	All sizes
1	2	3	4	5
Paddy	6830	6645	8773	7259
Straw	2187	1342	869	1401
<b>Total</b>	<b>9017</b>	<b>7987</b>	<b>9642</b>	<b>8660</b>

The total value of output per hectare is estimated at Rs.8660/- during the year. During 1990-'91 the value of output has increased to Rs.8660/- per hectare from 7952 of the previous year 1989-'90.

The trend of value of product from 1980-'81 onwards is given in the following table. It can be seen that the value of product has showed an increasing trend. From 1984-'85 to 1986-'87 a fluctuating trend has been noted in the table.

### 10. Value of product/hectare (in Rs.)

Year	Value of product
1	2
1980-81	2262
1981-82	3446
1982-83	3937
1983-84	5012
1984-85	4368
1985-86	4801
1986-87	4618
1987-88	5189
1988-89	5254
1989-90	6690
1990-91	7259

### C. Cost of production of paddy per quintal:-

Cost of production of paddy per quintal 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.

### 11. Cost of production of paddy per quintal during autumn season (in Rs.)

Concept of cost	Holding size class			
	Small	Medium	Large	All sizes
1	2	3	4	5
Cost 'A'	231	194	141	184
Cost 'B'	534	418	272	394
Cost 'C'	558	433	273	406

The cost of production of paddy per quintal during the period under the report is Rs.184/- when Cost 'A' is considered. It is seen that the cost is higher in the case of small size class. It could be seen from the Table 12 that the Cost of production per quintal of paddy during the year 1990-'91 is less than the previous year according to the Cost 'A', 'B' and 'C'.

### 12. Cost of production per quintal of autumn paddy during 1989-'90 and 1990-91 (in Rs.)

Concept of cost	1989-90	1990-91	Percentage decrease
1	2	3	4
Cost 'A'	209	184	(-)11.96
Cost 'B'	457	394	(-)13.78
Cost 'C'	469	406	(-)12.79

ii. Winter (Mundakan) Paddy:-

The number of holdings selected for the winter paddy crop was 380 during the reference period. The number of holdings and the area covered under the three size classes are given below.

13. Area and number of holdings selected during 1990-'91

Holding size class	No. of holdings	Area under the crop (ha)	Percentage to total area	Area per holding (ha.)
1	2	3	4	5
Small	211	47.38	23.59	0.22
Medium	159	118.81	59.15	0.75
Large	10	34.67	17.26	3.47
All sizes	380	200.86	100.00	0.53

The average area per holding is found to be 0.53 hectares. About 24% of the area comes under the small size class, 59% under medium size class and 17% under large size class.

A. Cost of cultivation:-

The cost of cultivation per hectare of winter paddy during 1990-'91 is given below. Item-wise cost for different size class are given in Appendix.

14. Cost of cultivation per hectare of winter paddy 1990-'91

Sl. No.	Components of different cost	Cost per hectare (Rs.)	% distribution of Cost 'A'
1	2	3	4
1.	Hired human labour	3628	52.54
2.	Animal labour	468	6.78
3.	Machine labour	433	6.27
4.	Seed/seedlings	452	6.55
5.	Farmyard manure & chemical fertilisers	1237	17.92
6.	Plant protection	127	1.84
7.	Land tax and irrigation cess	43	0.62
8.	Repair and maintenance charge of implements, machinery & buildings	75	1.09
9.	Interest on working capital	323	4.68
10.	Other expenses	118	1.71
11.	Cost 'A' (1-10)	6904	100.00
12.	Interest on fixed capital (excluding land)	331	-
13.	Cost 'B1' (11+12)	7235	-
14.	Interest on land value	5150	-
15.	Cost 'B' (13+14)	12385	-
16.	Imputed value of household labour	344	-
17.	Cost 'C' (15+16)	12729	-



The expenditure on hired human labour per hectare of winter paddy crop is seen to be Rs.3628/-. About more than half Cost 'A' is accounted by hired human labour. The percentage of hired human labour hours engaged in the winter paddy cultivation to the total labour hours is given in the following table.

**15. Percentage distribution of hired human labour hours to total labour hours**

Sex	Holding size class			
	Small	Medium	Large	All sizes
1	2	3	4	5
Male	27.88	25.67	21.58	25.83
Female	61.70	67.38	72.90	66.34
<b>Total</b>	<b>89.58</b>	<b>93.05</b>	<b>94.48</b>	<b>92.17</b>

It is seen that the hired human labour hours accounted for 92% of the total human labour hours in winter paddy cultivation. Hired labour is more in the case of females.

The cost of animal labour utilised in winter paddy cultivation is found to be Rs.468/- per hectare for the period under report. The cost of animal labour accounts to 7% and 6% of the Cost 'A' is shared by machine labour. The cost of machine labour for winter paddy is more in large scale size class than in small and medium size classes. About 6% of the total Cost 'A' is spent for seed/seedlings and 18% is towards farmyard manure and chemical fertilisers. The cost of plant protection measures is estimated to Rs.127 in 1990-'91. Nearly 1% is for land tax and irrigation cess. Percentage share towards repair and maintenance charges of implements, machinery and building is 1% and interest on working capital is estimated to be Rs.323/- which is about 5% of the total Cost 'A'. Nearly 2% of the total Cost 'A' comes under other expenses.

The interest on fixed capital excluding land is estimated at 331/- per hectare and Cost 'B1' is found to be Rs.7235/-. Interest on land value is worked out to Rs.5150/- and thus Cost 'B' comes to Rs.12385 per hectare. The imputed value of family labour is Rs.344/-. It is maximum in the case of small cultivators and minimum in the case of large cultivators.

The estimated cost for the cultivation of winter paddy per hectare under three major concepts of cost are given below.

**16. Cost of cultivation of winter paddy (Rs./hectare)**

Concept of cost	Holding size class			
	Small	Medium	Large	All sizes
1	2	3	4	5
Cost 'A'	8690	6786	4946	6904
Cost 'B'	15653	11853	9717	12385
Cost 'C'	16267	12148	9859	12729

**17. Cost of cultivation of winter paddy (₹./hectare) for  
1989-'90 and 1990-'91**

Concept of cost	Year	Holding size class			
		Small	Medium	Large	All sizes
1	2	4	5	6	7
Cost 'A'	1989-90	7846	6717	5474	6700
	1990-91	8690	6786	4946	6904
Cost 'B'	1989-90	15032	12534	9203	12388
	1990-91	15653	11853	9717	12385
Cost 'C'	1989-90	15682	12880	9277	12740
	1990-91	16267	12148	9859	12729

**B. Output:-**

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

**18. Value of output (₹./hectare)**

Product & by-product	Holding size class			
	Small	Medium	Large	All sizes
1	2	3	4	5
Paddy	7768	7543	8553	7771
Straw	2780	1931	1409	2042
<b>Total</b>	<b>10548</b>	<b>9474</b>	<b>9962</b>	<b>9813</b>

**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.

**19. Cost of production of winter paddy (₹./quintal)**

Concept of cost	Holding size class			
	Small	Medium	Large	All sizes
1	2	3	4	5
Cost 'A'	231	194	116	186
Cost 'B'	502	395	272	396
Cost 'C'	526	407	277	409

As in the previous year the cost of production of winter paddy is higher in the case of small size holdings and lower in the case of large size holdings under the reference period.

The cost of production of winter paddy per quintal for 1989-'90 and 1990-'91 are presented below for the purpose of comparison.

**20. Cost of production of winter paddy per quintal (in Rs.)  
for 1989-'90 and 1990-'91**

Concept of cost	Holding size class							
	Small		Medium		Large		All size classes	
	89-90	90-91	89-90	90-91	89-90	90-91	89-90	90-91
1	2	3	4	5	6	7	8	9
Cost 'A'	223	231	192	194	145	116	186	186
Cost 'B'	528	502	429	395	265	272	408	396
Cost 'C'	555	526	443	407	268	277	422	409

When compared to the previous year cost of production of winter paddy per quintal relating to Cost 'A' remaining constant and Cost 'B' and Cost 'C' showed decreasing trend. Since the prices of chemical fertilisers have gone up substantially, the cultivators reduced the application of fertilisers. Moreover, the abnormal hike in the labour charge particularly of the male labourers forced the cultivators to replace male labourers by female labourers as far as possible. These factors contributed to the lower rates in the cost. The fluctuating trend in the land value is attributed to the lower rate of Cost 'B' and Cost 'C'. This happens when the plots selected for studying cost of cultivation belong to the low value areas.

**iii. Summer (Punja) Paddy:-**

During 1990-'91 360 holdings covering an area of 171.77 hectares were selected for estimating the cost of cultivation of summer paddy. The average area per sample holding is found to be 0.48 hectare.

The estimated per hectare cost of different items are presented below. The details according to size class are presented in Appendix 3.

**21. Size-wise number of selected holdings and area**

Holding size class	Number of of selected holdings	Area under paddy in hectare	Percentage to total area under paddy	Area per holding (hectare)
1	2	3	4	5
Small	225	47.17	27.46	0.21
Medium	126	91.96	53.54	0.73
Large	9	32.64	19.00	3.63
<b>Total</b>	<b>360</b>	<b>171.77</b>	<b>100.00</b>	<b>0.48</b>

## 22. Cost of cultivation per hectare of Summer paddy 1990-'91

Sl. No.	Components of different cost concepts	Cost per hectare (Rs.)	% distribution of Cost 'A'
1	2	3	4
1.	Hired human labour	4289	53.09
2.	Animal labour	474	5.87
3.	Machine labour	447	5.54
4.	Seed/seedlings	438	5.42
5.	Farmyard manure & chemical fertilisers	1277	15.81
6.	Plant protection	323	4.00
7.	Land tax and irrigation cess	70	0.86
8.	Repair and maintenance charges	114	1.41
9.	Interest on working capital	376	4.65
10.	Other expenses	270	3.35
11.	Total Cost 'A' ('1-10)	3078	100.00
12.	Interest on fixed capital	323	-
13.	Cost 'B1' (11+12)	8401	-
14.	Interest on land value	4550	-
15.	Cost 'B' (13+14)	12951	-
16.	Imputed value of household labour	487	-
17.	Cost 'C' (15+16)	13438	-

NOTE:- Figures in column (4) give the percentage to total cost 'A'.

The human, animal, machine labour cost per hectare is Rs.5210/- which constitutes about 65% of the total Cost 'A'. Out of this, hired human labour cost constituted 53%, animal labour cost nearly 6% and machine labour was also 6%. The percentage of hired human labour hours engaged in the cultivation of summer paddy during 1990-'91 is given below:-

## 23. Percentage of hired human labour hours engaged in summer paddy cultivation

Holding size class	Male	Female	Total
1	2	3	4
Small	28.07	53.95	82.02
Medium	25.29	67.45	92.74
Large	18.56	80.45	99.01
All sizes	25.18	65.12	90.30

It can be seen that 90% of the total human labour hours is hired human labour.

About 5% of the Cost 'A' accounts for the farm yard manure while 16% of the same accounts chemical fertilisers. The percentage share towards plant protection measures was 4% and Rs.70 was spent for land tax

and irrigation cess. The estimated expenditure per hectare on repair and maintenance charges of implements and machinery was Rs.114 and interest on working capital accounts to 5% (Rs.376) during the period under report.

#### Cost 'B1' and Cost 'B':-

Cost 'B1' is obtained by adding the interest on fixed capital (excluding land) to Cost 'A' and is seen to be Rs.8401/-. The interest on land value during this period also is maximum in the case of small holding size class and minimum in the case of large size class. Cost 'B' is seen to be Rs.12951/- per hectare during 1990-'91.

The imputed value of household labour is maximum (Rs.968/-) in the case of small holding size class and minimum in the case of large holding size class i.e. small size class engaged themselves in the cultivation practices than the cultivators belonging to large size class.

Cost 'B1' is found to be higher in the case of small size holdings. The interest on land value is highest in small size class (Rs.6339/-) and it is lower in the case of large size class.

The table below gives cost of cultivation of summer paddy during 1989-'90 and 1990-'91

#### 24. Cost of cultivation of (Summer) paddy in Rs/hect for 1989-'90 and 1990-'91

Concept of cost	Year	Holding size class			
		Small	Medium	Large	All sizes
1	2	3	4	5	6
Cost 'A'	1989-90	7896	7511	7002	7619
	1990-91	8630	8163	6946	8078
Cost 'B'	1989-90	14052	11354	9072	11978
	1990-91	15363	12831	9612	12951
Cost 'C'	1989-90	15065	11675	9192	12482
	1990-91	16331	13226	9662	13438

#### Output:-

The value of output is seen to be Rs.10953/- per hectare for the summer paddy. The details for the different holding size classes are given as follows:-

25. Value of product and by-product per hectare (in Rs.)  
during 1990-'91

Product by-product	Holding size class			
	Small	Medium	Large	All sizes
1	2	3	4	5
Paddy	8119	9635	9667	9225
Straw	2251	1651	1191	1728
<b>Total</b>	<b>10370</b>	<b>11286</b>	<b>10858</b>	<b>10953</b>

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.

26. Cost of production of summer paddy per quintal

Concept of cost	Holding size class			
	Small	Medium	Large	All sizes
1	2	3	4	5
Cost 'A'	237	197	164	200
Cost 'B'	487	338	242	353
Cost 'C'	523	350	243	369

A comparison between the cost of production of paddy per quintal during 1989-'90 and 1990-'91 is given in the following table.

27. Cost of production of paddy/quintal during  
1989-'90 and 1990-'91

Concept of cost	1989-'90	1990-'91
1	2	3
Cost 'A'	181	200
Cost 'B'	311	353
Cost 'C'	326	369

2.2 Coconut:-

Coconut as an oil seed of the State occupies an important place in the economy. The area under coconut cultivation during the agricultural year 1990-'91 is 870022 hectares which is 28.81% of the total cropped area in the State. The area and the average yield per hectare is given in the following table.

## 28. Area and average yield of coconut 1990-'91

Area under coconut (ha.)	Percentage to total cropped area	average yield per hectare (no. of nuts)
1	2	3
870022	28.81	4864

(Source:- TRS estimates 1990-'91).

## Selected holdings:-

The details of the selected holdings of the crop coconut are given below:-

## 29. 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.)
1	2	3	4	5
Small	74	10.31	5.28	0.14
Medium	250	96.92	49.62	0.39
Large	56	88.09	45.10	1.57
<b>All sizes</b>	<b>380</b>	<b>195.32</b>	<b>100.00</b>	<b>0.51</b>

During the period under report 380 holdings were selected for the study of the cost of cultivation of coconut.

## Number of bearing trees in the selected holdings:-

The average number of bearing and non-bearing trees per hectare in the selected plots were 138 and 71 respectively during the period under report. 66% of the total coconut trees in the selected plots was found to be bearing and the remaining non-bearing.

## 30. Number of bearing and non-bearing trees per hectare

Type of trees	No. of trees per hectare	Percentage
1	2	3
Bearing	138	66.03
Non-bearing	71	33.97
<b>Total</b>	<b>209</b>	<b>100.00</b>



### A. Cost of cultivation:-

The cost of cultivation of coconut estimated under the different concepts of cost is given below:-

#### i. Cost 'A':-

It is estimated that Rs.2440 is spent towards the labour cost during 1990-'91. This is about 49% of the total Cost 'A'. The estimated cost of cultivation of different items per hectare of coconut is given in the following table. (Please refer Appendix 4 also).

#### 31. Cost of cultivation per hectare of coconut 1990-'91

Sl. No.	Components of different cost concepts	Cost per hectare (Rs.)	% distribution of Cost 'A'
1	2	3	4
1.	Hired human labour	2363	47.69
2.	Animal labour	26	0.52
3.	Machine labour	51	1.03
4.	Seed/seedlings	33	0.67
5.	Farmyard manure & chemical fertilisers	1832	36.97
6.	Plant protection	60	1.21
7.	Land tax and irrigation cess	20	0.40
8.	Repair and maintenance charges	51	1.03
9.	Interest on working capital	444	8.96
10.	Other expenses	75	1.52
11.	Total Cost 'A' (1-10)	4955	100.00
12.	Interest on fixed capital	490	-
13.	Cost 'B1' (11+12)	5445	-
14.	Interest on land value	38075	-
15.	Cost 'B' (13+14)	43520	-
16.	Imputed value of household labour	255	-
17.	Cost 'C' (15+16)	43775	-

The percentage of hired human labour hours to total human labour hours is given below:-

#### 32. Percentage distribution of hired human labour hours to total human labour hours

Sex	Holding size class			
	Small	Medium	Large	All sizes
1	2	3	4	5
Male	64.97	69.19	75.34	71.82
Female	5.83	10.45	21.41	15.31
<b>Total</b>	<b>70.80</b>	<b>79.64</b>	<b>96.75</b>	<b>87.13</b>

About 87% of the total human labour hours has been constituted by hired human labour. Rs.33/- per hectare is spent towards seed/seedlings for new plantation. The cost for farmyard manure and chemical fertilisers per hectare is Rs.1832/- showing that about 37% of the total Cost 'A' is spent on these items. An amount of Rs.60/- is spent for plant protection per hectare. The expenditure towards land tax and irrigation cess is found to be Rs.20/- per hectare. The charges towards repair, maintenance of implements, machinery, buildings, etc. is Rs.51/- per hectare. Interest on working capital is estimated to be Rs.444/- per hectare. The other expenses were found to be Rs.75/- per hectare. The interest on fixed capital is estimated to be Rs.490/- per hectare (excluding land improvement).

ii. 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.5445/- per hectare.

Cost 'B' is estimated to be Rs.43520/-. Imputed value of household labour is Rs.255/- per hectare. Interest on land value is lower in the case of cultivators belonging to small holding size class and it is higher in the case of large size class.

iii. Cost 'C':-

During this round also, the family labour is seen to be higher in small holding size class and lower in large holding size class. Cost 'C' is estimated as Rs.43775/- per hectare.

33. **Cost of cultivation of coconut per hectare during 1989-'90 and 1990-'91**

Concept of cost	Cost per hectare (in Rs)		Percentage of increase
	1989-90	1990-91	
1	2	3	4
Cost 'A'	4631	4955	7.00
Cost 'B'	43444	43520	0.17
Cost 'C'	43752	43775	0.004

When the cost of cultivation is compared with the previous year, the Cost 'A' has increased by 7% and Cost 'B' 0.17% and Cost 'C' is 0.05%.

B. Value of product:-

The total value of output per hectare is seen to be 14396/- during 1990-'91.

## 34. Value of output per hectare

Output	Value (in Rs)
1	2
Product	13738
By-product	658
<b>Total</b>	<b>14396</b>

## 2.3 Tapioca

Tapioca is extensively cultivated in Kerala. During the current year the area under tapioca is seen increasing. The total area under tapioca cultivation and the average yield per hectare are given below:-

## 35. Area and average yield of tapioca during 1990-'91

Area under tapioca (lakh hectare)	Average yield per hectare (tonnes)	% of area under tapioca total cropped area
1	2	3
1.46	19.13	4.85

During the period under report the average yield of tapioca per hectare was 19.13 tonnes and the percentage of the total cropped area was about 5%.

A total of 180 holdings were selected for studying the cost of cultivation of tapioca in Kerala. The number of holdings and area are given below:-

## 36. Area and number of holdings selected during 1990-'91

Size Class	Number of holdings selected	Area under tapioca in the sample (hectare)	Percentage to total area	Area per holdings (hectare)
1	2	3	4	5
Small	123	14.91	43.65	0.12
Medium	53	15.20	44.50	0.29
Large	4	4.05	11.85	1.01
<b>All sizes</b>	<b>180</b>	<b>34.16</b>	<b>100.00</b>	<b>0.19</b>

The average area per sample holding is 0.19 hectare. The total area of the holdings selected for studying the cost of cultivation of tapioca was 34.16 hectare.

### A. Cost of cultivation:-

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

#### 37. Cost of cultivation per hectare of tapioca 1990-'91

Sl. No.	Components of different cost concepts	Cost per hectare (Rs.)	% distribution of Cost 'A'
1	2	3	4
1.	Hired human labour	3934	58.51
2.	Animal labour	16	0.24
3.	Machine labour	44	0.65
4.	Seed/seedlings	255	3.79
5.	Farmyard manure & chemical fertilisers	1571	23.36
6.	Plant protection	71	1.06
7.	Land tax and irrigation cess	57	0.85
8.	Repair and maintenance charges	65	0.97
9.	Interest on working capital	600	8.92
10.	Other expenses	111	1.65
11.	Total Cost 'A' (1-10)	6724	100.00
12.	Interest on fixed capital	490	-
13.	Cost 'B1' (11+12)	7214	-
14.	Interest on land value	29126	-
15.	Cost 'B' (13+14)	36340	-
16.	Imputed value of household labour	805	-
17.	Cost 'C' (15+16)	37145	-

The above table reveals that the Cost 'A' is estimated to be Rs.6724/- per hectare. The human, animal and machine labour cost is seen to be Rs.3994/- which is 59% of the total Cost 'A'.

The percentage of hired human labour hours engaged in tapioca cultivation is given below:-

#### 38. Percentage distribution of hired human labour hours

Sex	Holding size class			
	Small	Medium	Large	All sizes
1	2	3	4	5
Male	63.10	59.90	68.43	62.09
Female	16.16	23.97	24.66	20.72
Total	79.26	83.87	93.09	82.81

In tapioca cultivation the proportion of hired human labour to total human labour input steadily increases with the increase in the size of holdings. About 83% of the total human labour hours account for hired human labour.

The cost of cuttings estimated from the survey is Rs.255/- of the Cost 'A'. About 4% of Cost 'A' comes under this item. During the period under report 23% of Cost 'A' comes under farmyard manure and chemical fertilisers. Rs.57/- is spent for land tax and irrigation cess. The repair and maintenance charges on implements and machinery per hectare is Rs.65/-. The interest on working capital is Rs.600 and other expenses is Rs.111/- respectively.

It is seen that the interest on fixed capital (excluding land value) is Rs.490/- per hectare. Cost 'B1' is estimated by adding the interest on fixed capital (excluding land) to Cost 'A'. It is found to be Rs.7214/- per hectare. The interest on land value is Rs.29126/- per hectare and Cost 'B' is estimated to be Rs.36340/- per hectare. The imputed value of household labour is Rs.805/- per hectare. Cost 'C' is estimated to be Rs.37145/- per hectare.

The estimated cost of tapioca cultivation under different cost concepts are shown below:-

### 39. Estimated cost of tapioca cultivation

Concept of cost	Cost per hectare (Rs.)
1	2
Cost 'A'	6724
Cost 'B'	36340
Cost 'C'	37145

A comparison between the cost of production of tapioca during 1989-'90 and 1990-'91 is given in the following table.

### 40. Cost of tapioca cultivation per hectare during 1989-'90 and 1990-'91

Concept of cost	Cost per hectare (Rs.)		% decrease in cost of cultivation
	1989-90	1990-91	
1	2	3	4
Cost 'A'	6367	6724	5.60
Cost 'B'	37919	36340	-4.16
Cost 'C'	38679	37145	-3.96

### B. Output:-

The value of output per hectare is found to be Rs.12275/- during the current year.

### 2.4 Pepper:-

As a foreign exchange earner pepper occupy an important place in Kerala economy. The total area under pepper and the average yield per hectare during 1990-'91 are given in the following table:-

## 41. Area and average yield of pepper

Area under pepper (in hectare)	Average yield of pepper in Kg. per hect.	Percentage of area under pepper to the total cropped area
1	2	3
168507	278	5.58

Source:- TRS estimates.

About 6% of the total cropped area in the State is under pepper cultivation.

## Selected holdings:-

185 holdings were selected for studying the cost of cultivation of pepper during 1990-'91. The area and the number of holdings selected for pepper are given in the following table.

## 42. Area under pepper in the sample

Holding size class	No. of selected holdings	Total area under the crop (hect.)	Percentage to total area of selected holdings	Area per holding
1	2	3	4	5
Small	172	8.55	58.80	0.05
Medium	12	4.86	33.43	0.41
Large	1	1.13	7.77	1.13
All sizes	185	14.54	100.00	0.08

The operational area under the crop in the selected holdings is about 15 hectare during the period.

## A. Cost of cultivation of pepper:-

The different concepts of cost estimated for the crop pepper are discussed in the following paragraphs. The components of Cost 'A' per hectare of pepper cultivation for the year 1990-'91 are given in the following table.

## 43. Cost of cultivation per hectare of pepper 1990-'91

Sl. No.	Components of different cost concepts	Cost per hectare (Rs.)	% distribution of Cost 'A'
1	2	3	4
1.	Hired human labour	2711	54.97
2.	Animal labour	-	-
3.	Machine labour	35	0.71

(Contd.)

(Table 43 contd.)

1	2	3	4
4. Seed/seedlings		41	0.83
5. Farmyard manure & chemical fertilisers		1513	30.68
6. Plant protection		21	0.42
7. Land tax and irrigation cess		31	0.63
8. Repair and maintenance charges		74	1.50
9. Interest on working capital		439	8.90
10. Other expenses		67	1.36
11. Total Cost 'A' (1-10)		4932	100.00
12. Interest on fixed capital		616	-
13. Cost 'B1' (11+12)		5548	-
14. Interest on land value		28509	-
15. Cost 'B' (13+14)		34057	-
16. Imputed value of household labour		1020	-
17. Cost 'C' (15+16)		35077	-

The expenditure towards the hired human labour cost is estimated as Rs.2711/- during the year 1990-'91.

About 60% of the Cost 'A' accounts for this item. The percentage of hired human labour hours engaged in pepper cultivation to the total labour hours is shown here under.

#### 44. Percentage distribution of hired human labour hours to total human labour hours

Sex	Holding size class			
	Small	Medium	Large	All sizes-
1	2	3	4	5
Male	60.22	54.68	67.02	59.28
Female	11.22	8.82	29.12	12.59
<b>Total</b>	<b>71.44</b>	<b>63.50</b>	<b>96.14</b>	<b>71.87</b>

It is seen that 72% of the total human labour hours accounted for hired human labour and the remaining towards household exchange human labour hours. Female hired human labour is low in the case of pepper cultivation.

The cost towards seed/seedlings is Rs.41/- per hectare ie. about 0.83% of the total Cost 'A'. This amount is spent for new planting in pepper growing plots.

Rs.1513/- is spent for the cost of farmyard manure and chemical fertilisers which is 31% of the total Cost 'A'. The expenditure towards land tax and irrigation cess is Rs.31/- which is only a negligible percent of the total Cost 'A'. The cost towards repair and maintenance



charges of implements and machinery contributes about 1.50% of the total Cost 'A' (Rs.74/- per hectare). Rs.439/- is seen as the interest on working capital. 9% of the total Cost 'A' constitutes towards this item. About 1% of the total Cost 'A' ie. Rs.67/- is spent towards 'other expenses'.

**Cost 'B1':-**

Cost 'B1' is estimated by adding the interest on fixed capital (excluding land) to Cost 'A'. It works out to Rs.5548 for 1990-'91.

The interest on land value is fixed to be Rs.28509/- during the period under report.

**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'. Cost 'B' is found to be Rs.34057/- and Cost 'C' is 35077/-. The imputed value of household labour is Rs.1020/- per hectare.

**B. Value of output:-**

The value of pepper is found to be Rs.15348 per hectare during the period under study.

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## CHAPTER 3 - SUMMARY OF FINDINGS

The cost of cultivation of important crops viz. paddy (Autumn, Winter and Summer), coconut, tapioca and pepper are worked out by analysing the data collected through the survey 1990-'91.

## 1. Autumn paddy:-

The cost of cultivation of autumn paddy per hectare ie. Cost 'A' is estimated to be Rs.6291/- during 1990-'91. It showed a nominal increase ie. 0.11% compared to the previous year.

## 2. Winter paddy:-

Cost 'A' for the cost of cultivation of winter paddy per hectare is worked out to be Rs.6904 for the year 1990-'91. The percentage increase being 3% during the current year.

## 3. Summer paddy:-

The cost of cultivation of summer paddy per hectare (Cost 'A' is estimated to be Rs.8078 during 1990-'91. When compared to the previous year it shows an increase of 5% during the period under report.

## 4. Coconut:-

During this round the Cost 'A' per hectare of coconut cultivation is estimated to be Rs.4955/-. This is 7% more than the corresponding cost of the previous year.

## 5. Pepper:-

The cost of cultivation of pepper per hectare (Cost 'A') is estimated to be Rs.4932/- during the period under review. During the period under review Cost 'A' showed a decrease of 18% when compared to the previous year. This decline is attributed to the abnormal decline in the price of pepper, hence the cultivators were reluctant to invest more money in this field.

## 6. Tapioca:-

In tapioca cultivation the estimated per hectare Cost ('A') during 1990-'91 viz. Rs.6724/-, showed an increasing trend of 6% when compared to the previous year.

**Appendix 1 - Cost of cultivation per hectare (in Rs.) of  
paddy (autumn) during the year 1990-'91**

Sl. No.	Components of different cost concept	Holding size class			All sizes
		Small	Medium	Large	
1	2	3	4	5	6
1.	Hired human labour	4280	3253	2451	3263
2.	Animal labour	686	484	202	453
3.	Machine labour	406	396	329	380
4.	Seed/seedlings	478	446	552	482
5.	Farmyard manure & chemical fertilisers	1314	1015	1011	1079
6.	Plant protection	69	62	388	151
7.	Land tax and irrigation cess	15	17	44	24
8.	Repair and maintenance charges	86	42	45	57
9.	Other expenses	73	93	156	106
10.	Interest on working capital	365	287	254	296
11.	Total Cost 'A' (1-10)	7772	6095	5432	6291
12.	Interest on fixed capital	348	230	154	259
13.	Cost 'B1' (11+12)	8120	6325	5586	6550
14.	Interest on land value	6999	5253	4099	5309
15.	Cost 'B' (13 + 14)	15119	11578	9685	11859
16.	Imputed value of household labour	575	365	39	323
17.	Cost 'C' (15 + 16)	15694	11943	9724	12182

**Appendix 2 - Cost of cultivation per hectare (in Rs.) of  
paddy (winter) during the year 1990-'91**

Sl. No.	Components of different cost concept	Holding size class			All sizes
		Small	Medium	Large	
1	2	3	4	5	6
1.	Hired human labour	4928	3495	2307	3628
2.	Animal labour	619	498	157	468
3.	Machine labour	375	439	492	433
4.	Seed/seedlings	502	456	369	452
5.	Farmyard manure & chemical fertilisers	1473	1215	1103	1237
6.	Plant protection	128	129	121	127
7.	Land tax and irrigation cess	28	48	49	43
8.	Repair and maintenance charges	104	62	33	75
9.	Other expenses	125	126	83	118
10.	Interest on working capital	408	318	232	323
11.	Total Cost 'A' (1-10)	8690	6786	4946	6904
12.	Interest on fixed capital	387	310	220	331
13.	Cost 'B1' (11+12)	9077	7096	5166	7235
14.	Interest on land value	6576	4757	4551	5150
15.	Cost 'B' (13 + 14)	15653	11853	9717	12385
16.	Imputed value of household labour.	614	295	142	344
17.	Cost 'C' (15 + 16)	16267	12148	9859	12729

**Appendix 3 - Cost of cultivation per hectare (in Rs.) of  
paddy (Summer) during the year 1990-'91**

Sl. No.	Components of different cost concept	Holding size class			All sizes
		Small	Medium	Large	
1	2	3	4	5	6
1.	Hired human labour	4307	4368	4034	4289
2.	Animal labour	670	456	241	474
3.	Machine labour	517	460	309	447
4.	Seed/seedlings	456	515	198	438
5.	Farmyard manure & chemical fertilisers	1584	1182	1097	1277
6.	Plant protection	309	318	357	323
7.	Land tax and irrigation cess	51	68	104	70
8.	Repair and maintenance charges	162	85	40	114
9.	Other expenses	173	330	242	270
10.	Interest on working capital	401	381	324	376
11.	Total Cost 'A' (1-10)	8630	8163	6946	8078
12.	Interest on fixed capital	394	301	188	323
13.	Cost 'B1' (11+12)	9024	8464	7134	8401
14.	Interest on land value	6339	4367	2478	4550
15.	Cost 'B' (13 + 14)	15363	12621	9612	12951
16.	Imputed value of household labour	968	395	50	487
17.	Cost 'C' (15 + 16)	16331	13226	9662	13438

**Appendix 4 - Cost of cultivation per hectare (in Rs.) of  
coconut during the year 1990-'91**

Sl. No.	Components of different cost concept	Holding size class			All sizes
		Small	Medium	Large	
1	2	3	4	5	6
1.	Hired human labour	2427	2156	2585	2363
2.	Animal labour	-	11	47	26
3.	Machine labour	72	53	45	51
4.	Seed/seedlings	25	36	36	33
5.	Farmyard manure & chemical fertilisers	2180	1546	2127	1832
6.	Plant protection	20	45	83	60
7.	Land tax and irrigation cess	19	22	19	20
8.	Repair and maintenance charges	76	56	31	51
9.	Other expenses	74	91	61	75
10.	Interest on working capital	480	394	498	444
11.	Total Cost 'A' (1-10)	5373	4410	5532	4955
12.	Interest on fixed capital	637	493	413	490
13.	Cost 'B1' (11+12)	6010	4903	5945	5445
14.	Interest on land value	35204	36726	39893	38075
15.	Cost 'B' (13 + 14)	41214	41629	45838	43520
16.	Imputed value of household labour.	788	376	61	255
17.	Cost 'C' (15 + 16)	42002	42005	45899	43775

**Appendix 5 - Cost of cultivation per hectare (in Rs.) of  
tapioca during the year 1990-'91**

Sl. No.	Components of different cost concept	Holding size class			All sizes
		Small	Medium	Large	
1	2	3	4	5	6
1.	Hired human labour	3799	4113	3801	3934
2.	Animal labour	8	29	-	16
3.	Machine labour	13	86	-	44
4.	Seed/seedlings	238	254	324	255
5.	Farmyard manure & chemical fertilisers	1610	1650	1115	1571
6.	Plant protection	12	36	423	71
7.	Land tax and irrigation cess	20	102	18	57
8.	Repair and maintenance charges	75	59	-	65
9.	Other expenses	87	145	78	111
10.	Interest on working capital	578	647	576	600
11.	Total Cost 'A' (1-10)	6450	7121	6335	6724
12.	Interest on fixed capital	514	467	407	490
13.	Cost 'B1' (11+12)	6964	7588	6742	7214
14.	Interest on land value	33394	24671	19165	29126
15.	Cost 'B' (13 + 14)	40358	35259	25907	36340
16.	Imputed value of household labour.	914	836	288	805
17.	Cost 'C' (15 + 16)	41272	36097	26195	37145

**Appendix 6 - Cost of cultivation per hectare (in Rs.) of  
pepper during the year 1990-'91**

Sl. No.	Components of different cost concept	Holding size class			All sizes
		Small	Medium	Large	
1	2	3	4	5	6
1.	Hired human labour	2690	2284	4702	2711
2.	Animal labour	-	-	-	-
3.	Machine labour	59	-	-	35
4.	Seed/seedlings	28	72	-	41
5.	Farmyard manure & chemical fertilisers	1198	1476	4062	1513
6.	Plant protection	35	2	-	21
7.	Land tax and irrigation cess	39	18	25	31
8.	Repair and maintenance charges	77	47	65	74
9.	Other expenses	56	76	112	67
10.	Interest on working capital	407	391	888	434
11.	Total Cost 'A' (1-10)	4589	4366	9854	4932
12.	Interest on fixed capital	623	351	1769	616
13.	Cost 'B1' (11+12)	5212	4717	11623	5548
14.	Interest on land value	35347	18499	19823	28509
15.	Cost 'B' (13 + 14)	40559	23216	31446	34057
16.	Imputed value of household labour.	975	1281	242	1020
17.	Cost 'C' (15 + 16)	41534	24497	31688	35077



