Chapter I

GENERAL

1.1 Introduction

Reliable data on cost of production of different crops cultivated in the State are needed for formulating proper price policy. Realising the importance of this need, Government of Kerala in G.O. (Rt) 466179/Plg. Dated: 27/10/1979 sanctioned in scheme for an annual survey on Cost of Cultivation of Important Crops in Kerala. The present report relates to the 24th round of survey conducted during 2003-04.

The crops covered during the period under study are given below:-

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

1.2 Objectives

The main objective of this survey was to estimate the cost of cultivation per hectare of important crops in Kerala and to compare the cost under different concepts, over a period.

1.3. Period of the Survey

The period of the survey was from 1/7/2003 to 30/6/2004.

1.4. 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 Taluk two investigator zones were selected using circular systematic sampling method.

Selection of cultivators

In selected Investigator zone a list of cultivators growing paddy in the previous autumn season is prepared from the last year's Form I Diary of the EARAS. From this a list of 5 cultivators are selected at random for the current year cost of cultivation study on autumn paddy. Similar procedure is adopted for the selection of cultivators for winter and summer paddy also.

In case the cultivators selected for cost of cultivation study on Autumn Paddy possess suitable number of plots

with other specified crops in stipulated area they may be selected for the cost of cultivation study on other crops like Coconut, Pepper, Arecanut, Banana, 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 last year. If the selected investigator zone in a Taluk does not provide the required number of plots for these crops another Investigator zone in the same 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 was as follows:

1	Paddy	Autumn	10 (5 holdings each from one Investigator zone)
		Winter	10 (5 holdings each from one Investigator zone)
		Summer	10 (5 holdings each from one Investigator zone)
2	Coconut		10 (5 holdings each from one Investigator zone)
3	Arecanut		10 (5 holdings each from one Investigator zone)
4	Pepper		5 (Minimum 2 holdings in one Investigator zone)
5	Banana		5 (Minimum 2 holdings in one Investigator zone)
6	Tapioca		5 (Minimum 2 holdings in one Investigator zone)
7	Ginger		5 (Minimum 2 holdings in one Investigator zone)
8	Turmeric		5 (Minimum 2 holdings in one Investigator zone)

A holding was considered for the study only if it contained at least 25 cents under the crops in the case of paddy and 10 cents for tapioca, banana, ginger and turmeric. In the case of perennial crops like coconut and pepper the holdings should have 25 trees/plants of which a minimum of 50% should be bearing trees/plants.

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
Small	< 0.40 hectare	<0.2 hectare
Medium	0.40 to < 2 hectare	0.20 to < 0.80 hectare
Large	≥ -2 hectare	≥ -0.80 hectare

Note:- < Less than ≥ - Greater than or Equal to

1.5 Schedules

Five schedules were designed for the survey

Schedule -1	Selected Investigator zone
Schedule -2	Summary of Form I Dairy
Schedule –3	List of selected cultivators
Schedule –4	General Particulars
Schedule –5	In this schedule the cultivation expenses incurred for a crop in each fortnight is reported.

1.6 Field work

Fieldwork was done by 38 Investigators in 38 selected Taluks, one Investigator in each Taluk. The investigators visited the selected holdings every fortnight and recorded fortnightly operations on schedule 5. The fieldwork was supervised by Taluk Statistical Officer at the Taluk level and Deputy Director/ District officer at the District level.

1.7 Processing and Analysis of Data

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

1.8 Method of Estimation of Cost

(a) Concepts of Cost.

Different cost concepts, cost 'A' cost 'B^1', 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/ seed lings
v. Farm yard Manure and Chemical fertilizers
vi. Plant protection
vii. Land tax and Irrigation Cess
viii. Repair and maintenance charges of implements, machinery and buildings
ix. Interest on working capital
x. Other expenses

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

Cost 'B': Cost 'B1' + interest on land value

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

(b) Procedure for imputation of values of owned inputs

In the production process certain inputs from home stocks 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 values of such home stock inputs are 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 charges paid 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 (house grown) seed has been imputed at the prices prevalent in the investigator zone concerned at the time of sowing

vii	Farm produced manure	Imputed at the rate prevalent in the zone concerned.
viii	Interest on fixed capital	Interest on the present value of fixed assets such as land, farm, building, implements, machinery, irrigation structure, equipments and livestock (only draught animals) at the rate of 10 % per annum has been calculated.
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 (i.e. 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 costs 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.

i	Repair and maintenance charges of implements	In proportion to the area under the crop
ii	Interest on 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 crop

(D) Procedure for valuation of farm assets

i	Own farm buildings (cattle sheds, storage shed etc)	Valuated at prices prevailing in the locality
ii	Implements and other machinery	Valuated at prevalent market prices
iii	Livestock (only draught animals)	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 in to account. The land value is estimated at the current market rate in the different areas. There is a controversy in the assessment of land value. The land value is increasing considerably. If the actual value is taken for calculating the interest on land value, no cultivation is profitable in the State. However, there is always a tendency to under report the land value. It is therefore necessary to evolve a method or criteria to estimate the land value reasonably while calculating the cost of cultivation of crops.

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CHAPTER 2

RESULTS OF THE SURVEY

i) Autumn Paddy

The total number of holdings selected for the cost of cultivation study on autumn paddy were 324. Details of these holdings are given below:

Table 1 - Area under autumn paddy during 2003-04

Holding size class	No of selected holdings	Area under the crop in the sample (ha)	Percentage	Area per holding (ha)
Small	165	42.52	18.65	0.26
Medium	125	96.59	42.35	0.77
Large	34	88.94	39.00	2.62
Total	**324**	**228.05**	**100.00**	**0.70**

A. Cost of cultivation

Table 2- Cost of Cultivation per hectare of paddy (autumn) during 2003-04

Sl No	Component of different cost concept	Cost per hectare (in Rs)	% Distribution of cost
1	Hired human labour	10463	52.49
2	Animal labour	297	1.49
3	Machine labour	2129	10.68
4	Seed / seedlings	1153	5.78
5	Farmyard manure and chemical fertilizers	3477	17.44
6	Plant protection	292	1.46
7	Land tax and irrigation cess	80	0.42
8	Repair and maintenance charges	228	1.14
9	Interest on working capital	934	4.69
10	Other expenses	879	4.41
11	Total cost 'A' (1-10)	19932	100.00
12	Interest on fixed capital	772	
13	Cost 'B1' (11+12)	20704	
14	Interest on land value	29633	
15	Cost 'B' (13+14)	50337	
16	Imputed value of household labour	1292	
17	Cost 'C' (15+16)	51629	

Above table reveals that in autumn paddy cultivation among various cost components hired labour input constitutes to the largest share (52%) when Cost 'A' is considered.

Table 3: Percentage of Hired human labour hours to total human labour hours

Sex	Holding size class			
	Small	Medium	Large	All Sizes
Male	25.74	17.82	15.21	18.31
Female	57.19	72.49	76.87	71.12
Total	**82.93**	**90.31**	**92.08**	**89.43**

The percentage distribution of hired human labour hours to the total human labour hours also shows that 89% of the total labour hours shares to hired human labour.

Cost of production of paddy per quintal

Table: 4 Cost of production of paddy per quintal during autumn season during 2002-03 & 2003-04

Concept of cost	Year	Holding size class			
		Small	Medium	Large	All Sizes
Cost 'A'	2002-03	500	434	447	601
	2003-04	501	367	494	466
Cost 'B'	2002-03	1466	1181	1075	1234
	2003-04	1771	1281	1004	1268

Cost 'C'	2002-03	1529	1225	1096	1274
	2003-04	1848	1312	1026	1302

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.

Table: 5 Cost of Cultivation of paddy per quintal during autumn season during 2002-03 & 2003-04

Concept of cost	Year	Holding size class			
		Small	Medium	Large	All Sizes
Cost 'A'	2002-03	21313	20593	18089	19777
	2003-04	19988	18043	21937	19932
Cost 'B'	2002-03	52025	46772	41576	45767
	2003-04	58067	54290	42219	50337
Cost 'C'	2002-03	54375	48315	42368	47159
	2003-04	60383	55522	43086	51629

B. Output

The value of product and by-product of Autumn Paddy cultivation for the year 2003-04 is given in the following table.

Table: 6 Value of product and by-product per hectare during 2003-04

(in Rs.)

Product/ By product	Holding size class			
	Small	Medium	Large	All size
Paddy	20599	21357	27792	23725
Straw	4978	3474	2298	3296
Total	**25577**	**24831**	**30090**	**27021**

ii). Winter paddy

During 2003-04 the study on cost of cultivation of winter paddy was conducted in 380 holdings. The sample area under winter paddy according to size class of holdings are given below:

Table 7 – Area under winter paddy during 2003-04

Holding size class	No of selected holdings	Area under the crop in the sample (ha)	Percentage	Area per holding (ha)
Small	195	43.85	13.89	0.22
Medium	139	114.47	36.25	0.82
Large	46	157.48	49.86	3.42
Total	**380**	**315.80**	**100.00**	**0.83**

In winter paddy cultivation the total operational area of the selected holdings was 315.80 hectares and the average size of holding was 0.83 hectare.

A. Cost of cultivation

The various cost components of winter paddy cultivation is given below:

Table 8 – Cost of cultivation per hectare of winter paddy during the year 2003-04

Sl.No	Component of different cost concept	Cost per hectare (in Rs)	Percentage distribution of Cost 'A'
1.	Hired human labour	9784	51.7
2.	Animal labour	440	2.32
3.	Machine labour	2147	11.34
4.	Seed/ Seedlings	1201	6.35
5.	Farmyard manure and Chemical fertilizers	2524	13.34
6.	Plant Protection	284	1.5
7.	Land tax and Irrigation cess	110	0.58
8.	Repair and maintenance charges of implements, machinery and buildings	294	1.55
9.	Interest on working capital	882	4.66
10	Other expenses	1259	6.65
11	Cost A (1-10)	18925	100.00
12	Interest on fixed capital	701	
13	Cost 'B1' (11+12)	19626	
14	Interest on land value	20872	
15	Cost 'B' (13+14)	40498	
16	Imputed value of household labour	1202	
17	Cost C (15+16)	41700	

From the above table it can be seen that in Winter Paddy Cultivation hired human labour and farmyard manure/chemical fertiliers are the two major input items which shares to 52% and 13% respectively.

Table 9 – Percentage of human labour to total human labour hours

Sex	Holding size class			
	Small	Medium	Large	All Sizes
Male	24.88	20.58	15.50	18.95
Female	57.65	69.36	75.45	70.23
Total	**82.53**	**89.94**	**90.95**	**89.18**

Out of the total human labour hours engaged in winter paddy cultivation 89% is accounted by hired human labour of which female labour constitutes 70%.

Cost of production of winter paddy

Table: 10 Cost of production of winter paddy per Quintal during 2003-04

Concept of cost	Holding Size Class			
	Small	Medium	Large	All Sizes

Cost ‘A’	503	428	614	553
Cost ‘B’	1938	1241	1046	1272
Cost ‘C’	2017	1275	1068	1312

When considering the Cost 'A" concept for producing one quintal of paddy during winter season a small farmer expended Rs. 503/- whereas a large farmer shares Rs. 614/-. The cost of production of winter paddy per quintal for 2002-03 and 2003-04 are presented below for comparison.

Tale: 11 Cost of production of winter paddy per Quintal (Rs/Ha) for 2002-03 and 2003-04

Concept of cost	Year	Holding size class			
		Small	Medium	Large	All Sizes
Cost ‘A’	2002-03	518	448	454	528
	2003-04	503	428	614	553
Cost ‘B’	2002-03	1487	1428	920	1257
	2003-04	1938	1241	1034	1272
Cost ‘C’	2002-03	1558	1469	945	1284
	2003-04	2017	1275	1068	1312

B. Output

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

Table 12 - Value of output (Rs/ha)

Product/By-product	Holding size class			
	Small	Medium	Large	All Sizes
Paddy	18954	18685	18714	18809
Straw	5659	4194	1810	3209
Total	**24613**	**22879**	**20524**	**22018**

(iii) Summer Paddy (Punja)

The details of the holdings selected for summer paddy cultivation are presented below:

Table 13 : Area under Summer Paddy during 2003-04

Holding size class	No of selected holdings	Area under the crop in the sample (ha)	Percentage	Area per holding (ha)
Small	141	33.76	13.23	0.24
Medium	140	105.21	41.22	0.75
Large	32	116.27	45.55	3.63
Total	**313**	**255.24**	**100**	**0.82**

A. Cost of Cultivation

The various cost component of summer paddy cultivation is given below:

Table 14: Cost of Cultivation per hectare of summer paddy during 2003-04

Sl. No	Component of different cost concept	Cost per hectare (in Rs)	% Distribution of cost 'A'
1	Hired human labour	9359	47.52
2	Animal labour	342	1.74
3	Machine labour	2265	11.50
4	Seed / seedlings	1248	6.34
5	Farmyard manure and chemical fertilizers	2736	13.89
6	Plant protection	485	2.46
7	Land tax and irrigation cess	152	0.77
8	Repair and maintenance charges of implements, machinery and building	390	1.98
9	Interest on working capital	912	4.63
10	Other expenses	1805	9.17
11	Total cost 'A' (1-10)	19694	100
12	Interest on fixed capital	818	
13	Cost 'B1' (11+12)	20512	
14	Interest on land value	13385	
15	Cost 'B' (13+14)	33897	
16	Imputed value of household labour	1386	
17	Cost 'C' (15+16)	35283	

During 2003-04 the percentage share of farmyard manure and chemical fertilizers accounting to 14% of the total Cost 'A'. When compared to the previous year it was 11% of the total Cost 'A'.

Table 15: Percentage of hired human labour hours engaged in summer paddy cultivation

Holding size class	Male	Female	Total
Small	22.29	55.03	77.32
Medium	23.43	63.76	87.19
Large	16.54	75.17	91.71
Total	**20.12**	**67.61**	**87.73**

In summer paddy cultivation female participation is more (68%) than that of previous year (65%)

B. Output

Table 16: Value of Out (Rs./ha)

Product/ By-product	Holding Size Class			
	Small	Medium	Large	All Sizes
Paddy	19640	18654	15328	17270
Straw	4610	4740	1509	3251
Total	**24250**	**23394**	**16837**	**20521**

Cost of Production of Paddy per Quintal

During summer paddy cultivation for producing one quintal of paddy an amount of Rs. 567 is expended when Cost 'A' is considered. Details are given below:

Table 17: Cost of production of summer paddy per quintal during 2003-04

Holding size class	Holding Size Class			
	Small	Medium	Large	All Sizes
Cost 'A'	520	478	611	567
Cost 'B'	1265	1025	933	1041
Cost 'C'	1365	1074	961	1087

A comparison between the cost of production during 2002-03 and 2003-04 is given in the following table.

Table 18: Cost of production of summer paddy per quintal during 2002-03 and 2003-04

Concept of cost	2002-03	2003-04
Cost 'A'	467	567
Cost 'B'	883	1041
Cost 'C'	924	1087

When compared to the previous year cost of production of summer paddy per quintal during this year showed an increasing trend.

2.2 Coconut

Coconut Palm, the "KALPAVRIKSHA" of Kerala is considered as a source of livelihood of our people. During 2003-04 for the study on Cost of Cultivation 374 holdings were selected. The details of these holdings are given below

Table 19: Number of Holdings and Area under coconut

Holding size class	No of selected holdings	Area under the coconut in the sample (ha)	Percentage	Area per holding (ha)
Small	99	17.81	9.09	0.18
Medium	203	86.29	43.53	0.42
Large	72	92.85	47.38	1.29
Total	**374**	**196.94**	**100.00**	**0.52**

Table 20: Number of bearing and Non-bearing Trees per hectare

Type of trees	No. of trees per ha.	Percentage
Bearing	192	77.42
Non-bearing	56	22.58
Total	**248**	**100.00**

A. Cost of Cultivation

The major components of cost of cultivation of coconut are the cost of input materials and cost of hired human/ and farmyard manure and chemical fertilisers. Item wise cost components are given below:

Table 21–Cost of Cultivation Per hectare of coconut during the year 2003-04

Sl. No	Components of different cost concepts	Cost per hectare (Rs)	% distribution of cost 'A'
1	Hired human labour	10439	53.22
2	Animal labour	17	0.09
3	Machine labour	212	1.08
4	Seed / seedlings	21	0.11
5	Farmyard manure and chemical fertilizers	5432	27.69
6	Plant protection	37	0.19
7	Land tax and irrigation cess	65	0.33
8	Repair and maintenance charges	654	3.33
9	Interest on working capital	1718	8.76
10	Other expenses	1021	5.20
11	Total cost 'A' (1-10)	19616	100.00
12	Interest on fixed capital	1637	
13	Cost 'B1' (11+12)	21253	
14	Interest on land value	172977	
15	Cost 'B' (13+14)	194230	
16	Imputed value of household labour	1750	
17	Cost 'C' (15+16)	195980	

From the above table it can be seen that the per hectare hired labour input cost was Rs. 10439/- which shares the 53% of the total Cost 'A". Farmyard manure was the most commonly applied organic manure. Chemical fertilizers also used. The percentage share of this input is 28 when considered Cost 'A" concept.

Table 22: Percentage distribution of hired human labour hours to the total human hours

Sex	Holding Size Class			
	Small	Medium	Large	All Sizes
Male	51.47	65.57	69.82	66.49
Female	16.53	13.17	15.93	14.83
Total	**68.00**	**78.74**	**85.75**	**81.32**

Table 23: Cost of Cultivation of Coconut per hectare during 2002-03 & 2003-04

Sl No	Concept of Cost	Cost Per hectare (Rs)	
		2002-03	2003-04
1	Cost 'A'	15923	19616
2	Cost 'B'	203249	194230
3	Cost 'C'	205100	195980

B. Value of Out put

In Coconut cultivation, value of out put per hectare is seen as Rs. 35523/-

Table 24 : Value of Out put / Hectare

Out Put	Value (Rs)
Product	34301
By-Product	1222
Total	35523

2.3 Tapioca

During 2003-04 for the Cost of Cultivation study on tapioca 188 holdings were selected. Details of these holdings are given below:

Table 25: Area and Number of Holdings Selected

Size class	No of selected holdings	Area under the crop in the sample (ha)	Percentage to total area of Selected holdings	Area per holding (ha)
Small	122	9.55	23.78	0.08
Medium	50	15.87	39.50	0.32
Large	16	14.75	36.72	0.92
All Size	**188**	**40.17**	**100.00**	**0.21**

The selected holdings had a total operational area of 40.17 hectares. The average size of holding is 0.21 hectare.

A. Cost of Cultivation

The Cost of cultivation per hectare of tapioca under different cost concepts are given below: -

Table 26: The Cost of cultivation per hectare of tapioca during the year 2003-04

Sl. No	Components of different cost concepts	Cost per hectare (Rs)	% distribution of cost 'A'
1	Hired human labour	15628	56.58
2	Animal labour	124	0.45
3	Machine labour	469	1.7
4	Seed / seedlings	876	3.17
5	Farmyard manure and chemical fertilizers	5741	20.78
6	Plant protection	105	0.38
7	Land tax and irrigation cess	73	0.26
8	Repair and maintenance charges	211	0.76
9	Interest on working capital	2485	9.00
10	Other expenses	1911	6.92
11	Total cost 'A' (1-10)	27623	100.00
12	Interest on fixed capital	1225	
13	Cost 'B1' (11+12)	28848	
14	Interest on land value	132688	
15	Cost 'B' (13+14)	161536	
16	Imputed value of household labour	5606	
17	Cost 'C' (15+16)	167142	

Table 27: Percentage distribution of hired human labour hours

Sex	Holding Size Class			
	Small	Medium	Large	All Sizes
Male	63.24	54.84	44.98	52.59
Female	7.84	15.58	29.16	19.57
Total	**71.08**	**70.42**	**74.14**	**72.16**

Table 28 : Value of Out put / Hectare

Out Put	Value (Rs)
Product	46441
By-Product	1558
Total	47999

2.4 Banana

During 2003-04 for the estimated of cost of cultivation study on banana 181 holdings were selected. The details of these holdings in each, size class is given in the following table.

Table 29: Area and Number of holdings selected

Size class	No of selected holdings	Area under the crop in the sample (ha)	Percentage to Total area	Area per holding (ha)
Small	125	19.85	45.39	0.16
Medium	50	14.94	34.16	0.30
Large	6	8.94	20.45	1.49
All Size	181	43.74	100.00	0.24

From the above table it is seen that the selected holdings had a total operational area of 43.47 hectare. The average size of a holding is 0.24 hectare.

Table: 30 Cost of Cultivation per hectare of Banana during 2003-04

Sl. No	Components of different cost concepts	Cost per hectare (Rs)	% distribution of cost 'A'
1	Hired human labour	23715	31.7
2	Animal labour	10	0.01
3	Machine labour	463	0.62
4	Seed / seedlings	6445	8.61
5	Farmyard manure and chemical fertilizers	19075	25.5
6	Plant protection	1240	1.66
7	Land tax and irrigation cess	65	0.09
8	Repair and maintenance charges	271	0.36
9	Interest on working capital	6771	9.05
10	Other expenses	16762	22.4
11	Total cost 'A' (1-10)	74817	100.00
12	Interest on fixed capital	1174	
13	Cost 'B1' (11+12)	75991	
14	Interest on land value	129739	
15	Cost 'B' (13+14)	205730	
16	Imputed value of household labour	9028	
17	Cost 'C' (15+16)	214758	

In banana cultivation 69% of the total human labour hours constituted for hired human labour and the remaining towards household labour. Details are given below:

Table: 31 Percentage distributions of hired human labour hours to the total human labour hour

Sex	Holding Size Class			
	Small	Medium	Large	All Sizes
Male	60.37	51.18	74.55	59.67
Female	7.34	13.33	5.61	9.68
Total	67.71	64.51	80.16	69.35

B. Value of out put

Per hectare value of output received from banana cultivation is Rs. 115146 during 2003-04

2.5 Pepper

A total of 190 holdings were selected for cost of cultivation study on pepper during 2003-04. Details are given below:

Table 32 - Area and number of holdings selected 2003-04

Holding size class	No of selected holdings	Area under the crop in the sample (ha)	Percentage	Are per holding (ha)
Small	143	7.77	36.40	0.05
Medium	42	8.44	39.52	0.01
Large	5	5.14	24.08	1.03
Total	190	21.35	100.00	0.03

Above table reveals that large pepper holdings are very few during 2003-04. Relatively more number of holdings belongs to small holding category.

A. Cost of cultivation

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

Table 33- Cost of cultivation per hectare of pepper during 2003-04

Sl No	Component of different cost concept	Cost per hectare (in Rs)	% Distribution of cost 'A'
1	Hired human labour	9550	59.13
2	Animal labour		
3	Machine labour		
4	Seed / seedlings	505	3.13
5	Farmyard manure and chemical fertilizers	3722	23.05
6	Plant protection	137	0.85
7	Land tax and irrigation cess	70	0.43
8	Repair and maintenance charges	194	1.20
9	Other expenses	1444	8.94
10	Interest on working capital	528	3.27
11	Total cost 'A' (1-10)	16150	100
12	Interest on fixed capital	1735	
13	Cost 'B1' (11+12)	17885	
14	Interest on land value	220753	
15	Cost 'B' (13+14)	238638	
16	Imputed value of household labour	6005	
17	Cost 'C' (15+16)	244643	

The percentage distribution of the important cost components (Cost 'A') shows that labour cost accounted to

maximum followed by cost incurred on farmyard manure and chemical fertilizers and seedlings. Table 34 provides percentage of hired human labour hours engaged in pepper cultivation.

Table 34 – Percentage of hired human labour hours engaged in pepper cultivation

Sex	Holding size class			
	Small	Medium	Large	All Sizes
Male	56.47	43.52	58.87	49.89
Female	7.94	6.55	20.71	8.31
Total	**64.41**	**50.07**	**79.58**	**58.20**

B. Value of out put

The value of output of pepper received from one hectare is found to be Rs. 23763/- per hectare during 2003-04.

2.6 Arecanut

For the study on cost of cultivation of Arecanut during 2003-04, 380 holdings were selected. The details of these holdings are as follows:

Holding size class	No of selected holdings	Area under the crop in the sample (ha)	Percentage	Are per holding (ha)
Small	267	12.19	19.00	0.03
Medium	81	25.22	39.31	0.31
Large	32	26.75	41.69	0.84
All size	**380**	**64.16**	**100.00**	**0.13**

From the above table it is seen that small category have more number of holdings. The total selected holdings covered an area of 64.16 hectares. The average size per holding was 0.13 hectare.

A. Cost of Cultivation

Per hectare cost of cultivation of Arecanut under various component of cost concept are given below:

Table 36: Cost of Cultivation per hectare of Arecanut during the year 2003-04

Sl No	Component of different cost concept	Cost per hectare (in Rs)	% Distribution of cost
1	Hired human labour	10918	49.82
2	Animal labour		
3	Machine labour	369	1.78
4	Seed / seedlings	37	0.17
5	Farmyard manure and chemical fertilizers	6929	31.62
6	Plant protection	186	0.85
7	Land tax and irrigation cess	106	0.48
8	Repair and maintenance charges of implements, machinery and building	236	1.08
9	Interest on working capital	1961	8.95
10	Other expenses	1151	5.25

11	Total cost ‘A’ (1-10)	21893	100.00
12	Interest on fixed capital	1693	
13	Cost ‘B1’ (11+12)	23586	
14	Interest on land value	140765	
15	Cost ’B’ (13+14)	164351	
16	Imputed value of household labour	3521	
17	Cost ‘C’ (15+16)	167872	

During the year under study when cost 'A' is considered 50% cost is shared to hired human labour in Arecanut cultivation. Details of the labour hours engaged in Arecanut cultivation is given in the following table.

Table 37: Percentage distribution of hired human labour hours to total human labour hours

Sex	Holding size class			
	Small	Medium	Large	All Sizes
Male	45.23	51.49	51.58	49.95
Female	27.96	14.48	25.21	22.3
Total	**73.19**	**65.97**	**76.79**	**72.25**

In Arecanut cultivation 72% of the total human labour hours has been shared by hired human labour.

B. Output

Value of output received from Arecanut cultivation per hectare during 2003-04 is Rs. 55918, which is shown as below:

Table 38 : Value of Out put / Hectare

Output	Value (Rs.)
Product	52380
By-Product	3538
Total	55918

2.7 Ginger

Details of the number of holdings under Ginger Cultivation during 2003-04 are given below.

Table 39 - Area and number of holdings under Ginger cultivation 2003-04

Holding size class	No of selected holdings	Area under the crop in the sample (ha)	Percentage to total Area	Average area per holding (ha)
Small	138	21.02	74.25	0.15
Medium	26	1.15	4.06	0.04
Large	7	6.14	21.69	0.88
All sizes	**171**	**28.31**	**100.00**	**0.17**

The total number of holdings selected for Ginger cultivation study on Ginger during 2003-04 was 171. It covered an area of 28.31 hectares. The average size per holding was 0.17 hectare.

A. Cost of cultivation

Per hectare cost of cultivation of ginger under various component of cost concept are given below:

Table 40 - Cost of cultivation per hectare of Ginger during the year 2003-04

Sl. No	Component of different cost concept	Cost per hectare (in Rs)	% Distribution of cost
1	Hired human labour	19374	33.40
2	Animal labour	-	-
3	Machine labour	135	0.23
4	Seed / seedlings	12404	21.39
5	Farmyard manure and chemical fertilizers	19042	32.83
6	Plant protection	1134	1.96
7	Land tax and irrigation cess	91	0.16
8	Repair and maintenance charges of implements, machinery and building	930	1.60
9	Interest on working capital	2713	4.68
10	Other expenses	2177	3.75
11	Total cost 'A' (1-10)	58000	100
12	Interest on fixed capital	654	
13	Cost 'B1' (11+12)	58684	
14	Interest on land value	187781	
15	Cost 'B' (13+14)	246465	
16	Imputed value of household labour	3535	
17	Cost 'C' (15+16)	250000	

In Ginger cultivation major cost components are labour, seed/seedlings and farmyard manure and chemical fertilizers. The percentage share of these inputs to total cost 'A' are accounted as 33%, 21% and 33% respectively.

The percentage distribution of hired human labour hours engaged in ginger cultivation is shown below:

Table 41 – Percentage of hired human labour hours engaged in Ginger cultivation

Sex	Holding size class			
	Small	Medium	Large	All Sizes
Male	48.85	46.96	48.12	48.34
Female	32.78	29.86	35.94	32.76
Total	81.63	76.82	84.06	81.1

The percentage distribution of total labour hours engaged in ginger cultivation reveals that about 81% shares to hired human labour.

B. Out put

The per hectare value of output received from Ginger cultivation is seen as Rs. 49935/- during 2003-04.

2.8 Turmeric

During 2003-04 for the cost of cultivation study on turmeric 137 holdings were selected. Details of these holdings are given below:

Table 42 – Area and Number of holdings selected for Turmeric cultivation 2003-04

Holding size class	No of selected holdings	Area under the crop in the sample (ha)	Percentage to total area	Average area per holding (ha)
Small	110	18.46	74.20	0.17
Medium	20	4.80	19.29	0.24
Large	7	1.62	6.51	0.23
All size	137	24.86	100.00	0.18

The total operational area of the selected holding was 24.86 hectares and the average size per holding comes to 0.18 hectares. The percentage share of the area under the crop to total area seems to be large in small category.

A. Cost of cultivation

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

Table 43 – Cost of cultivation per hectare of Turmeric during the year 2003-04

Sl. No	Component of different cost concept	Cost per hectare (in Rs)	Percentage distribution of Cost 'A'
1.	Hired human labour	12353	30.59
2.	Animal labour	-	-
3.	Machine labour	7214	17.87
4.	Seed/Seedlings	6897	17.08
5.	Farmyard manure and Chemical fertilizers	7695	19.06
6.	Plant Protection	128	0.32
7.	Land tax and Irrigation cess	79	0.20
8.	Repair and maintenance charges of implements, machinery and buildings	208	0.52
9.	Interest on working capital	1909	4.73
10	Other expenses	3893	9.63
11	Cost A (1-10)	40376	100
12	Interest on fixed capital	482	
13	Cost 'B1' (11+12)	49858	
14	Interest on land value	153129	
15	Cost 'B' (13+14)	193987	
16	Imputed value of household labour	3973	
17	Cost C (15+16)	197960	

The three major inputs in turmeric cultivation are hired human labour, seed/seedlings and farmyard manure and chemical fertilisers. The respective share of these inputs are 31%, 17% and 19% accordingly under Cost 'A' concept.

The following table reveals the percentage distribution of hired human labour participation in turmeric cultivation to total labour hours.

Table 44 – Percentage distribution of Hired human labour hours to the total human hours

Sex	Holding size class			
	Small	Medium	Large	All Sizes
Male	37.23	65.93	51.39	42.97
Female	31.40	17.28	48.61	31.13
Total	**68.63**	**83.21**	**100.00**	**74.10**

In turmeric cultivation large size class is mainly depended for hired human labour.

B. Output

The per hectare value of output received from turmeric cultivation is worked out to Rs. 42535/- during the year 2003-04.

Chapter III

Summary of findings

The data collected in this report are collected through the cost of cultivation survey 2003-04. The crops covered in this study are Paddy (Autumn, Winter and Summer) Coconut, Tapioca, Banana, Pepper, Arecanut, Ginger and Turmeric.

1. Autumn Paddy

During the Autumn Paddy cultivation while taking the cost concept 'A' cultivators benefited 36% of total cost. Where as by considering the cost concept 'B' cultivators incurred a loss of 46%. When considered the cost 'C' concept the loss increased to the tune of 48%

2. Winter Paddy

In winter paddy cultivation the corresponding benefit is 16% while taking the cost concept 'A'. When cost 'B' and cost 'C' concepts are considered cultivators faced a loss of 46% and 47% respectively.

3. Summer Paddy

Summer Paddy cultivators benefited only 4% of their total cost while taking the cost concept 'A'. The cost concept 'B' and 'C' reveals that cultivators incurred a loss of 39% and 42% respectively.

4. Coconut

Coconut palm, the "KALPAVRIKSHA" of Kerala is considered as a source of livelihood of our people. During 2003-04 coconut cultivators witnessed a profit of 81% of their total cost when considered the cost concept 'A'. Whereas the cost concept 'B' and 'C' exhibits a loss of 82% each to the cultivators.

5. Arecanut

During 2003-04 for the study on cost of cultivation of Arecanut 380 holdings were selected. Per hectare cost of cultivation of Arecanut during the period under review was Rs. 21893/- when cost 'A' considered. Per hectare value of out put received from Arecanut cultivation during 2003-04 is Rs. 55918/-

6. Pepper

Pepper cultivators enjoyed the benefit of 47% of the total cost when the cost concept 'A' is considered. Whereas when compared the cost concepts 'B' and 'C' cultivators faces a loss of 90% each.

7.Banana

During the year under review banana cultivation profited to the tune of 54% of the total cost 'A'. In the case of 'B' and 'C' it accounts to the loss of 44% and 46% respectively.

8. Tapioca

During 2003-04 tapioca cultivator's profit is estimated as 74% of the total cost 'A'. Where as when considered the cost concept of 'B' and 'C' it reflects a loss of 70% and 71% respectively.

9. Ginger

During 2003-04 ginger cultivation is not profitable in the State. Per hectare cost of cultivation of ginger is estimated as Rs. 58000/- according to the cost concept 'A'. Whereas the per hectare output received from ginger cultivation is worked out as Rs. 49935/-

10. Turmeric

Turmeric cultivators enjoyed the benefit of 14% of the total cost 'A'. According to the cost concept 'B' and 'C' these cultivators faces a loss to the tune of 78% each.

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Appendix – 1

Cost of Cultivation of Autumn Paddy during the year 2003-04

(Per Hectare in Rs.)

Sl No	Components	Holding size Class			
		Small	Medium	Large	All Size
1	Hired human labour	10839	9799	11005	10463
2	Animal labour	610	319	123	297
3	Machine labour	2217	2171	2041	2129
4	Seed / seedlings	1187	1099	1195	1153
5	Farmyard manure and chemical fertilizers	3037	2742	4485	3477
6	Plant protection	247	210	401	292
7	Land tax and irrigation cess	57	56	118	80
8	Repair and maintenance charges of implements, machinery and building	363	162	216	228
9	Interest on working capital	932	849	1029	934
10	Other expenses	499	636	1324	879
11	Total cost 'A' (1-10)	19988	18043	21937	19932
12	Interest on fixed capital	939	838	510	772
13	Cost 'B1' (11+12)	20927	18881	22447	20704
14	Interest on land value	37140	35409	19772	29633
15	Cost 'B' (13+14)	58067	54290	42219	50337
16	Imputed value of household labour	2316	1232	867	1292
17	Cost 'C' (15+16)	60383	55522	43086	51629

Appendix – 2

Cost of Cultivation of Winter Paddy during the year 2003-04

(Per Hectare in Rs.)

Sl No	Components	Holding size Class			
		Small	Medium	Large	All Size
1	Hired human labour	11140	10319	9018	9784
2	Animal labour	816	613	209	440
3	Machine labour	2253	2082	2165	2147
4	Seed / seedlings	1040	1095	1323	1201
5	Farmyard manure and chemical fertilizers	2841	2241	2641	2524
6	Plant protection	270	202	347	284
7	Land tax and irrigation cess	101	89	127	110
8	Repair and maintenance charges of implements, machinery and building	317	291	281	294
9	Interest on working capital	9479	871	871	882
10	Other expenses	630	859	1725	1259
11	Total cost 'A' (1-10)	20357	18662	18707	18925
12	Interest on fixed capital	980	674	538	701
13	Cost 'B1' (11+12)	21337	19336	19245	19626
14	Interest on land value	40916	26770	11004	20872
15	Cost 'B' (13+14)	62253	46106	30249	40498
16	Imputed value of household labour	2286	1170	924	1202
17	Cost 'C' (15+16)	64539	47276	31173	41700

Appendix – 3

Cost of Cultivation of Summer Paddy during the year 2003-04

(Per Hectare in Rs.)

Sl No	Components	Holding size Class			
		Small	Medium	Large	All Size
1	Hired human labour	9934	8928	9583	9359
2	Animal labour	846	332	205	342
3	Machine labour	2054	2229	2359	2265
4	Seed / seedlings	1175	1187	1325	1248
5	Farmyard manure and chemical fertilizers	3424	2677	2590	2736
6	Plant protection	435	439	541	485
7	Land tax and irrigation cess	169	200	103	152
8	Repair and maintenance charges of implements, machinery and building	213	714	58	390
9	Interest on working capital	964	859	945	912
10	Other expenses	1421	1382	2300	1805
11	Total cost 'A' (1-10)	20635	18947	20009	19694
12	Interest on fixed capital	1111	1031	258	818
13	Cost 'B1' (11+12)	21746	19978	20267	20512

14	Interest on land value	21538	15098	9468	13385
15	Cost 'B' (13+14)	43284	35076	29735	33897
16	Imputed value of household labour	3054	1421	869	1386
17	Cost 'C' (15+16)	46338	36497	30604	35283

Appendix – 4

Cost of Cultivation of Coconut during the year 2003-04

(Per Hectare in Rs.)

Sl No	Components	Holding size Class			
		Small	Medium	Large	All Size
1	Hired human labour	7964	10304	11038	10439
2	Animal labour	9	36		17
3	Machine labour	166	189	243	212
4	Seed / seedlings	17	15	27	21
5	Farmyard manure and chemical fertilizers	4652	5891	5161	5432
6	Plant protection	44	51	23	37
7	Land tax and irrigation cess	40	72	64	65
8	Repair and maintenance charges of implements, machinery and building	271	413	1019	654
9	Interest on working capital	1327	1763	1752	1718
10	Other expenses	416	1145	1024	1021
11	Total cost 'A' (1-10)	14906	19879	20351	19616
12	Interest on fixed capital	1678	2028	1223	1637
13	Cost 'B1' (11+12)	16584	21907	21574	21253
14	Interest on land value	196893	189259	188673	172977
15	Cost 'B' (13+14)	213477	211166	210247	194230
16	Imputed value of household labour	2988	1982	1299	1750
17	Cost 'C' (15+16)	216465	213148	211546	195980

Appendix – 5

Cost of Cultivation of Tapioca during the year 2003-04

(Per Hectare in Rs.)

Sl No	Components	Holding size Class			
		Small	Medium	Large	All Size
1	Hired human labour	17820	14161	15785	15628
2	Animal labour			339	124
3	Machine labour	44	390	830	469
4	Seed / seedlings	1368	783	658	876
5	Farmyard manure and chemical fertilizers	6865	5685	5073	5741

6	Plant protection	108	87	123	105
7	Land tax and irrigation cess	53	85	74	73
8	Repair and maintenance charges of implements, machinery and building	281	175	83	211
9	Interest on working capital	2783	2221	2578	2485
10	Other expenses	1623	1102	2968	1911
11	Total cost 'A' (1-10)	30945	24689	28511	27623
12	Interest on fixed capital	1225	1247	1178	1225
13	Cost 'B1' (11+12)	32170	25936	29689	28848
14	Interest on land value	165896	156221	59239	132688
15	Cost 'B' (13+14)	198066	182157	88928	161536
16	Imputed value of household labour	6559	5044	5593	5606
17	Cost 'C' (15+16)	204625	187201	94521	167142

Appendix – 6

Cost of Cultivation of Banana during the year 2003-04

(Per Hectare in Rs.)

Sl No	Components	Holding size Class			
		Small	Medium	Large	All Size
1	Hired human labour	15435	27833	35215	23715
2	Animal labour	23	-	-	10
3	Machine labour	115	961	403	463
4	Seed / seedlings	4594	6708	10113	6445
5	Farmyard manure and chemical fertilizers	11294	23414	29097	19075
6	Plant protection	623	1329	2460	1240
7	Land tax and irrigation cess	48	99	49	65
8	Repair and maintenance charges of implements, machinery and building	95	640	697	271
9	Interest on working capital	3709	7757	11920	6771
10	Other expenses	5006	17329	41915	16762
11	Total cost 'A' (1-10)	40942	86070	131869	74817
12	Interest on fixed capital	779	1992	2198	1174
13	Cost 'B1' (11+12)	41721	88062	134067	75991
14	Interest on land value	135825	10225	102584	129739
15	Cost 'B' (13+14)	177546	198287	236651	205730
16	Imputed value of household labour	6533	12487	8790	9028
17	Cost 'C' (15+16)	184079	210774	245441	214758

Appendix – 7

Cost of Cultivation of Pepper during the year 2003-04

(Per Hectare in Rs.)

Sl No	Components	Holding size Class			
		Small	Medium	Large	All Size
1	Hired human labour	11883	10655	4210	9550
2	Animal labour	-	-	-	-
3	Machine labour	-	-	-	-
4	Seed / seedlings	446	761	175	505
5	Farmyard manure and chemical fertilizers	3669	4776	2071	3722
6	Plant protection	152	157	83	137
7	Land tax and irrigation cess	69	96	28	70
8	Repair and maintenance charges of implements, machinery and building	225	160	86	194
9	Interest on working capital	1687	1693	668	1444
10	Other expenses	722	584	143	528
11	Total cost 'A' (1-10)	18853	18882	7464	16150
12	Interest on fixed capital	1776	1679	1668	1735
13	Cost 'B1' (11+12)	20629	20561	9132	17885
14	Interest on land value	302748	194620	139697	220753
15	Cost 'B' (13+14)	323377	215181	148829	238638
16	Imputed value of household labour	9728	5523	1167	6005
17	Cost 'C' (15+16)	333105	220704	149996	244643

Appendix – 8

Cost of Cultivation of Arecanut during the year 2003-04

(Per Hectare in Rs.)

Sl No	Components	Holding size Class			
		Small	Medium	Large	All Size
1	Hired human labour	13254	9139	11531	10918
2	Animal labour	-	-	-	-
3	Machine labour	333	562	251	369
4	Seed / seedlings	177	8	0	37
5	Farmyard manure and chemical fertilizers	6036	7366	6924	6929
6	Plant protection	61	193	236	186
7	Land tax and irrigation cess	84	132	92	106
8	Repair and maintenance charges of implements, machinery and building	180	263	339	236
9	Interest on working capital	2041	1899	1983	1961
10	Other expenses	549	1722	886	1151
11	Total cost 'A' (1-10)	22715	21284	22242	21893
12	Interest on fixed capital	2133	1977	1147	1693
13	Cost 'B1' (11+12)	24848	23261	23389	23586
14	Interest on land value	176456	169997	96939	140765

15	Cost 'B' (13+14)	201304	193258	120328	164351
16	Imputed value of household labour	5332	3687	2540	3521
17	Cost 'C' (15+16)	206636	196945	122868	167872

Appendix – 9

Cost of Cultivation of Ginger during the year 2003-04

(Per Hectare in Rs)

Sl No	Components	Holding size Class			
		Small	Medium	Large	All Size
1	Hired human labour	18078	18867	23841	19374
2	Animal labour	-	-	-	-
3	Machine labour	19	17	99	135
4	Seed / seedlings	17967	14623	12733	12404
5	Farmyard manure and chemical fertilizers	18475	18273	18922	19042
6	Plant protection	733	1431	1126	1134
7	Land tax and irrigation cess	124	53	86	91
8	Repair and maintenance charges of implements, machinery and building	93	52	846	930
9	Interest on working capital	2822	2788	2877	2713
10	Other expenses	1173	2542	2754	2177
11	Total cost 'A' (1-10)	59484	58646	61354	58000
12	Interest on fixed capital	843	227	943	684
13	Cost 'B1' (11+12)	60327	58873	62297	58684
14	Interest on land value	230681	108376	224288	187781
15	Cost 'B' (13+14)	291008	167249	286585	246465
16	Imputed value of household labour	4715	4814	1078	3535
17	Cost 'C' (15+16)	295723	172063	287663	250000

Appendix – 10

Cost of Cultivation of Turmeric during the year 2003-04

(Per Hectare in Rs.)

Sl No	Components	Holding size Class			
		Small	Medium	Large	All Size
1	Hired human labour	14761	10073	28858	12353
2	Animal labour	-	-	-	-
3	Machine labour	6456	-	-	7214
4	Seed / seedlings	8350	10331	6425	6897
5	Farmyard manure and chemical fertilizers	8242	7826	11972	7695
6	Plant protection	37	370	439	128
7	Land tax and irrigation cess	72	107	86	79

8	Repair and maintenance charges of implements, machinery and building	277	10	-	208
9	Interest on working capital	2011	2973	4852	1909
10	Other expenses	2370	1133	825	3893
11	Total cost 'A' (1-10)	42576	32823	53457	49376
12	Interest on fixed capital	584	225	430	482
13	Cost'B1' (11+12)	43159	33048	53887	49858
14	Interest on land value	174473	112256	30887	153129
15	Cost 'B' (13+14)	217633	145304	84774	193987
16	Imputed value of household labour	3375	4904	8031	3973
17	Cost 'C' (15+16)	221008	150208	92805	197960

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