

Government of Kerala

***Report On
Cost of Cultivation of
Important Crops in Kerala
2006-07***

**Department of Economics & Statistics
Thiruvananthapuram
2009**

PREFACE

The growth trend in the agricultural sector has not been consistent in Kerala. Food crops in general have shown a decreasing trend in area and production. The contribution of agriculture to State Income has been on the decline. For formulating proper price policies and for achieving economic efficiency of the crop production sector, studies on Cost of Cultivation of Important Crops in Kerala is essential. With this end in view, this Department conducts annual study on Cost of Cultivation of Important Crops in Kerala.

This report is based on the field study on Cost of Cultivation of Important Crops conducted during the year 2006-07. The crops covered during this year are Paddy (3 seasons), Coconut, Arecanut, Pepper, Banana, Tapioca, Ginger and Turmeric.

The report was prepared by the Cost of cultivation section with guidance and supervision of the concerned officers. Suggestions for improvement are solicited.

M. R. Balakrishnan
Director

Thiruvananthapuram,
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Chapter I

GENERAL

1.1 Introduction

Government of Kerala accorded sanction for conducting annual survey of cost of cultivation of important crops in the State from 1980-81 onwards vide G.O.(Rt)466/79/plg dated 27/10/1979. The present report relates to the 27th round of survey conducted during the agricultural year 2006-07. The Department of Economics and Statistics conducting cost of cultivation survey annually.

The crops covered under the round 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 the Agricultural Year (July to June) 2006-07

1.4. Design of the Survey

The survey covered all the districts of Kerala by selecting 38 Taluks. From each selected Taluk, two investigator zones were selected using circular systematic sampling method.

Selection of cultivators

In selected Investigator zones, a list of cultivators growing paddy in the previous autumn season is prepared from the last year's Form I Diary connected with the EARAS works. From this, a list of 5 cultivators who are likely to be engaged in paddy cultivation during the current year are selected at random for cost of cultivation study for the autumn paddy. Similar procedure is adopted for the selection of cultivators for winter and summer paddy.

In case the cultivators selected for cost of cultivation study on Autumn Paddy possess suitable number of plots of other specified crops in stipulated area/numbers those will also be selected for the cost of cultivation study on other crops like Coconut, Pepper, Arecanut, Banana, Tapioca etc.

If sufficient number of suitable plots of other crops are not available with the cultivators selected for the study of Autumn Paddy, the required number of plots growing crops other than paddy will be selected from the list of wet and dry land plots of the same investigator zone in the last year. If the selected investigator zone in 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 is 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 (small, medium and large) of a crop is 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

1.5 Schedules

Five schedules were designed for the survey

Schedule -1	Selected Investigator zone
Schedule -2	Summary of Form I Diary
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 in 38 selected Taluks. One Investigator is posted in each Taluk for this purpose. The investigators visited the selected holdings/cultivators every fortnight and recorded fortnightly details of agricultural operations in schedule 5. The fieldwork was supervised by Taluk Statistical Officer/Statistical Inspector at the Taluk level and Deputy Director/ District officer /other district level Officer at the District level.

1.7 Processing and Analysis of Data

The compilation and tabulation were done at district level. The state level consolidation of the data, 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 'B1', Cost 'B' and Cost "C" have been followed in the analysis as shown below:

Cost 'A'

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

- 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.

CHAPTER 2

RESULTS OF THE SURVEY

The crops selected for this round of study were paddy (autumn, winter and summer) coconut, tapioca, banana pepper, Arecanut, Ginger and Turmeric. The cost of cultivation of paddy- autumn is calculated under three different cost concepts viz Cost 'A', Cost 'B', and Cost 'C' respectively.

2.1.1 Paddy- Autumn

For this study details of holding selected and area coverage are given below. The data collected from 346 holding by covering 215.50 hectares of land.

Table 1 - Area and number of holdings under autumn paddy during 2006-07

Holding size class	No of selected holdings	Area under the crop in the sample (ha)	Percentage	Average Area per holding (ha)
Small	195	40.40	18.75	0.21
Medium	126	95.10	44.13	0.75
Large	25	80.00	37.12	3.20
Total	346	215.5	100	0.62

From the above table it can be seen that average area per holding was 0.62 hectare

Cost of cultivation

When Cost A is considered about 53 percent of cost constitutes to hired human labour, farmyard manure and chemical fertilizers accounts to 15% and Machine labour cost shares 11%.

Table 2- Cost of Cultivation per hectare of paddy (autumn) during 2006-07

(Per Hectare in Rs.)

Sl No	Components	Holding size Class			
		Small	Medium	Large	All Size
1	Hired human labour	12937	11086	9157	10716
2	Animal labour	521	396	57	294
3	Machine labour	2686	2379	1960	2281
4	Seed / seedlings	1059	992	992	1004
5	Farmyard manure and chemical fertilizers	3443	3284	2301	2948
6	Plant protection	198	199	128	172
7	Land tax and irrigation cess	74	79	97	85
8	Repair and maintenance charges of implements, machinery and building	732	900	359	668

9	Interest on working capital	1103	963	799	928
10	Other expenses	1210	916	1376	1142
11	Total cost 'A' (1-10)	23963	21194	17226	20238
12	Interest on fixed capital	2693	2583	710	1909
13	Cost 'B1' (11+12)	26656	23777	17936	22147
14	Interest on land value	46766	28669	12840	26211
15	Cost 'B' (13+14)	73422	52446	30776	48358
16	Imputed value of household labour	2690	1626	962	1580
17	Cost 'C' (15+16)	76112	54072	31738	49938

**PERCENTAGE DISTRIBUTION OF "COST A" CULTIVATION PER HECTARE OF PADDY-
AUTUMN 2006-07**

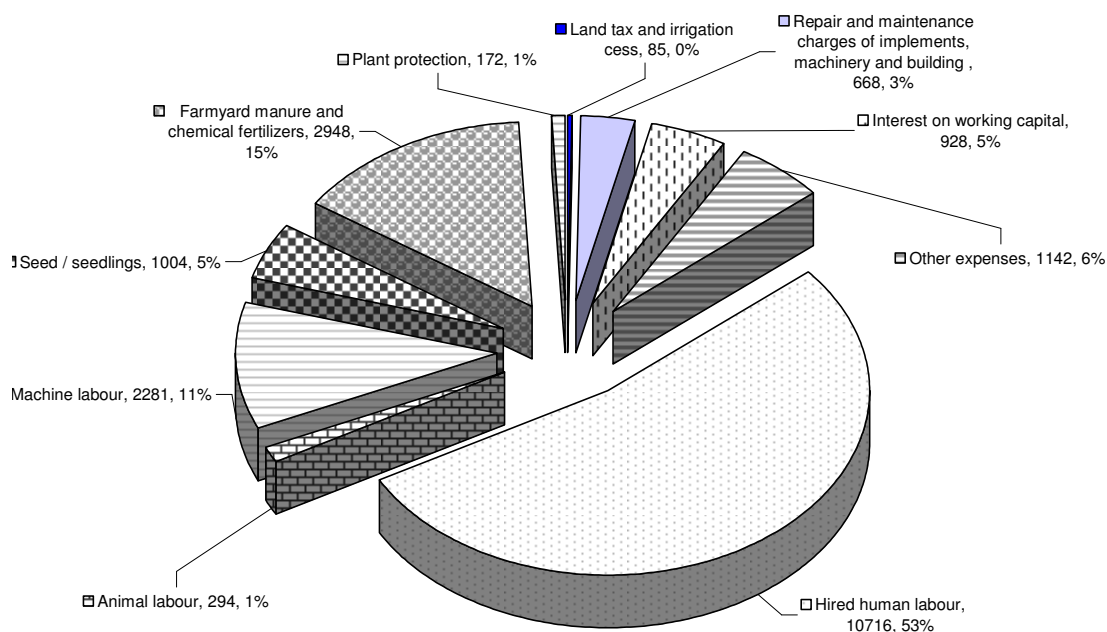


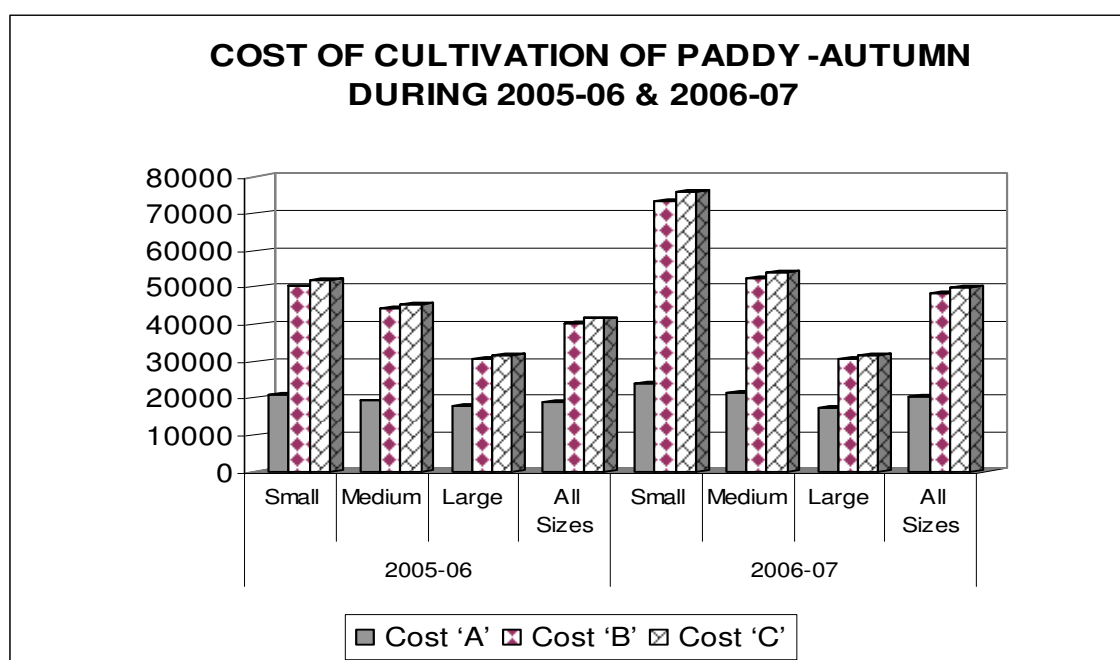
Table 3: Percentage of Hired human labour hours to total human labour hours

Sex	Holding size class			All Sizes
	Small	Medium	Large	
Male	22.82	21.47	13.93	19.31
Female	60.60	66.30	78.03	68.83
Total	83.42	87.77	91.96	88.14

In Autumn paddy cultivation 69% of total labour hours shares to female participation.

Cost of production of paddy during 2005-2006 and 2006-2007**Table: 4 Cost of production of Autumn paddy per hectare 2005-06 and 2006-07**

Concept of cost	Year	Holding size class			
		Small	Medium	Large	All Sizes
Cost 'A'	2005-06	21075	19106	17771	18971
	2006-07	23963	21194	17226	20238
Cost 'B'	2005-06	50191	44487	30727	40319
	2006-07	73422	52446	30776	48358
Cost 'C'	2005-06	52100	45552	31742	41518
	2006-07	76112	54072	31738	49938

**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. The survey results show that during 2006-07 for producing one quintal of paddy Rs.595/- has been expended by the farmer when Cost 'A' is considered. Details are given below:

Table: 5 Per Quintal Cost of Production of Autumn paddy during 2005-06 & 2006-07

Concept of cost	Year	Holding size class			
		Small	Medium	Large	All Sizes
Cost 'A'	2005-06	540	498	477	545
	2006-07	751	673	438	595

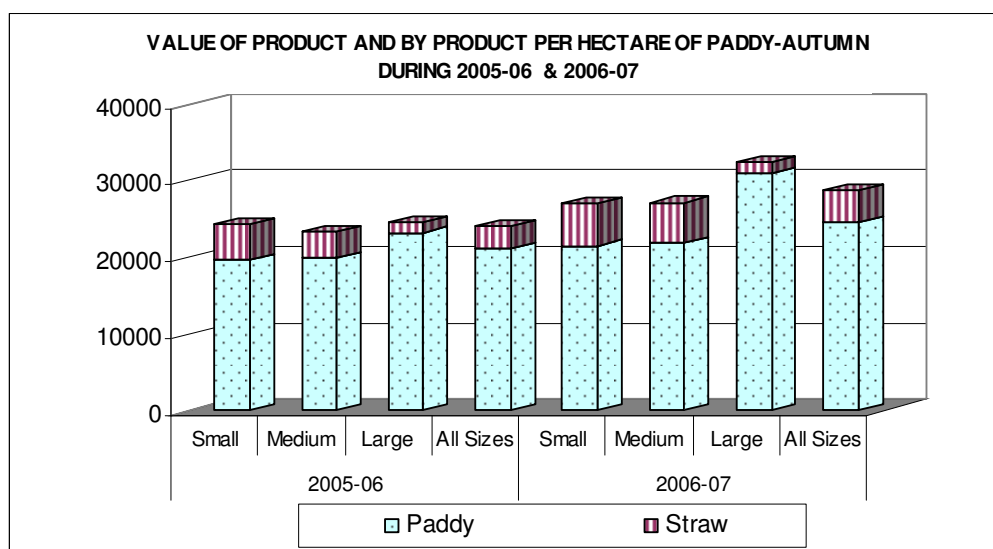
Cost 'B'	2005-06	1498	1311	855	1207
	2006-07	835	755	456	651
Cost 'C'	2005-06	1561	1345	884	1244
	2006-07	2384	1717	806	1467

Output

The value of output of paddy in large holding class is slightly higher than the other classes. But value of output of straw is least in large holding class. The details of product and by-product of Autumn Paddy cultivation are given below.

Table: 6 Value of product and by-product per hectare of Autumn paddy during 2006-07

Product/ By product	Holding size class			
	Small	Medium	Large	All size
Paddy	21457	21807	30904	24571
Straw	5528	5312	1542	4181
Total	26985	27119	32446	28752



2.1.2 Paddy-Winter

During 2006-07 Cost of cultivation study on winter paddy was conducted in 378 holdings by covering 247.30 hectare of land. Details of these holdings are given below:

Table 7 – Area under winter paddy during 2006-07

Holding size class	No of selected holdings	Area under the crop in the sample (ha)	Percentage	Area per holding (ha)
Small	199	42.90	17.35	.22
Medium	149	109.10	44.12	.73
Large	30	95.30	38.54	3.18
Total	378	247.3	100.01	0.65

For the study on Winter paddy cultivation during 2006-07, an area of 247.30 hectares was included. The average size of the holding was 0.65 hectares.

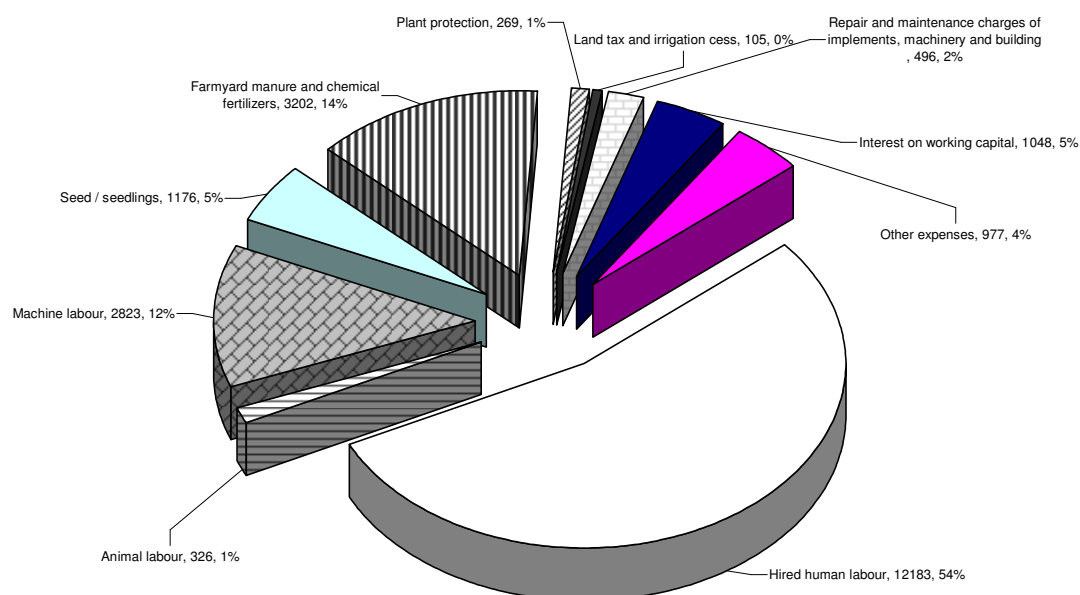
Cost of Cultivation

In Cost A, the major share of the cost component was hired human labour. It constitutes 54 per cent. Another two major items were farmyard manure and chemical fertilizers and machine labour. It shows to 14% and 12% respectively. Interest on working capital accounts was 5%. By considering the various cost component of winter paddy cultivation it can be seen that per hectare cost calculated as Rs.22605/-.

Table 8 – Cost of cultivation per hectare of winter paddy during the year 2006-07

Sl No	Components	(Per Hectare in Rs.) Holding size Class			
		Small	Medium	Large	All Size
1	Hired human labour	13733	12328	11314	12183
2	Animal labour	397	583	0	326
3	Machine labour	2967	2597	3016	2823
4	Seed / seedlings	1209	1123	1223	1176
5	Farmyard manure and chemical fertilizers	3709	3044	3152	3202
6	Plant protection	302	284	236	269
7	Land tax and irrigation Cess	101	80	136	105
8	Repair and maintenance charges of implements, machinery and building	806	660	166	496
9	Interest on working capital	1170	1042	999	1048
10	Other expenses	1090	877	1041	977
11	Total Cost 'A' (1-10)	25484	22618	21283	22605
12	Interest on fixed capital	2403	1823	626	1464
13	Cost 'B1' (11+12)	27887	24441	21909	24069
14	Interest on land value	39539	33494	20395	29514
15	Cost 'B' (13+14)	67426	57935	42304	53583
16	Imputed value of household labour	2639	1870	761	1578
17	Cost 'C' (15+16)	70065	59805	43065	55161

**PERCENTAGE DISRIBUTION OF "COST A" CULTIVATION PER HECTARE OF PADDY-WINTER
2006-07**



Sex wise work participation in winter paddy cultivation reveals that 68% of work shared by female whereas 20% shared by male workers.

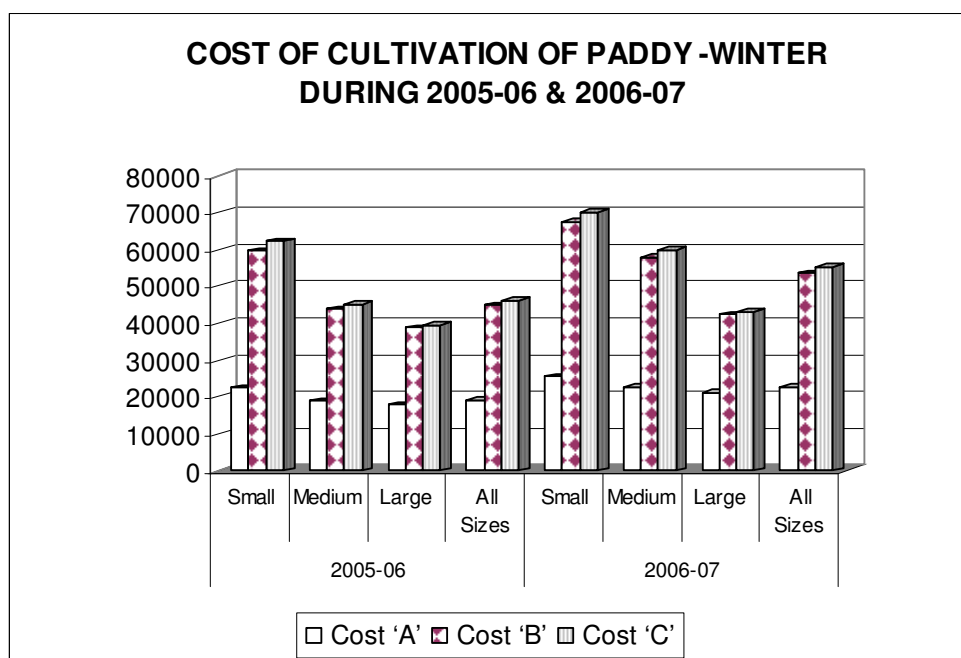
The following table reveals the percentage of hired human labour hours to total human labour hours .

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

Sex	Holding size class			
	Small	Medium	Large	All Sizes
Male	23.04	21.28	17.55	20.41
Female	60.02	66.12	76.53	68.30
Total	83.06	87.4	94.08	88.71

Table: 10 Cost of Cultivation per hectare of winter paddy during 2005-06 and 2006-07

Concept of cost	Year	Holding Size class			
		Small	Medium	Large	All size
Cost 'A'	2005-06	22447	18806	17912	19094
	2006-07	25484	22618	21283	22605
Cost 'B'	2005-06	59679	43767	38772	44933
	2006-07	67426	57935	42304	53583
Cost 'C'	2005-06	62096	44984	39544	46221
	2006-07	70065	59805	43065	55161



Cost of production of winter paddy

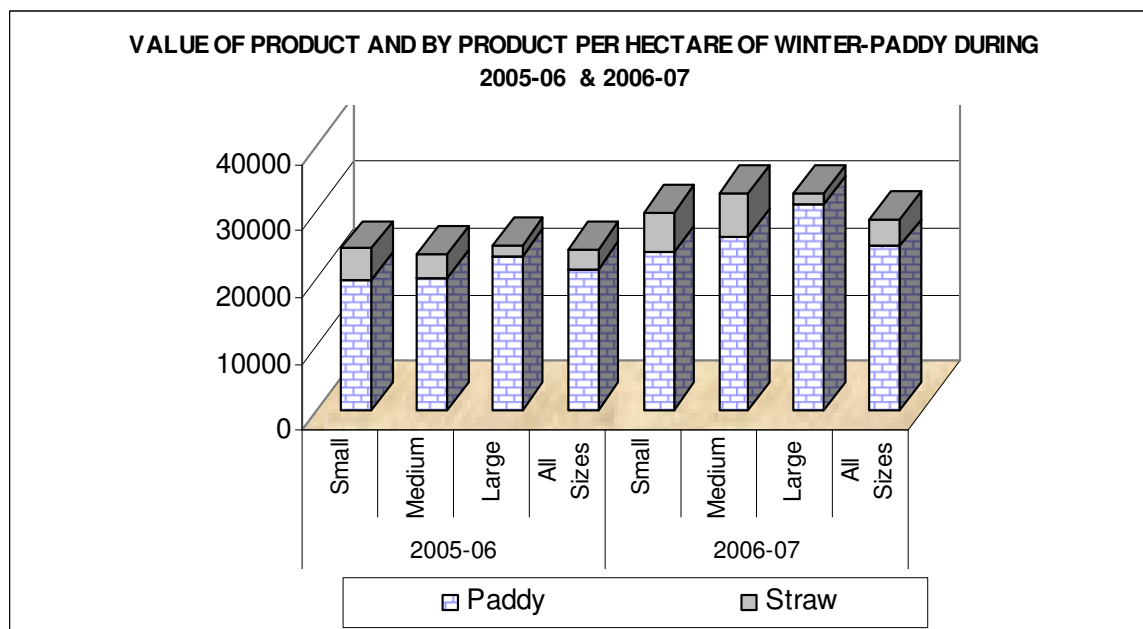
Table: 11 Per Quintal Cost of production of winter paddy during 2005-06 and 2006-07

Concept of cost	Year	Holding size class			
		Small	Medium	Large	All Sizes
Cost 'A'	2005-06	513	516	534	581
	2006-07	742	657	574	638
Cost 'B'	2005-06	1698	1411	1266	1479
	2006-07	1963	1684	1141	1512
Cost 'C'	2005-06	1775	1455	1293	1524
	2006-07	2040	1738	1161	1557

Output

Table: 12 - Value of output (Rs/ha)

Product/By-product	Holding size class			
	Small	Medium	Large	All Sizes
Paddy	23225	24839	30297	26655
Straw	7686	6068	2230	4875
Total	30911	30907	32527	31530



2.1.3 Paddy - Summer (Punja)

For the cost of cultivation study on summer paddy during 2006-07 the total number of holdings selected was 329. Number of holdings selected in large holding size is 30. But the 50.81 percent of total area covered in large holding size class. The details of these holdings are presented below:

Table 13 : Area under Summer Paddy during 2006-07

Holding size class	No of selected holdings	Area under the crop in the sample (ha)	Percentage	Area per holding (ha)
Small	181	39.90	14.58	0.22
Medium	118	94.70	34.61	0.80
Large	30	139.00	50.81	4.63
All Size	329	273.60	100.00	0.83

The above table reveals that the total area under cultivation in the selected sample holdings covers to 273.60 hectares and the average size of a holding is 0.83 hectare.

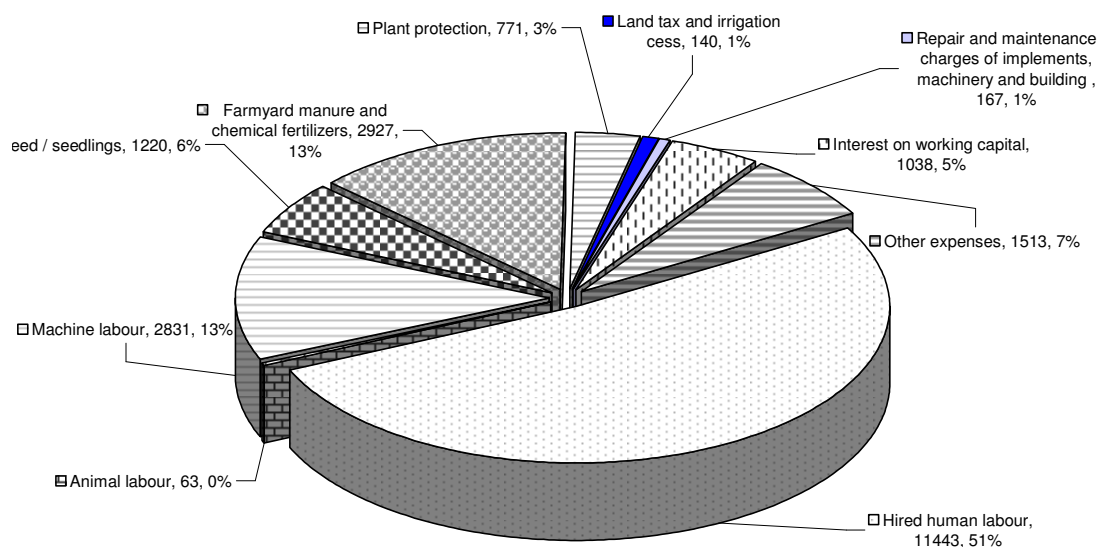
Cost of Cultivation

Cost of cultivation of summer paddy per hectre is estimated Rs. 22113/- when cost 'A' is considered. Component wise holding size class details are presented below:

Table 14: Cost of Cultivation per hectare of paddy -Summer during 2006-07

Sl No	Components	(Per Hectare in Rs.) Holding size Class			
		Small	Medium	Large	All Size
1	Hired human labour	12637	11218	11250	11443
2	Animal labour	150	79	26	63
3	Machine labour	2912	2958	2720	2831
4	Seed / seedlings	1061	1141	1319	1220
5	Farmyard manure and chemical fertilizers	3339	2937	2801	2927
6	Plant protection	725	872	716	771
7	Land tax and irrigation Cess	123	152	136	140
8	Repair and maintenance charges of implements, machinery and building	304	255	67	167
9	Interest on working capital	1113	1022	1028	1038
10	Other expenses	1434	1228	1731	1513
11	Total Cost 'A' (1-10)	23798	21862	21794	22113
12	Interest on fixed capital	2189	996	371	855
13	Cost 'B1' (11+12)	25987	22858	22165	22968
14	Interest on land value	48267	29510	10820	22803
15	Cost 'B' (13+14)	74254	52368	32985	45771
16	Imputed value of household labour	3296	1595	530	1306
17	Cost 'C' (15+16)	77550	53963	33515	47077

**PERCENTAGE DISRIBUTION OF "COST A" CULTIVATION PER HECTARE OF PADDY-
SUMMER 2006-07**



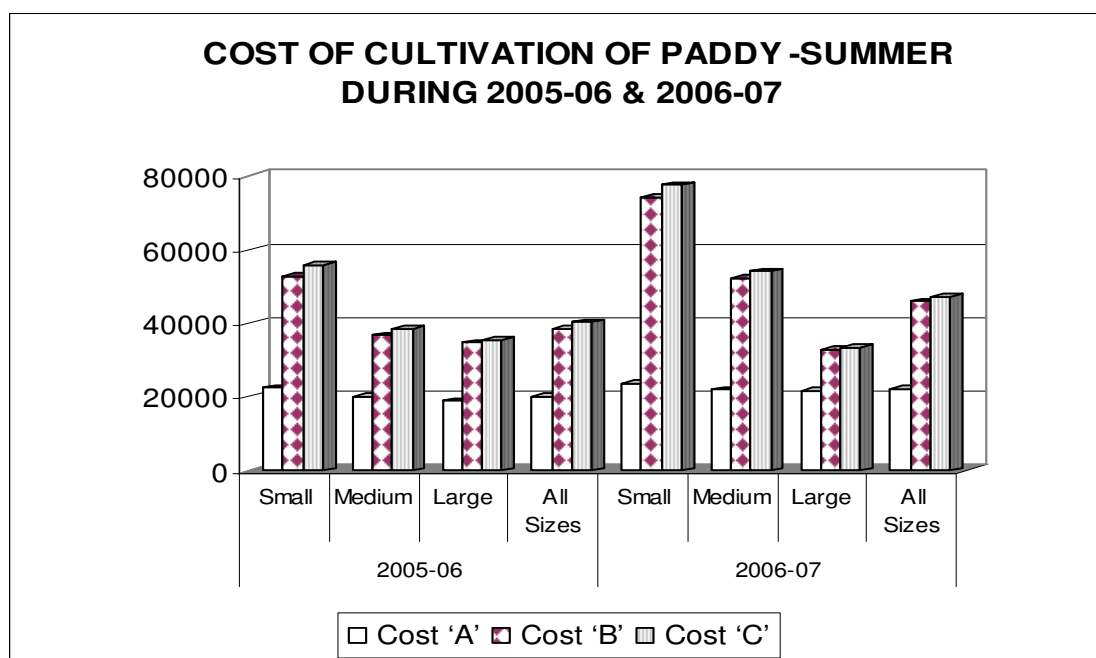
In summer paddy cultivation female labour participation accounted as 68% of the total labour hours. Details are given below:

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

Sex	Holding size class			
	Small	Medium	Large	All Sizes
Male	23.13	23.60	19.16	21.48
Female	56.43	63.83	75.55	67.65
Total	79.56	87.43	94.71	89.13

Table: 16 Cost of Cultivation per hectare of Summer paddy during 2005-06 and 2006-07

Concept of cost	Year	Holding Size class			
		Small	Medium	Large	All size
Cost 'A'	2005-06	22448	20258	18833	20057
	2006-07	23798	21862	21794	22113
Cost 'B'	2005-06	52683	36648	34635	38598
	2006-07	74254	52368	32985	45771
Cost 'C'	2005-06	55652	38451	35481	40195
	2006-07	77550	53963	33515	47077



Output

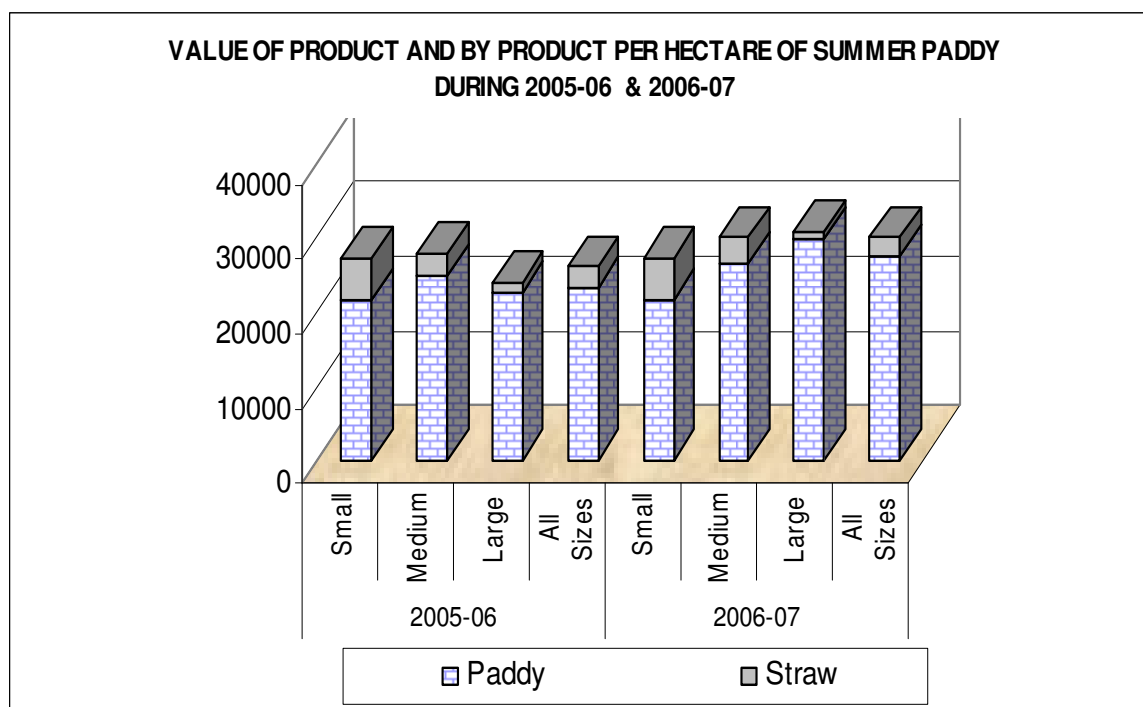
Table: 17 Per Quintal Cost of production of paddy-Summer during 2005-06 and 2006-07

Concept of cost	Year	Holding size class			
		Small	Medium	Large	All Sizes
Cost 'A'	2005-06	582	547	522	536
	2006-07	742	550	595	597
Cost 'B'	2005-06	1228	1913	1438	1272
	2006-07	2316	1317	900	1235
Cost 'C'	2005-06	1242	1965	1446	1375
	2006-07	2419	1357	914	1270

Above tables reveal that for producing one quintal of paddy in summer season an amount of Rs.597 is required when cost 'A' is considered. Per hectare value of product paddy is calculated as Rs.27281/- and the value of by-product viz. straw is estimated as Rs.2475/-

Table 18: Value of Out put (Rs./ha)

Product/ By-product	Holding Size Class			
	Small	Medium	Large	All Sizes
Paddy	21578	26299	29612	27281
Straw	5497	3476	911	2475
Total	27075	29775	30523	29756



2.2 Coconut

Coconut is grown in over 93 countries. Kerala's share in area as well as production of coconut in the country has been declining years after years. Still the State is known as "Kera Nadu" and it provides livelihood to over 3.5 million families in Kerala. As such data regarding the Cost of Cultivation of Coconut is significant. Details of the study conducted during 2006-07 are presented 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	114	16.30	8.49	0.14
Medium	182	73.40	38.21	0.40
Large	84	102.40	53.30	1.22
Total	380	192.1	100.00	0.51

Cost of Cultivation

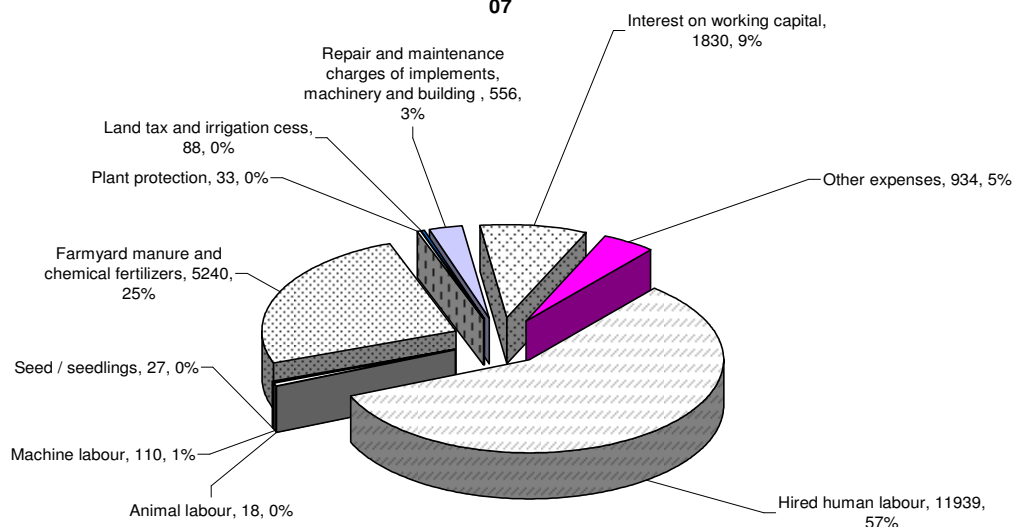
The cultivation practices and expenditure patterns of coconut tree is entirely different when compared to paddy. Details are given below.

Table 20: Cost of Cultivation of Coconut during the year 2006-07

(Per Hectare in Rs.)

Sl No	Components	Holding size Class			
		Small	Medium	Large	All Size
1	Hired human labour	14819	11501	11789	11939
2	Animal labour	0	0	34	18
3	Machine labour	82	159	79	110
4	Seed / seedlings	41	45	12	27
5	Farmyard manure and chemical fertilizers	6546	5358	4945	5240
6	Plant protection	38	41	26	33
7	Land tax and irrigation Cess	92	84	91	88
8	Repair and maintenance charges of implements, machinery and building	841	636	451	556
9	Interest on working capital	2263	1812	1773	1830
10	Other expenses	1106	1020	843	934
11	Total Cost 'A' (1-10)	25828	20656	20043	20775
12	Interest on fixed capital	5057	4073	2671	3414
13	Cost 'B1' (11+12)	30885	24729	22714	24189
14	Interest on land value	359062	219146	173331	210381
15	Cost 'B' (13+14)	389947	243875	196045	234570
16	Imputed value of household labour	3280	1952	1128	1631
17	Cost 'C' (15+16)	393227	245827	197173	236201

PERCENTAGE DISTRIBUTION OF "COST A" CULTIVATION PER HECTARE OF COCONUT 2006-07



The above data reveals that the major two inputs are hired human labour and farmyard manure and chemical fertilizers. Both of these items are accounted as 57% and 25% respectively.

The following table reveals percentage distribution of hired human labour hours to the total human labour hours.

Table 21: Percentage distribution of hired human labour hours to the total human labour hours

Sex	Holding Size Class			
	Small	Medium	Large	All Sizes
Male	68.18	70.71	73.82	72.03
Female	8.55	11.35	14.16	12.48
Total	76.73	82.06	87.98	84.51

Table 22: Cost of Cultivation per hectare of Coconut during 2005-06 and 2006-07

Concept of cost	Year	Holding Size class			
		Small	Medium	Large	All size
Cost 'A'	2005-06	21334	19475	21230	20555
	2006-07	25828	20656	20043	20775
Cost 'B'	2005-06	308977	206449	188335	204220
	2006-07	389947	243875	196045	234570
Cost 'C'	2005-06	312938	208400	189587	205945
	2006-07	393227	245827	197173	236201

Value of output

Table 23: Value of Out put / Hectare

Product/By-product	Holding Size Class			
	Small	Medium	Large	All Sizes
Product	46525	39536	39394	40072
By-Product	2161	1482	1405	1501
Total	48686	41018	40799	41573

The value of output in small holding size class is higher than that of the other two classes. The table shows the value of output is Rs.41573/- per hectare.

2.3 Arecanut

Arecanut, a traditional crop of the state is also facing certain problems especially in area. Details of the area covered under this study are as follows:

Table. 24 Area and Number of holdings under Arecanut cultivation.

Holding size class	No of selected holdings	Area under the crop in the sample (ha)	Percentage	Area per holding (ha)
Small	257	16.80	24.45	0.07
Medium	98	28.30	41.19	0.29
Large	25	23.60	34.36	0.94
All size	380	68.70	100.00	0.18

For this study 380 holdings were selected. It had an operational area of 68.70 hectare. The average size per holding was 0.18 hectare.

Cost of Cultivation

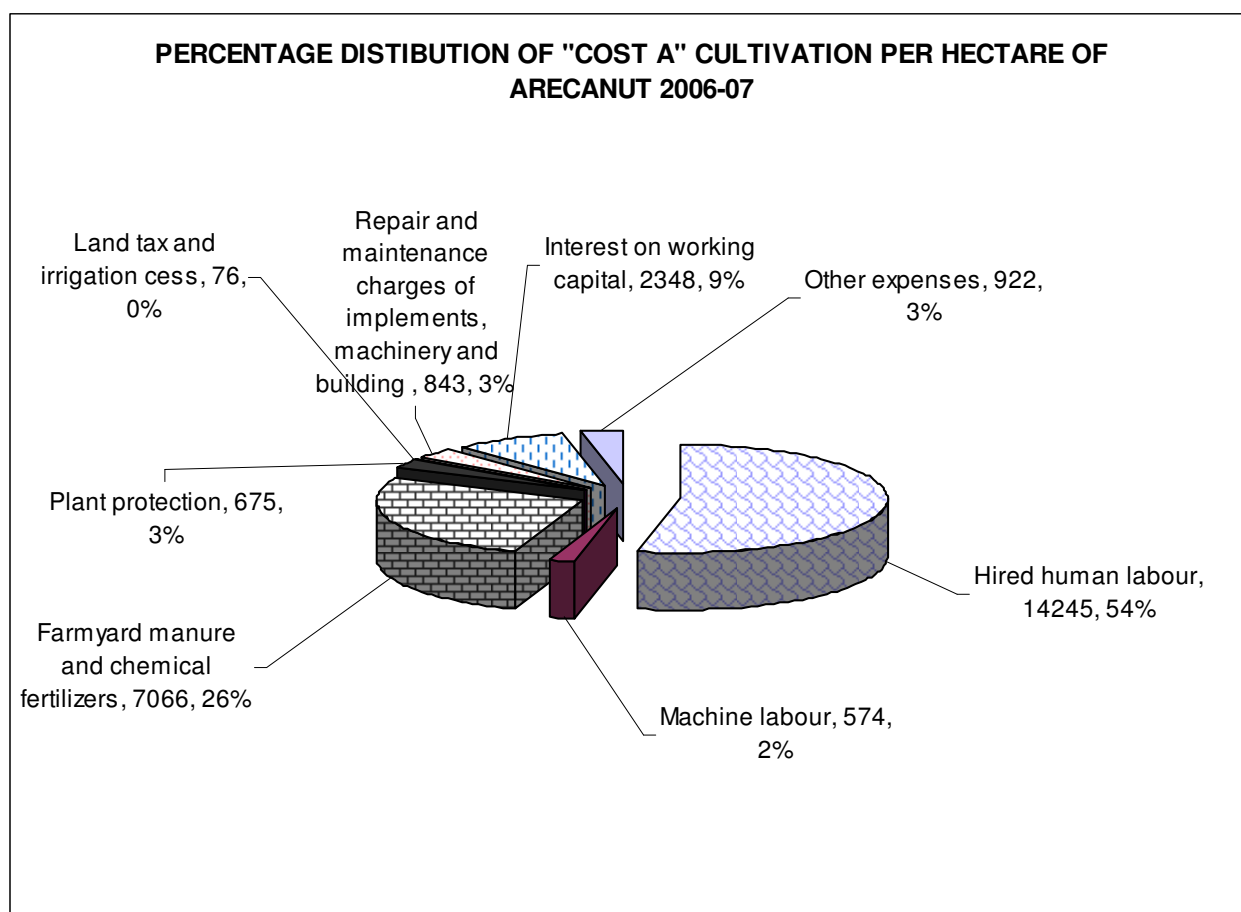
The different cost components of Arecanut cultivation is given below: Per hectare cost C expenses is worked out as Rs.257272 /-

Table 25: Cost of Cultivation per hectare of Arecanut during the year 2006-07

(Per Hectare in Rs.)

Sl No	Components	Holding size Class			
		Small	Medium	Large	All Size
1	Hired human labour	13653	15517	13141	14245
2	Animal labour	0	0	0	0
3	Machine labour	187	667	748	574
4	Seed / seedlings	0	0	0	0
5	Farmyard manure and chemical fertilizers	6172	7392	7331	7066

6	Plant protection	378	731	828	675
7	Land tax and irrigation Cess	73	67	89	76
8	Repair and maintenance charges of implements, machinery and building	887	938	693	843
9	Interest on working capital	2131	2506	2318	2348
10	Other expenses	918	755	1128	922
11	Total Cost 'A' (1-10)	24399	28573	26276	26749
12	Interest on fixed capital	8109	7614	3824	6451
13	Cost 'B1' (11+12)	32508	36187	30100	33200
14	Interest on land value	329304	171844	163046	220525
15	Cost 'B' (13+14)	361812	208031	193146	253725
16	Imputed value of household labour	4004	4410	2167	3547
17	Cost 'C' (15+16)	365816	212441	195313	257272



When Cost A is considering, 54% comes under hired human labour and followed by 26% in Farmyard manure and chemical fertilizers.

The following table illustrates the work participation of arecanut cultivation. It shows that 78 per cent of the total labour hours has been shared by human labour.

Table 26: Percentage distribution of hired human labour hours to total human labour hours

Sex	Holding size class			
	Small	Medium	Large	All Sizes
Male	65.59	55.90	59.31	59.19
Female	10.47	20.26	24.31	19.08
Total	76.06	76.16	83.62	78.27

Table 27: Cost of Cultivation per hectare of Arecanut during 2005-06 and 2006-07

Concept of cost	Year	Holding Size class			
		Small	Medium	Large	All size
Cost 'A'	2005-06	19068	25429	28771	25222
	2006-07	24399	28573	26276	26749
Cost 'B'	2005-06	145321	149098	149161	139720
	2006-07	361812	208031	193146	253725
Cost 'C'	2005-06	149250	151555	151599	142450
	2006-07	365816	212441	195313	257272

Value of Out put

Table 28: Value of Out put / Hectare

The following table gives details of value of output per hectare of different holding size class. Here it shows that value of output per hectare increase according to the holding class size increases.

Holding Size Class			
Small	Medium	Large	All Sizes
49561	69111	78745	67481

2.4 Tapioca

Area under the crop in this study was 39.70 hectare which covers 190 holdings. Number of holding in large holding size class is very less. Holding size class wise details are given below.

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 of Selected holdings	Area per holding (ha)
Small	112	9.10	22.92	0.08
Medium	69	21.20	53.40	0.31
Large	9	9.40	23.68	1.04
All Size	190	39.70	100.00	0.21

The average size of a selected holding is 0.21 hectare and number of holding selected for the survey is 190.

Cost of Cultivation

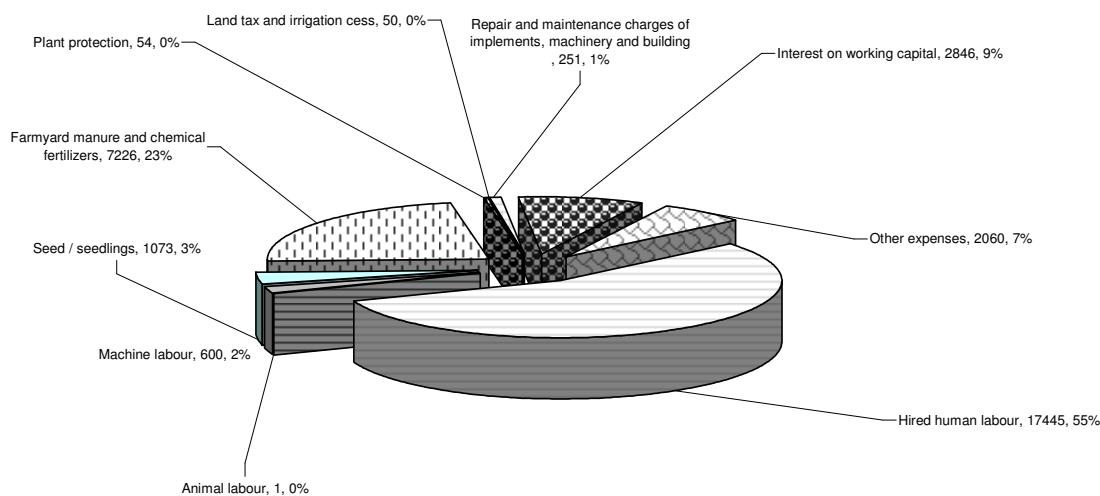
When Cost A is considered per hectare cost of cultivation of tapioca is worked out Rs.31606/- . In this hired labour cost constituted 55% where as fardyard manure and chemical fertilizers shares 23% of the Cost A. The cost of cultivation of Tapioca under different concepts is given below.

Table 30: The Cost of cultivation per hectare of tapioca during the year 2006-07

(Per Hectare in Rs.)

Sl No	Components	Holding size Class			
		Small	Medium	Large	All Size
1	Hired human labour	17393	15376	22386	17445
2	Animal labour	0	2	0	1
3	Machine labour	52	427	1571	600
4	Seed / seedlings	1264	977	1106	1073
5	Farmyard manure and chemical fertilizers	7515	7240	6968	7226
6	Plant protection	115	48	5	54
7	Land tax and irrigation Cess	71	46	40	50
8	Repair and maintenance charges of implements, machinery and building	337	260	144	251
9	Interest on working capital	2793	2640	3399	2846
10	Other expenses	1594	2329	1958	2060
11	Total Cost 'A' (1-10)	31134	29345	37577	31606
12	Interest on fixed capital	5901	3040	2269	3544
13	Cost 'B1' (11+12)	37035	32385	39846	35150
14	Interest on land value	205172	111845	146632	162300
15	Cost 'B' (13+14)	242207	144230	186478	197450
16	Imputed value of household labour	8889	4658	634	4735
17	Cost 'C' (15+16)	251096	148888	187112	202185

PERCENTAGE DISTRIBUTION OF "COST A" CULTIVATION PER HECTARE OF TAPIOCA 2006-07



The following table shows the percentage distribution of hired human labour hours engaged in tapioca cultivation.

Table 31: Percentage distribution of hired human labour hours

Sex	Holding Size Class			
	Small	Medium	Large	All Sizes
Male	56.65	61.76	62.17	60.53
Female	7.67	13.59	34.61	18.35
Total	64.32	75.35	96.78	78.88

In tapioca cultivation 79% of the total human labour hours has been shared by hired human labour.

Table 32: Cost of Cultivation per hectare of Tapioca during 2005-06 and 2006-07

A comparative statement for 2005-06 and 2006-07 for cost of cultivation of different concept is given below.

Concept of cost	Year	Holding Size class			
		Small	Medium	Large	All size
Cost 'A'	2005-06	23835	21812	33586	25136
	2006-07	31134	29345	37577	31606
Cost 'B'	2005-06	196859	151430	166405	166303
	2006-07	242207	144230	186478	197450
Cost 'C'	2005-06	202531	154344	168919	169799
	2006-07	251096	148888	187112	202185

Value of Out put

Table 33: Value of Out put / Hectare

Holding Size Class			
Small	Medium	Large	All Sizes
68437	65048	62616	65298

The value of output for all holding size is comparable. Value of output from tapioca is estimated Rs.65298/- per hectare.

2.5 Banana

In the cost of cultivation study on banana 190 holdings were selected by covering an area 37.80 hectares. Details of these holdings are given below.

Table 34: 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	122	9.90	26.19	0.08
Medium	59	17.20	45.50	0.29
Large	9	10.70	28.31	1.19
All Size	190	37.80	100.00	0.20

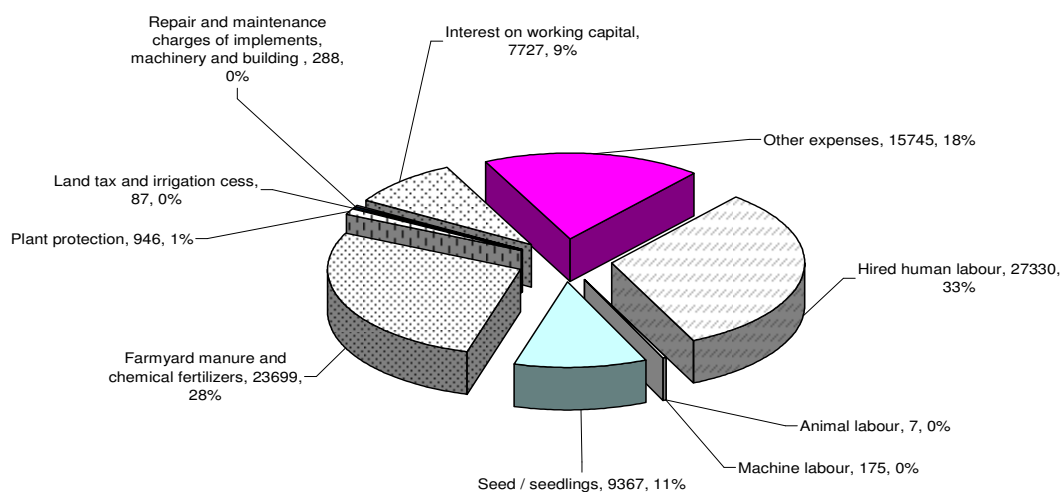
Cost of Cultivation

As in the case of other crops, cost of cultivation of banana is also calculated at different cost, concepts such as cost 'A', Cost 'B1', 'Cost 'B' and Cost 'C'. When Cost A is considered, cost of cultivation is Rs.85371/-.

Table 35: The Cost of cultivation per hectare of Banana during the year 2006-07

(Per Hectare in Rs.)

Sl No	Components	Holding size Class			
		Small	Medium	Large	All Size
1	Hired human labour	34114	30539	16044	27330
2	Animal labour	28	0	0	7
3	Machine labour	476	107	0	175
4	Seed / seedlings	9728	8767	10176	9367
5	Farmyard manure and chemical fertilizers	24000	24859	21947	23699
6	Plant protection	1181	896	818	946
7	Land tax and irrigation Cess	89	59	133	87
8	Repair and maintenance charges of implements, machinery and building	607	146	222	288
9	Interest on working capital	8173	8385	6363	7727
10	Other expenses	12206	18677	14640	15745
11	Total Cost 'A' (1-10)	90602	92435	70343	85371
12	Interest on fixed capital	6211	4094	2944	4319
13	Cost 'B1' (11+12)	96813	96529	73287	89690
14	Interest on land value	174606	126847	81944	140041
15	Cost 'B' (13+14)	271419	223376	155231	229731
16	Imputed value of household labour	13962	9915	5262	9655
17	Cost 'C' (15+16)	285381	233291	160493	239386

PERCENTAGE DISTRIBUTION OF "COST A" CULTIVATION PER HECTARE OF BANANA 2006-07

In this hired human labour cost accounted as 33 per cent where as farmyard manure and chemical fertilizers cost as 28 per cent respectively of the total Cost 'A'. Seed/seedling cost constitutes to 11% of the total cost 'A'.

In Banana cultivation male participation rate is higher than that of female. The percentage distribution of these facts are as follows:

Table: 36 Percentage distributions of hired human labour hours to the total human labour hours

Sex	Holding Size Class			
	Small	Medium	Large	All Sizes
Male	60.17	64.55	53.04	60.92
Female	7.64	9.77	16.17	10.32
Total	67.81	74.32	69.21	71.24

Table 37: Cost of Cultivation per hectare of Banana during 2005-06 and 2006-07

A comparative statement for 2005-06 and 2006-07 for cost of cultivation of different concept is given below.

Concept of cost	Year	Holding Size class			
		Small	Medium	Large	All size
Cost 'A'	2005-06	78191	73829	78407	76080
	2006-07	90602	92435	70343	85371
Cost 'B'	2005-06	196599	219157	192023	216930
	2006-07	271419	223376	155231	229731
Cost 'C'	2005-06	211402	226333	197460	225772
	2006-07	285381	233291	160493	239386

Value of out put

Table 38: Value of Out put / Hectare

Holding Size Class			
Small	Medium	Large	All Sizes
158245	174480	103774	150007

During 2006-07 per hectare value of output from banana cultivation is estimated out as Rs. 150007/--

2.6 Pepper

The monopoly of the state still continues in area and production of pepper. Details of the holdings selected for the study is given below:

Table 39 - Area and number of holdings selected during 2006-07

Holding size class	No of selected holdings	Area under the crop in the sample (ha)	Percentage	Area per holding (ha)
Small	146	8.50	32.82	0.06
Medium	39	11.30	43.63	0.29
Large	5	6.10	23.55	1.22
Total	190	25.90	100.00	0.14

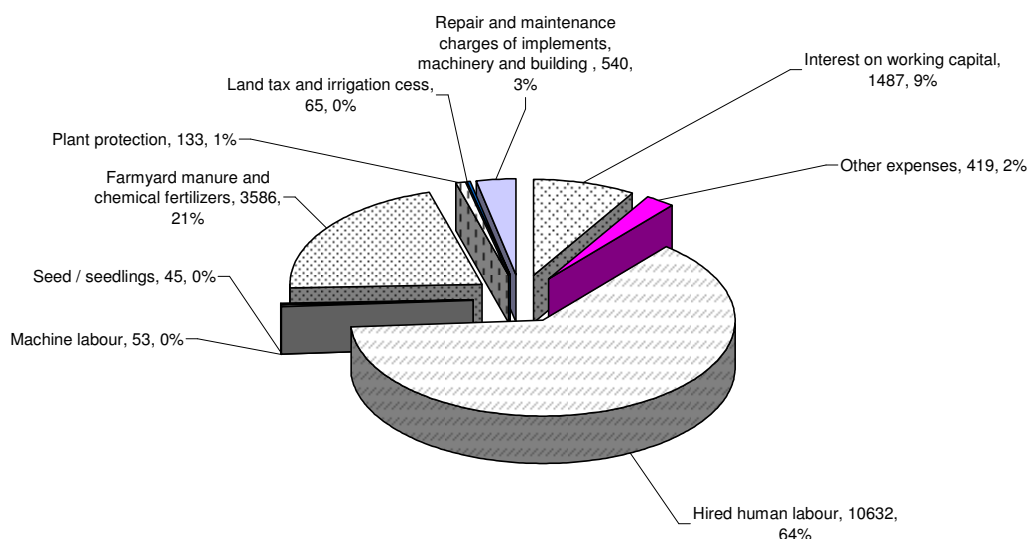
Cost of cultivation

The cultivation cost incurred for pepper is entirely different when compared to the cost of paddy and other seasonal crops. Labour cost and fertilizer cost are the two major items of expenses for pepper cultivation. Item wise expenses incurred under pepper cultivation is as follows:

Table 40: Cost of Cultivation of Pepper during the year 2006-07

(Per Hectare in Rs.)

Sl No	Components	Holding size Class			
		Small	Medium	Large	All Size
1	Hired human labour	12693	10858	7110	10632
2	Animal labour	0	0	0	0
3	Machine labour	16	93	32	53
4	Seed / seedlings	65	53	0	45
5	Farmyard manure and chemical fertilizers	4206	3167	3455	3586
6	Plant protection	237	52	132	133
7	Land tax and irrigation Cess	72	52	77	65
8	Repair and maintenance charges of implements, machinery and building	1128	174	352	540
9	Interest on working capital	1786	1455	1100	1487
10	Other expenses (Including soil condition)	639	325	266	419
11	Total Cost 'A' (1 to 10)	20842	16229	12524	16960
12	Interest on fixed capital	7825	3971	1245	4665
13	Cost 'B1' (11+12)	28667	20200	13769	21625
14	Interest on land value	480247	247288	256694	342520
15	Cost 'B' (13+14)	508914	267488	270463	364145
16	Imputed value of household labour	6644	2619	3681	4231
17	Cost 'C' (15+16)	515558	270107	274144	368376

PERCENTAGE DISTRIBUTION OF "COST A" CULTIVATION PER HECTARE OF PEPPER 2006-07

The survey results reveal that out of the total human labour hours engaged in pepper cultivation 70% is shared by hired human labour. Details are given below:

Table 41: Percentage of hired human labour hours engaged in pepper cultivation

Sex	Holding size class			
	Small	Medium	Large	All Sizes
Male	56.33	62.46	45.46	56.64
Female	6.83	18.53	16.72	13.40
Total	63.16	80.99	62.18	70.04

Table 42: Cost of Cultivation per hectare of Pepper during 2005-06 and 2006-07

A comparative statement for 2005-06 and 2006-07 for cost of cultivation of different concept is given below.

Concept of cost	Year	Holding Size class			
		Small	Medium	Large	All size
Cost 'A'	2005-06	18381	17551	23579	19874
	2006-07	20842	16229	12524	16960
Cost 'B'	2005-06	369047	246659	235428	276448
	2006-07	508914	267488	270463	364145
Cost 'C'	2005-06	374291	248336	236840	279016
	2006-07	515558	270107	274144	368376

Value of out put**Table 43: Value of Out put / Hectare**

Holding Size Class			
Small	Medium	Large	All Sizes
51945	46902	27090	44389

During 2005-06 per hectare value of output from pepper cultivation is estimated out as Rs. 32995/--

During 2006-07 it is estimated that Rs. 44389/- has been received as value of output from per hectare pepper cultivation.

2.7 Ginger

For the cost of cultivation study during 2006-07, 175 holdings were selected. Details are given below:

Table 44: Area and number of holdings under Ginger cultivation 2006-07

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	129	9.10	30.64	0.07
Medium	42	17.10	57.58	0.41
Large	4	3.50	11.78	0.88
All sizes	175	29.70	100.00	0.17

Cost of cultivation

Among the various inputs of ginger cultivation labour cost, seed/seedling, fertilizer, etc. are the most important. Details of these various inputs are presented below:

Table 45 Cost of Cultivation per hectare of Ginger during the year 2006-07

(Per Hectare in Rs)

Sl No	Components	Holding size Class			
		Small	Medium	Large	All Size
1	Hired human labour	20856	19791	35357	21848
2	Animal labour	4	0	0	1
3	Machine labour	188	1192	1543	913
4	Seed / seedlings	16097	13856	17314	14913
5	Farmyard manure and chemical fertilizers	11342	10710	21851	12153
6	Plant protection	413	633	6285	1211
7	Land tax and irrigation cess	53	50	77	54
8	Repair and maintenance charges of implements, machinery and building	1621	678	259	925
9	Interest on working capital	5108	4834	8607	5338
10	Other expenses	2175	2162	3721	2338
11	Total Cost 'A' (1-10)	57857	53906	95014	59694
12	Interest on fixed capital	5202	2988	1830	3542
13	Cost 'B1' (11+12)	63059	56894	96844	63236
14	Interest on land value	180786	51445	202857	131002
15	Cost 'B' (13+14)	243845	108339	299701	194238
16	Imputed value of household labour	9038	3415	3643	5200
17	Cost 'C' (15+16)	252883	111754	303344	199438

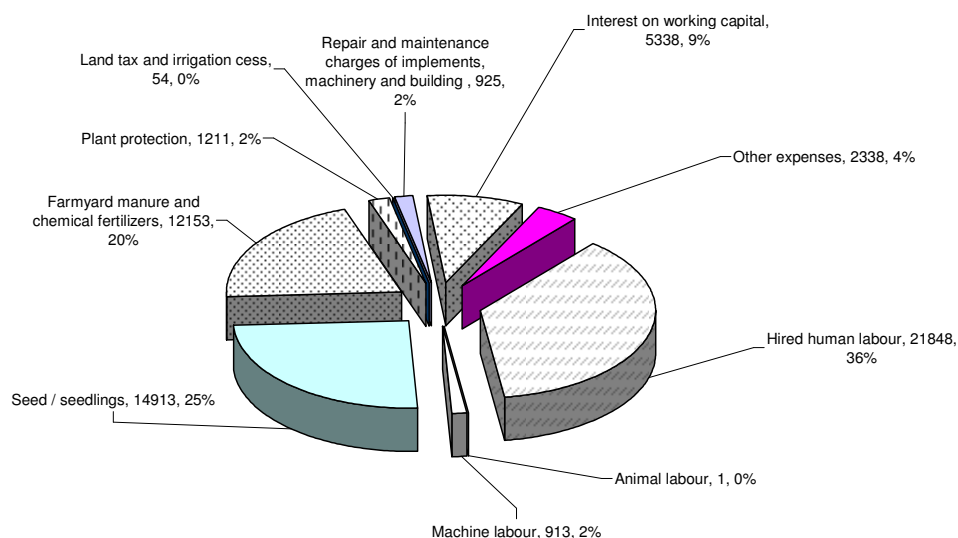
PERCENTAGE DISTRIBUTION OF "COST A" CULTIVATION PER HECTARE OF GINGER 2006-07

Table 46: Percentage of hired human labour hours to total human labour hours

Sex	Holding size class			
	Small	Medium	Large	All Sizes
Male	47.66	39.84	24.32	37.98
Female	22.00	45.55	68.99	45.19
Total	69.66	85.39	93.31	83.17

Table 47: Cost of Cultivation per hectare of Ginger during 2005-06 and 2006-07

A comparative statement for 2005-06 and 2006-07 for cost of cultivation of different concept is given below.

Concept of cost	Year	Holding Size class			
		Small	Medium	Large	All size
Cost 'A'	2005-06	62602	56035	60231	61835
	2006-07	57857	53906	95014	59694
Cost 'B'	2005-06	238934	220499	197222	176939
	2006-07	243845	108339	299701	194238
Cost 'C'	2005-06	253476	225126	200177	183500
	2006-07	252883	111754	303344	199438

Value of Out put

Table 48: Value of Out put / Hectare

Holding Size Class			
Small	Medium	Large	All Sizes
92903	83050	141353	92919

The per hectare value of output received from Ginger cultivation is seen as Rs.92919/- during 2006-07.

2.8 Turmeric

Details of the holdings selected for the cost of cultivation study during 2006-07 are given below:

Table 49: Area and Number of holdings selected for Turmeric cultivation 2006-07

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	118	5.90	47.97	0.05
Medium	22	6.40	52.03	0.29
Large	0	0.00	0.00	0.00
All size	140	12.30	100.00	0.09

Cost of cultivation

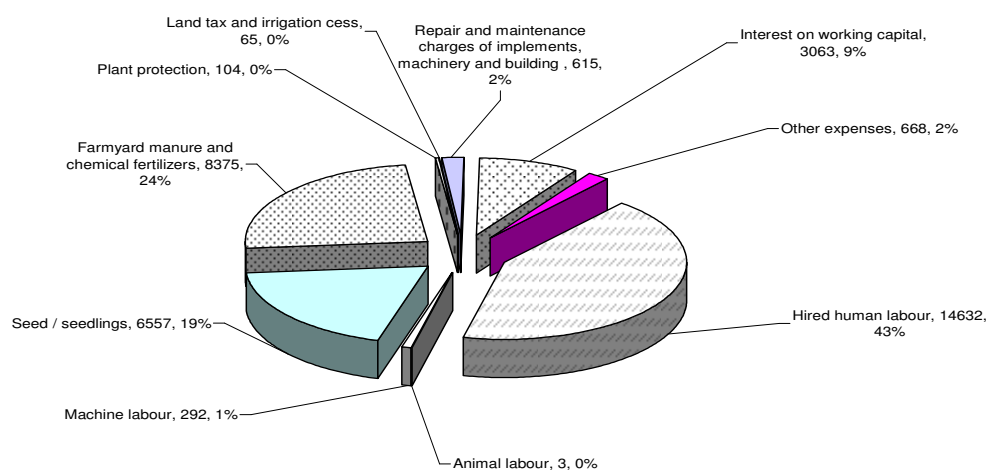
The cash and other kind expenses incurred under ginger cultivation is estimated as Rs.34374/- for one hectare. Details of these items are given below:

Table 50: Cost of Cultivation of Turmeric during the year 2006-07

(Per Hectare in Rs.)

Sl No	Components	Holding size Class			
		Small	Medium	Large	All Size
1	Hired human labour	18341	11092	0	14632
2	Animal labour	0	6	0	3
3	Machine labour	121	456	0	292
4	Seed / seedlings	6526	6586	0	6557
5	Farmyard manure and chemical fertilizers	9407	7390	0	8375
6	Plant protection	94	113	0	104
7	Land tax and irrigation Cess	61	69	0	65
8	Repair and maintenance charges of implements, machinery and building	652	579	0	615
9	Interest on working capital	3532	2616	0	3063
10	Other expenses	831	513	0	668
11	Total Cost 'A' (1-10)	39565	29420	0	34374
12	Interest on fixed capital	6657	4394	0	5499
13	Cost 'B1' (11+12)	46222	33814	0	39873
14	Interest on land value	334722	98485	0	255717
15	Cost 'B' (13+14)	380944	132299	0	295590
16	Imputed value of household labour	9931	6497	0	8174
17	Cost 'C' (15+16)	390875	138796	0	303764

PERCENTAGE DISTRIBUTION OF "COST A" CULTIVATION PER HECTARE OF TURMERIC 2006-07



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

Table 51: Percentage distribution of Hired human labour hours to the total human hours

Sex	Holding size class			
	Small	Medium	Large	All Sizes
Male	40.92	27.62	0	34.09
Female	22.60	43.21	0	33.19
Total	63.52	70.83	0	67.28

Table 52: Cost of Cultivation per hectare of Turmeric during 2005-06 and 2006-07

A comparative statement for 2005-06 and 2006-07 for cost of cultivation of different concept is given below.

Concept of cost	Year	Holding Size class			
		Small	Medium	Large	All size
Cost 'A'	2005-06	43808	31894	0	38762
	2006-07	39565	29420	0	34374
Cost 'B'	2005-06	373207	174731	0	284611
	2006-07	380944	132299	0	295590
Cost 'C'	2005-06	384141	181354	0	293625
	2006-07	390875	138796	0	303764

Output

The per hectare value of output received from turmeric cultivation is estimated as Rs.51132/- during the year 2006-07.

Table 53: Value of Out put / Hectare

Holding Size Class			
Small	Medium	Large	All Sizes
71837	31533		51132