

Government of Kerala

***Report On
Cost of Cultivation of
Important Crops in Kerala
2007-08***

**Department of Economics & Statistics
Thiruvananthapuram
2010**

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 2007-08. The crops covered during this year are Paddy (3 seasons), Coconut, Arecanut, Pepper, Banana, Tapioca, Ginger and Turmeric.

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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 28th round of survey conducted during the agricultural year 2007-08. 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 is 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) 2007-08

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 numbers 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 procedures 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 crops are 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 342 holding by covering 231.60 hectares of land.

Table 1 - Area and number of holdings under autumn paddy during 2007-08

Holding size class	No of selected holdings	Area under the crop in the sample (ha)	Percentage Area	Average Area per holding (ha)
Small	196	41.40	17.88	0.21
Medium	122	96.50	41.66	0.79
Large	24	93.70	40.46	3.90
Total	342	231.60	100.00	0.68

From the above table it can be seen that average area per holding was 0.68 hectare

Cost of cultivation

When Cost A is considered, about 52 percent of cost constitutes to hired human labour, farmyard manure and chemical fertilizers accounts to 15% and Machine labour cost shares 13%.

Table 2- Cost of Cultivation per hectare of paddy (autumn) during 2007-08
(Per Hectare in Rs.)

Sl No	Components	Holding size Class			
		Small	Medium	Large	All Size
1	Hired human labour	13709	8704	10343	10265
2	Animal labour	457	322	2	217
3	Machine labour	2969	2256	2629	2534

4	Seed / seedlings	1219	1173	1145	1170
5	Farmyard manure and chemical fertilizers	3234	2876	3093	3028
6	Plant protection	261	188	282	239
7	Land tax and irrigation cess	54	39	39	42
8	Repair and maintenance charges of implements, machinery and building	824	522	580	600
9	Interest on working capital	1137	824	909	915
10	Other expenses	897	963	690	841
11	Total cost 'A' (1-10)	24761	17867	19712	19851
12	Interest on fixed capital	5466	2703	2243	3014
13	Cost 'B1' (11+12)	30227	20570	21955	22865
14	Interest on land value	67232	38519	25379	38380
15	Cost 'B' (13+14)	97459	59089	47334	61245
16	Imputed value of household labour	3033	1197	283	1159
17	Cost 'C' (15+16)	100492	60286	47617	62404

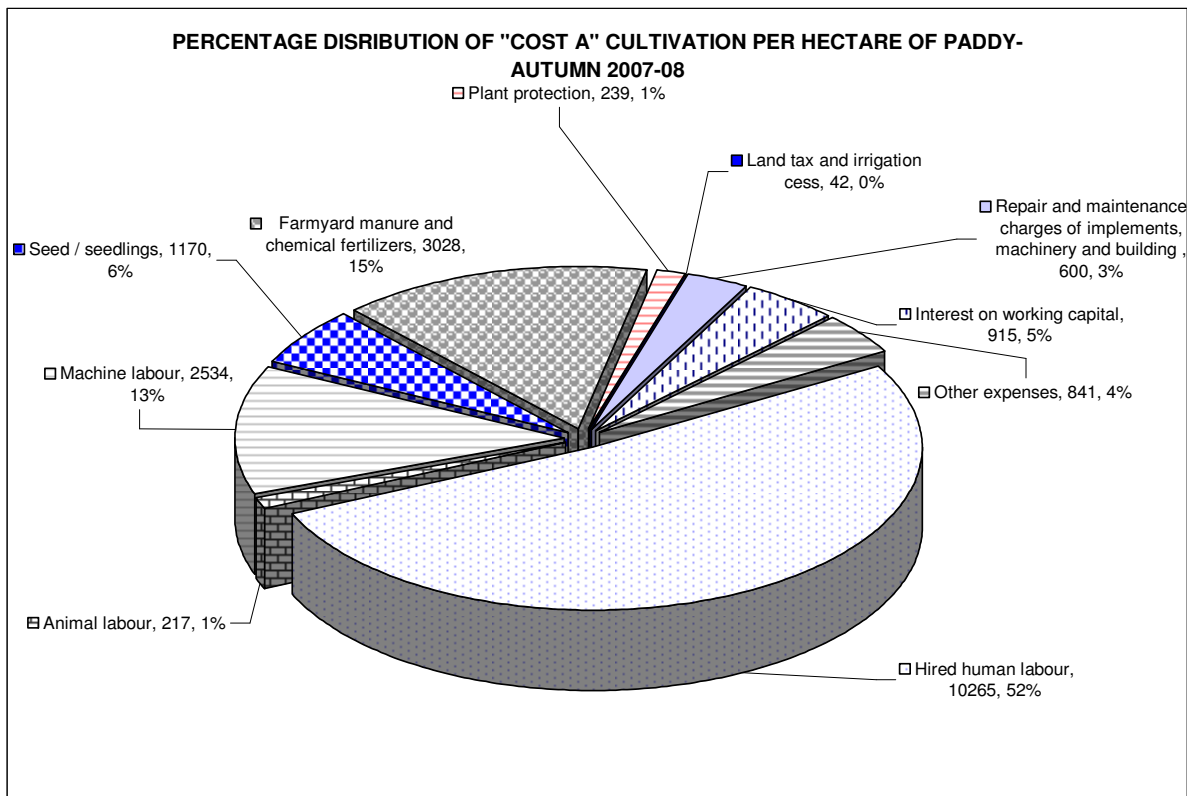


Table 3: Percentage of Hired human labour hours to total human labour hours

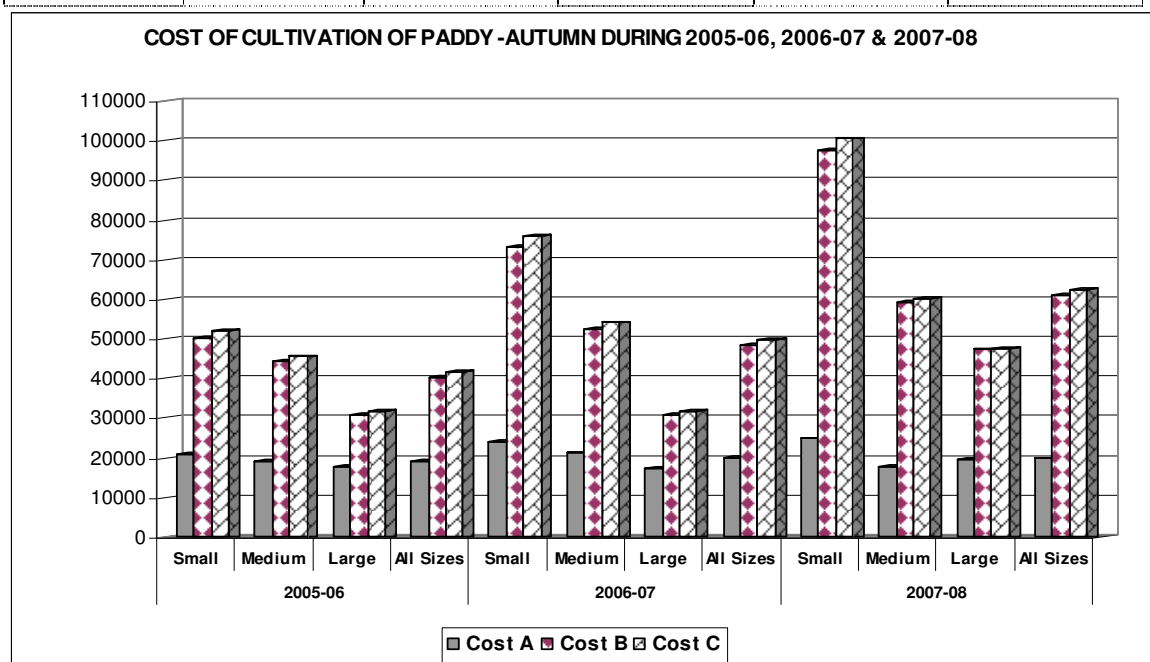
Sex	Holding size class			
	Small	Medium	Large	All Sizes
Male	24.60	17.40	31.24	24.41
Female	57.27	71.06	64.75	65.28
Total	81.87	88.46	95.99	89.69

In Autumn paddy cultivation 65% of total labour hours shares to female participation.

Cost of production of paddy during 2005-2006, 2006-2007 and 2007-2008

Table: 4 Cost of production of Autumn paddy per hectare 2005-06, 2006-07 and 2007-08

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
	2007-08	24761	17867	19712	19851
Cost 'B'	2005-06	50191	44487	30727	40319
	2006-07	73422	52446	30776	48358
	2007-08	97459	59089	47334	61245
Cost 'C'	2005-06	52100	45552	31742	41518
	2006-07	76112	54072	31738	49938
	2007-08	100492	60286	47617	62404



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 2007-08 for producing one quintal of paddy Rs.986/- 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 & 2007-08

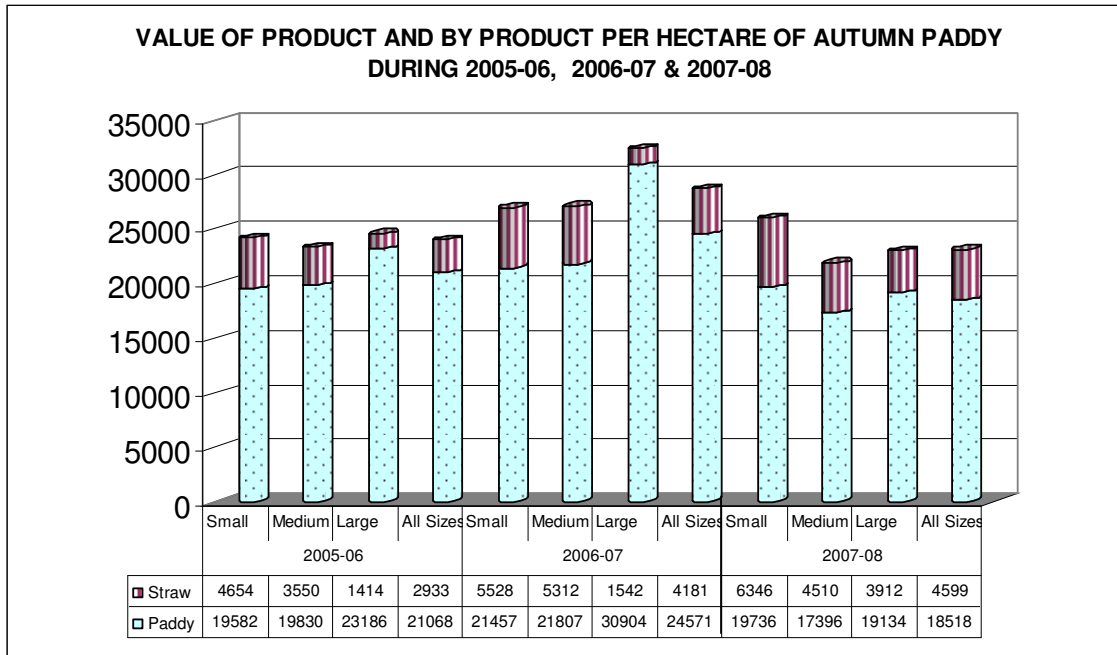
Concept of cost	Year	Holding size class			
		Small	Medium	Large	All Sizes
Cost 'A'	2005-06	540	498	477	545
	2006-07	751	673	438	595
	2007-08	928	853	1198	986
Cost 'B'	2005-06	1498	1311	855	1207
	2006-07	835	755	456	651
	2007-08	3650	2824	2879	3041
Cost 'C'	2005-06	1561	1345	884	1244
	2006-07	2384	1717	806	1467
	2007-08	3764	2881	2896	3099

Output

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 2005-06, 2006-07 & 2007-08

Year	Product/ By product	Holding size class			
		Small	Medium	Large	All size
2005-06	Paddy	19582	19830	23186	21068
	Straw	4654	3550	1414	2933
	Total	24236	23380	24600	24001
2006-07	Paddy	21457	21807	30904	24571
	Straw	5528	5312	1542	4181
	Total	26985	27119	32446	28752
2007-08	Paddy	19736	17396	19134	18518
	Straw	6346	4510	3912	4599
	Total	26082	21906	23046	23117



2.1.2 Paddy-Winter

During 2007-08 Cost of cultivation study on winter paddy was conducted in 365 holdings by covering 266.70 hectare of land. Details of these holdings are given below:

Table 7 – Area and number of holdings under winter paddy during 2007-08

Holding size class	No of selected holdings	Area under the crop in the sample (ha)	Percentage Area	Area per holding (ha)
Small	178	39.70	14.88	0.22
Medium	151	107.50	40.31	0.71
Large	36	119.50	44.81	3.32
Total	365	266.70	100.00	0.73

For the study on winter paddy cultivation during 2007-08, an area of 266.70 hectares was included. The average size of the holding was 0.73 hectares.

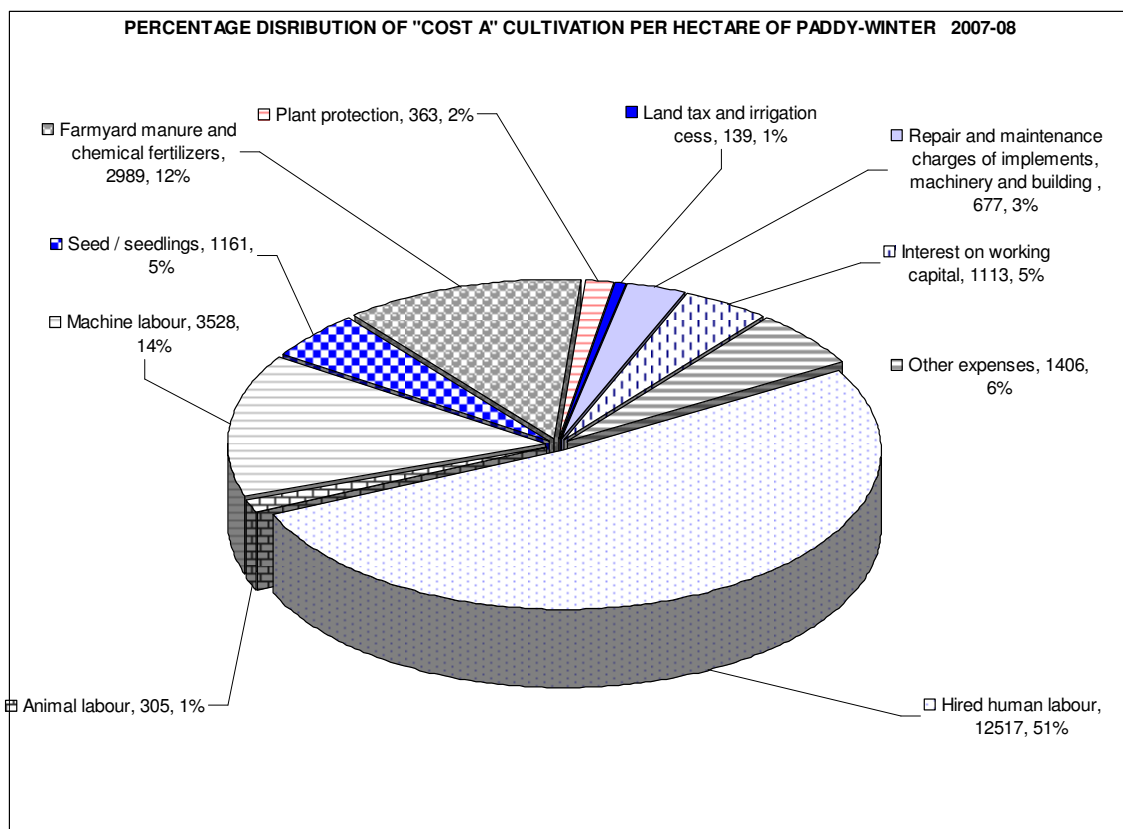
Cost of Cultivation

In Cost A, the major share of the cost component was hired human labour. It constitutes 51 per cent. Another two major items were farmyard manure and chemical fertilizers and machine labour. It shows to 12% and 14% 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.24198/-.

Table 8 – Cost of cultivation per hectare of winter paddy during the year 2007-08

(Per Hectare in Rs.)

Sl No	Components	Holding size Class			
		Small	Medium	Large	All Size
1	Hired human labour	15521	12966	11104	12517
2	Animal labour	689	419	73	305
3	Machine labour	2918	3438	3814	3528
4	Seed / seedlings	1273	1269	1026	1161
5	Farmyard manure and chemical fertilizers	3327	3529	2389	2989
6	Plant protection	441	301	394	363
7	Land tax and irrigation Cess	84	100	193	139
8	Repair and maintenance charges of implements, machinery and building	721	554	775	677
9	Interest on working capital	1263	1181	1003	1113
10	Other expenses	1084	1696	1251	1406
11	Total Cost 'A' (1-10)	27321	25453	22022	24198
12	Interest on fixed capital	4186	2447	1563	2313
13	Cost 'B1' (11+12)	31507	27900	23585	26511
14	Interest on land value	44999	65562	32963	47910
15	Cost 'B' (13+14)	76506	93462	56548	74421
16	Imputed value of household labour	3025	1940	971	1670
17	Cost 'C' (15+16)	79531	95402	57519	76091



Sex wise work participation in winter paddy cultivation reveals that 59% of work shared by Female whereas 21% shared by male workers.

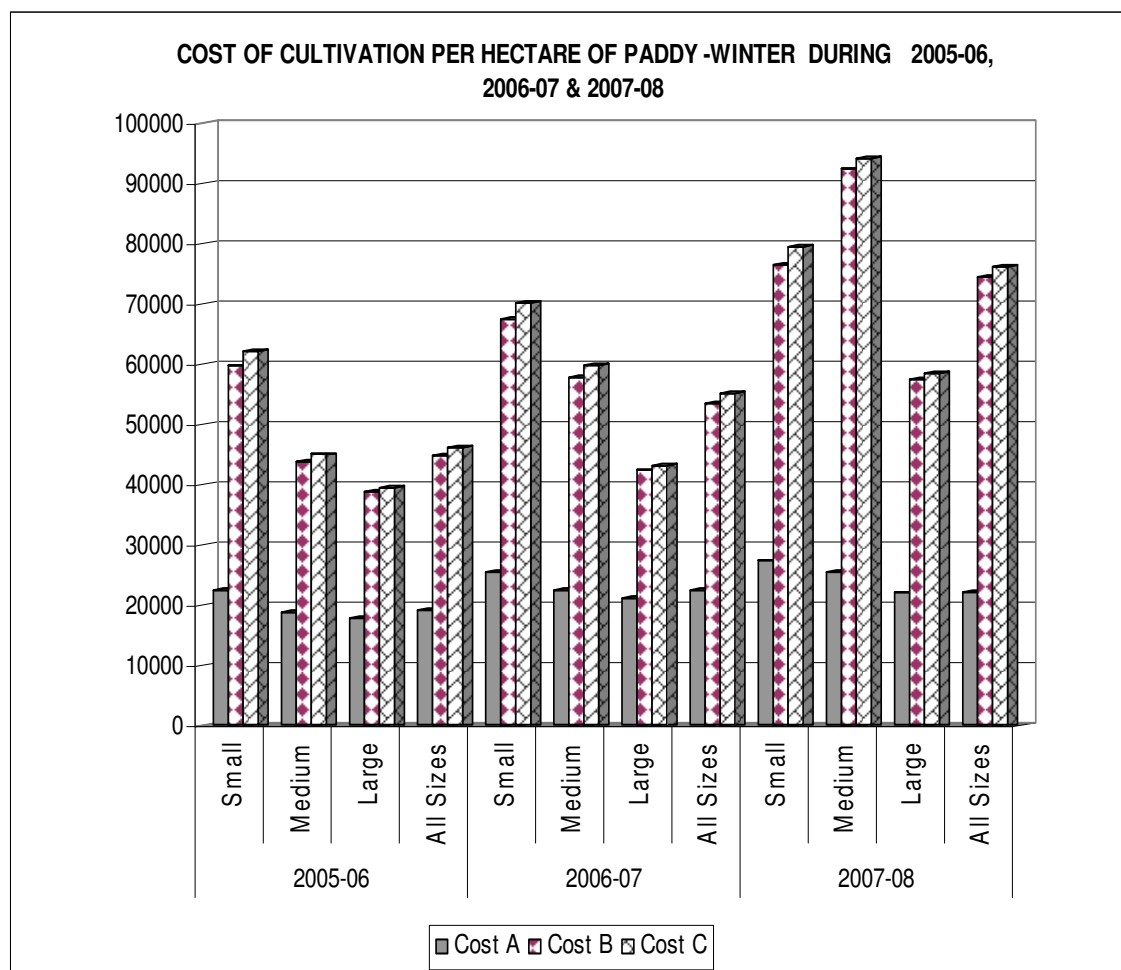
The following table reveals the percentage of hired human labours hours to total human labour hours.

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

Sex	Holding size class			
	Small	Medium	Large	All Sizes
Male	25.40	17.14	22.93	20.53
Female	58.68	53.60	68.43	59.46
Total	84.08	70.74	91.36	79.99

Table: 10 Cost of Cultivation per hectare of winter paddy during 2005-06, 2006-07 & 2007-08

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
	2007-08	27321	25453	22022	24198
Cost 'B'	2005-06	59679	43767	38772	44933
	2006-07	67426	57935	42304	53583
	2007-08	76506	93462	56548	74421
Cost 'C'	2005-06	62096	44984	39544	46221
	2006-07	70065	59805	43065	55161
	2007-08	79531	95402	57519	76091



Cost of production of winter paddy

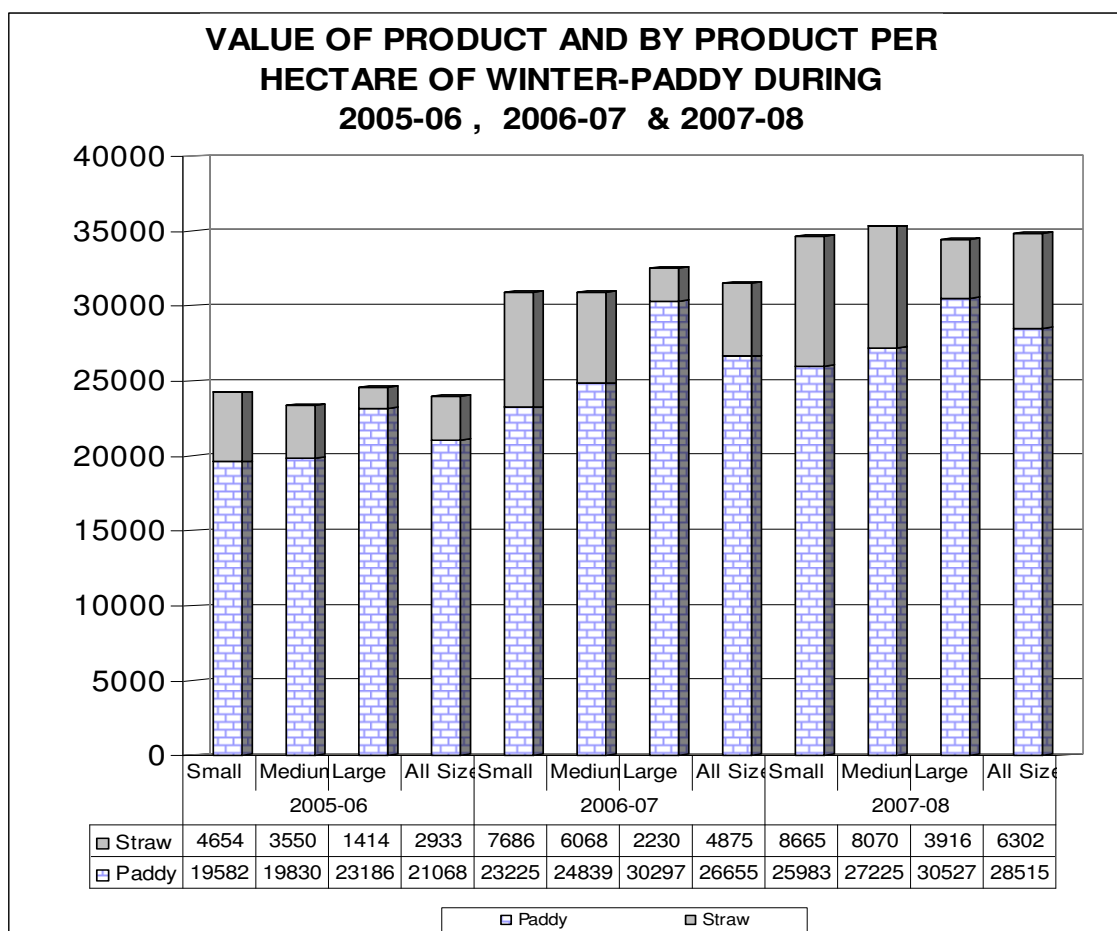
Table: 11 Per Quintal Cost of production of winter paddy during 2005-06, 2006-07 and 2007-08

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
	2007-08	701	791	877	804
Cost 'B'	2005-06	1698	1411	1266	1479
	2006-07	1963	1684	1141	1512
	2007-08	1962	2866	2290	2474
Cost 'C'	2005-06	1775	1455	1293	1524
	2006-07	2040	1738	1161	1557
	2007-08	2040	2926	2329	2530

Output

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

Year	Product/ By product	Holding size class			
		Small	Medium	Large	All size
2005-06	Paddy	19582	19830	23186	21068
	Straw	4654	3550	1414	2933
	Total	24236	23380	24600	24001
2006-07	Paddy	23225	24839	30297	26655
	Straw	7686	6068	2230	4875
	Total	30911	30907	32527	31530
2007-08	Paddy	25982	27225	30527	28515
	Straw	8665	8070	3916	6302
	Total	34647	35295	34443	34817



2.1.3 Paddy - Summer (Punja)

For the cost of cultivation study on summer paddy during 2007-08 the total number of holdings selected was 369. Number of holdings selected in large holding size is 36. The details of these holdings are presented below:

Table 13 : Area under Summer Paddy during 2007-08

Holding size class	No of selected holdings	Area under the crop in the sample (ha)	Percentage	Area per holding (ha)
Small	195	41.50	15.36	0.21
Medium	138	109.90	40.69	0.80
Large	36	118.70	43.95	3.30
All Size	369	270.10	100.00	0.73

The above table reveals that the total area under cultivation in the selected sample holdings covers to 270.10 hectares and the average size of a holding is 0.73 hectare.

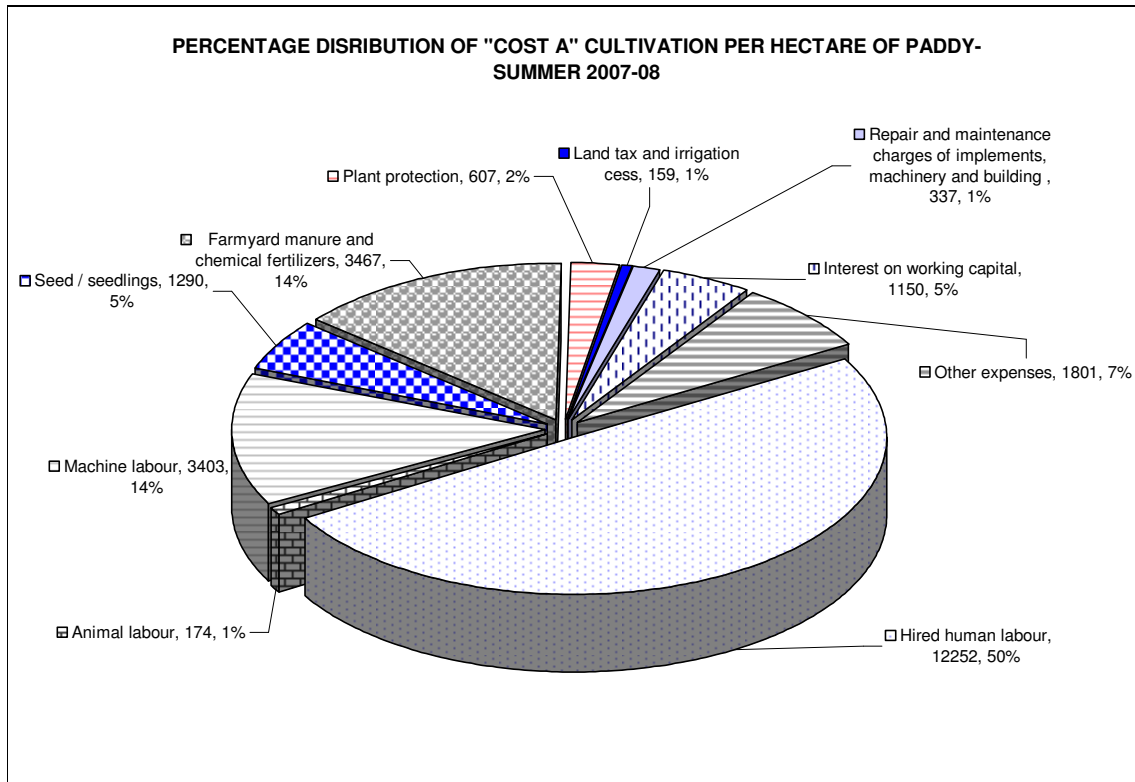
Cost of Cultivation

Cost of cultivation of summer paddy per hectare is estimated Rs. 24640/- 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 2007-08

(Per Hectare in Rs.)

Sl No	Components	Holding size Class			
		Small	Medium	Large	All Size
1	Hired human labour	20089	10869	10762	12252
2	Animal labour	252	187	134	174
3	Machine labour	3588	3718	3046	3403
4	Seed / seedlings	1280	1272	1311	1290
5	Farmyard manure and chemical fertilizers	4283	3520	3129	3467
6	Plant protection	499	572	677	607
7	Land tax and irrigation Cess	72	232	123	159
8	Repair and maintenance charges of implements, machinery and building	922	392	77	337
9	Interest on working capital	1579	1071	1071	1150
10	Other expenses	1581	1289	2355	1801
11	Total Cost 'A' (1-10)	34145	23122	22685	24640
12	Interest on fixed capital	4753	1573	363	1536
13	Cost 'B1' (11+12)	38898	24695	23048	26176
14	Interest on land value	68597	50823	34075	46244
15	Cost 'B' (13+14)	107495	75518	57123	72420
16	Imputed value of household labour	3529	2324	758	1825
17	Cost 'C' (15+16)	111024	77842	57881	74245



In summer paddy cultivation female labour participation accounted as 61% of the total labour hours. Details are given below:

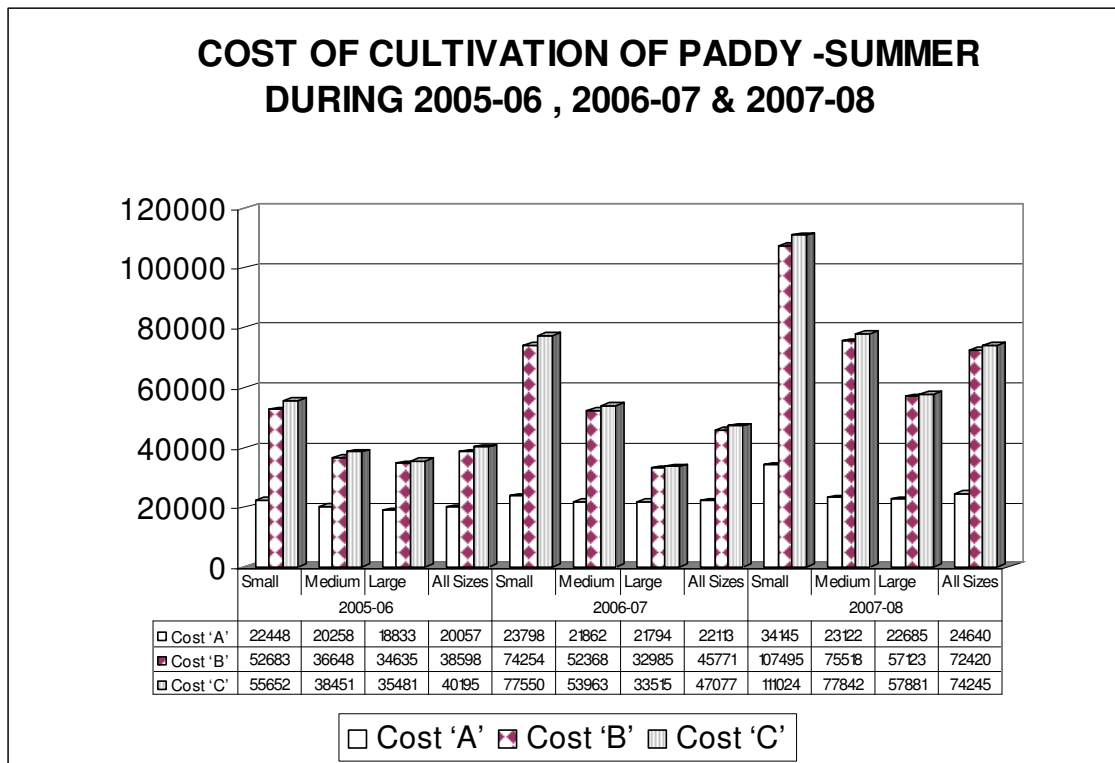
Table 15: Percentage of hired human labour hours engaged in summer paddy

Sex	Holding size class			
	Small	Medium	Large	All Sizes
Male	24.87	23.46	25.67	24.55
Female	55.04	60.79	63.64	60.59
Total	79.91	84.25	89.31	85.14

Table: 16 Cost of Cultivation per hectare of Summer paddy during 2005-06, 2006-07 & 2007-08

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
	2007-08	34145	23122	22685	24640

Cost 'B'	2005-06	52683	36648	34635	38598
	2006-07	74254	52368	32985	45771
	2007-08	107495	75518	57123	72420
Cost 'C'	2005-06	55652	38451	35481	40195
	2006-07	77550	53963	33515	47077
	2007-08	111024	77842	57881	74245



Output

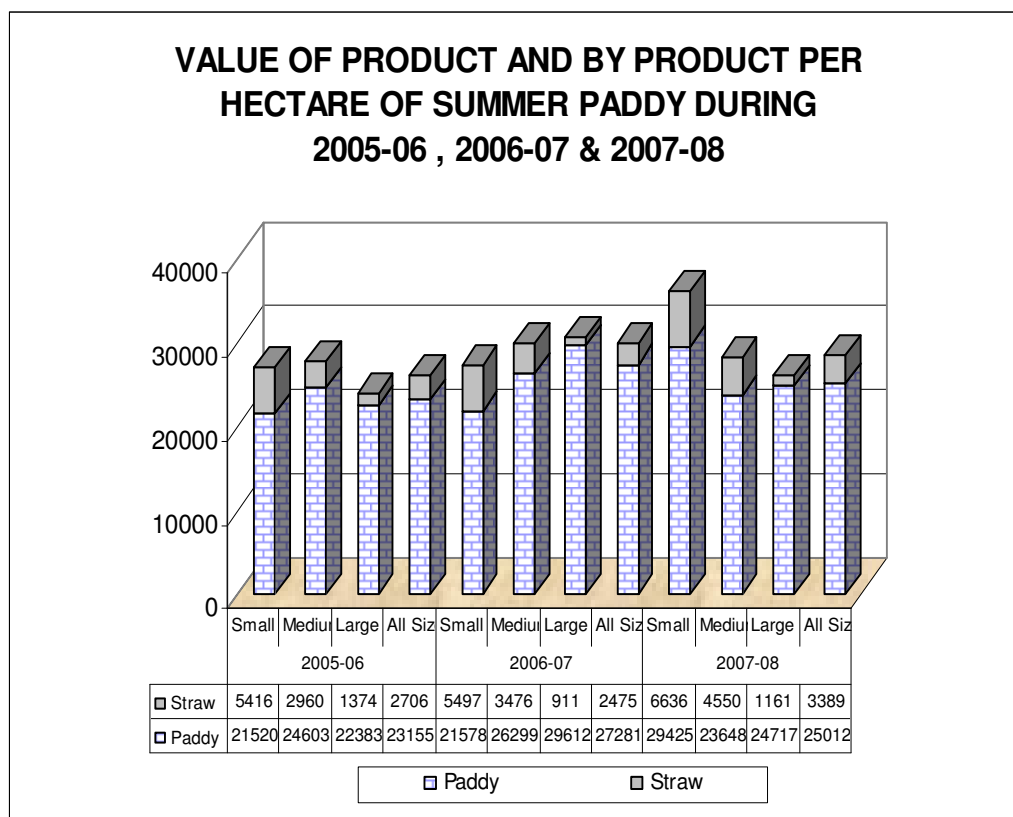
Table: 17 Per Quintal Cost of production of paddy-Summer during 2005-06, 2006-07 & 2007-08

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
	2007-08	772	622	715	686
Cost 'B'	2005-06	1228	1913	1438	1272
	2006-07	2316	1317	900	1235
	2007-08	2426	2030	1800	2017
Cost 'C'	2005-06	1242	1965	1446	1375
	2006-07	2419	1357	914	1270
	2007-08	2506	2092	1824	2068

Above tables reveal that for producing one quintal of paddy in summer season an amount of Rs.686/- is required when cost 'A' is considered. Per hectare value of product paddy is calculated as Rs.25012/- and the value of by-product viz. straw is estimated as Rs.3389/-

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

Year	Product/ By product	Holding size class			
		Small	Medium	Large	All size
2005-06	Paddy	21520	24603	22383	23155
	Straw	5416	2960	1374	2706
	Total	26936	27563	23757	25861
2006-07	Paddy	21578	26299	29612	27281
	Straw	5497	3476	911	2475
	Total	80947	84901	78037	81478
2007-08	Paddy	29425	23648	24717	25012
	Straw	6636	4550	1161	3389
	Total	36061	28198	25878	28401



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 year after year. 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 2007-08 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	101	14.20	6.55	0.14
Medium	201	74.80	34.52	0.37
Large	78	127.70	58.93	1.64
Total	380	216.70	100.00	0.57

Cost of Cultivation

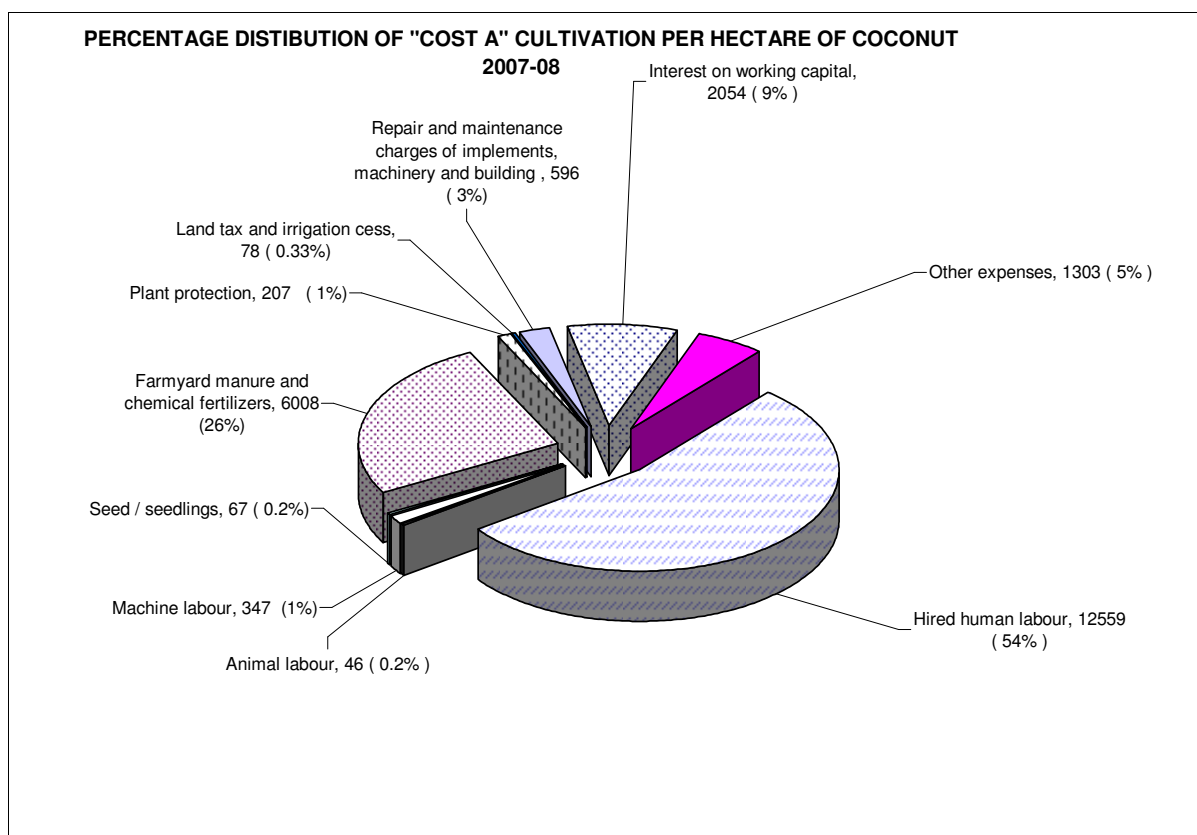
The cultivation practices and expenditure patterns of coconut tree is entirely different when compared to paddy. Details are given below.

Table 20: Cost of Cultivation of Coconut during the year 2007-08

(Per Hectare in Rs.)

Sl No	Components	Holding size Class			
		Small	Medium	Large	All Size
1	Hired human labour	14963	13325	11833	12559
2	Animal labour	0	70	37	46
3	Machine labour	273	312	376	347
4	Seed / seedlings	97	82	55	67
5	Farmyard manure and chemical fertilizers	7394	5974	5870	6008
6	Plant protection	169	144	248	207
7	Land tax and irrigation Cess	81	83	74	78
8	Repair and maintenance charges of implements, machinery and building	1392	826	369	596

9	Interest on working capital	2428	2102	1983	2054
10	Other expenses	1383	1112	1406	1303
11	Total Cost 'A' (1-10)	28180	24030	22251	23265
12	Interest on fixed capital	7383	6061	3561	4682
13	Cost 'B1' (11+12)	35563	30091	25812	27947
14	Interest on land value	372414	237661	230075	242253
15	Cost 'B' (13+14)	407977	267752	255887	270200
16	Imputed value of household labour	4764	2631	1674	2212
17	Cost 'C' (15+16)	412741	270383	257561	272412



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 54% and 26% 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	61.99	68.06	68.51	67.78
Female	5.10	10.80	14.11	12.14
Total	67.09	78.86	82.62	79.92

Table 22: Cost of Cultivation per hectare of Coconut during 2005-06, 2006-07 & 2007-08

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
	2007-08	28180	24030	22251	23265
Cost 'B'	2005-06	308977	206449	188335	204220
	2006-07	389947	243875	196045	234570
	2007-08	407977	267752	255887	270200
Cost 'C'	2005-06	312938	208400	189587	205945
	2006-07	393227	245827	197173	236201
	2007-08	412741	270383	257561	272412

Value of output

Table 23: Value of Out put / Hectare

Product/By-product	Holding Size Class			
	Small	Medium	Large	All Sizes
Product	45135	39193	44239	42555
By-Product	1775	1636	2040	1883
Total	46910	40829	46279	44438

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.44438/- 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	267	16.40	24.62	0.06
Medium	91	28.10	42.19	0.31
Large	22	22.10	33.18	1.00
All size	380	66.60	100.00	0.18

For this study 380 holdings were selected. It had an operational area of 66.60 hectare. The average size per holding was 0.18 hectare.

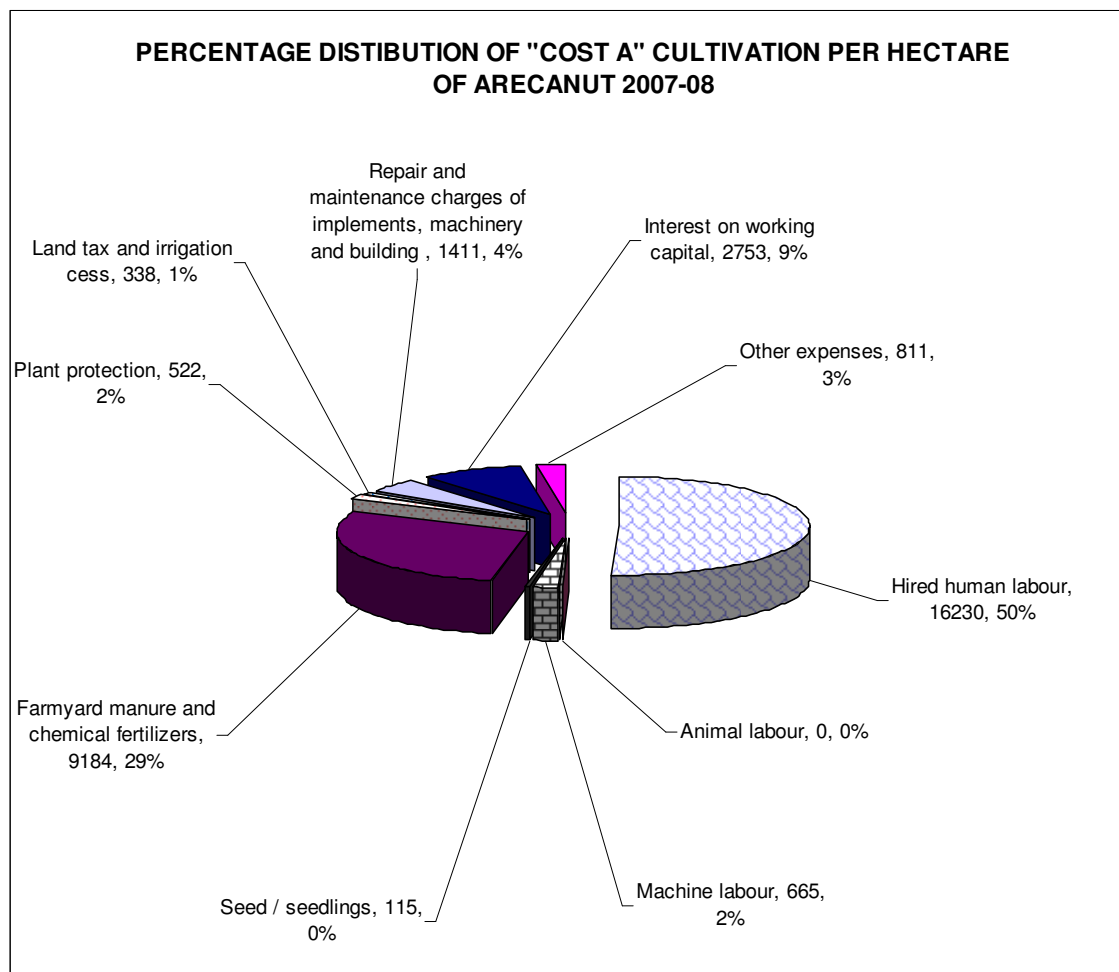
Cost of Cultivation

The different cost components of Arecanut cultivation is given below: Per hectare cost C expenses is worked out as Rs.315693 /-

Table 25: Cost of Cultivation per hectare of Arecanut during the year 2007-08

Sl No	Components	Holding size Class			
		Small	Medium	Large	All Size
1	Hired human labour	12439	16288	19051	16230
2	Animal labour	0	0	0	0
3	Machine labour	298	660	951	665
4	Seed / seedlings	96	101	148	115
5	Farmyard manure and chemical fertilizers	6970	10346	9384	9184
6	Plant protection	366	474	703	522
7	Land tax and irrigation Cess	64	297	599	338
8	Repair and maintenance charges of implements, machinery and building	2033	1438	900	1411

9	Interest on working capital	2127	2847	3109	2753
10	Other expenses	1102	605	853	811
11	Total Cost 'A' (1-10)	25495	33056	35698	32029
12	Interest on fixed capital	14911	12752	6091	11106
13	Cost 'B1' (11+12)	40406	45808	0	43135
14	Interest on land value	396714	237887	213079	269565
15	Cost 'B' (13+14)	437120	283695	254868	312700
16	Imputed value of household labour	4013	3668	1350	2993
17	Cost 'C' (15+16)	441133	287363	256218	315693



When Cost A is considering, 50% comes under hired human labour and followed by 29% in Farmyard manure and chemical fertilizers.

The following table illustrates the work participation of arecanut cultivation. It shows that 81 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	61.73	61.82	68.90	64.32
Female	13.55	15.50	20.22	16.77
Total	75.28	77.32	89.12	81.09

Table 27: Cost of Cultivation per hectare of Arecanut during 2005-06, 2006-07 and 2007-08

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
	2007-08	25495	33056	35698	32029
Cost 'B'	2005-06	145321	149098	149161	139720
	2006-07	361812	208031	193146	253725
	2007-08	437120	283695	254868	312700
Cost 'C'	2005-06	149250	151555	151599	142450
	2006-07	365816	212441	195313	257272
	2007-08	441133	287363	256218	315693

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
37018	48163	49245	45724

2.4 Tapioca

Area under the crop in this study was 39 hectare which covers 213 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	145	10.40	26.67	0.07
Medium	58	17.90	45.90	0.31
Large	10	10.70	27.43	1.07
All Size	213	39.00	100.00	0.18

The average size of a selected holding is 0.18 hectare and number of holding selected for the survey is 213.

Cost of Cultivation

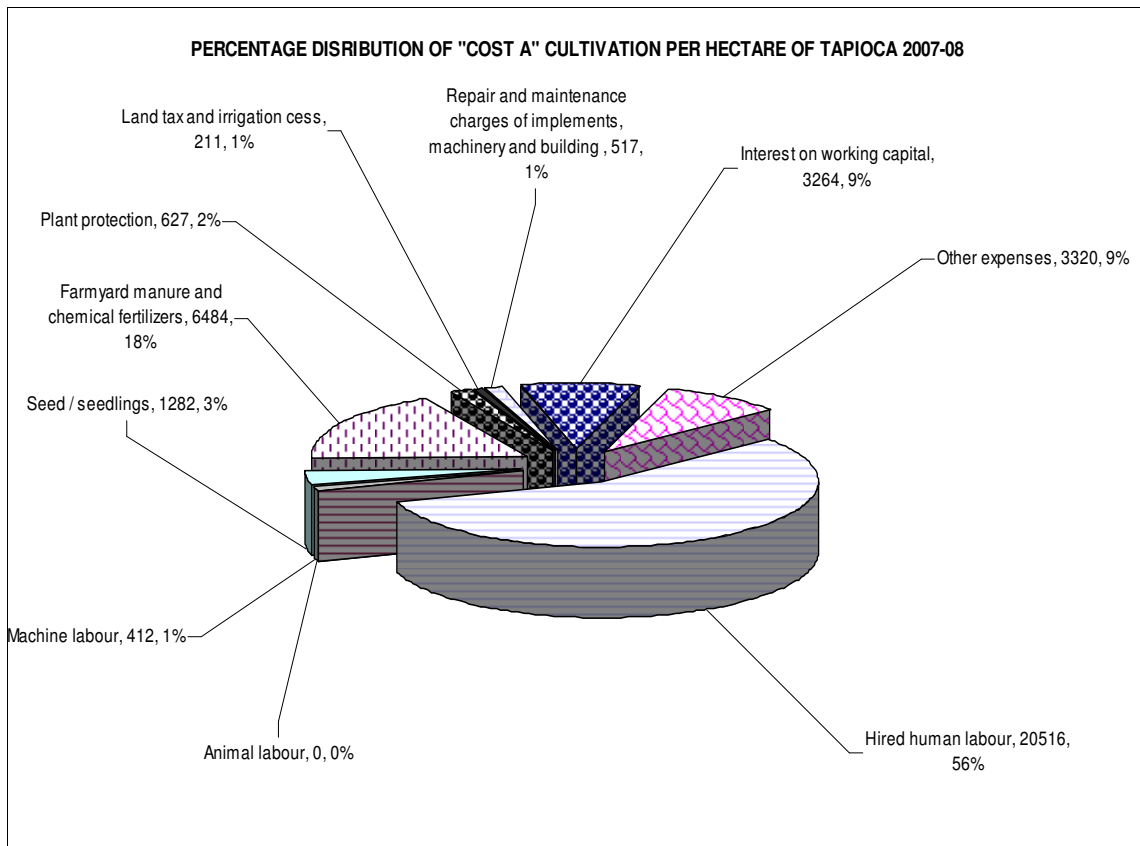
When Cost A is considered per hectare cost of cultivation of tapioca is worked out Rs.36633/- . In this hired labour cost constituted 56% where as farmyard manure and chemical fertilizers shares 18% of the Cost A.

The cost of cultivation of Tapioca under different concepts are given below.

Table 30: The Cost of cultivation per hectare of tapioca during the year 2007-08

(Per Hectare in Rs.)

Sl No	Components	Holding size Class			
		Small	Medium	Large	All Size
1	Hired human labour	21759	18508	22640	20516
2	Animal labour	0	0	0	0
3	Machine labour	177	558	406	412
4	Seed / seedlings	1649	962	1450	1282
5	Farmyard manure and chemical fertilizers	7338	6160	6158	6484
6	Plant protection	385	839	515	627
7	Land tax and irrigation Cess	170	355	11	211
8	Repair and maintenance charges of implements, machinery and building	1141	327	201	517
9	Interest on working capital	3384	2957	3661	3264
10	Other expenses	2534	2544	5437	3320
11	Total Cost 'A' (1-10)	38537	33210	40479	36633
12	Interest on fixed capital	9365	4327	4952	5884
13	Cost 'B1' (11+12)	47902	37537	45431	42517
14	Interest on land value	314611	259073	236266	268243
15	Cost 'B' (13+14)	362513	296610	281697	310760
16	Imputed value of household labour	9992	5803	3394	6309
17	Cost 'C' (15+16)	372505	302413	285091	317069



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	57.22	64.17	59.72	60.59
Female	7.69	9.38	26.19	14.16
Total	64.91	73.55	85.91	74.75

In tapioca cultivation 75% 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, 2006-07 & 2007-08

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
	2007-08	38537	33210	40479	36633
Cost 'B'	2005-06	196859	151430	166405	166303
	2006-07	242207	144230	186478	197450
	2007-08	362513	296610	281697	310760
Cost 'C'	2005-06	202531	154344	168919	169799
	2006-07	251096	148888	187112	202185
	2007-08	372505	302413	285091	317069

Value of Out put

Table 33: Value of Out put / Hectare

Holding Size Class			
Small	Medium	Large	All Sizes
74105	66841	67075	68906

The value of output for all holding size is comparable. Value of output from tapioca is estimated Rs.68906/- per hectare.

2.5 Banana

In the cost of cultivation study on banana 198 holdings were selected by covering an area 33.90 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	9.60	28.32	0.08
Medium	67	19.10	56.34	0.29
Large	9	5.20	15.34	0.58
All Size	198	33.90	100.00	0.17

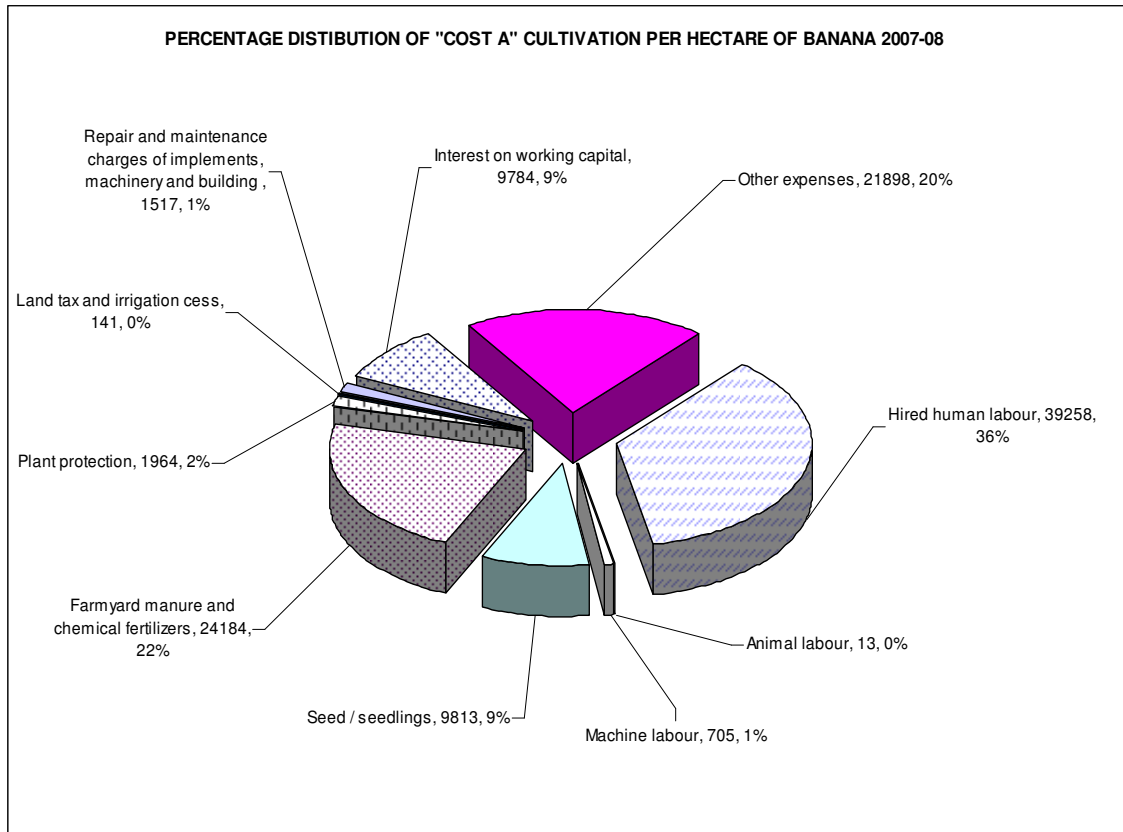
Cost of Cultivation

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.109277/-.

Table 35: The Cost of cultivation per hectare of Banana during the year 2007-08

(Per Hectare in Rs.)

Sl No	Components	Holding size Class			
		Small	Medium	Large	All Size
1	Hired human labour	35015	39347	47138	39258
2	Animal labour	0	0	88	13
3	Machine labour	1223	626	0	705
4	Seed / seedlings	9413	9875	10355	9813
5	Farmyard manure and chemical fertilizers	24628	22355	30166	24184
6	Plant protection	1808	1602	3621	1964
7	Land tax and irrigation Cess	83	182	99	141
8	Repair and maintenance charges of implements, machinery and building	2562	1227	584	1517
9	Interest on working capital	8490	9813	12177	9784
10	Other expenses	12815	24323	30403	21898
11	Total Cost 'A' (1-10)	96037	109350	134631	109277
12	Interest on fixed capital	23219	7002	6375	11609
13	Cost 'B1' (11+12)	119256	116352	141006	120886
14	Interest on land value	327253	217311	234935	251815
15	Cost 'B' (13+14)	446509	333663	375941	372701
16	Imputed value of household labour	14200	10218	4044	10447
17	Cost 'C' (15+16)	460709	343881	379985	383148



In this hired human labour cost accounted as 36 per cent where as farmyard manure and chemical fertilizers cost as 22 per cent respectively of the total Cost 'A'. Seed/seedling cost constitutes to 9 % 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	42.38	58.50	76.61	56.00
Female	6.65	5.75	14.88	6.77
Total	49.03	64.25	91.49	62.77

Table 37: Cost of Cultivation per hectare of Banana during 2005-06, 2006-07 & 2007-08

A comparative statement for 2005-06 , 2006-07 and 2007-08 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
	2007-08	96037	109350	134631	109277
Cost 'B'	2005-06	196599	219157	192023	216930
	2006-07	271419	223376	155231	229731
	2007-08	446509	333663	375941	372701
Cost 'C'	2005-06	211402	226333	197460	225772
	2006-07	285381	233291	160493	239386
	2007-08	460709	343881	379985	383148

Value of out put**Table 38: Value of Out put / Hectare**

Holding Size Class			
Small	Medium	Large	All Sizes
195817	221553	226240	214796

During 2007-08 per hectare value of output from banana cultivation is estimated out as Rs. 214796/--

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 2007-08

Holding size class	No of selected holdings	Area under the crop in the sample (ha)	Percentage	Area per holding (ha)
Small	162	8.20	44.80	0.05
Medium	26	6.30	34.43	0.24
Large	2	3.80	20.77	1.90
Total	190	18.30	100.00	0.10

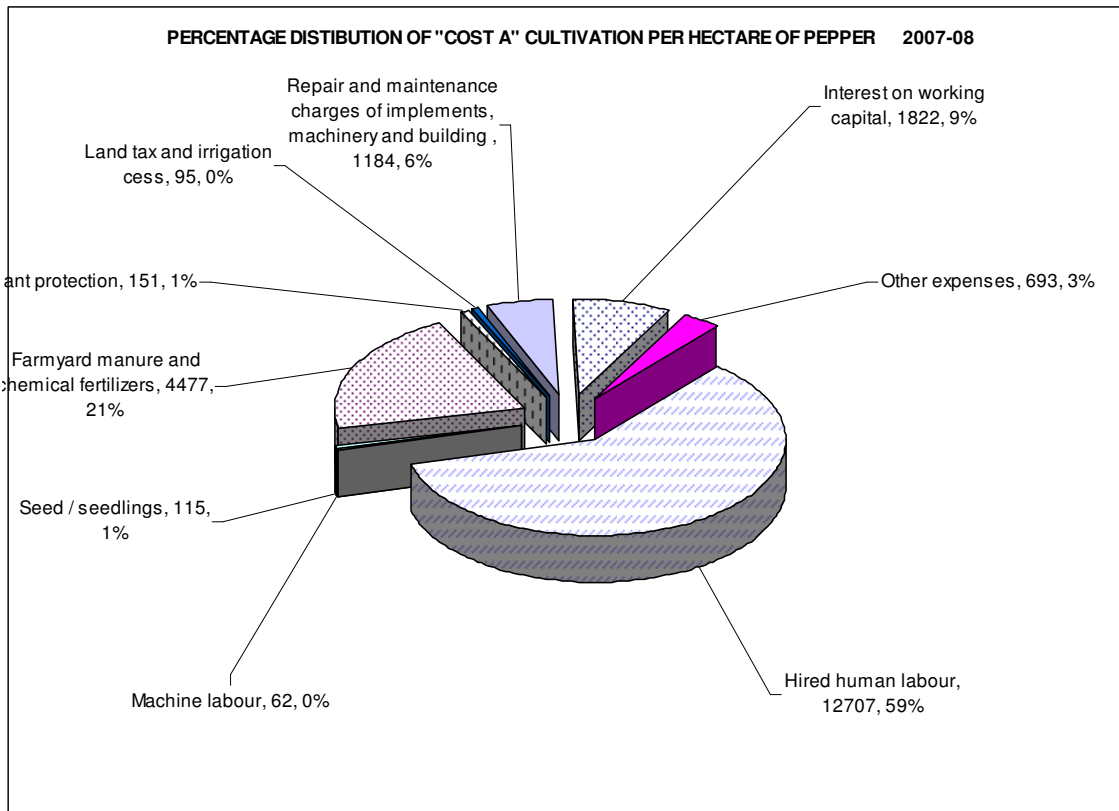
Cost of cultivation

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 2007-08

(Per Hectare in Rs.)

Sl No	Components	Holding size Class			
		Small	Medium	Large	All Size
1	Hired human labour	15606	11227	8570	12707
2	Animal labour	41	0	0	19
3	Machine labour	56	105	0	62
4	Seed / seedlings	211	53	0	115
5	Farmyard manure and chemical fertilizers	4279	3544	6551	4477
6	Plant protection	62	50	533	151
7	Land tax and irrigation Cess	95	81	117	95
8	Repair and maintenance charges of implements, machinery and building	1936	848	26	1184
9	Interest on working capital	2099	1570	1620	1822
10	Other expenses (Including soil condition)	737	718	546	693
11	Total Cost 'A' (1 to 10)	25122	18196	17963	21325
12	Interest on fixed capital	21355	10133	1983	13660
13	Cost 'B1' (11+12)	46477	28329	19946	34985
14	Interest on land value	496601	311580	149561	364243
15	Cost 'B' (13+14)	543078	339909	169507	399228
16	Imputed value of household labour	5767	3508	1888	4222
17	Cost 'C' (15+16)	548845	343417	171395	403450



The survey results reveal that out of the total human labour hours engaged in pepper cultivation 59% 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	62.36	59.90	61.93	61.47
Female	6.31	16.82	20.32	11.67
Total	68.67	76.72	82.25	73.14

Table 42: Cost of Cultivation per hectare of Pepper during 2005-06 , 2006-07 and 2007-08

A comparative statement for 2005-06 , 2006-07 and 2007-08 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
	2007-08	25122	18196	17963	21325

Cost 'B'	2005-06	369047	246659	235428	276448
	2006-07	508914	267488	270463	364145
	2007-08	543078	339909	169507	399228
Cost 'C'	2005-06	374291	248336	236840	279016
	2006-07	515558	270107	274144	368376
	2007-08	548845	343417	171395	403450

Value of out put

Table 43: Value of Out put / Hectare

Holding Size Class			
Small	Medium	Large	All Sizes
66067	56723	28578	55422

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.

During 2007-08 it is estimated that Rs. 55422/- has been received as value of output from per hectare pepper cultivation.

2.7 Ginger

For the cost of cultivation study during 2007-08, 174 holdings were selected. Details are given below:

Table 44: Area and number of holdings under Ginger cultivation 2007-08

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	142	7.90	31.60	0.06
Medium	27	8.30	33.20	0.31
Large	5	8.80	35.20	1.76
All sizes	174	25.00	100.00	0.14

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 2007-08

(Per Hectare in Rs)

Sl No	Components	Holding size Class			
		Small	Medium	Large	All Size
1	Hired human labour	30332	24527	39032	31393
2	Animal labour	0	70	0	23
3	Machine labour	464	1135	668	754
4	Seed / seedlings	17615	16583	14905	16353
5	Farmyard manure and chemical fertilizers	14291	14190	14992	14497
6	Plant protection	516	1076	1390	997
7	Land tax and irrigation cess	48	65	38	50
8	Repair and maintenance charges of implements, machinery and building	2072	1834	265	1378
9	Interest on working capital	6533	6098	7753	6806
10	Other expenses	2111	3398	6540	4042
11	Total Cost 'A' (1-10)	73982	68976	85583	76293
12	Interest on fixed capital	14251	7600	795	7487
13	Cost 'B1' (11+12)	88233	76576	86378	83780
14	Interest on land value	261988	171593	67110	165968
15	Cost 'B' (13+14)	350221	248169	153488	249748
16	Imputed value of household labour	13660	7912	728	7370
17	Cost 'C' (15+16)	363881	256081	154216	257118

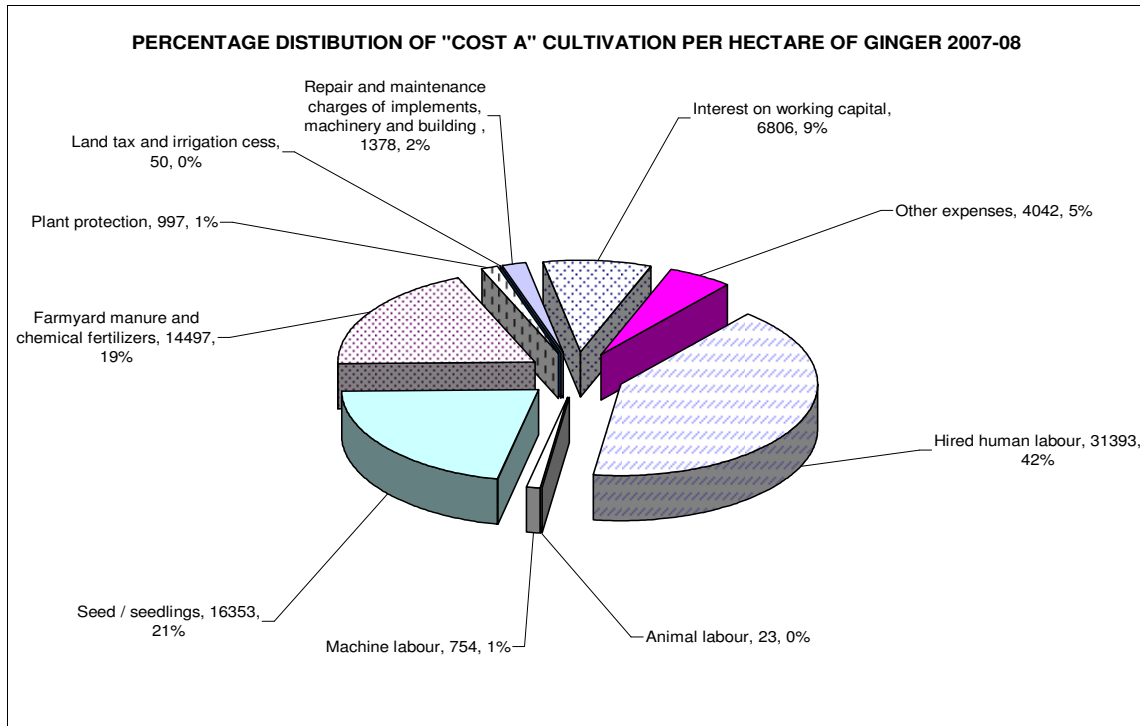


Table 46: Percentage of hired human labour hours to total human labour hours

Sex	Holding size class			
	Small	Medium	Large	All Sizes
Male	47.05	19.29	20.47	24.94
Female	21.77	62.95	78.26	60.48
Total	68.82	82.24	98.73	85.42

Table 47: Cost of Cultivation per hectare of Ginger during 2005-06 , 2006-07 and 2007-08

A comparative statement for 2005-06 , 2006-07 and 2007-08 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
	2007-08	73982	68976	85583	76293
Cost 'B'	2005-06	238934	220499	197222	176939
	2006-07	243845	108339	299701	194238
	2007-08	350221	248169	153488	249748
Cost 'C'	2005-06	253476	225126	200177	183500
	2006-07	252883	111754	303344	199438
	2007-08	363881	256081	154216	257118

Value of Out put

Table 48: Value of Out put / Hectare

Holding Size Class			
Small	Medium	Large	All Sizes
160735	110702	180181	150958

The per hectare value of output received from Ginger cultivation is seen as Rs.150958/- during 2007-08.

2.8 Turmeric

Details of the holdings selected for the cost of cultivation study during 2007-08 are given below:

Table 49: Area and Number of holdings selected for Turmeric cultivation 2007-08

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	126	6.20	64.58	0.05
Medium	17	3.40	35.42	0.20
Large	0	0.00	0.00	0.00
All size	143	9.60	100.00	0.07

Cost of cultivation

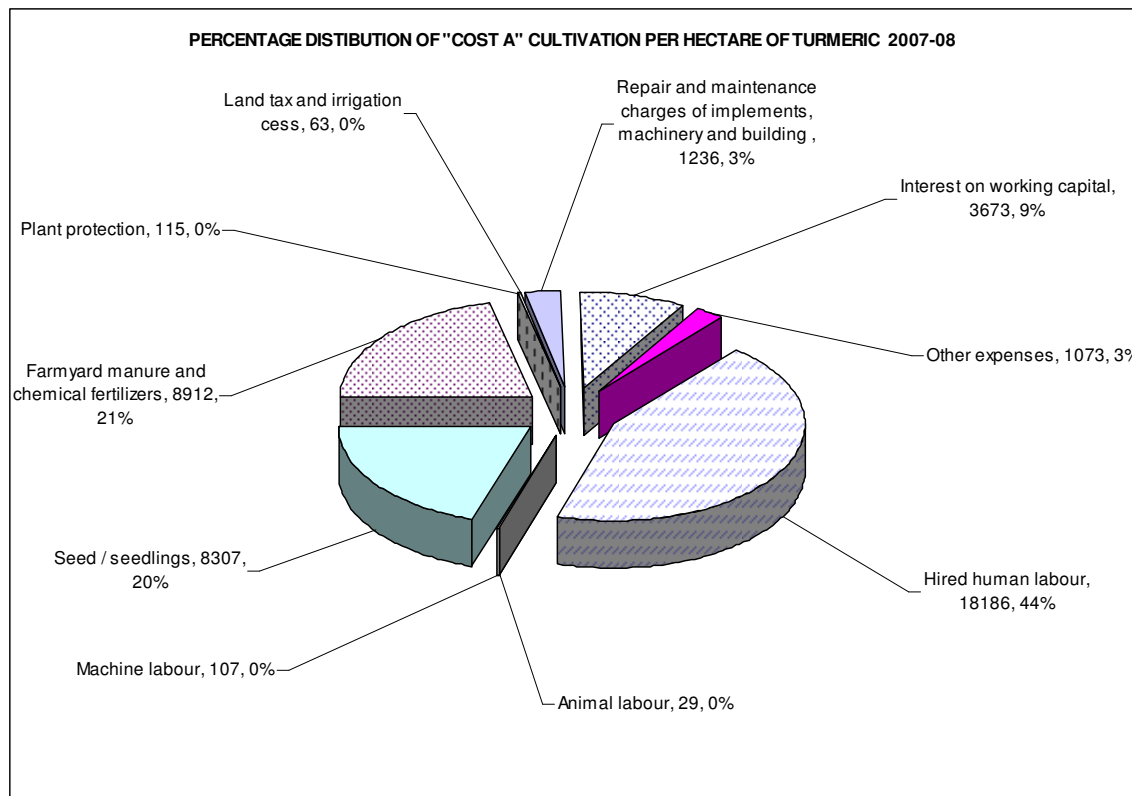
The cash and other kind expenses incurred under Turmeric cultivation is estimated as Rs.41701/- for one hectare. Details of these items are given below:

Table 50: Cost of Cultivation of Turmeric during the year 2007-08

(Per Hectare in Rs.)

Sl No	Components	Holding size Class			
		Small	Medium	Large	All Size
1	Hired human labour	19325	15981	0	18186
2	Animal labour	44	0	0	29
3	Machine labour	111	99	0	107
4	Seed / seedlings	8484	7964	0	8307

5	Farmyard manure and chemical fertilizers	8739	9246	0	8912
6	Plant protection	95	155	0	115
7	Land tax and irrigation Cess	66	56	0	63
8	Repair and maintenance charges of implements, machinery and building	1443	837	0	1236
9	Interest on working capital	3781	3463	0	3673
10	Other expenses	1015	1185	0	1073
11	Total Cost 'A' (1-10)	43103	38986	0	41701
12	Interest on fixed capital	11765	6253	0	9888
13	Cost 'B1' (11+12)	54868	45239	0	51589
14	Interest on land value	342962	203942	0	295632
15	Cost 'B' (13+14)	397830	249181	0	347221
16	Imputed value of household labour	12260	9080	0	11177
17	Cost 'C' (15+16)	410090	258261	0	358398



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	39.21	25.28	0	33.84
Female	22.58	25.81	0	23.83
Total	61.79	51.09	0	57.67

Table 52: Cost of Cultivation per hectare of Turmeric during 2005-06, 2006-07 and 2007-08

A comparative statement for 2005-06 , 2006-07 and 2007-08 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
	2007-08	43103	38986	0	41701
Cost 'B'	2005-06	373207	174731	0	284611
	2006-07	380944	132299	0	295590
	2007-08	397830	249181	0	347221
Cost 'C'	2005-06	384141	181354	0	293625
	2006-07	390875	138796	0	303764
	2007-08	410090	258261	0	358398

Output

The per hectare value of output received from turmeric cultivation is estimated as Rs.70350/- during the year 2007-08.

Table 53: Value of Out put / Hectare

Holding Size Class			
Small	Medium	Large	All Sizes
74889	61556	0	70350