



Government of Kerala

***Report On
Cost of Cultivation of
Important Crops in Kerala
2009-10***

**Department of Economics & Statistics
Thiruvananthapuram
2011**



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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 2009-10. The crops covered during this year are Paddy (3 seasons), Coconut, Arecanut, Pepper, Banana, Tapioca, Ginger and Turmeric.

The report was prepared by Sri.Suresh Kumar N, Deputy Director, Sri. P C Manukkuttan, Research Assistant, and Sri. Javad M.E Statistical Assistant Grade I in the Cost of cultivation section with the guidance of Smt. K. Sathiabhama , Additional Director. Suggestions for improvement are solicited.

4-11-2011,
Thiruvananthapuram,

V.Ramachandran
Director

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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 30th round of survey conducted during the agricultural year 2009-10. The Department of Economics and Statistics is 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) 2009-10

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, arecanut 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 of Economics and Statistics.

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 353 holding by covering 236.9 hectares of land.

Table 1 - Area and number of holdings under autumn paddy during 2009-10

Holding size class	No of selected holdings	Area under the crop in the sample (ha)	Percentage Area	Average Area per holding (ha)
Small	197	39.60	16.72	0.20
Medium	124	89.20	37.65	0.72
Large	32	108.10	45.63	3.38
Total	353	236.90	100	0.67

From the above table it can be seen that average area per holding was 0.67 hectare

Cost of cultivation

When Cost A is considered about 46 percent of cost constitutes to hired human labour, Machine labour cost shares 16% and farmyard manure and chemical fertilizers accounts to 11% .

Table 2- Cost of Cultivation per hectare of paddy (autumn) during 2009-10
(Per Hectare in Rs.)

Sl No	Components	Holding size Class			
		Small	Medium	Large	All Size
1	Hired human labour	18429	13001	10359	12719
2	Animal labour	1134	289	7	304

3	Machine labour	4455	4507	4447	4471
4	Seed / seedlings	1525	1380	1573	1492
5	Farmyard manure and chemical fertilizers	3987	3232	2305	2939
6	Plant protection	508	484	425	461
7	Land tax and irrigation cess	145	123	215	168
8	Repair and maintenance charges of implements, machinery and building	1280	662	203	558
9	Interest on working capital	1592	1286	1174	1287
10	Other expenses	1811	2827	4354	3348
11	Total cost 'A' (1-10)	34866	27791	25062	27747
12	Interest on fixed capital	4202	1660	660	1636
13	Cost 'B1' (11+12)	39068	29451	25722	29383
14	Interest on land value	83586	68967	34023	55574
15	Cost 'B' (13+14)	122654	98418	59745	84957
16	Imputed value of household labour	4818	2674	1554	2528
17	Cost 'C' (15+16)	127472	101092	61299	87485

Percentage Distribution of "COST A" per hectare of Autumn Paddy during 2009-10

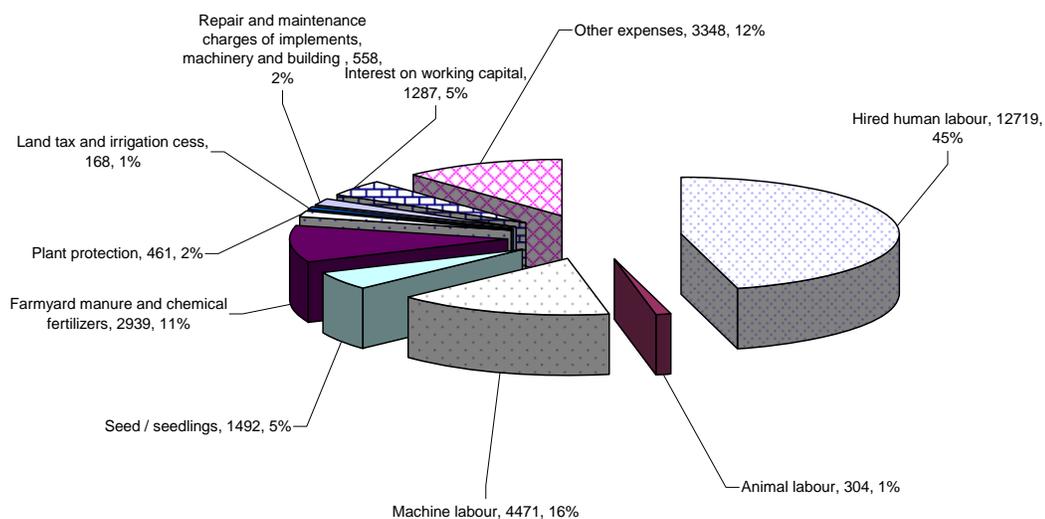


Table 3: Percentage of Hired human labour hours to total human labour hours

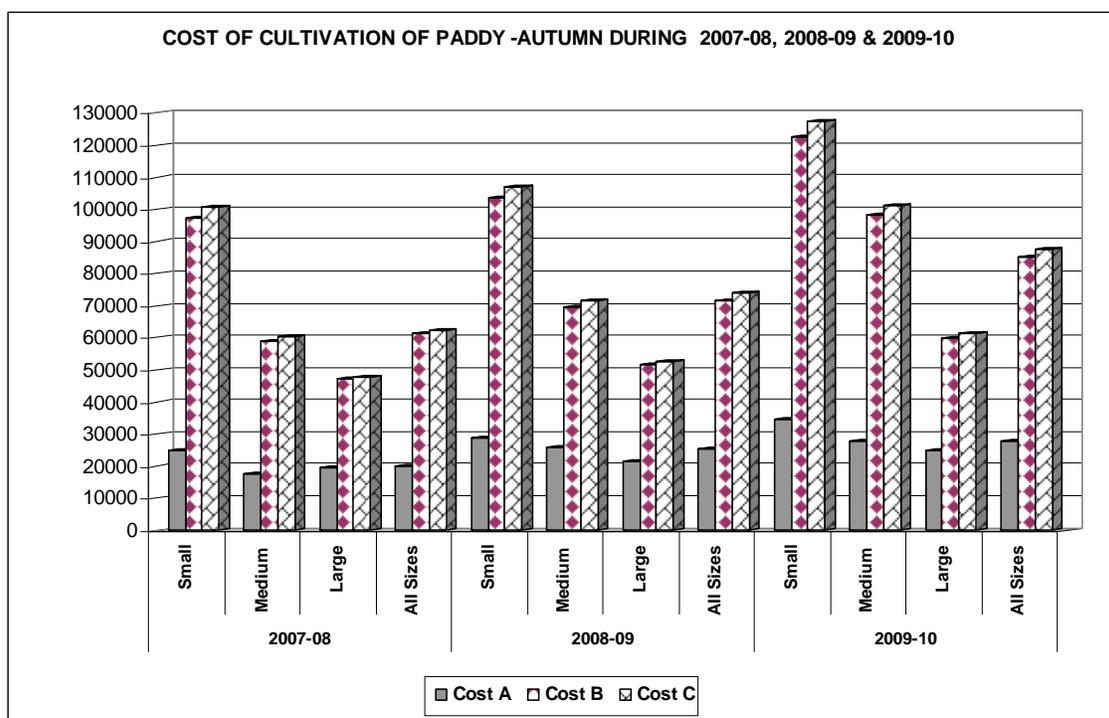
Sex	Holding size class			
	Small	Medium	Large	All Sizes
Male	26.06	24.22	19.15	22.94
Female	53.55	59.74	71.70	62.29
Total	79.61	83.96	90.85	85.23

In Autumn paddy cultivation 62% of total labour hours shares to female participation.

Cost of production of paddy during 2007-08 ,2008-09 and 2009-10

Table: 4 Cost of production of Autumn paddy per hectare 2007-08 ,2008-09 and 2009-10

Concept of cost	Year	Holding size class			
		Small	Medium	Large	All Sizes
Cost 'A'	2007-08	24761	17867	19712	19851
	2008-09	28979	25793	21506	25223
	2009-10	34866	27791	25062	27747
Cost 'B'	2007-08	97459	59089	47334	61245
	2008-09	103396	69453	51577	71760
	2009-10	122654	98418	59745	84957
Cost 'C'	2007-08	100492	60286	47617	62404
	2008-09	106969	71708	52701	73973
	2009-10	127472	101092	61299	87485



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 2009-10 for producing one quintal of paddy Rs.796/- 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 2007-08, 2008-09 & 2009-10

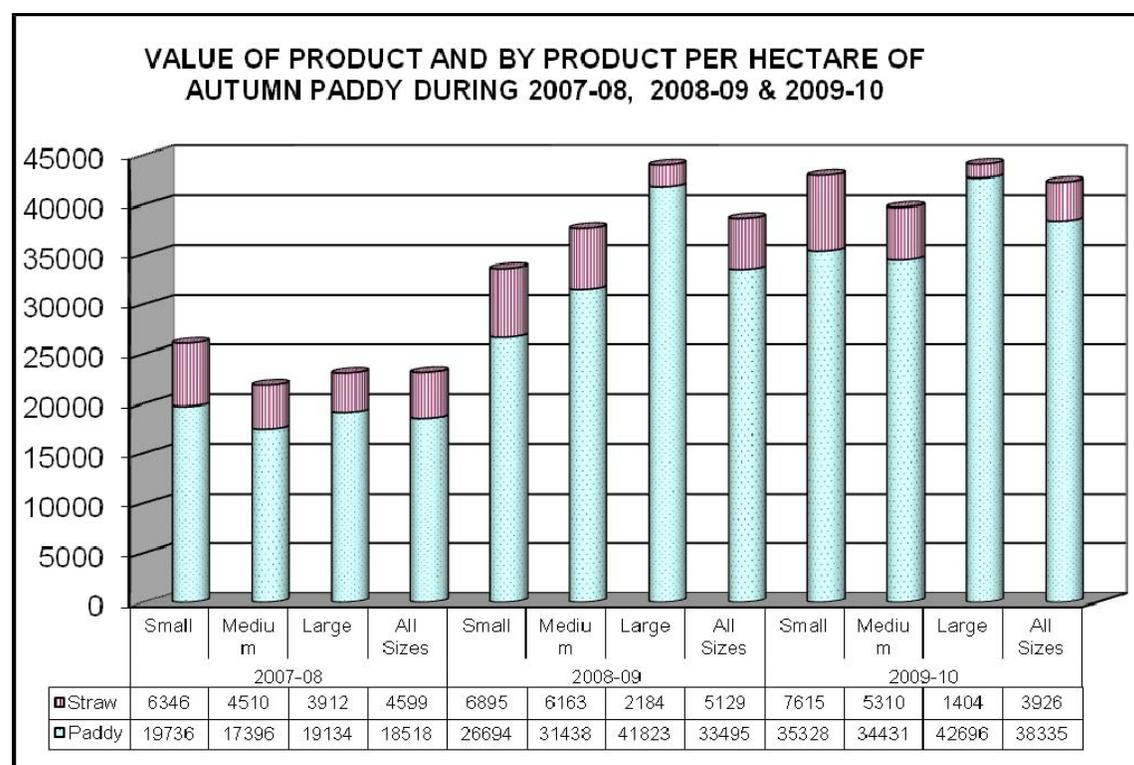
Concept of cost	Year	Holding size class			
		Small	Medium	Large	All Sizes
Cost 'A'	2007-08	928	853	1198	986
	2008-09	917	788	541	729
	2009-10	987	887	660	796
Cost 'B'	2007-08	3650	2824	2879	3041
	2008-09	3274	2121	1301	2076
	2009-10	3477	3145	1574	2432
Cost 'C'	2007-08	3764	2881	2896	3099
	2008-09	3387	2190	1329	2140
	2009-10	3614	3230	1615	2504

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 2007-08, 2008-09 & 2009-10

Year	Product/ By product	Holding size class			
		Small	Medium	Large	All size
2007-08	Paddy	19736	17396	19134	18518
	Straw	6346	4510	3912	4599
	Total	26082	21906	23046	23117
2008-09	Paddy	26694	31438	41823	33495
	Straw	6895	6163	2184	5129
	Total	33589	37600	44007	38624
2009-10	Paddy	35328	34431	42696	38335
	Straw	7615	5310	1404	3926
	Total	42943	39741	44100	42262



2.1.2 Paddy-Winter

During 2009-10 Cost of cultivation study on winter paddy was conducted in 380 holdings by covering 244.20 hectare of land. Details of these holdings are given below:

Table 7 – Area and number of holdings under winter paddy during 2009-10

Holding size class	No of selected holdings	Area under the crop in the sample (ha)	Percentage Area	Area per holding (ha)
Small	208	44.30	18.14	0.21
Medium	142	101.80	41.69	0.72
Large	30	98.10	40.17	3.27
Total	380	244.20	100.00	0.64

For the study on winter paddy cultivation during 2009-10, an area of 244.20 hectares was included. The average size of the holding was .64 hectares.

Cost of Cultivation

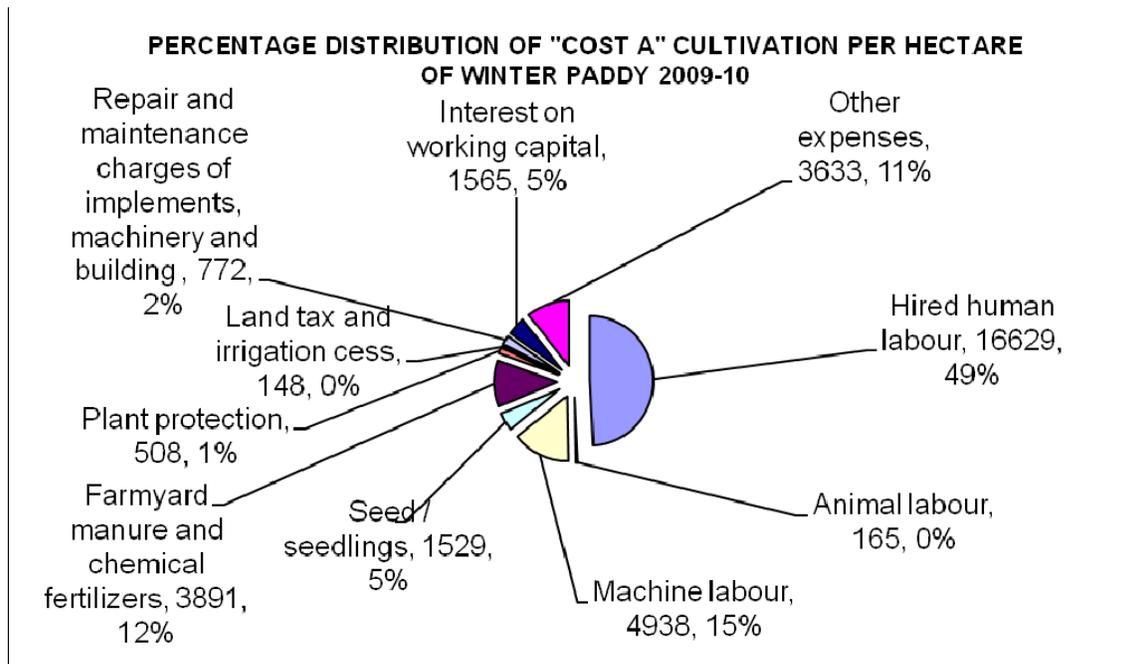
In Cost A, the major share of the cost component was hired human labour. It constitutes 49% per cent. Another two major items were farmyard manure and chemical fertilizers and machine labour. It shows to 12% and 15% respectively. Interest on working capital accounts was 5%. By considering the various cost component of winter paddy cultivation it can be seen that per hectare cost calculated as Rs.33778/-

Table 8 – Cost of cultivation per hectare of winter paddy during the year 2009-10

(Per Hectare in Rs.)

Sl No	Components	Holding size Class			
		Small	Medium	Large	All Size
1	Hired human labour	20392	17289	14231	16629
2	Animal labour	371	234	0	165
3	Machine labour	4435	4590	5528	4938
4	Seed / seedlings	1511	1506	1561	1529
5	Farmyard manure and chemical fertilizers	4313	4009	3576	3891
6	Plant protection	408	415	650	508
7	Land tax and irrigation Cess	108	117	198	148
8	Repair and maintenance charges of implements, machinery and building	1448	597	644	772
9	Interest on working capital	1678	1522	1558	1565
10	Other expenses	2138	2391	5604	3633

11	Total Cost 'A' (1-10)	36802	32670	33550	33778
12	Interest on fixed capital	4627	1233	819	1686
13	Cost 'B1' (11+12)	41429	33903	34369	35464
14	Interest on land value	43227	45209	65558	53004
15	Cost 'B' (13+14)	84656	79112	99927	88468
16	Imputed value of household labour	5329	3268	1219	2823
17	Cost 'C' (15+16)	89985	82380	101146	91291



Sex wise work participation in hired human labours for winter paddy cultivation reveals that 63% of work shared by Female whereas 22% shared by male workers.

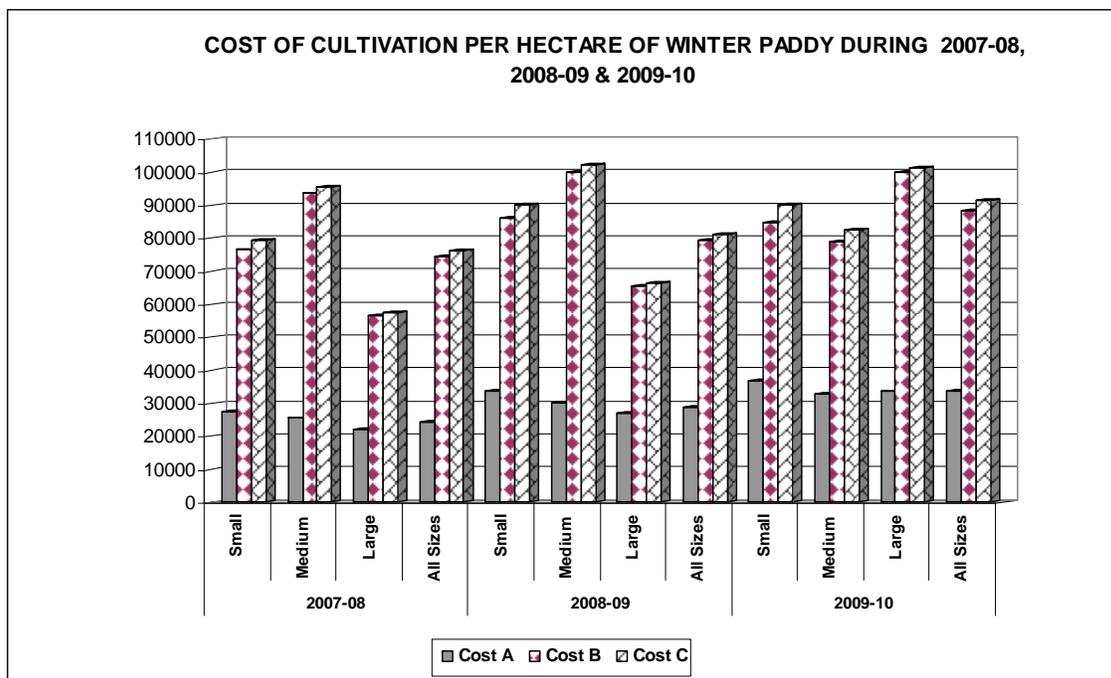
The following table reveals the percentage of hired human labours hours to total human labour hours.

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

Sex	Holding size class			
	Small	Medium	Large	All Sizes
Male	25.47	23.01	19.56	22.40
Female	53.18	59.62	74.55	63.28
Total	78.65	82.63	94.11	85.68

Table: 10 Cost of Cultivation per hectare of winter paddy during 2007-08, 2008-09 &2009-10

Concept of cost	Year	Holding Size class			
		Small	Medium	Large	All size
Cost 'A'	2007-08	27321	25453	22022	24198
	2008-09	33757	30156	26997	28883
	2009-10	36802	32670	33550	33778
Cost 'B'	2007-08	76506	93462	56548	74421
	2008-09	86136	99927	65332	79294
	2009-10	84656	79112	99927	88468
Cost 'C'	2007-08	79531	95402	57519	76091
	2008-09	90154	102132	66511	81167
	2009-10	89985	82380	101146	91291



Cost of production of winter paddy

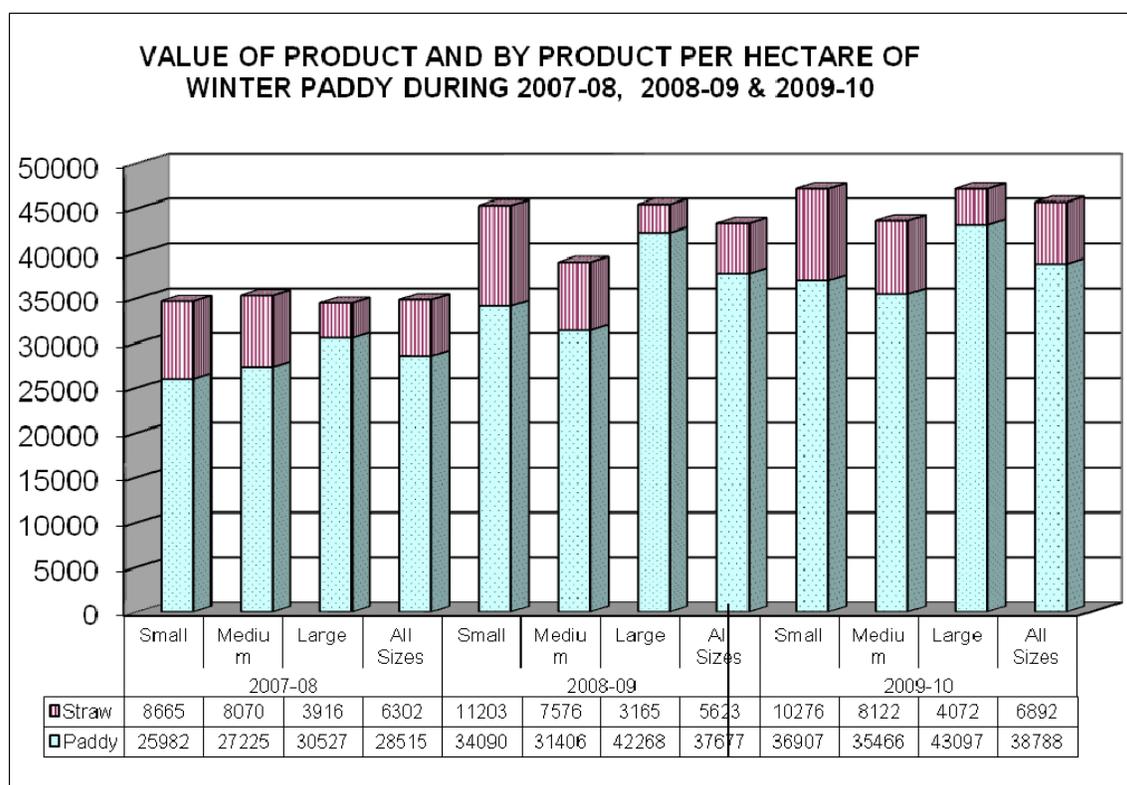
Table: 11 Per Quintal Cost of production of winter paddy during 2007-08,2008-09&2009-10

Concept of cost	Year	Holding size class			
		Small	Medium	Large	All Sizes
Cost 'A'	2007-08	701	791	877	804
	2008-09	935	930	728	816
	2009-10	1072	997	886	962
Cost 'B'	2007-08	1962	2866	2290	2474
	2008-09	2385	3077	1764	2240
	2009-10	2465	2415	2639	2520
Cost 'C'	2007-08	2040	2926	2329	2530
	2008-09	2496	3145	1796	2293
	2009-10	2620	2515	2671	2600

Output

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

Year	Product/ By product	Holding size class			
		Small	Medium	Large	All size
2007-08	Paddy	25982	27225	30527	28515
	Straw	8665	8070	3916	6302
	Total	34647	35295	34443	34817
2008-09	Paddy	34090	31406	42268	37677
	Straw	11203	7576	3165	5623
	Total	45293	38982	45433	43300
2009-10	Paddy	36907	35466	43097	38788
	Straw	10276	8122	4072	6892
	Total	47183	43588	47169	45680



2.1.3 Paddy - Summer (Punja)

For the cost of cultivation study on summer paddy during 2009-10 the total number of holdings selected was 351. Number of holdings selected in large holding size is 42. The details of these holdings are presented below:

Table 13 : Area under Summer Paddy during 2009-10

Holding size class	No of selected holdings	Area under the crop in the sample (ha)	Percentage	Area per holding (ha)
Small	189	38.10	14.39	0.20
Medium	120	101.20	38.22	0.84
Large	42	125.50	47.39	2.99
All Size	351	264.80	100.00	0.75

The above table reveals that the total area under cultivation in the selected sample holdings covers to 264.80 hectares and the average size of a holding is 0.75 hectare.

Cost of Cultivation

Cost of cultivation of summer paddy per hectare is estimated as Rs. **33183/-** when cost 'A' is considered. Component wise holding size class details are presented below:

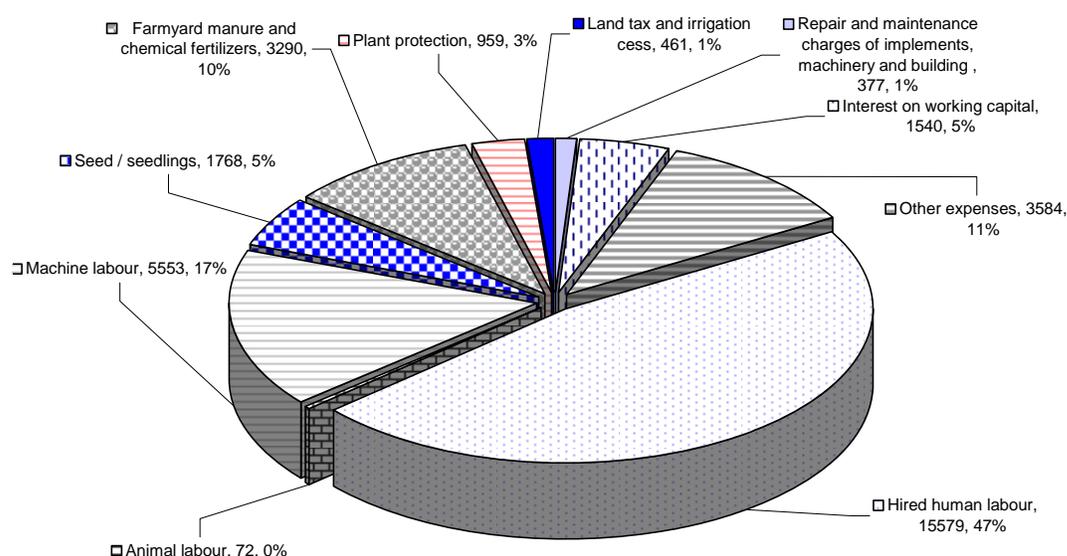
Table 14: Cost of Cultivation per hectare of paddy -summer during 2009-10

(Per Hectare in Rs.)

Sl No	Components	Holding size Class			
		Small	Medium	Large	All Size
1	Hired human labour	20673	15645	13960	15579
2	Animal labour	411	32	0	72
3	Machine labour	4186	5080	6354	5553
4	Seed / seedlings	1813	1765	1757	1768
5	Farmyard manure and chemical fertilizers	3936	3251	3123	3290
6	Plant protection	548	703	1292	959
7	Land tax and irrigation Cess	151	356	640	461
8	Repair and maintenance charges of implements, machinery and building	1259	345	130	377
9	Interest on working capital	1659	1490	1544	1540
10	Other expenses	1615	3329	4395	3584
11	Total Cost 'A' (1-10)	36251	31996	33195	33183
12	Interest on fixed capital	4292	922	256	1097

13	Cost 'B1' (11+12)	40543	32918	33451	34280
14	Interest on land value	75734	44495	33798	43976
15	Cost 'B' (13+14)	116277	77413	67249	78256
16	Imputed value of household labour	4256	2647	1388	2286
17	Cost 'C' (15+16)	120533	80060	68637	80542

**PERCENTAGE DISTRIBUTION OF "COST A" CULTIVATION PER HECTARE OF PADDY-
SUMMER 2009-10**



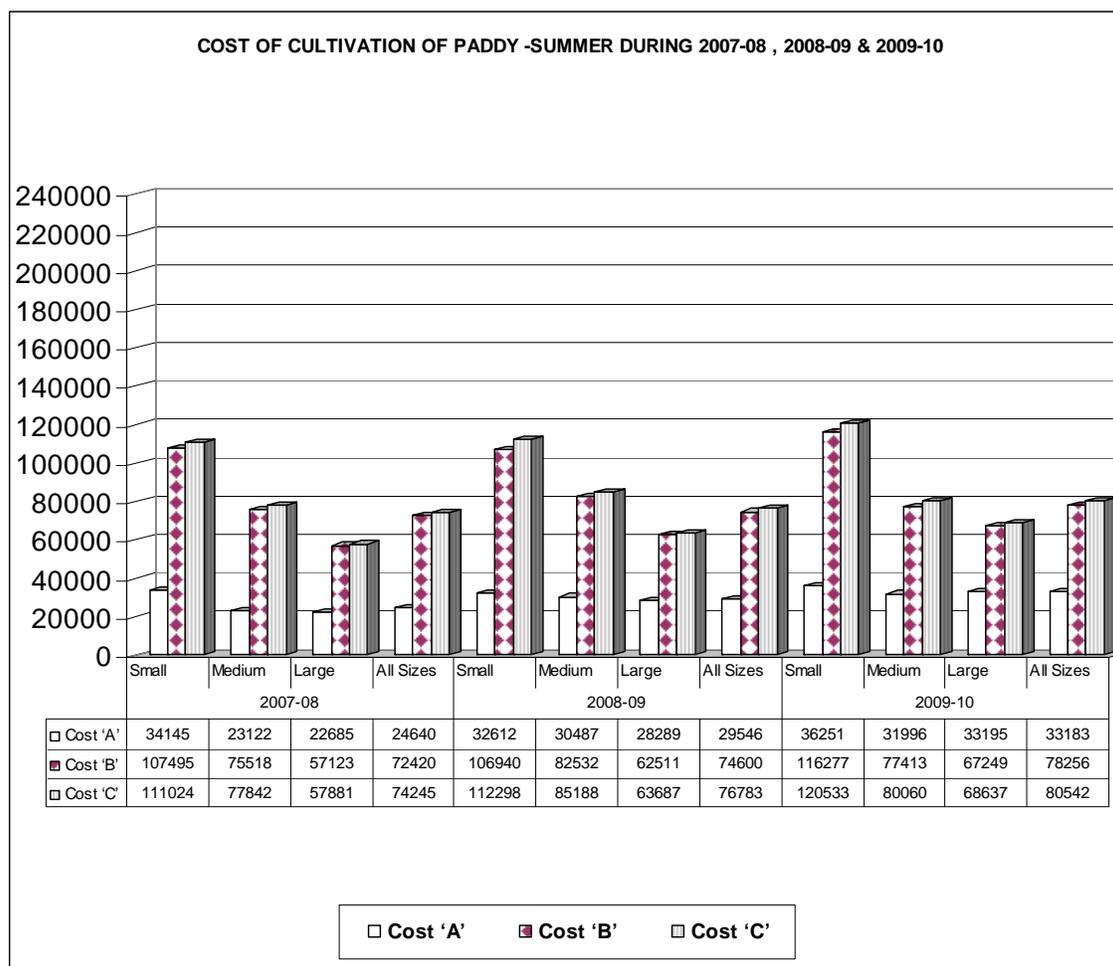
In summer paddy cultivation female labour participation accounted as 59% of the total labour hours. Details are given below:

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

Sex	Holding size class			
	Small	Medium	Large	All Sizes
Male	25.02	24.90	29.98	26.92
Female	51.92	60.55	61.80	59.24
Total	76.94	85.45	91.78	86.16

Table: 16 Cost of Cultivation per hectare of Summer paddy during, 2007-08 , 2008-09 &2009-10

Concept of cost	Year	Holding Size class			
		Small	Medium	Large	All size
Cost 'A'	2007-08	34145	23122	22685	24640
	2008-09	32612	30487	28289	29546
	2009-10	36251	31996	33195	33183
Cost 'B'	2007-08	107495	75518	57123	72420
	2008-09	106940	82532	62511	74600
	2009-10	116277	77413	67249	78256
Cost 'C'	2007-08	111024	77842	57881	74245
	2008-09	112298	85188	63687	76783
	2009-10	120533	80060	68637	80542



Output

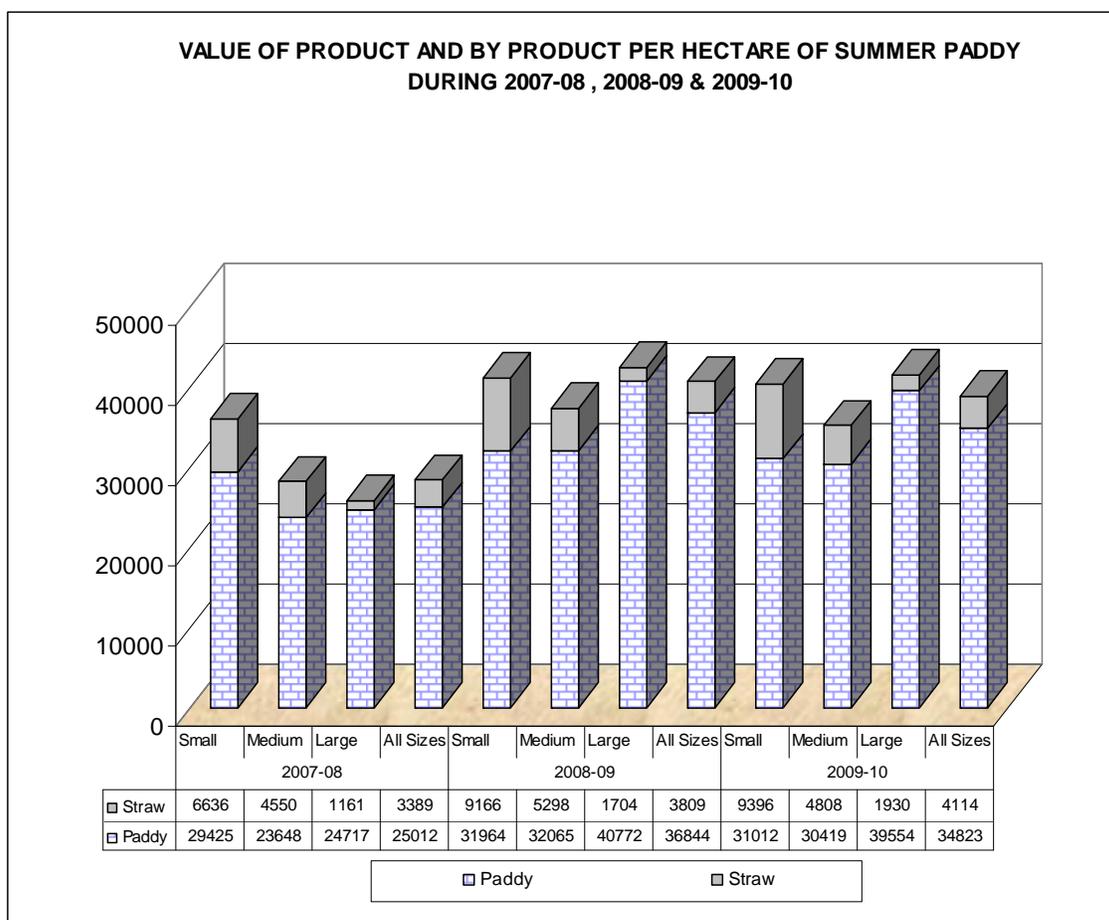
**Table: 17 Per Quintal Cost of production of paddy-Summer during 2007-08
2008-09 & 2009-10**

Concept of cost	Year	Holding size class			
		Small	Medium	Large	All Sizes
Cost 'A'	2007-08	772	622	715	686
	2008-09	1029	767	701	756
	2009-10	1103	931	816	892
Cost 'B'	2007-08	2426	2030	1800	2017
	2008-09	3372	2076	1548	1909
	2009-10	3537	2253	1652	2105
Cost 'C'	2007-08	2506	2092	1824	2068
	2008-09	3541	2143	1577	1965
	2009-10	3666	2330	1686	2167

Above tables reveal that for producing one quintal of paddy in summer season an amount of Rs892/- is required when cost 'A' is considered. Per hectare value of product paddy is calculated as **Rs.34823/-** and the value of by-product viz. straw is estimated as **Rs.4114/-**

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

Year	Product/ By product	Holding size class			
		Small	Medium	Large	All size
2007-08	Paddy	29425	23648	24717	25012
	Straw	6636	4550	1161	3389
	Total	36061	28198	25878	28401
2008-09	Paddy	31964	32065	40772	36844
	Straw	9166	5298	1704	3809
	Total	41130	37363	42475	40652
2009-10	Paddy	31012	30419	39554	34823
	Straw	9396	4808	1930	4114
	Total	40408	35227	41484	38937



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 2009-10 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	90	12.40	8.22	.14
Medium	167	58.80	38.97	.35
Large	59	79.70	52.81	1.35
Total	316	150.90	100.00	0.48

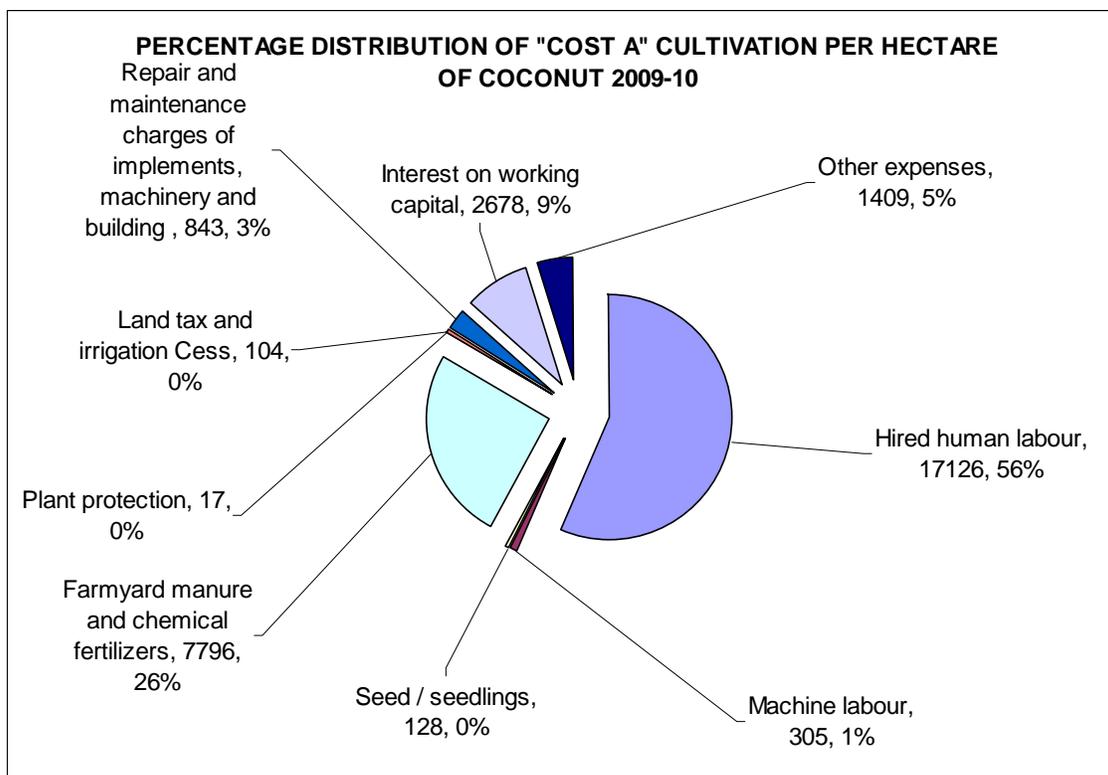
Cost of Cultivation

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 2009-10

(Per Hectare in Rs.)

Sl No	Components	Holding size Class			
		Small	Medium	Large	All Size
1	Hired human labour	16220	18530	16203	17126
2	Animal labour	0	0	0	0
3	Machine labour	186	362	281	305
4	Seed / seedlings	149	154	105	128
5	Farmyard manure and chemical fertilizers	7178	8379	7453	7796
6	Plant protection	35	16	15	17
7	Land tax and irrigation Cess	165	109	91	104
8	Repair and maintenance charges of implements, machinery and building	1655	1243	404	843
9	Interest on working capital	2664	2905	2508	2678
10	Other expenses	2872	1604	1020	1409
11	Total Cost 'A' (1-10)	31124	33302	28080	30406
12	Interest on fixed capital	10861	5338	1673	3905
13	Cost 'B1' (11+12)	41985	38640	29753	34311
14	Interest on land value	656581	514067	384494	458919
15	Cost 'B' (13+14)	698566	552707	414247	493230
16	Imputed value of household labour	6407	4198	1755	3118
17	Cost 'C' (15+16)	704973	556905	416002	496348



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 56% 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	40.11	61.27	67.20	62.77
Female	4.08	8.20	5.26	6.10
Total	44.19	69.47	72.46	68.87

Table 22: Cost of Cultivation per hectare of Coconut during 2007-08,2008-09&2009-10

Concept of cost	Year	Holding Size class			
		Small	Medium	Large	All size
Cost 'A'	2007-08	28180	24030	22251	23265
	2008-09	27684	27458	23408	25393
	2009-10	31124	33302	28080	30406

Cost 'B'	2007-08	407977	267752	255887	270200
	2008-09	518878	505199	411108	458097
	2009-10	698566	552707	414247	493230
Cost 'C'	2007-08	412741	270383	257561	272412
	2008-09	524046	508492	413363	461046
	2009-10	704973	556905	416002	496348

Value of output

Table 23: Value of Out put / Hectare

Product/By-product	Holding Size Class			
	Small	Medium	Large	All Sizes
Product	44709	51925	50242	50438
By-Product	2059	2443	1926	2142
Total	46768	54368	52168	52580

The table shows the value of output is Rs. 52580/- per hectare.

2.3 Arecanut

Arecanut, a traditional crop of the state is also facing certain problems especially in this 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	278	13.6	21.12	.05
Medium	76	20.10	31.21	.26
Large	26	30.7	47.67	1.18
All size	380	64.40	100	0.17

For this study 380 holdings were selected. It had an operational area of 64.40 hectare. The average size per holding was 0.17 hectare.

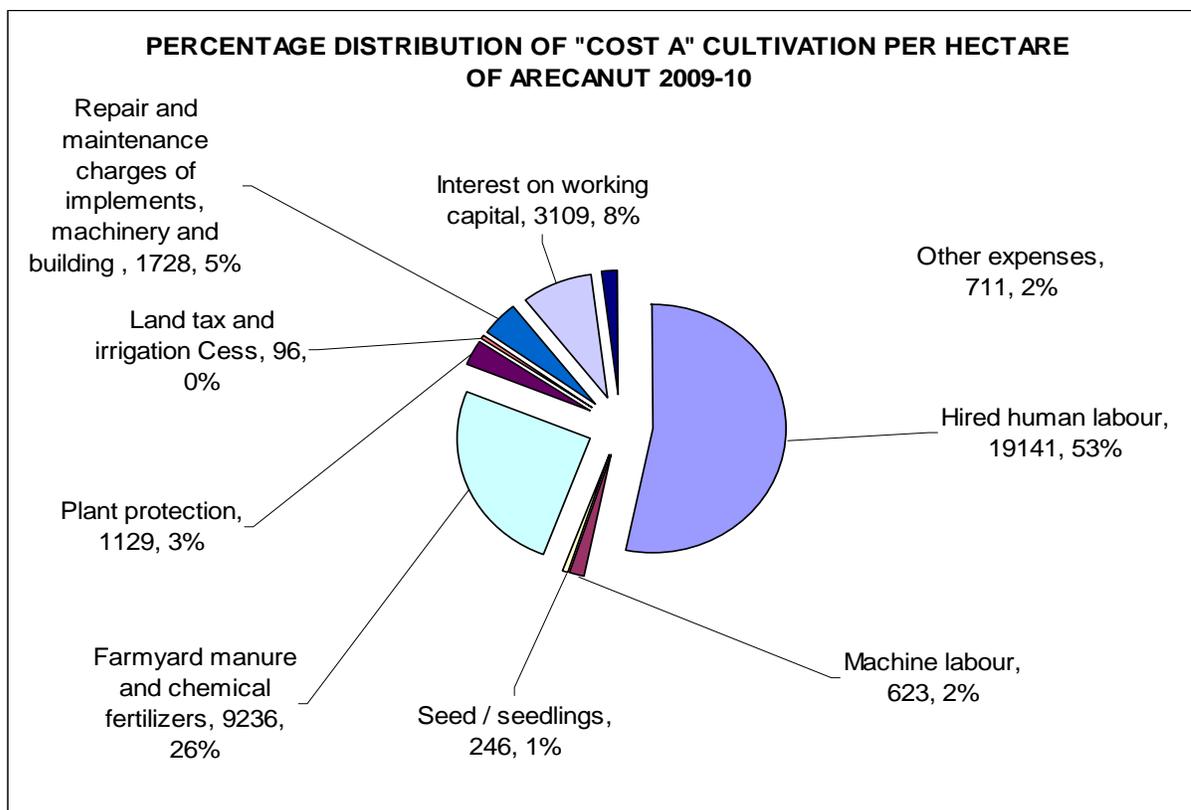
Cost of Cultivation

The different cost components of Arecanut cultivation is given below: Per hectare cost C expenses is worked out as Rs. 440100/-

Table 25: Cost of Cultivation per hectare of Arecanut during the year 2009-10

(Per Hectare in Rs.)

Sl No	Components	Holding size Class			
		Small	Medium	Large	All Size
1	Hired human labour	15312	19988	20327	19141
2	Animal labour	0	0	0	0
3	Machine labour	515	325	871	623
4	Seed / seedlings	503	213	149	246
5	Farmyard manure and chemical fertilizers	9634	11602	7482	9236
6	Plant protection	388	712	1746	1129
7	Land tax and irrigation Cess	161	92	69	96
8	Repair and maintenance charges of implements, machinery and building	4149	1332	886	1728
9	Interest on working capital	2759	3361	3101	3109
10	Other expenses	1234	771	432	711
11	Total Cost 'A' (1-10)	34655	38396	35063	36019
12	Interest on fixed capital	20310	7376	3143	8166
13	Cost 'B1' (11+12)	54965	45772	38206	44185
14	Interest on land value	582182	375558	315947	391952
15	Cost 'B' (13+14)	637147	421330	354153	436137
16	Imputed value of household labour	7801	5581	1134	3693
17	Cost 'C' (15+16)	644948	426911	355287	440100



When Cost A is considering, 53% 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 47 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	32.56	49.65	30.04	34.59
Female	7.65	25.46	10.03	12.75
Total	40.21	75.11	40.07	47.34

Table 27: Cost of Cultivation per hectare of Arecanut during 2007-08 , 2008-09 & 2009-10

Concept of cost	Year	Holding Size class			
		Small	Medium	Large	All size
Cost 'A'	2007-08	25495	33056	35698	32029
	2008-09	27931	33246	38108	33447
	2009-10	34655	38396	35063	36019
Cost 'B'	2007-08	437120	283695	254868	312700
	2008-09	483350	333950	291349	359272
	2009-10	637147	421330	354153	436137
Cost 'C'	2007-08	441133	287363	256218	315693
	2008-09	488530	340549	294314	364301
	2009-10	644948	426911	355287	440100

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
66218	73720	75743	73058

2.4 Tapioca

Area under the crop in this study was 37.60 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	128	9.70	25.80	0.08
Medium	53	14.60	38.83	0.28
Large	9	13.30	35.37	1.48
All Size	190	37.60	100	0.20

The average size of a selected holding is 0.20 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. **43087/-**. In this hired labour cost constituted **54%** where as farmyard manure and chemical fertilizers shares **17%** of the Cost A.

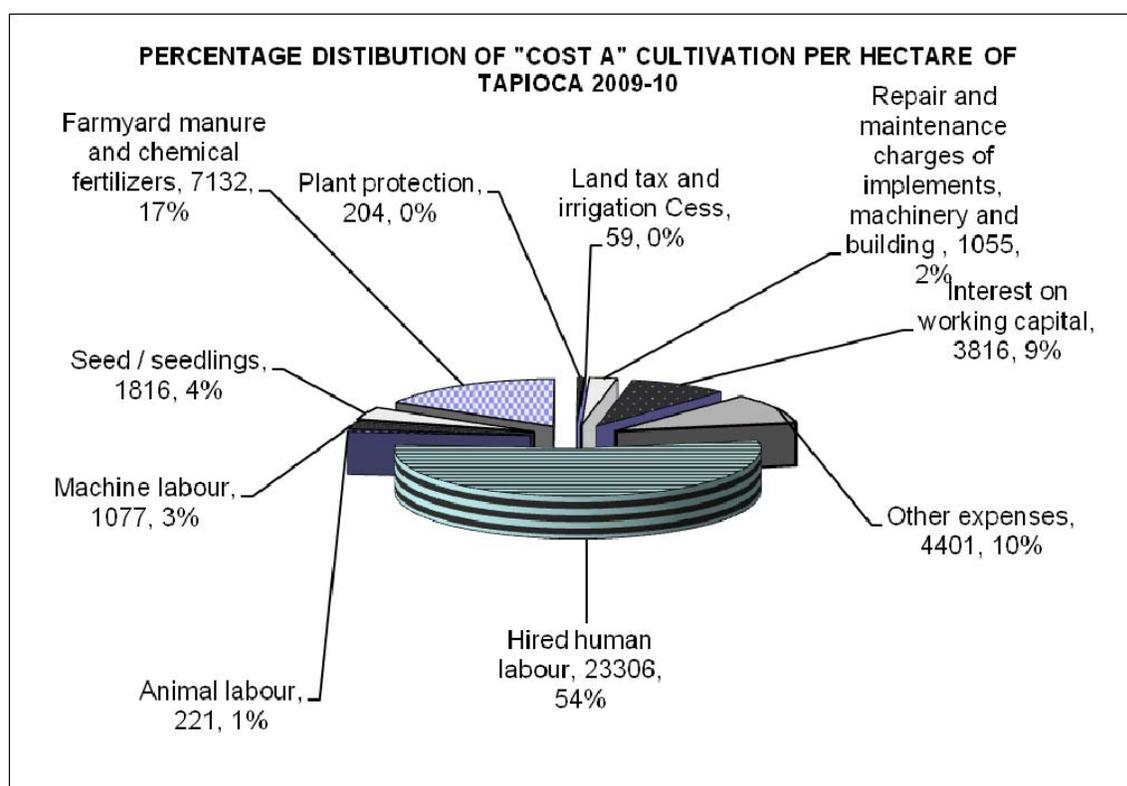
The cost of cultivation of Tapioca under different concepts is given below.

Table 30: The Cost of cultivation per hectare of tapioca during the year 2009-10

(Per Hectare in Rs.)

Sl No	Components	Holding size Class			
		Small	Medium	Large	All Size
1	Hired human labour	27358	25561	17694	23306
2	Animal labour	0	305	296	221
3	Machine labour	164	574	2337	1077
4	Seed / seedlings	2038	1545	1947	1816
5	Farmyard manure and chemical fertilizers	9063	8751	3850	7132
6	Plant protection	133	207	257	204
7	Land tax and irrigation Cess	78	75	26	59

8	Repair and maintenance charges of implements, machinery and building	1802	416	1198	1055
9	Interest on working capital	4282	4052	3196	3816
10	Other expenses	4066	3576	5576	4401
11	Total Cost 'A' (1-10)	48984	45062	36377	43087
12	Interest on fixed capital	17104	1925	2437	6132
13	Cost 'B1' (11+12)	66088	46987	38814	49219
14	Interest on land value	465523	450569	351360	420089
15	Cost 'B' (13+14)	531611	497556	390174	469308
16	Imputed value of household labour	12828	5905	5331	7543
17	Cost 'C' (15+16)	544439	503461	395505	476851



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	45.63	29.98	62.70	39.83
Female	6.55	46.85	10.34	28.18
Total	52.18	76.83	73.04	68.01

In tapioca cultivation 68% of the total human labour hours has been shared by hired human labour.

Table 32: Cost of Cultivation per hectare of Tapioca during 2007-08,2008-09 & 2009-10

A comparative statement for 2007-08 ,2008-09 and 2009-10 for cost of cultivation of different concept is given below.

Concept of cost	Year	Holding Size class			
		Small	Medium	Large	All size
Cost 'A'	2007-08	38537	33210	40479	36633
	2008-09	35276	38567	41993	38426
	2009-10	48984	45062	36377	43087
Cost 'B'	2007-08	362513	296610	281697	310760
	2008-09	360878	338834	281160	332643
	2009-10	531611	497556	390174	469308
Cost 'C'	2007-08	372505	302413	285091	317069
	2008-09	369826	345176	283970	338928
	2009-10	544439	503461	395505	476851

Value of Out put

Table 33: Value of Out put / Hectare

Holding Size Class			
Small	Medium	Large	All Sizes
9190	107724	98948	100285

The value of output for all holding size is comparable. Value of output from tapioca is estimated Rs.100285/- per hectare.

2.5 Banana

In the cost of cultivation study on banana 190 holdings were selected by covering an area 39.90 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	111	7.90	19.80	0.07
Medium	65	20.00	50.13	0.31
Large	14	12.00	30.08	0.86
All Size	190	39.90	100.00	0.21

Cost of Cultivation

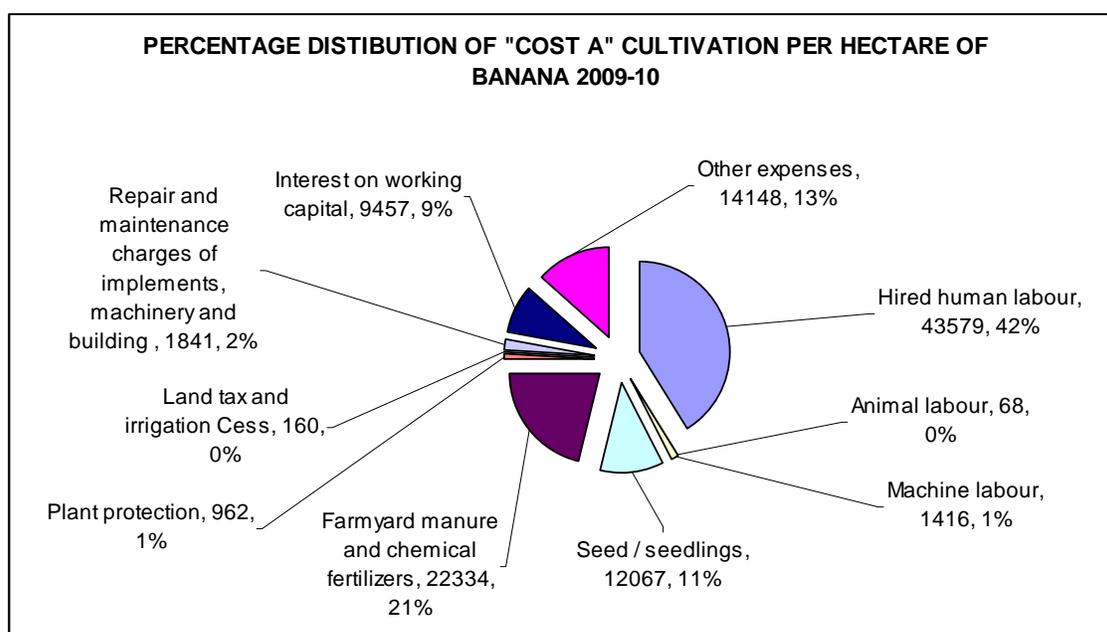
As in the case of other crops, cost of cultivation of banana is also calculated at different cost, concepts such as cost 'A', Cost 'B1', 'Cost 'B' and Cost 'C'. When Cost A is considered, cost of cultivation is Rs.106032/-

Table 35: The Cost of cultivation per hectare of Banana during the year 2009-10

(Per Hectare in Rs.)

Sl No	Components	Holding size Class			
		Small	Medium	Large	All Size
1	Hired human labour	51471	44406	36827	43579
2	Animal labour	0	137	0	68
3	Machine labour	359	1244	2422	1416
4	Seed / seedlings	11977	12521	11371	12067
5	Farmyard manure and chemical fertilizers	24318	21822	21835	22334
6	Plant protection	912	736	1373	962
7	Land tax and irrigation Cess	96	90	320	160
8	Repair and maintenance charges of implements, machinery and building	4717	1439	549	1841
9	Interest on working capital	10366	9384	8960	9457
10	Other expenses	14625	12976	15773	14148

11	Total Cost 'A' (1-10)	118841	104755	99430	106032
12	Interest on fixed capital	19697	4384	1800	6731
13	Cost 'B1' (11+12)	138538	109139	101230	112763
14	Interest on land value	275067	284170	337243	298185
15	Cost 'B' (13+14)	413605	393309	438473	410948
16	Imputed value of household labour	23201	13836	10755	14823
17	Cost 'C' (15+16)	436806	407145	449228	425771



In this hired human labour cost accounted as 42 per cent where as farmyard manure and chemical fertilizers cost as 21 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	58.39	68.26	67.12	65.62
Female	9.62	5.41	10.69	7.37
Total	68.01	73.67	77.81	72.99

Table 37: Cost of Cultivation per hectare of Banana during 2007-08, 2008-09 & 2009-10

A comparative statement for 2007-08,2008-09 and 2009-10 for cost of cultivation of different concept is given below.

Concept of cost	Year	Holding Size class			
		Small	Medium	Large	All size
Cost 'A'	2007-08	96037	109350	134631	109277
	2008-09	92249	89400	70015	84296
	2009-10	118841	104755	99430	106032
Cost 'B'	2007-08	446509	333663	375941	372701
	2008-09	431850	344093	339907	364157
	2009-10	413605	393309	438473	410948
Cost 'C'	2007-08	460709	343881	379985	383148
	2008-09	449373	354494	345874	374963
	2009-10	436806	407145	449228	425771

Value of out put

Table 38: Value of Out put / Hectare

Holding Size Class			
Small	Medium	Large	All Sizes
297010	248926	271815	265565

During 2009-10 per hectare value of output from banana cultivation is estimated out as **Rs. 265565/-**

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 2009-10

Holding size class	No of selected holdings	Area under the crop in the sample (ha)	Percentage	Area per holding (ha)
Small	182	7.40	43.02	0.04
Medium	31	8.10	47.09	0.26
Large	1	1.70	9.88	1.70
Total	214	17.20	100.00	0.08

Cost of cultivation

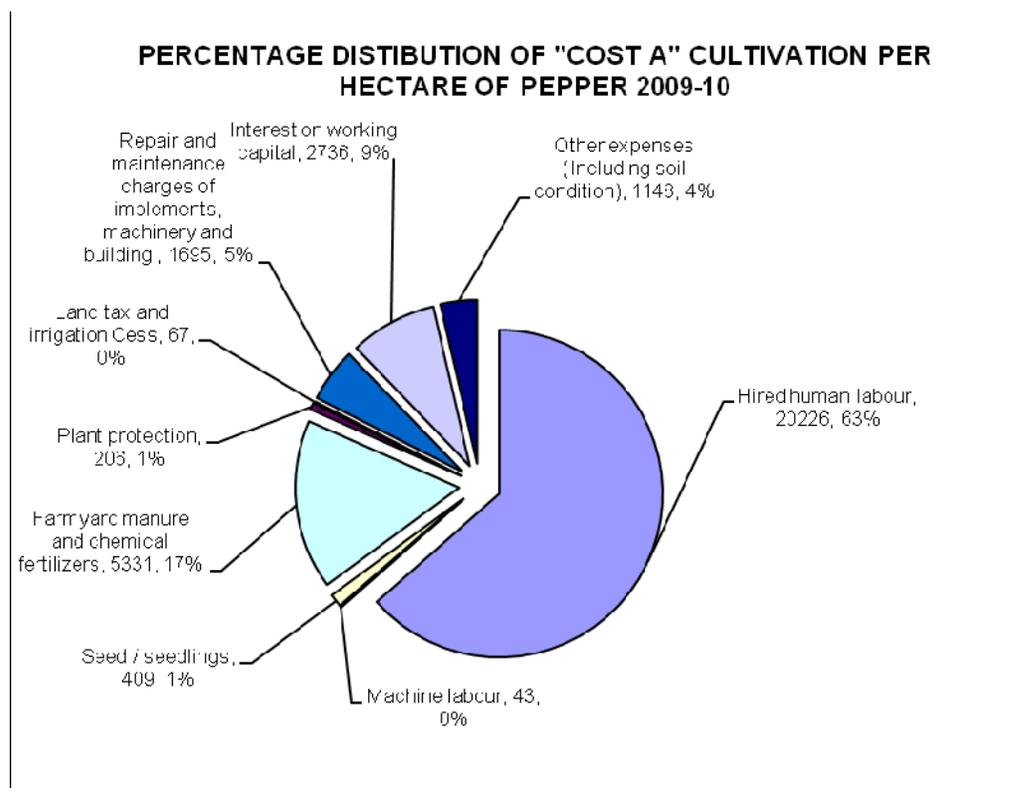
The cultivation cost incurred for pepper is entirely different when compared to the cost of paddy and other seasonal crops. Labour cost and fertilizer cost are the two major items of expenses for pepper cultivation. Item wise expenses incurred under pepper cultivation is as follows:

Table 40: Cost of Cultivation of Pepper during the year 2009-10

(Per Hectare in Rs.)

Sl No	Components	Holding size Class			
		Small	Medium	Large	All Size
1	Hired human labour	20269	15996	28531	20226
2	Animal labour	0	0	0	0
3	Machine labour	0	104	0	43
4	Seed / seedlings	431	596	0	409
5	Farmyard manure and chemical fertilizers	6734	4563	4300	5331
6	Plant protection	250	166	207	206
7	Land tax and irrigation Cess	95	76	0	67
8	Repair and maintenance charges of implements, machinery and building	3331	1001	92	1695
9	Interest on working capital	2917	2267	3338	2736
10	Other expenses (Including soil condition)	1487	1241	345	1148

11	Total Cost 'A' (1 to 10)	35514	26010	36813	31861
12	Interest on fixed capital	23415	6058	1884	11768
13	Cost 'B1' (11+12)	58929	32068	38697	43629
14	Interest on land value	515739	294700	175269	353616
15	Cost 'B' (13+14)	574668	326768	213966	397245
16	Imputed value of household labour	9727	5997	954	6361
17	Cost 'C' (15+16)	584395	332765	214920	403606



The survey results reveal that out of the total hired human labour hours engaged in pepper cultivation 63% 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	41.42	62.76	93.66	57.99
Female	5.08	10.53	.94	5.81
Total	46.5	73.29	94.6	63.8

Table 42: Cost of Cultivation per hectare of Pepper during 2007-08 , 2008-09 &2009-10

A comparative statement for 2007-08 ,2008-09&2009-10 for cost of cultivation of different concept is given below.

Concept of cost	Year	Holding Size class			
		Small	Medium	Large	All size
Cost 'A'	2007-08	25122	18196	17963	21325
	2008-09	26834	23327	19227	23744
	2009-10	35514	26010	36813	31861
Cost 'B'	2007-08	543078	339909	169507	399228
	2008-09	561886	333119	238732	400341
	2009-10	574668	326768	213966	397245
Cost 'C'	2007-08	548845	343417	171395	403450
	2008-09	571048	336720	239676	405492
	2009-10	584395	332765	214920	403606

Value of out put

Table 43: Value of Out put / Hectare

Holding Size Class			
Small	Medium	Large	All Sizes
85755	69580	50368	71711

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

During 2008-09 per hectare value of output from pepper cultivation is estimated out as
Rs.56234/--

During 2009-10 per hectare value of output from pepper cultivation is estimated out as
Rs.71711/-

2.7 Ginger

For the cost of cultivation study during 2009-10, 159 holdings were selected. Details are given below:

Table 44: Area and number of holdings under Ginger cultivation 2009-10

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	128	5.90	25.99	0.05
Medium	24	5.50	24.23	0.23
Large	7	11.30	49.78	1.61
All sizes	159	22.70	100	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 2009-10

(Per Hectare in Rs)

Sl No	Components	Holding size Class			
		Small	Medium	Large	All Size
1	Hired human labour	44745	49191	36644	41910
2	Animal labour	0	0	0	0
3	Machine labour	889	2176	11062	6120
4	Seed / seedlings	29267	23542	26122	26355
5	Farmyard manure and chemical fertilizers	19371	25111	28241	25054
6	Plant protection	500	455	1363	906
7	Land tax and irrigation cess	103	59	0	43
8	Repair and maintenance charges of implements, machinery and building	2707	869	631	1256
9	Interest on working capital	9797	10603	11363	10750
10	Other expenses	3199	5558	10193	7153
11	Total Cost 'A' (1-10)	110578	117564	125619	119547
12	Interest on fixed capital	23692	5634	779	8226

13	Cost 'B1' (11+12)	134270	123198	126398	127773
14	Interest on land value	411276	299135	214006	288650
15	Cost 'B' (13+14)	545546	422333	340404	416423
16	Imputed value of household labour	18938	12380	5210	10107
17	Cost 'C' (15+16)	564484	434713	345614	426530

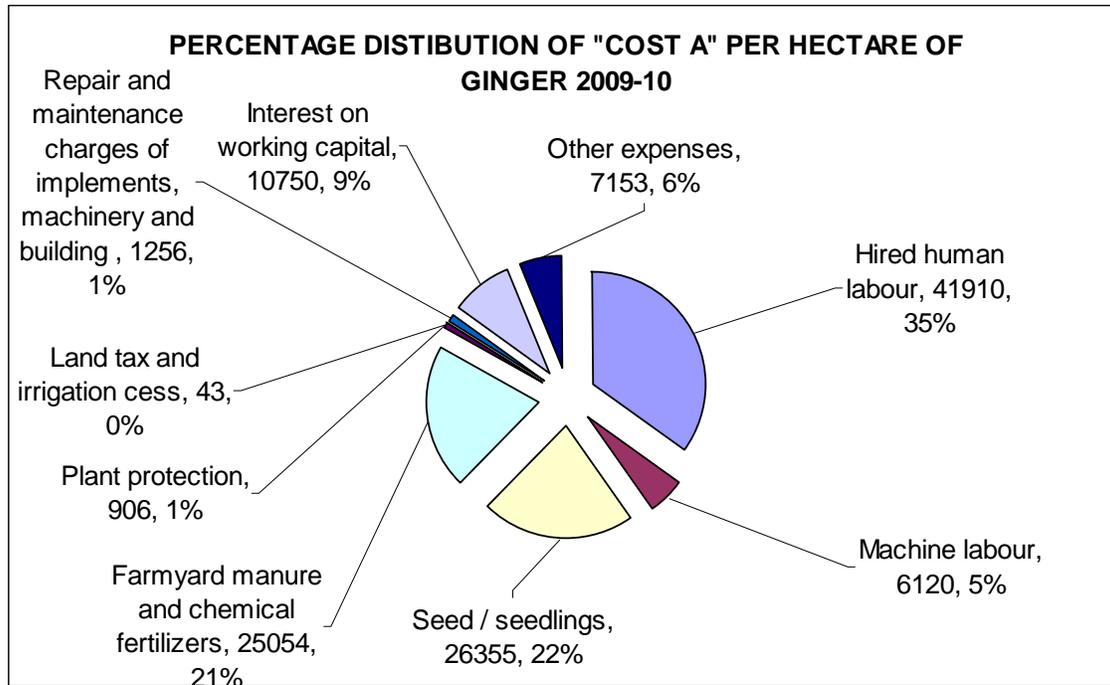


Table 46: Percentage of hired human labour hours to total human labour hours

Sex	Holding size class			
	Small	Medium	Large	All Sizes
Male	47.79	50.64	32.75	41.02
Female	13.34	21.80	58.92	38.02
Total	61.13	72.44	91.67	79.04

Table 47: Cost of Cultivation per hectare of Ginger during 2007-08 ,2008-09&2009-10

A comparative statement for 2007-08 , 2008-09&2009-10 for cost of cultivation of different concept is given below.

Concept of cost	Year	Holding Size class			
		Small	Medium	Large	All size
Cost 'A'	2007-08	73982	68976	85583	76293
	2008-09	78116	79779	105430	85580
	2009-10	110578	117564	125619	119547
Cost 'B'	2007-08	350221	248169	153488	249748
	2008-09	409226	276116	192188	298087
	2009-10	545546	422333	340404	416423
Cost 'C'	2007-08	363881	256081	154216	257118
	2008-09	422860	283494	196521	306720
	2009-10	564484	434713	345614	426530

Value of Out put

Table 48: Value of Out put / Hectare

Holding Size Class			
Small	Medium	Large	All Sizes
240891	248630	259852	251939

The per hectare value of output received from Ginger cultivation is seen as Rs.251939/- during 2009-10

2.8 Turmeric

Details of the holdings selected for the cost of cultivation study during 2009-10 are given below:

Table 49: Area and Number of holdings selected for Turmeric cultivation 2009-10

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	116	5.80	45.31	0.05
Medium	19	5.40	42.19	0.28
Large	1	1.60	12.50	1.60
All size	136	12.8	100.00	0.09

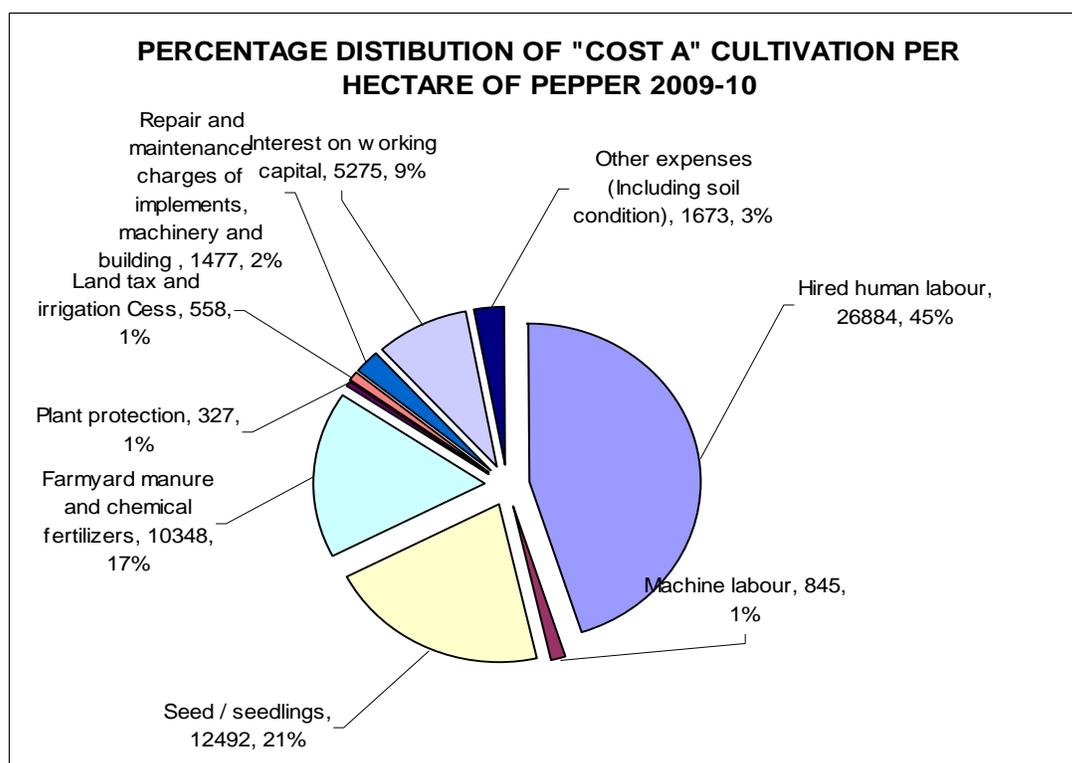
Cost of cultivation

The cash and other kind expenses incurred under Turmeric cultivation is estimated as Rs.60062/- for one hectare. Details of these items are given below:

Table 50: Cost of Cultivation of Turmeric during the year 2009-10

(Per Hectare in Rs.)

Sl No	Components	Holding size Class			
		Small	Medium	Large	All Size
1	Hired human labour	22273	30053	33976	26884
2	Animal labour	0	441	0	183
3	Machine labour	251	1756	0	845
4	Seed / seedlings	10776	13758	14826	12492
5	Farmyard manure and chemical fertilizers	11666	10495	4633	10348
6	Plant protection	235	524	0	327
7	Land tax and irrigation Cess	371	928	0	558
8	Repair and maintenance charges of implements, machinery and building	2718	445	192	1477
9	Interest on working capital	4655	5954	5344	5275
10	Other expenses	1347	2517	0	1673
11	Total Cost 'A' (1-10)	54292	66871	58971	60062
12	Interest on fixed capital	17837	9244	741	12250
13	Cost 'B1' (11+12)	72129	76115	59712	72312
14	Interest on land value	471177	614282	74130	483474
15	Cost 'B' (13+14)	543306	690397	133842	555786
16	Imputed value of household labour	15106	5308	30888	12913
17	Cost 'C' (15+16)	558412	695705	164730	568699



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	24.62	33.06	45.45	26.16
Female	7.01	55.63	9.09	11.39
Total	31.63	88.69	54.54	37.54

Table 52: Cost of Cultivation per hectare of Turmeric during 2007-08 , 2008-09 2009-10

A comparative statement for 2007-08 ,2008-09 &2009-10 for cost of cultivation of different concept is given below.

Concept of cost	Year	Holding Size class			
		Small	Medium	Large	All size
Cost 'A'	2007-08	43103	38986	0	41701
	2008-09	44080	36909	34008	41409
	2009-10	54292	66871	58971	60062
Cost 'B'	2007-08	397830	249181	0	347221
	2008-09	438660	285075	58928	368866
	2009-10	543306	690397	133842	555786
Cost 'C'	2007-08	410090	258261	0	358398
	2008-09	452393	291898	60367	379828
	2009-10	558412	695705	164730	568699

Output

The per hectare value of output received from turmeric cultivation is estimated as Rs.112138/- during the year 2009-10.

Table 53: Value of Out put / Hectare

Holding Size Class			
Small	Medium	Large	All Sizes
97329	111437	172971	112138