Pattern of farm business of tribal farmers in Sidhi district (M.P.)

THESIS

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AGRICULTURE
(AGRICULTURE ECONOMICS AND FARM MANAGEMENT)

By

MULCHAND SOLANKI

DEPARTMENT OF AGRICULTURE ECONOMICS AND FARM MANAGEMENT
Jawaharlal Nehru Krishi Vishwa Vidyalaya, Jabalpur
College of Agriculture
REWA (M.P.)

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CERTIFICATE – I

This is to certify that the thesis entitled **"Pattern of farm business of tribal farmers in Sidhi District (M.P.)"** *submitted in partial fulfillment of the requirement for the degree of* **MASTER OF SCIENCE** *in* **AGRICULTURE (Agriculture Economics and Farm Management)** of *Jawaharlal Nehru Krishi Vishwa Vidyalaya, Jabalpur is a record of the bonafied research work carried out by* **Mr. Mulchand Solanki** *under my guidance and supervision. The subject of the thesis has been approved by the Student's Advisory Committee and the Director of Instruction.*

No part of the thesis has been submitted for any degree or diploma (Certificate awarded etc.) or has been published / published part has been fully acknowledged. All the assistance and help received during the course of the investigation has been acknowledged by him.

Place : Rewa

Date : 5/3/08

(Dr. A. Shrivastava)
Chairman of the Advisory Committee

THESIS APPROVED BY THE STUDENT'S ADVISORY COMMITTEE

Chairman (Dr. A. Shrivastava) .....

Member (Dr. N. D. Tiwari) .....

Member (Dr. B.M. Maurya) .....

Member (Dr. A.S. Chounhan) .....

CERTIFICATE – II

This is to certify that the thesis entitled **"Pattern of farm business of tribal farmers in Sidhi District (M.P.)"** *submitted by* **Mr. Mulchand Solanki** *to the J.N. Krishi Vishwa Vidyalaya, Jabalpur in partial fulfillment of the requirements for the degree of* **MASTER OF SCIENCE** *in* **AGRICULTURE (Agriculture Economics and Farm Management)** *in* **Department of Agriculture Economics and Farm Management, College of Agriculture, Rewa** *has been, after evaluation, approved by the External Examiner and by the Student's Advisory Committee after an oral examination on the same.*

Place : Rewa
Date : 5/8/08

(Dr. A. Shrivastava)
Chairman
Advisory Committee

MEMBERS OF THE ADVISORY COMMITTEE

Chairman (Dr. A. Shrivastava) .....

Head of the Department (Dr. S.N. Shrivastava) .....Professor & H. S.....
Deptt. of Agril. Economics & Farm Management
College of Agriculture, Rewa (M.P.)

Director of Instruction .....

25/8/08

Director Instruction
J.N.Krishi Vishwa Vidyalaya
JABALPUR

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Place : Rewa

(Mulchand Solanki)

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INTRODUCTION

CHAPTER- I

INTRODUCTION

Sidhi is one of the backward districts of Madhya Pradesh. Among the total population of the district, 45 per cent are tribal. Agriculture and forest are the most important and common sources of employment and income for these tribal. However, in tribal area, the agricultural development is not satisfactory. Tribal in this developing stage are not following the modern technological farming system. Mostly, they are following the traditional system and gaining only small earning and employment from agriculture. In real life, they are economically poorest of the poor and socially posses the unique quality of living i.e. tradition bound life. In fact, their own tribals have little economic role either in these communities or in the society at large.

Hence, it has been now realized to understand the regional problems of tribal farmers at micro levels, especially of the backward area so that social problems assume such proportions that the internal disorder and the discontent may not retard the progress and development. Therefore a scientific investigation for developing realistic plans for agriculture, social and economic development is of paramount importance. The present study "Farm business analysis" fully justifies its importance, as it will help in the creation of new knowledge for spearheading income, employment, social change and securing social benefits to the tribal farmers of the area.

The main problem of these tribal is that a fairly large number of people are idle and much larger number have only short–term employment in varying degrees available, which is responsible for the poverty of this population. Hence, to plan and to evaluate of such invariable problem "employment and poverty", there is cause to conduct surveys at micro level i.e. villages for identification of agricultural potentials and endowments in the tribal area. Keeping this in view, the present study entitled ok but the this little different way, is undertaken with the following objectives:

i. To study the farm structure, resources use and cropping pattern of tribal farmers.

ii. To calculate the cost of cultivation/production for major crops and allied enterprises in the study area.

iii. To work out the level of earning (income) and employment on the farm.

iv. To suggest the ways for economic development of tribal farmers in the study area.

Scope and subject matter

Research methodology has been designed to suit the main objective of the study. At first to meet the objectives of the study, the data needed were divided in various segments as general information and socio-economic condition of farm family, farm structure, resource use pattern, cropping pattern, economics of crops and allied activities and various factors influencing the position of the income and employment of farm family etc.

Nature

Hence, it has been now realized to understand the regional problems of tribal farmers at micro levels, especially of the backward area so that social problems assume such proportions that the internal disorder and the discontent may not retard the progress and development. Therefore a scientific investigation for developing realistic plans for agriculture, social and economic development is of paramount importance. The present study "Farm business analysis" fully justifies its importance, as it will help in the creation of new knowledge for spearheading income, employment, social change and securing social benefits to the tribal farmers of the area.

Limitation

Before proceeding to the actual study some of the limitations of the data may be noted. Data were personally collected with the help of pre tested questionnaires schedules. Thus, the personal attitude and behaviour as the bias of the respondents as well as of researchers also, were the limitations of study. The accuracy of the data relating to the current farm activities has suffered as the investigation was conducted in the last of the agricultural year after the close of the reference year.

As the findings of this study are based on data collected by the selected respondents and hence cannot be generalized for the whole State or larger area. Further, the study is confined to a period of one agricultural year, which is not long enough to make estimates with high reliability.

REVIEW OF LITERATURE

CHAPTER - II

REVIEW OF LITERATURE

The study was designed to know the pattern of farm businesses of tribal farmers and to work out the level of earning (income) and employment on the farm. Hence, the review is focused on finding and theories related to pattern of farm businesses and level of earning and employment on the farm for building the conceptual framework and to arrive at relevant theoretical hypothesis for the study. The reviews in the line of the present study are as under:

Chourasia (1982) cited that the study on farms structure in Madhya Pradesh at regional level is a diagnostic one which seeks to explore the structural and operational weakness of business with emphasis on labour absorption in agriculture.

He reported that the existing farm activities provided gainful employment to the farm families and annual servants only for 65 and 78 per cent, respectively of the total employed work days available in a year due to traditional methods of cultivation and low cropping intensity. This clearly indicates that higher portion of work days are being wasted for wants of gainful job of the farmers.

The practice of inordinate following low cropping intensity, traditional method of cultivation and lack of integration of farm activities were major factors for higher level of unemployment throughout the state. There is a definite need for suitable cropping pattern on farm to increase employment opportunities in the rural areas. Since nearly one third of the population of the state consists of schedule castes and scheduled tribes which are orthodox in the context of bringing about changes in the socio-economic conditions.

The barrier of changes are strong enough which need constant efforts and sympathetic view towards the weaker section of the forest based human resources for rapid improvement of their standard of living.

Singh (1982-83) showed that, the average total number of 391.87 work days was utilized per annum in agricultural sector by a sample farmers. Out of this 283.38 days were family labour i.e. 108.49 days. The higher number of work days utilized was on larger farms. The percentage utilization of family labour was noted to be higher on smaller farms.

Lal *et al.* (1984) found that economic dependency considerably influence the income level of family. Lack of alternate employment facilities and the heavy population pressure on land lead to disguised unemployment in agriculture and a considerable proportion of the family members have to take part-time employment on the farm or outside. The details of economic status given in table 3 and 4 indicate higher proportion of self-supporting persons among the Korku tribal and higher proportion of earning dependents among the Gonds. There is practically no difference between male and female as regards to proportion of self supporting and earning dependents, although in case of Korku, proportion of self supporting person higher both among males and well as female. Proportion of earning dependents is higher among Gonds. In both the tribal proportion of self-supporting persons and earning dependents exhibit negative relation with the size of farm.

Sharma (1984) written in his study that the main issue in tribal development in India today is not philosophical. It is a question of better appreciation of the nature of socio-economic force operating there likely to operate as these areas get appends up? The appropriate growth-paths have to be determined for their progression during the transitional phase. A number of choices word be available in the beginning but, as the time runs out, the options will get circumscribed.

Dubey (1985) had reported that the under employment rather than unemployment is the major problem of India. According to an estimate, more than 20.6 million people were unemployed but the member of underemployed was 225 million by the end of 1980.

It is interesting to note that the severe underemployment is more prevalent among the large, middle and marginal farmers. While small farmers suffered from moderate underemployment. The reason for severely under

employment of these two categories of labour force is that they belong to the category of self-employment and are not available on wage employment. He reported that almost on fourth of the active labour force was fully employed but on the contrary 45.46% of the active labour force was severely under employed from the income criteria. The percentage of active labour force that was marginally and moderately under employed was 17.43% and 12.23% respectively. Almost more than four-fifth of the large of the farmers were fully employed but none in the category of landless and marginal farmers were fully employed. On the contrary, more than 75% of the first category of the households belonged to the category of severely under employed.

Singh (1985) stated that the tribal movements the Northeast stand in a category by themselves because of the reasons unique geo- political situations and historical background. This region was not completely integrated within the politico-economic system of colonialism. It remained relatively isolated from the cultural systems of the main land and the political of upheavals of the freedom struggle. Further, unlike middle India, the tribal in the Northeast is overwhelming majority and has never faced any threat to their identity of the kind that inspired the millenarian movements and forest in the Northeast. The entrancement of the traders turned moneylenders in these areas have also contributed to the process of the resource alienation. Considering the geo-political factor and the relative isolation from the political system and the cultural influences from the main land, the dominant from of the movement has been political seeking goals ranging from autonomy to independence and relaying on means ranging from constitution agitation to armed insurgency. Even cultural movements of the region were dimension of this political process only.

Soni (1986) conducted a survey in Chhattisgarh and found that the family member as farm workers were considered for their employment on crop production, tending of cattle's, other farm work, labour hired out and business or services. It was observed from the study that the total gainful employment for male member was 128.06 days per member per year as against the 73.50 days for female and 48.93 days for children worker in Chhattisgarh. On the basis of per hectare the males were gainfully employed 88.90 days, females

for 39.49 days and children's for 35.38 days. Whereas, total days employed in a year were 169.35 days in case of males 120.92 days in case of females and 66.86 days in case of children respectively in Chhattisgarh resulting into unemployment for rest of the year. Thus, on the basis of above analysis of farm economy of Chhattisgarh provided only on third of the annual days of employment, that is about 123 days and the remaining days of the year they remained without any job.

Dwivedi (1987) found that the social life of various tribal groups indicate that they are at different levels of living and economy. Each group has defined exposure and economic conditions. So, they suggest that the proper rehabilitation of tribal ousters has to give high priority to the development of community infrastructure and social services. These should include health, education, housing and communication.

Patel (1998) suggested in his study that land is the only valuable property with tribal because the house and other domestic articles are only self-made with own labour input and have big use value only but almost on exchange value or market value. Gradually the tribal farmers were marginalized become of their ruthless land transfers to other section of the society. They were shifting cultivators confined to certain given locality in deep forest slopes.

Gehlot (1990) showed in his study that on an average, a family worker gets employment in agricultural sector only for 176.59 and 124.07 days in case of male and female worker during a year and remained idle for rest of the period. Out of the total employment available in agricultural sector per worker, the crop production provided higher workdays followed by labour hired out.

As regards the level of earning of sample farmers, the average income from all the sources per family, per annum was to be Rs. 9765.48. Out of which 86.91 per cent was contributed by crop production.

Soni (2001) revealed that the agricultural sectors comprises of employment of labour days in crop production, uplift of animals and other agricultural works, collection of forest produce etc. The detail information of

per worker employment days in agricultural sector per annum were worked our that on an average a worker gets employment from agricultural sector only for 133.80 days during a year, out of which about half of the days i.e. 51.30 per cent were engaged in crop production followed by collection of forest products, animal husbandry and labour hired out i.e. 21.03 per cent, 19.86 per cent and 7.81 per cent, respectively.

Soni (2002) found out the patterns and extents of employment of tribal farmers in agricultural sectors. It is clear that average utilization of family human labour days in crop production per farm was 94.65, out of which male labour were highest i.e. 45.37 days, followed by female and children workers i.e. 40.0 and 9.28 days, respectively. The study also reveals that numbers of days were increased with the increase of size group.

Sharma *et al.* (2002) revealed that major occupation of tribal (92.0 %) was agriculture, collection of forest produce, animal husbandry, preparation of liquor and labour work. It is evident from the study that agriculture, in spite of being a major source of income has low input cost. So, low input cost is the main reason of low production. Therefore, along with improvement in the literacy rate, new agricultural technologies should disseminate through trainings.

Sah and Shah (2003) established that the incidence of poverty in southwestern tribal belt is alarmingly high. About three fifths of the households in this tribal belt categorized as chronic poor. A large part of chronic poverty is due to access failure to production resources: population pressure and shrinking size A- landholdings; recurring droughts and access failure to land-besed livelihood; lack of off- farm employment avenues and consumption loan from the moneylenders resulting in a debt-trap that pulls people into chroni poverty. Seasonal migration in this tribal belt is regarded as an essential coping mechanism especially in response to a shock, including crop failure, son's marriage serious sickness, etc.

Sah and Bhatt (2004) the macro finding have identified south-western tribal belt of Madhya Pradesh as one of the economically poorest regions in the country. Badwani district in the ration has been selected for in

depth study to understand why and how people in remote rural areas are trapped in chronic and one resource poor pati, are selected for the study. One village from each of the selected Janped Chilalkuan from pati and kirchali from Sendhwa, were selected based on the relative remoteness; kirchali is relatively less remote compared to chilal kuan. The paper based its evidences from both quantitative and qutitative methods. The qualitative data using case study method compare the two communities while the quantitative data was generated from 94 randomly selected how holds from kirchali and chilalkuon.

Mosse *et al.*, (2005) agriculture is the mean economics activity in hoth kirchali and prosper villages during normal years. But agriculture does not provide substance for the whole year for a sizeable number of how should during normal year. Poor quality of land, insufficient landholdings and low around the village this also forces some how should to work in cotton gins in sendhwa or migrate seasonally. In abnormal situations link about 92 % of the how should from prosper and about for 46 per cent how should from kircheli have reported sea sonal migration of some of their family members. The major reasons for larger migration from prosper in comparison to Kirchali are remoteness, its difficult and und ulating terrain, poor soil and indifferent agricultural productivity lack of employment opportunities and larger borrowings. Relative remoteness and prosper in terms of its physical distance on the seasonal migration of how should whereas in kirchali, which in relatively less remote, non-from employment opportunities in sendhwa are important economics support that provides cash to the how should for about 5-6 months after the (*Kharif*) harvest. In comparison to the adjoining tribal areas the southwestern belt does not seem to be much different n terms of extent of migration; about of tribal how should in Jhabua (Western Madhya Pradesh) Banswara (South Rajasthan) and Panchmahals (East Gujarat) had to for seasonal migration for their livelihood.

Mishra (2006) reported that there were considerable amount of farmers remain under employed in agricultural sector and that with the increase in the farm size the proportion of this surplus decreases. In many cases it becomes negative in study area.

MATERIAL AND METHODS

CHAPTER - III

MATERIAL AND METHODS

Research methodology has been designed to suit the main objective of the study. At first to meet the objectives of the study, the data needed were divided in various segments as general information and socio-economic condition of farm family, farm structure, resource use pattern, cropping pattern, economics of crops and allied activities and various factors influencing the position of the income and employment of farm family etc. Later on the data were arranged to show, why a particular farm situation provides more earning and employment to farmers and their family members in comparison to its counterparts in other farming situations. This section deals with the following sub heads:

1. Profile of the study area
2. Sampling technique
3. period of enquiry
4. Method of enquiry and collection of data
5. Analytical tools
6. Clarification of the concepts and definitions used

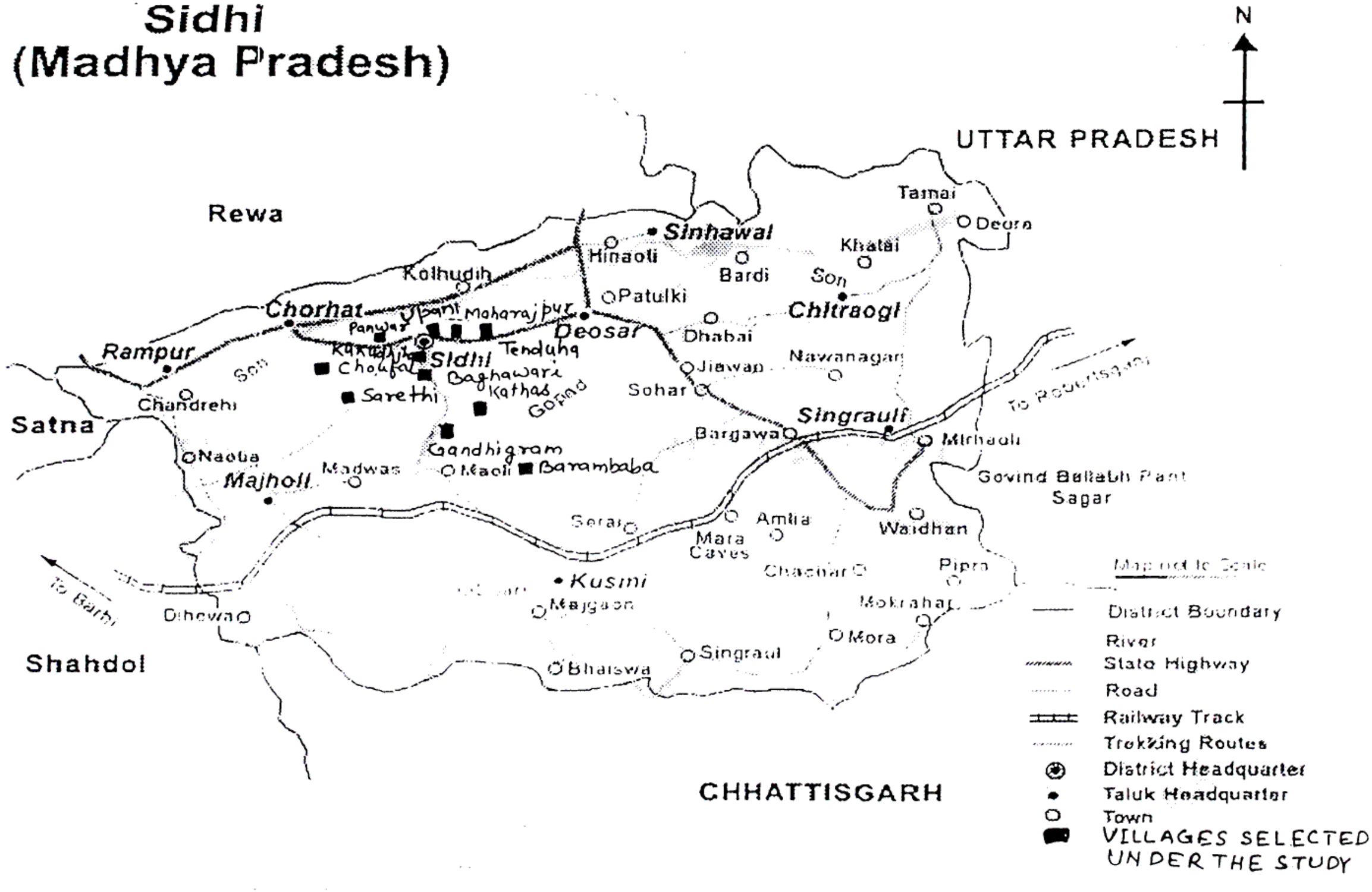
3.1 PROFILE OF THE STUDY AREA

This chapter aims to give brief information of agro economic and climate feature of the study area.

(i) Location

The study was carried out in Sidhi district of Madhya Pradesh. The district Sidhi spread over in area of 10526 sq. km. It was between longitudes $81^0 28'$ and $82^0 49'$ East of latitudes $23^0 42'$ North in the north-east corner of Rewa division. The district is bounded on the north-east and east by Mirzapur district of Uttar Pradesh, on the south by Surguja district of Chhattisgarh State, on the west by Shahdol district and on the north-west by Satna district of Madhya Pradesh.

Sidhi
(Madhya Pradesh)



(ii) Land use pattern

The data presented in Table 3.1 indicate the land utilization pattern of the Sidhi district and the blocks of Kushmi and Dewsar.

Table 3.1: Land use pattern of district Sidhi and blocks of Kushmi and Dewsar (2006-2007)

(Area in ha)

S.No.	Particular	Sidhi District	Kushmi block	Dewsar block
1.	Geographical area	1039194	145009	184559
2.	Forest Area	433553	108897	77097
3.	Land not available for agriculture	98335	5461	18576
4.	Other non-agricultural land excluding fallow land	65957	6878	12882
5.	Cultivable land	15705	2178	3085
6.	Fallow land	112344	47410	16272
7.	Net sown area	275391	14935	46891
8.	Double cropped area	104334	3675	15412
9.	Gross cropped area	379725	18610	62303

Figure in parenthesis shows the percentage to geographical area

(iii) Cropping pattern

The cropping pattern refers to the area under different crops in the year 2006-07 (Table 3.2).

(iv) Irrigation

Irrigation facilities available in Sidhi district are not very satisfactory since the net area irrigated to the net area sown is quite less which is 13.01 per cent only. In Sidhi (Kusmi & Dewsar) block has considerable net irrigated area

(12 & 10) per cent.

Table 3.2: Cropping pattern Sidhi district and Kushmi and Dewsar block (2006-07)

(Area in ha)

S.No.	Crops	Sidhi District	Kushmi block	Dewsar block
Kharif				
1.	Paddy	99903	7001	15161
2.	Maize	29593	1289	7461
3.	Jowar	11699	205	671
4.	Tur	24782	1098	4287
5.	Urid	8069	243	1406
6.	Til	35129	1676	6436
	Total	209175	11512	35422
Rabi				
8.	Wheat	71693	2600	8770
9.	Chickpea	809	94	24
10.	Linseed	10542	318	2040
11.	Mustard & Rape seed	6744	358	933
	Total	**89788**	**3370**	**11767**

Figure in parenthesis is shows the percentage of area under *kharif* and *rabi* season.

Table 3.3: Irrigation facilities in district and block (2006-07)

(Area in ha)

S. No.	Source wise Irrigated area	District Sidhi	Kushmi block	Dewsar block
1.	Canals	160	30	17
2.	Tube well	1629	4	19
3.	Well	11541	2700	1214
4.	Pound	76	3	4
5.	Other sources	10516	464	1831
6.	Net irrigated area	63431	2603	3219
7.	Grass irrigated area	63431	3603	7099
8.	Per cent of grass irrigated area	13.01	12	10

Sources : D.D.A. Office Sidhi (M.P.)
Block office, Sidhi ((Kusmi & Dewsar)) (M.P.)

The above Table 3.3 shows that the irrigated facilities in (Kusmi & Dewsar) block are maximum i.e. by tube well, well and canal, respectively. The total area net irrigated of the (Kusmi & Dewsar) block is similar i.e. 2603

& 3219 ha, which is more in per cent when we compare it with the percentage of Sidhi district. As it is clear from the table i.e. 13.01 per cent in the district and (12 & 10) per cent in the block which is our study area.

Table 3.4: Sidhi district at a glance 2006-2007

S.No.	Particulars	District Sidhi	Kushmi block	Dewsar block
1.	Total Geographical area (sq.km.)	10526	1334	1822
2.	Area under *Rabi* crops (ha)	434621	19170	66067
3.	Area under *Kharif* crops (ha)	380717	18610	62303
4.	Total Area under pulses (ha)	39552	1468	5958
5.	Total area under cereals (ha)	266979	13286	38153
6.	Total area under oilseed (ha)	52729	2373	9455
7.	Net sown area (ha)	379725	18610	62303
8.	Gross sown area (ha)	275391	14935	46891
9	Forest land (ha)	433553	108897	77097

It is shown in the above Table 3.4 that maximum area cover under the Rabi crops in the Sidhi district (434621 ha) as compare to the kharif area of the district (380717 ha). As the objectively the study the (Kusmi & Dewsar) block is selected purposely as it also covers the maximum cultivated area under *rabi* crop i.e. (19170 & 66067 ha) as compared is the *kharif* cultivated area i.e. (18610 & 62303 ha) in the selected block. To fulfill the objective of the study the geographical area of the (Kusmi & Dewsar) block have a positive response in the Sidhi district.

(v) Climate of rainfall

The district Sidhi has moderate climate. The maximum temperature was recorded to be 43^0C in summer and minimum 6^0C in winter. The rainy season extents from mid-June to mid-September in the district. On an average, Sidhi district receives 1234 mm rainfall from South-West monsoon. Maximum rainfall is recorded in the months of July and August.

(vi) Soils

Red loamy, black and sandy loamy soil is generally found in the district. These soils are quite suitable for growing wheat, gram, paddy, maize, arhar, urid, mung and jowar etc.

(vii) Agricultural area

The district Sidhi covers a net sown area of 370.8 thousand hectares and 133.9 thousand hectares under double cropped sown area for agriculture. The block cover 35981 ha as net area sown and 14680 ha under double cropped sown area for agriculture.

(viii) Industries

There are two industries in the district viz. Dalda factory Churhat and Kattha Factory Sidhi and two small-scale industries viz. Fruit and vegetable processing industry and cement industry din Baghwar village.

(ix) Population and Education

According to 1991 Census the population of this district was 13,73,434 with schedule tribes 4,18,004 and schedule castes 1,56,157 and general 7,99,273. The literacy percentage is 52.82 per cent out of the total population of the district. The male literacy 68.03 per cent, female 36.43 per cent and rural literacy is 26.54 per cent whereas, urban literacy is 66.43 per cent. The population of Sidhi block is 1,77,749 with schedule tribes 78,797, schedule caste 2,43,170 and general 74,582. The total literacy is 62.54 per cent, male literacy 74.88 and female literacy is 30.72 per cent.

3.2 SAMPLING TECHNIQUE

The design of the study was three stages stratified random sampling. The block as first stage unit, villages as the second stage unit and the farmers as the last or ultimate unit were the three random sampling units at the different stages.

(i) Selection of blocks

A list of all the eight blocks viz. Sidhi, Rampur Naikin, Sihawal, Chitrangi, Dewsar, Majholi, Kushmi and Baidhan of the district were prepared, out of these blocks in Sidhi district, two tribal blocks Kushmi and Dewsar having of maximum number of tribal farmers were selected purposively for the study.

(ii) Selection of the villages

For the selection of villages, two lists of villages for the respective selected blocks were prepared with their respective tribal population. One village from each list of villages for the selected blocks was randomly selected namely Bhakpar (Dewsar block) and Chitrauli (Kushmi block).

(iii) Selection of the respondents

From each of the selected villages, a list of all the tribal farmers was prepared in ascending order to the size of their holdings. The farmers were then categorized into three different sizes, viz. small (<2 ha), medium (2 to 4 ha) and large (>4 ha) farms and a sample of 60 respondents (selected farmers) was selected from these three categories using simple random method with proportion allocation. The allocation of sample size from each category is shown in Table 3.5.

Table 3.5: Selection of respondents from small, medium and large farm size.

S.No.	Farm size	Total farmers	Selected farmers
1.	Small (<2 ha)	158	31
2.	Medium (2 to 4 ha)	102	20
3.	Large (>4 ha)	44	9
	Total	**304**	**60**

3.3 PERIOD OF ENQUIRY

The study was conducted during the 2006-07 agricultural year.

3.4 METHOD OF ENQUIRY AND COLLECTION OF DATA

Both primary and secondary data were collected for this study. Survey method was used to collect the needed information. Primary data were collected from sample farmers directly through personal interview using the pre tested schedules. Secondary data were compiled from the secondary sources i.e official records, district handbook and other.

3.5 STATISTICAL TOOLS

Collected data were edited and checked for their adequacy and accuracy. Keeping in view the objectives of the study, the data were classified and tabulated. The classified and tabulated data were further processed in terms of average and percentage to arrive at conclusive figures for interpretation of data.

3.6 CLARIFICATION OF THE CONCEPTS AND DEFINITIONS USED

(i) Structure of farm family

Farm family is one unit, which includes the total number of members to cultivate the given operational area. They may be male, female and children.

(ii) Land holding

A land holding considered the total area owned and operated under a respondent.

(iii) Structure of working force

All the persons of not less than 14 years of age who have already on occupation or seek employment are considered as working force in a family.

(iv) Man hours days

Unit of work equivalent to eight hours works by a worker define according to work force.

(v) Concept of cost

A number of fixed and variable items (i.e. labour charges and material costs) were included into the total cost of cultivation of a crop. There are many views on the question of inclusion of certain items in the cost of production, but in present study for the convenient of comparative study of farm business in different farm situations, overhead charges and variable costs were included in cost item.

(vi) Gross income/output

It includes the value of main and by products. This is evaluated at the harvest prices in the villages.

(vii) Net income

This is the difference between the value of gross income and total cost of cultivation.

(viii) Family labour income

It is the imputed wages for the labour of farmer and his family members.

(ix) Farm business income

This is the measure of earnings of the farmer and his family for management, risk, and their labour and capital investment.

(x) Employment

Employment is a state of being engaged in productive activities, continuous engagement in such activities with sufficient amount of labour services with adequate rewards and incentives obtaining from it.

(xi) Agricultural employment

Apart from growing main agricultural crops, there are productive or gainfully activities such as tending of cattle, other farm work excluding crop production, labour exchange, labour hired out and other gainful works were connected to estimate the labour time spent in a year.

(xii) Level of income of household

The concept of income used in the study is that the value of goods and services received in a particular time (i.e. per annum) period when expressed in term of money is called as the income of household or farm family.

RESULTS

CHAPTER - IV

RESULTS

The data collected for the study has been analyzed and interpreted as the result of the study in this chapter. The analysis has been done in the light of the stated objectives, which are mainly with regard to farm structure and economic situation, cost incurred in farm business and returns their off and investigation of employment pattern with assessment of the present earning from agricultural sector of tribal farmers in district Sidhi, Madhya Pradesh.

Structure of farm family

Structure of farm family consist of size of family and their characteristic like age of respondents, literacy position, working force etc. It is felt need to have a brief information about the sampled respondent and their family.

Size of farm family

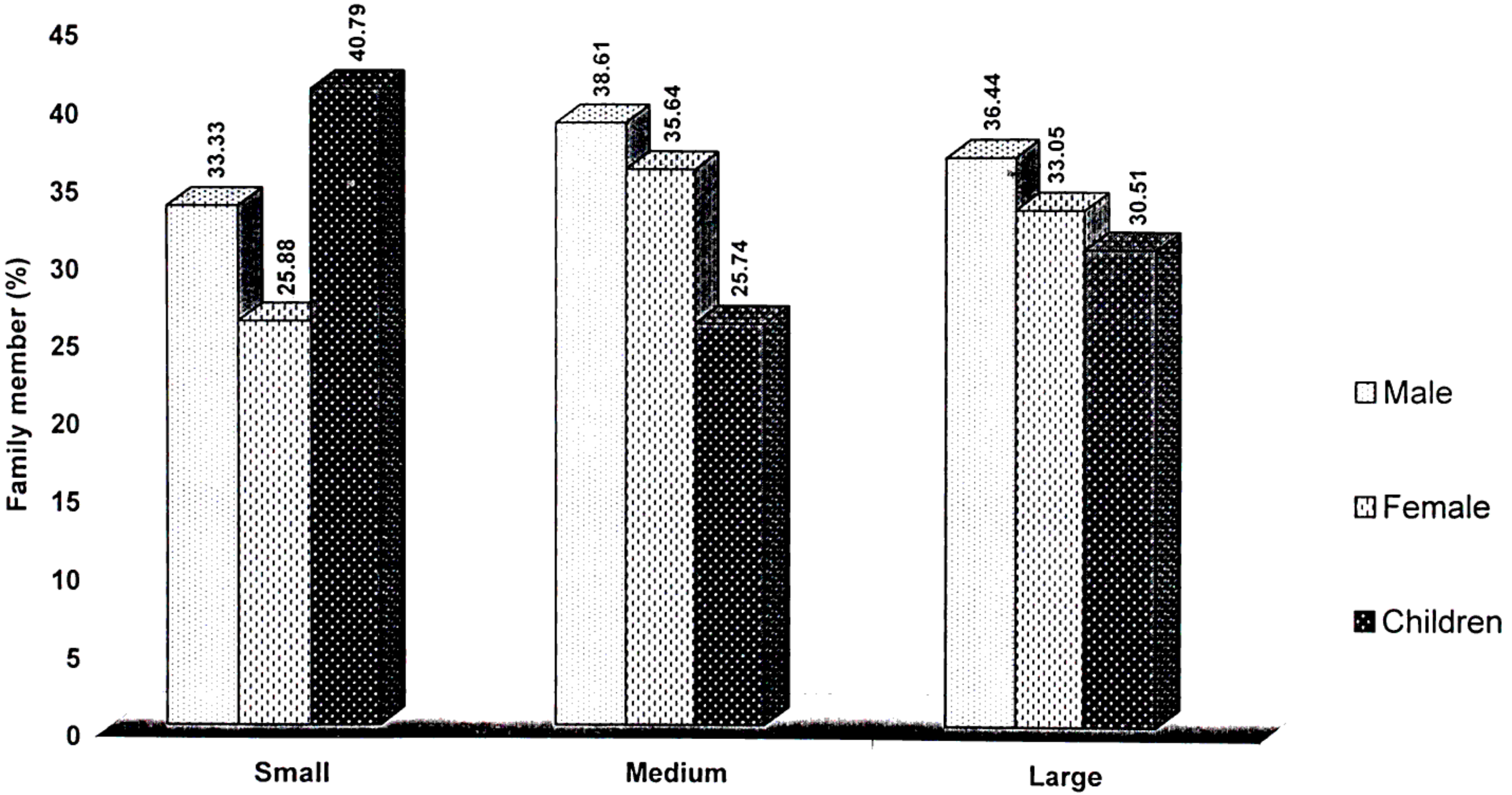
Farm family is one unit which includes the total includes number of members to cultivate the given operational areas. Table 4.1 shows that the average size of family per holding was 5.17 persons which indicates 4.56, 5.05

Table 4.1: Structure of farm family in relation to male, female and children of sample farmers

Size group	Number of family members			
	Male	Female	Children	Total
Small	1.52 (33.33)	1.18 (25.88)	1.86 (40.79)	**4.56**
Medium	1.95 (38.61)	1.80 (35.64)	1.30 (25.74)	**5.05**
Large	2.15 (36.44)	1.95 (33.05)	1.80 (30.51)	**5.90**
Average	**1.87 (36.17)**	**1.64 (31.72)**	**1.65 (31.91)**	**5.17**

Note: Figures in parenthesis show percentage to total sample in each size group.

Fig 4.1: Structure of farm family in relation to male, female and children of sample farmers according to their size group



and 5.90 persons in small, medium and large size group, respectively. The table also shows that the percentage of the male members on an average was higher in different size group of farms, as compared to the female and children respectively. The structure of size of farm family is shown in Fig 4.1.

Distribution of respondents in different age

The age factors play an important role to afford with long hours and hard work in one way and decision – making capacity is also affected with the age of persons in another side. The table 4.1 reveals that the average age of

Educational status of the respondents

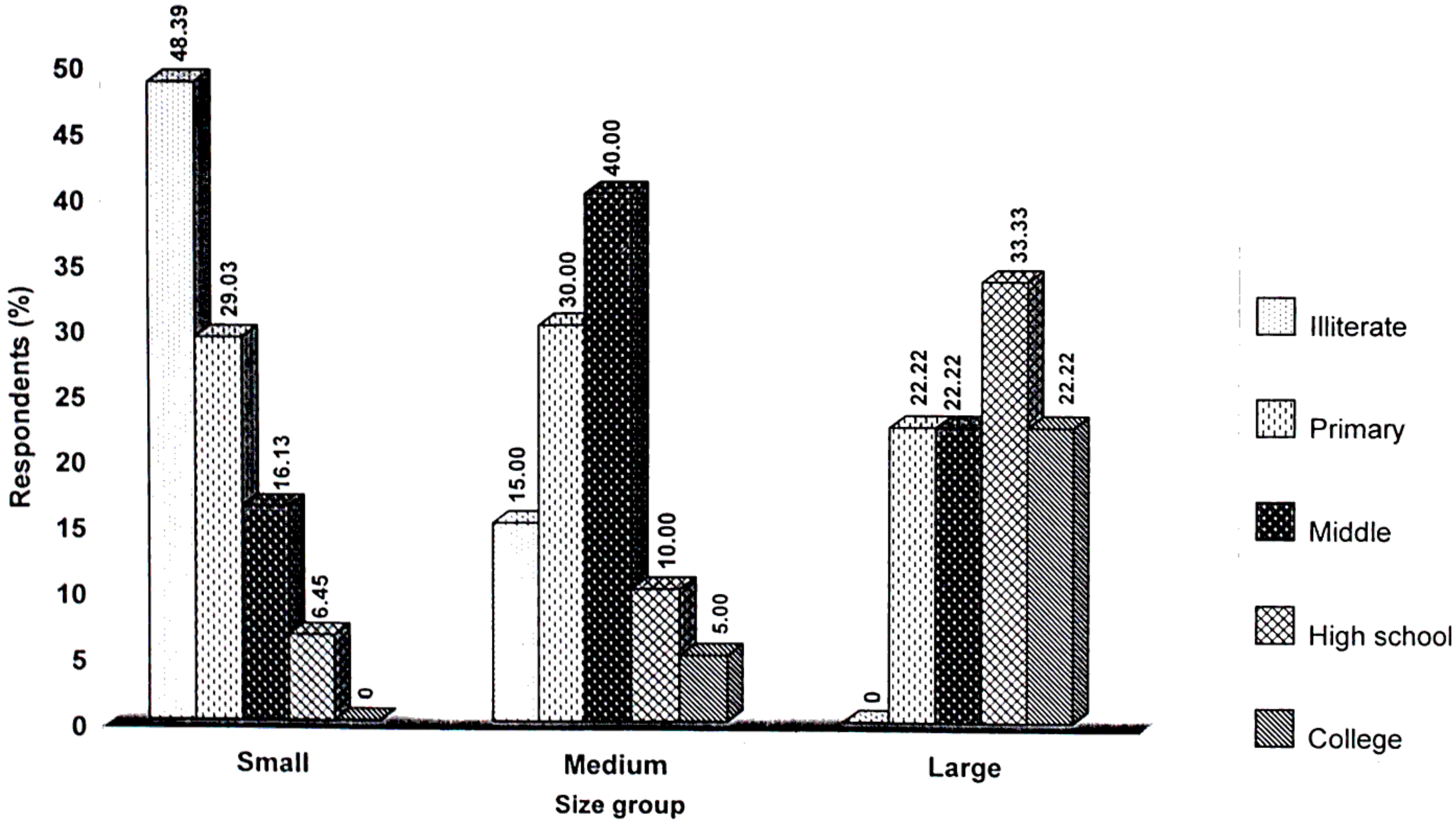
Literacy has come to occupy a status symbol among the tribal farmers in the area. The total number of respondents by farm size groups is presented in Table 4.2 (Fig 4.2). It shows a high level (30.00%) of literate respondents obtained in the overall sample. It is interesting to find that the size of holding has positive relationship with the literacy level.

Table 4.2 Educational status of respondents according to size group of sample farmers

Size group	Distribution of respondents according to their education					Total
	Illiterate	Primary	Middle	High school	College	
Small	15 (48.39)	9 (29.03)	5 (16.13)	2 (6.45)	0 (00.00)	**31**
Medium	3 (15.00)	6 (30.00)	8 (40.00)	2 (10.00)	1 (5.00)	**20**
Large	0 (0.00)	2 (22.22)	2 (22.22)	3 (33.33)	2 (22.22)	**9**
Total	**18 (30.00)**	**17 (28.33)**	**15 (25.00)**	**7 (11.67)**	**3 (5.00)**	**60**

Note: Figures in parenthesis show percentage to total sample in each size group.

Fig 4.2: Educational status of respondents according to size group of sample farmers



Structure of working and non-working population

The distribution of population as per definition of work force is presented in Table 4.3. The proportions of total population in all the size groups belong to working persons were found to be higher. The overall worker and non-worker percentage was 69 and 31, respectively. The highest proportion of worker class (75%) was obtained in large size group followed by small (67%) and medium (63%) size group, respectively. From the table, it is revealed that a larger proportion of male worker than the female and children was observed during the study. The education status of respondents according to size of sample farmers is depicted in Fig 4.3.

Investment in fixed capital

Investment in fixed capital included the cost of permanent nature of goods like land (owned), farm building (cattle shed, godown, machinery shed etc.), animals and implements and machinery etc. These types of investment on different size group of farmers have been presented in Table 4.4 (Fig 4.4). The table reveals that the total average investment in fixed capital for entire sample came to Rs. 4,52,166.67 per farm family. The average investment in fixed capital per farm-family on land was worked out Rs. 92,000, Rs. 3,60,000 and Rs. 7,00,000 for small, medium and large size group respectively. Amongst, different items of investment, land accounted for the highest percentage being 84.92, followed by cattle and milk animal (6.16%), implements and machinery (4.05%), irrigation structure (3.28%) and farm building (1.17%), respectively. It is very interesting to note from analysis of the data that the maximum proportion of fixed capital is shared by the value of the land. While owner cultivator does not normally count the value of land as a part of fixed investment. On excluding the value of land in fixed investment, the over all average Investment per farm family remains very less for development of traditional farming system to improved technological farm.

Total 4.3: Structure of working and non-working population of sample farmers

Size group	Per house hold worker				Dependent members per family				Percentage to total	
	Male	Female	Children	Total	Male	Female	Children	Total	Worker	Non worker
Small	1.24 (40.52)	1.02 (33.33)	0.80 (26.14)	**3.06**	0.28 (18.67)	0.16 (10.67)	1.06 (70.67)	**1.50**	67	33
Medium	1.50 (46.88)	1.20 (37.50)	0.50 (15.63)	**3.20**	0.45 (24.32)	0.60 (32.43)	0.80 (43.24)	**1.85**	63	37
Large	1.60 (35.96)	1.65 (37.08)	1.20 (26.97)	**4.45**	0.55 (37.93)	0.30 (20.69)	0.60 (41.38)	**1.45**	75	25
Average	**1.45 (40.62)**	**1.29 (36.13)**	**0.83 (23.25)**	**3.57**	**0.43 (26.88)**	**0.35 (21.88)**	**0.82 (51.25)**	**1.60**	**69**	**31**

Note: Figures in parenthesis show percentage to their respective total.

Fig 4.3: Percentage of working and non-working population of sample farmers' family

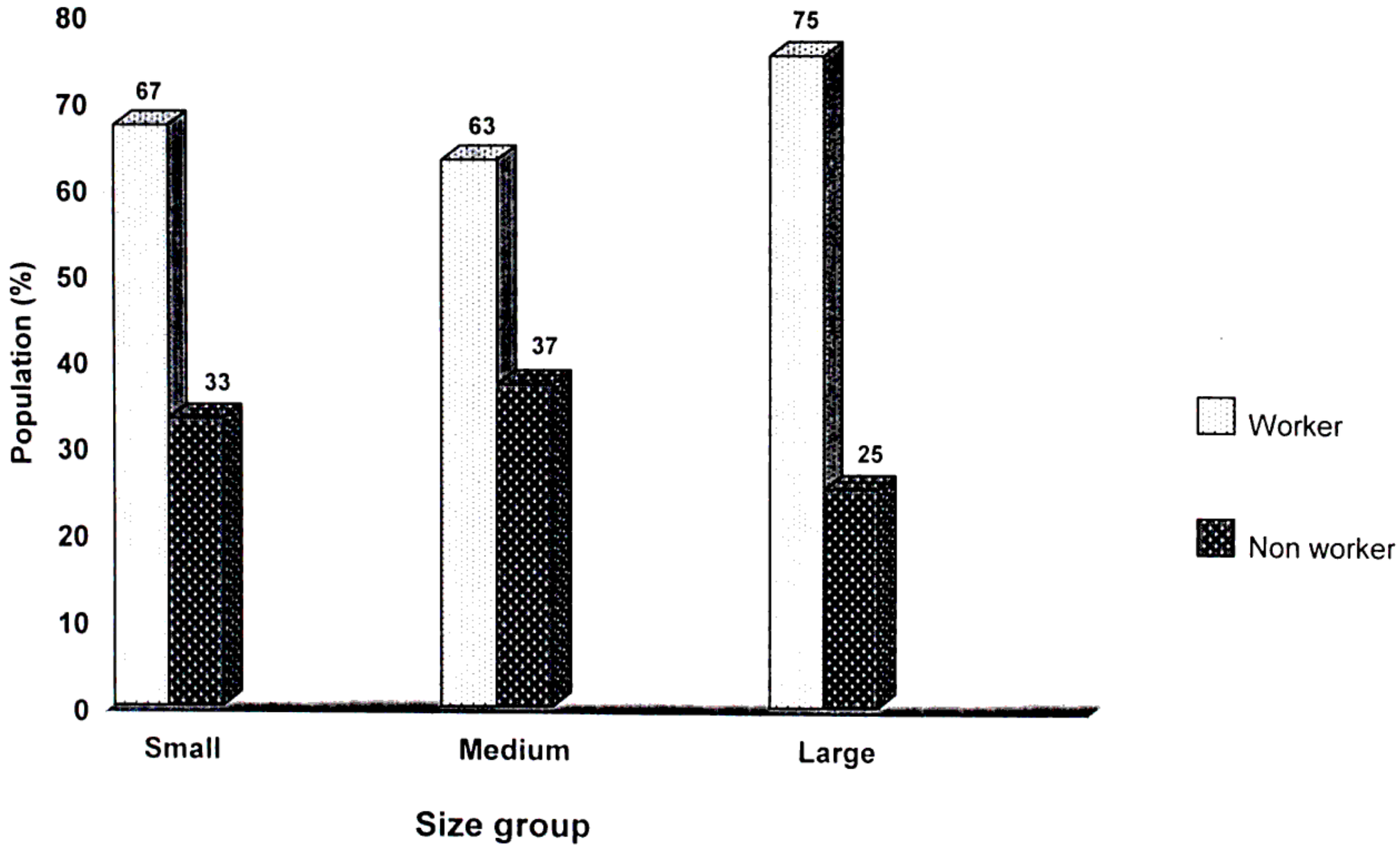


Table 4.4: Investment pattern (fixed capital) on the sample farmers

S. No.	Particular	Size group			
		Small	Medium	Large	Average
1	Land	92000	360000	700000	384000.00 (84.92)
2	Farm building	-	3815	12015	5276.67 (1.17)
3	Cattle	3600	6000	11000	6866.67 (1.52)
4	Milch animals	15000	18000	30000	21000.00 (4.64)
5	Irrigation structure	2400	12000	30150	14850.00 (3.28)
6	Implement and machinery	4500	15250	35130	18293.33 (4.05)
7	Miscellaneous	1000	1835	2805	1880.00 (0.42)
Total investment		**118500**	**416900**	**821100**	**452166.67 (100.00)**

Note: Figures in parenthesis show the percentage to total.

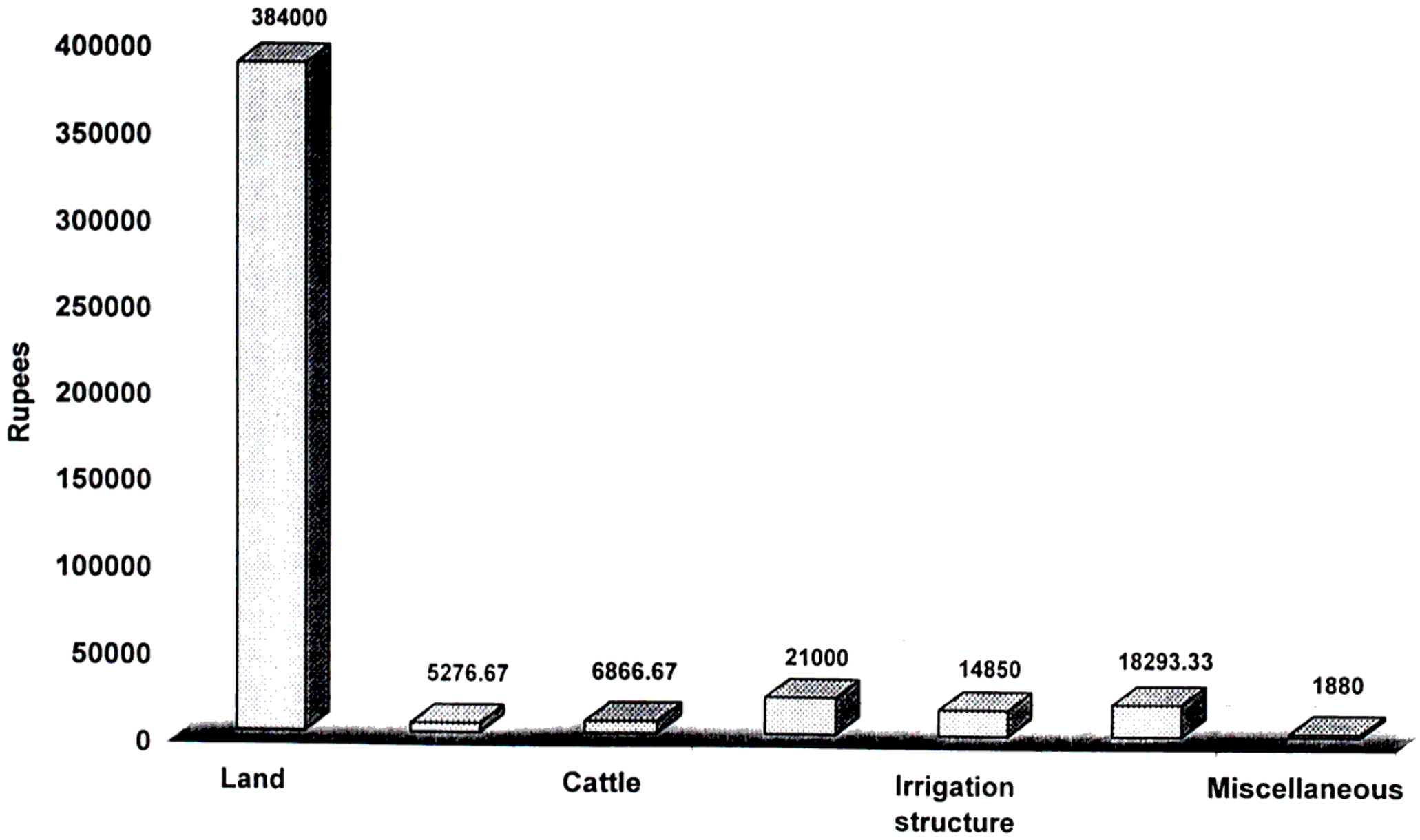
Farm structure land use pattern of sample farmers

This section of study deals with the economic structure of the sample farm per farm-family. It includes the detailed analysis of investment on fixed capital, average size of holding, operational area, irrigated area and cropping pattern etc. on per farm-family.

Size of holding

The distributions of group wise average size of holding have been presented in Table 4.5 (Fig 4.5). The average size of holdings of sample farmers came to 4.79 hectares. It was 1.62 ha in small size group followed by 3.58 ha and 9.16 ha in medium and large size groups, respectively. The area of holdings includes both the cultivated and uncultivated lands, which were put to different uses. Although, the operational area, which was the major part

Fig 4.4: Average investment pattern (fixed capital) of the sample farmers



of cultivated area, devoted to under main field crops. A careful look into the average operational area (area under main field crops) per farm family with small, medium and large farmers were very small which were estimated by 1.080, 2.146 and 5.322 hectares, respectively with an average of 2.849 ha cultivated area over sample farms.

Table 4.5: Farm structure land use pattern of sample farmers

Size group	Average size of holding*	Cultivated area	Un-cultivated area	Total operated area under main crops	Irrigation Area**
Small	1.62	1.48 (91.36)	0.14 (8.64)	1.080	0.84 (56.76)
Medium	3.58	3.49 (97.49)	0.09 (2.51)	2.146	1.71 (49.00)
Large	9.16	8.12 (88.65)	1.04 (11.35)	5.322	3.22 (39.66)
Average	**4.79**	**4.36 (91.02)**	**0.42 (8.77)**	**2.84**	**1.92 (44.04)**

Note: * Figures in parenthesis show the percentage to their respective total.
** In irrigation, percentage to cultivated area.

Position of irrigation per farm-family

The Table 4.5 reveals that there was 44.04 per cent of the total cultivated area under irrigation. The percentage of irrigated area to total cultivated area ranging from 39.66 per cent by the cultivators of large size group, followed by medium (49.00%) and small size group (56.76%), respectively.

Cropping pattern of sample farm – family

The area under the different crops grown in the sample farms of different size groups is given in Table 4.6 (Figs 4.6a & 4.6b). The table shows that mono cropping is almost common practice in the area due to lack of irrigation facilities and *kharif* was the pre dominant cropping season. It has been observed during the study that the farmers do not have sufficient rainfall for *kharif* crops in *kharif* season also. Irrigation is must for sowing and growth of *Rabi* crops. So far on the availability of low irrigation capacity with the farmers, they don't prefer to cultivate *Rabi* crops in larger area.

Fig 4.5: Percentage of cultivated and irrigated area of corresponding size holding

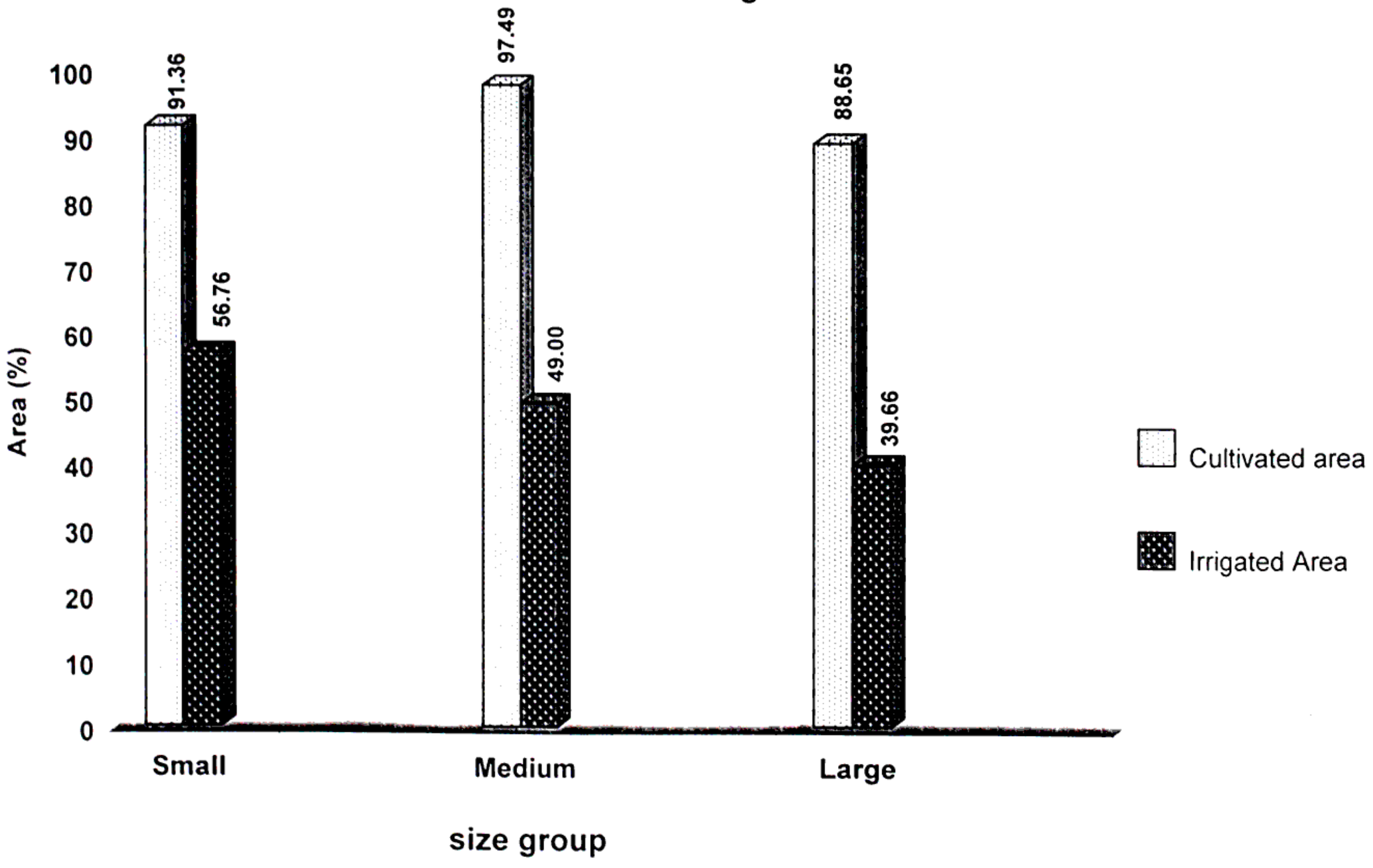


Table 4.6: Cropping pattern of sample farmers

(ha per farm)

Size group	Kharif crops							Rabi crops						Gross cropped area
	Net area sown	Fallow land	Paddy	Maize	Til	Tur	Other	Net area sown	Fallow land	Wheat	Linseed	Mustard	other	
Small	1.080	0.40	0.508 (47.03)	0.194 (17.96)	0.203 (18.80)	0.149 (13.80)	0.026 (2.41)	0.623	0.857	0.353 (56.66)	0121 (19.42)	0.092 (14.77)	0.057 (9.15)	1.703
Medium	2.146	1.344	1.033 (48.13)	0.354 (16.50)	0.385 (17.94)	0.242 (11.28)	0.132 (6.15)	1.186	2.304	0.720 (60.71)	0.224 (18.89)	0.160 (13.49)	0.082 (6.91)	3.332
Large	5.322	2.798	2.619 (49.21)	0.873 (16.40)	0.972 (18.26)	0.496 (9.32)	0.362 (6.80)	2.328	5.792	1.550 (66.58)	0.330 (14.18)	0.237 (10.18)	0.211 (9.06)	7.650
Average	2.849	1.514	1.387 (48.68)	0.474 (16.64)	0.520 (18.25)	0.296 (10.39)	0.173 (6.07)	1.379	2.984	0.874 (63.38)	0.225 (16.32)	0.163 (11.82)	0.117 (8.48)	4.228

Note: Figure in parenthesis shows the percentage to their respective total

Fig 4.6a: Cropping pattern (kharif) of net area sown of sample farmers

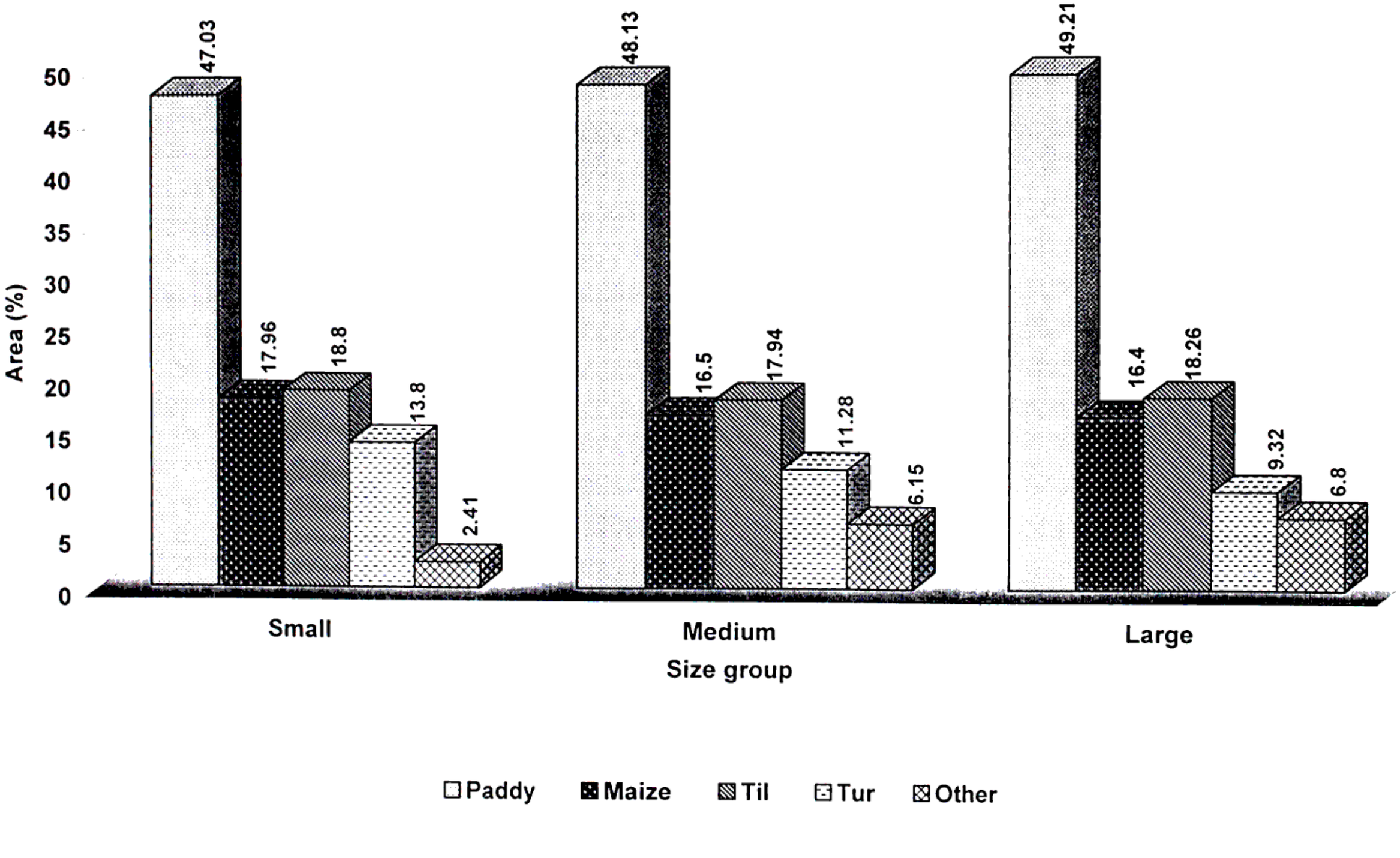
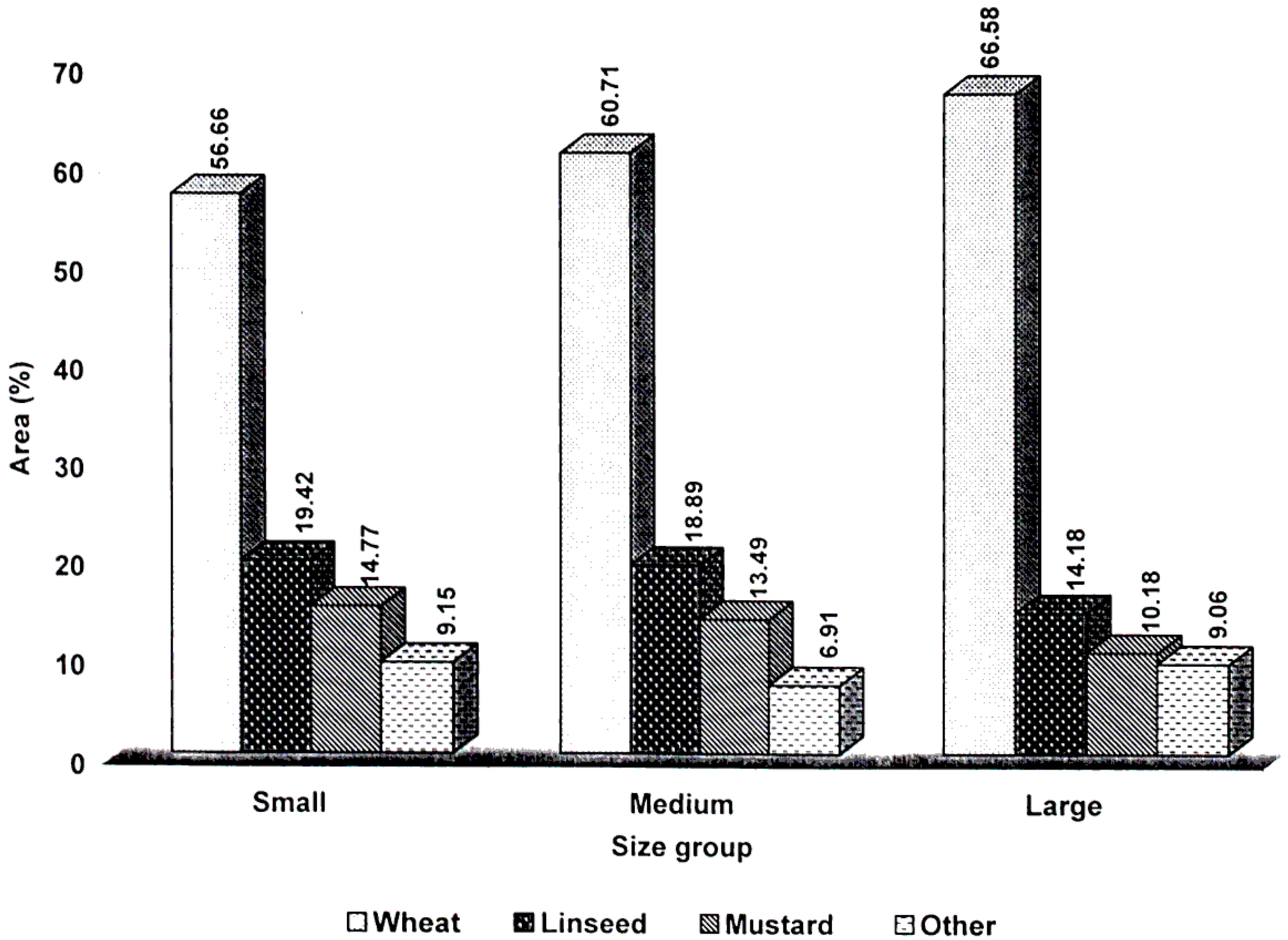


Fig 4.6b: Cropping pattern (rabi) of net area sown of sample farmers



The important *kharif* crops grown in study area were paddy (48.68% of *kharif* cropped area), followed by til (18.25%), maize (16.64%) and tur (10.39%) of *kharif* area, respectively. *Rabi* cereal crop (wheat), linseed and mustard-rapeseed were common Rabi growing crops in the area. The study revealed that average area under *kharif* crops was 2.849 ha, followed by Rabi crop area i.e. 1.379 ha. Overall the table is not showing any specific trend in relation to different crops and average of different size groups, how ever, in relation to paddy and wheat crops percentage area increased with the increase in size groups.

Economic analysis of farm enterprises

Crop and milk production were the main farm enterprise of the sample farm families. As per the objective of farm business the present study deals with economic analysis of both crop and milk production analysis separately on the sample farms of different size groups.

Crop production

The main crops grown by sample farm family were paddy, maize, til and tur in *kharif* season and wheat, linseed and mustard-rapeseed in Rabi season, respectively. The economics of production of these crops has been worked out and presented in different tables as below.

Paddy production

The area under improved paddy production has expanded during last two decades, in response to continuously growing demand of paddy, their prices and most suiting crop in the agro climatic condition of Baghelkhand region.

Cost of input factor

The cost of cultivation and the breakup of input cost per farm-family in different size group have been worked out in Table 4.7. The table indicates that the cost of cultivation increase with the increase of size group. This is simple reason that higher cost came with the increasing size group of farm was associated with the higher expenditure incurred on labour, material and overhead charges, respectively.

Table 4.7: Economic analysis of farm enterprises (Crop Paddy)

(Per farm)

Economic factor	Size group of farm			
	Small	Medium	Large	Average
Family human labour employment (Days)	40 (78.74)*	35 (33.88)	30 (11.45)	35 (41.36)
Hired human labour employment (Days)	0 (0.00)	46 (44.53)	176 (67.20)	74 (37.24)
Labour cost	2000 (39.37.01)	4050 (3920.62)	10300 (3932.80)	5450 (3930.14)
Material cost	1620 (3188.01)	3290 (3184.90)	8348 (3187.48)	4419.33 (3187.12
Overhead cost	400 (787.40)	612 (592.45)	1540 (588.01)	850.67 (655.95)
Total cost of cultivation	4020 (7913.39)	7952 (7697.97)	20188 (7708.97)	10720 (7773.21)
Gross income	7038 (13854.33)	13313 (12887.71)	32056 (12239.79)	17469 (12993.94)
Net income	3018 (5940.94)	5361 (5189.74)	11868 (4531.50)	6749 (5220.73)
Family labour income	2000 (3937.01)	1750 (1694.09)	1500 (572.74)	1750 (2067.95)
Farm business income	5018 (9877.95)	7011 (6787.03)	13368 (5104.24)	8465.67 (7256.41)

* Figures in parenthesis indicate per hectare value.

Measurement of farm profit

The average value of net income, family labour income and farm business income for paddy production per farm came to Rs. 6749 (Rs. 5221/ha), Rs. 1750 (Rs. 2068/ha) and Rs. 8465.67 (Rs. 7256/ha), respectively. The study also shows that from paddy production the value of net income per farm came to Rs. 3018 (Rs. 5941/ha), Rs. 5361 (Rs. 5190/ha) and Rs. 11868 (Rs. 4532/ha) in the case of small, medium and large size group, respectively. While, farm business income per farm was received to Rs. 5018 (Rs. 9878/ha), Rs. 7011 (Rs. 6787/ha) and Rs. 13368 (Rs. 5104/ha), respectively in the different size groups.

Til production

The agro climatic condition of Sidhi district is most suitable for til crop. Therefore, this crop is observed second in rank after paddy crop in the *kharif* season. The economics of production of this crop has been worked out and presented in Table 4.8.

Cost of input factor

The cost of cultivation and the break-up of input cost per farm-family in different size group have been worked out in Table 4.6. The table indicates that the cost of cultivation increase with the increase of size group. The average cost of cultivation per farm of overall size groups was observed Rs. 2689.33 (Rs. 5362/ha). Hired human labour were utilized by medium and large size group farms. This type of labour was used by large size group farms in large scale.

Measurement of farm profit

The average value of net income, family labour income and farm business income for paddy production per farm came to Rs. 3421.67 (Rs. 6390/ha), Rs. 480.00 (Rs. 1264/ha) and Rs. 3901.67 (Rs. 7655/ha), respectively. The study also shows that from paddy production the value of net income per farms came to Rs. 1236 (Rs. 6089/ha), Rs. 2418 (Rs. 6281/ha) and Rs. 6611 Rs. 6801/ha) in the case of small, medium and large size group, respectively. While, farm business income per farm was received to Rs. 1636 (8059/ha), Rs. 2898 (Rs. 7527/ha) and Rs. 7171 (Rs. 7378/ha), respectively in the different size groups.

Maize and tur production

The agro climatic condition of the region is most suitable for maize and tur crop. Hence, being most important among the *kharif* crop, tur and maize were widly-cultivated crop in the region after paddy and til.

Cost of input factors

The break-up of input cost per farm for maize and tur crops on the farms of different sizes are given in Tables 4.9 and 4.10, respectively. The Table 4.9 shows that in cost factor, only medium and large farmers used the hired labours in their farms. Small size group has used only family labours.

Table 4.8: Economic analysis of farm enterprises (Crop – Til)

(Per farm)

Particulars	Size group of farm			
	Small	Medium	Large	Average
Family human labour employment (Days)	10 (49.26)*	12 (31.17)	14 (14.40)	12 (31.61)
Hired human labour employment (Days)	0 (0.00)	6 (15.58)	26 (26.75)	10.67 (14.11)
Labour cost	500 (2463.05)	900 (2337.66)	2000 (2057.61)	1133.33 (2286.11)
Material cost	350 (1724.14)	664 (1724.68)	1676 (1724.28)	896.67 (1724.36)
Overhead cost	300 (1477.83)	542 (1407.79)	1136 (1168.72)	659.33 (1351.45)
Total cost of cultivation	1150 (5665.02)	2106 (5470.13)	4812 (4950.62)	2689.33 (5361.92)
Gross income	2386 (11753.69)	4524 (11750.65)	11423 (11752.06)	6111 (11752.13)
Net income	1236 (6088.67)	2418 (6280.52)	6611 (6801.44)	3421.67 (6390.21)
Family labour income	400 (1970.44)	480 (1246.75)	560 (576.13)	480 (1264.44)
Farm business income	1636 (8059.11)	2898 (7527.27)	7171 (7377.57)	3901.67 (7654.65)

* Figures in parenthesis indicate per hectare value.

Measurement of farm profits

The table revealed that on an average, the value of net income, family labour income and farm business income per farm came to Rs. 9534 (Rs. 19057/ha), Rs.1386.67 (Rs. 4257/ha) and Rs.10920.67 (Rs. 23314/ha) for maize cultivation and Rs. 2967 (Rs. 9987/ha), Rs. 280 (Rs. 1263/ha) and Rs. 3247 (Rs. 11250/ha) for tur cultivation on per farm basis, respectively.

Table 4.9: Economic analysis of farm enterprises (Crop – Maize)

(Per farm)

Particulars	Size group of farm			
	Small	Medium	Large	Average
Family human labour employment (Days)	34 (175.26)*	38 (107.34)	32 (36.66)	34.66 (106.42)
Hired human labour employment (Days)	0 (0.00)	18 (50.85)	30 (34.36)	16 (28.40)
Labour cost	1700 (8762.89)	2800 (7909.60)	3100 (3550.97)	2533.33 (6741.15)
Material cost	680 (3505.15)	1241 (3505.65)	3060 (3505.15)	1660.33 (3505.32)
Overhead cost	512 (2639.18)	934 (2638.42)	3304 (3784.65)	1583.33 (3020.75)
Total cost of cultivation	2892 (14907.22)	4975 (14053.67)	9464 (10840.78)	5777 (13267.22)
Gross income	6271 (32324.74)	11443 (32324.86)	28219 (32324.17)	15311 (32324.59)
Net income	3379 (17417.53)	6468 (18271.19)	18755 (21483.39)	9534 (19057.37)
Family labour income	1360 (7010.31)	1520 (4293.79)	1280 (1466.21)	1386.67 (4256.77)
Farm business income	4739 (24427.84)	7988 (22564.97)	20035 (22949.60)	10920.67 (23314.14)

* Figures in parenthesis indicate per hectare value.

Table 4.10: Economic analysis of farm enterprises (Crop – Tur)

(Per farm)

Particulars	Size group of farm			
	Small	Medium	Large	Average
Family human labour employment (Days)	8 (53.69)*	7 (28.93)	6 (12.10)	7 (31.57)
Hired human labour employment (Days)	0 (0.00)	6 (24.79)	10 (20.16)	5.33 (14.98)
Labour cost	400 (2684.56)	650 (2685.95)	800 (1612.90)	616.67 (2327.81)
Material cost	290 (1946.31)	471 (1946.28)	965 (1945.56)	575.33 (1946.05)
Overhead cost	240 (1610.74)	390 (1611.57)	799 (1610.89)	476.33 (1611.07)
Total cost of cultivation	930 (6241.61)	1511 (6243.80)	2564 (5169.35)	1668.33 (5884.92)
Gross income	2432 (16322.15)	3856 (15933.88)	7618 (15358.87)	4635.33 (15871.63)
Net income	1502 (10080.54)	2345 (9690.08)	5054 (10189.52)	2967 (9986.71)
Family labour income	320 (2147.65)	280 (1157.02)	240 (483.87)	280 (1262.85)
Farm business income	1822 (12228.19)	2625 (10847.11)	5294 (10673.39)	3247 (11249.56)

* Figures in parenthesis indicate per hectare value.

Wheat production

Wheat occupies the prime position among the *rabi* food crops in the area. The cultivators prefer it to grow first for home consumption and secondly for market also. Due to non-availability of irrigation facilities in area, it is growing only in limited area. Another important *rabi* crop grown in the area is gram. It is important pulse crop grown in un-irrigated fields, where wheat is not possible to grow. It is grown partly on good black soil as an alternative to wheat and partly on inferior black soils, unfit for wheat and some times grown in relation with jowar and maize.

Cost of input factor

The per farm cost incurred and its break up in the production of wheat has been worked out in Table 4.11. The table reveals that on an average, of the cost of cultivation per farm of wheat came to Rs. 2847 (Rs. 3426/ha). It increased from Rs. 1292 (Rs. 3660/ha) on the small size group to Rs. 4638 (Rs. 7900/ha) on large size group in cash of wheat production.

Table 4.11: Economic analysis of farm enterprises (Crop – Wheat)

(Per farm)

Economic factor	Size group of farm			
	Small	Medium	Large	Average
Family human labour employment (Days)	12 (33.99)*	10 (13.89)	10 (6.45)	10.66 (18.11)
Hired human labour employment (Days)	0 (0.00)	14 (19.44)	22 (14.19)	12 (11.21)
Labour cost	600 (1699.72)	1200 (1666.67)	1600 (1032.26)	1133.33 (1466.21)
Material cost	412 (1167.14)	840 (1166.67)	1809 (167.10)	1020.33 (1166.97)
Over head cost	280 (793.20)	571 (793.06)	1229 (792.90)	693.33 (793.05)
Total cost of cultivation	1292 (3660.06)	2611 (3626.39)	4638 (7900.00)	2847 (3426.23)
Gross income	2824 (8000.00)	5710 (7930.56)	12245 (7900.00)	6426.33 (7943.52)
Net income	1532 (4339.94)	3099 (4304.17)	7607 (4907.74)	4079.33 (4517.28)
Family labour income	480 (1359.77)	400 (555.56)	400 (258.06)	426.66 (724.46)
Farm business income	2012 (5699.72)	3499 (4859.72)	8007 (5165.81)	4506 (5241.75)

* Figures in parenthesis indicate per hectare value.

Measurement of farm profit

The study indicated that the average value of net income, family labour income and farm business income for wheat production per farm came to Rs. 4079.33 (Rs. 4517/ha), Rs. 426.66 (Rs. 724/ha) and Rs. 4506 (Rs. 5242/ha), respectively.

Linseed and mustard production

Linseed and mustard occupy the prime position among the oil seed crops in the area in *rabi* season. The cultivators prefer these crops to grow first for market as cash crops and secondly for home consumption. Due to non-availability of irrigation facilities in area, these crops are growing only in limited area.

Table 4.12: Economic analysis of farm enterprises (Crop – Linseed)

(Per farm)

Economic factor	Size group of farm			
	Small	Medium	Large	Average
Family human labour employment (Days)	4 (33.06)*	4 (17.86)	3 (9.09)	3.66 (20.00)
Hired human labour employment (Days)	0 (0.00)	2 99 (8.93)	6 (18.18)	2.66 (9.04)
Labour cost	200 (1652.89)	300 (1339.29)	450 (1363.64)	316.66 (1451.94)
Material cost	110 (909.09)	203 (906.25)	300 (909.09)	204.33 (908.14)
Over head cost	82 (677.69)	152 (678.57)	224 (678.79)	152.66 (678.35)
Total cost of cultivation	392 (3239.67)	655 (2924.11)	974 (2951.52)	673.66 (3038.43)
Gross income	993 (8206.61)	1826 (8151.79)	2673 (8100.00)	1830.66 (8152.80)
Net income	601 (4966.94)	1171 (5227.68)	1699 (5148.48)	1157 (5114.37)
Family labour income	160 (1322.31)	160 (714.29)	120 (363.64)	146.66 (800.08)
Farm business income	761 (6289.26)	1331 (5941.96)	1819 (5512.12)	1383.66 (5914.45)

* Figures in parenthesis indicate per hectare value.

Cost of input factor

The per farm cost incurred and its break up in the production of linseed and mustard have been worked out in Tables 4.12 and 4.13, respectively. The table reveals that on an average, of the cost of cultivation

per farm of linseed and mustard came to Rs. 673.67 (Rs. 3038/ha) and Rs. 499.67 (Rs. 3055/ha), respectively. It increased from Rs. 392 (Rs. 3240/ha) on the small size group to Rs. 974 (Rs. 2952/ha) on large size group in cash of linseed production, while it ranged Rs.291 (Rs. 3163/ha) to Rs.763 (Rs. 3219/ha), respectively for mustard production.

Table 4.13: Economic analysis of farm enterprises (Crop - Mustard)

(Rs. per farm)

Economic factor	Size group of farm			
	Small	Medium	Large	Average
Family human labour employment (Days)	3 (32.61)*	3 (18.75)	3 (12.66)	3 (21.34)
Hired human labour employment (Days)	0 (0.00)	1 (6.25)	5 (21.10)	2 (9.12)
Labour cost	150 (1630.43)	200 (1250.00)	400 (1687.76)	250 (1522.73)
Material cost	65 (706.52)	113 (706.25)	167 (704.64)	115 (705.80)
Over head cost	76 (826.09)	132 (825.00)	196 (827.00)	134.66 (826.03)
Total cost of cultivation	291 (3163.04)	445 (2781.25)	763 (3219.41)	499.66 (3054.57)
Gross income	682 (7413.04)	1167 (7293.75)	1702 (7181.43)	1183.66 (7296.08)
Net income	391 (4250.00)	722 (4512.50)	939 (3962.03)	684 (4241.51)
Family labour income	120 (1304.35)	120 (750.00)	120 (506.33)	120 (853.56)
Farm business income	511 (5554.35)	842 (5262.50)	1059 (4468.35)	804 (5095.07)

* Figures in parenthesis indicate per hectare value.

Measurement of farm profits

The study indicated that the average value of net income, family labour income and farm business income for linseed production came to Rs.1157 (Rs. 5114/ha), Rs.146.67 (Rs. 800/ha) and Rs.1383.67 (Rs. 5914/ha), respectively. In case of mustard production, it came to Rs. 684 (Rs. 4241/ha), Rs. 120 (Rs. 854/ha) and Rs. 804 (Rs. 5095/ha), respectively.

Economic analysis of crop production

The cost and returns analysis is the relevant tool where the prime motive of the activity is profit, measured in terms of the measuring rod of money. For purposes of estimating costs both share of fixed capital (overhead charges) and working capital were included. Payments made in kinds and cash for different inputs and farm produced and family labour, bullock and machine labour imputed value were included in form of money value. Tables 4.14 and 4.15 give the breakdown of cost and returns per farm and per hectare by size groups in respects with overall crop production in a year.

Economics of crop cultivation per farm

According to stated objectives, the cost of cultivation of main crops on different size groups, incurred per farm is presented in Table 4.14 (Fig 4.7). The data indicate that the average human labour cost was highest on large farm being Rs. 4900 per farm and the lowest on small size (Rs. 5550 per farm), respectively. The average cost of cultivation of main crops incurred per farm was Rs. 10967, Rs. 20255, and Rs. 43403 for small, medium and large size groups, respectively. The cost of cultivation per farm showed an increasing trend with the increase in the size of farm.

The distribution pattern of operational average cost under various input factors revealed that material cost accounted for the highest share followed by labour and overhead charges, respectively. It noticed in the study that generally all the farm's operations performed by the family workers themselves. The uses of hired human labour for cultivation were made by medium and large size farmers only a small share to total work days required.

The average net return over total cost of cultivation per farm per year was Rs. 28592. The average net return by different size of group fluctuated with the acreage under cultivation were Rs. 111659, Rs. 21584 and Rs. 52533, respectively by small, medium and large size group.

Fig 4.7: Economic analysis (average) of farm enterprises (overall crop production)

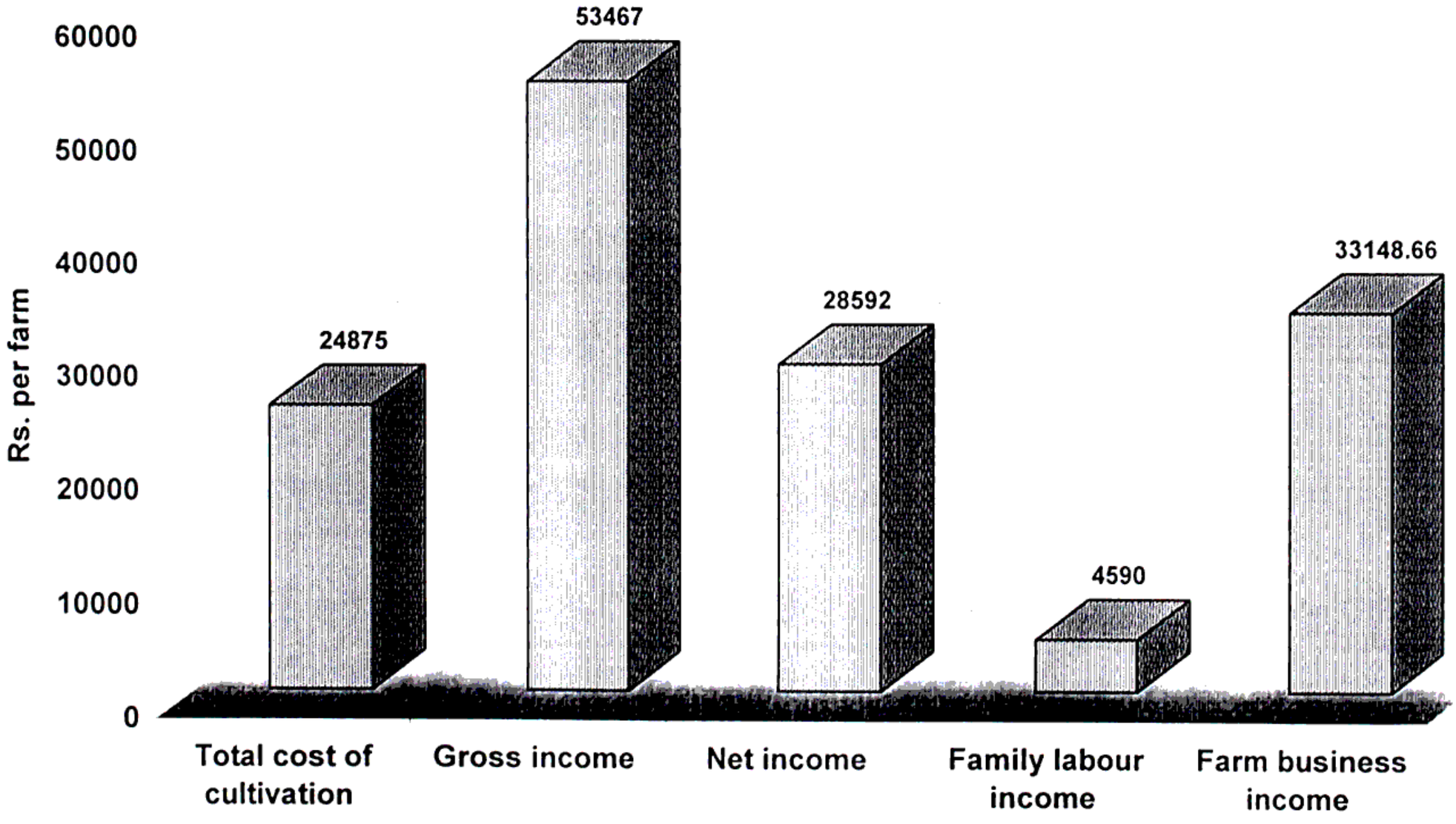


Table 4.14: Economic analysis of farm enterprises (overall crop production)

(Rs. per farm per year)

S.N.	Economic factor	Size group of farm			
		Small	Medium	Large	Average
1	Family human labour employment (Days)	111	109	98	106
2	Hired human labour employment (Days)	-	93	275	122.66
3	Human labour cost (family)	5550	5450	4900	5300.00
4	Human labour cost (hired)	-	4650	13750	6133.33
5	Total human labour cost	5550	10100	18650	11433.33
6	Bullock and machine labour cost	804	1598	3962	2121.33
7	Material cost	3527	5982	16345	8618.00
8	Overhead cost	1890	3333	8428	4550.33
9	Total cost of cultivation	10967	20255	43403	24875.00
10	Gross income	22626	41839	95936	53467.00
11	Net income	11659	21584	52533	28592.00
12	Family labour income	4840	4710	4220	4590.00
13	Farm business income	16499	26894	56753	33148.66

Economics of crop cultivation per hectare

As per stated objective analysis was undertaken to calculating the cost and returns per hectare basis for different size of group. The analysis of data presented in Table 4.15 (Fig 4.8) reveals that on an average the cost of cultivation of crop came to Rs. 9249.50 per hectare. It is interesting to note that the total cost reduces as per the size of holding increases i.e. Rs. 10154.60 per hectare in small size group followed by the Rs. 9438.50 and Rs. 8155.40 in medium and large size group, respectively.

The net profit per hectare on an average was Rs. 10241.36 per hectare but varied in different size of holding i.e. Rs. 10795.40 for small size group, followed by Rs. 10057.80 and Rs. 9870.90 for medium and large size group, respectively.

Fig 4.8: Economic analysis (average) of farm enterprises (overall crop production)

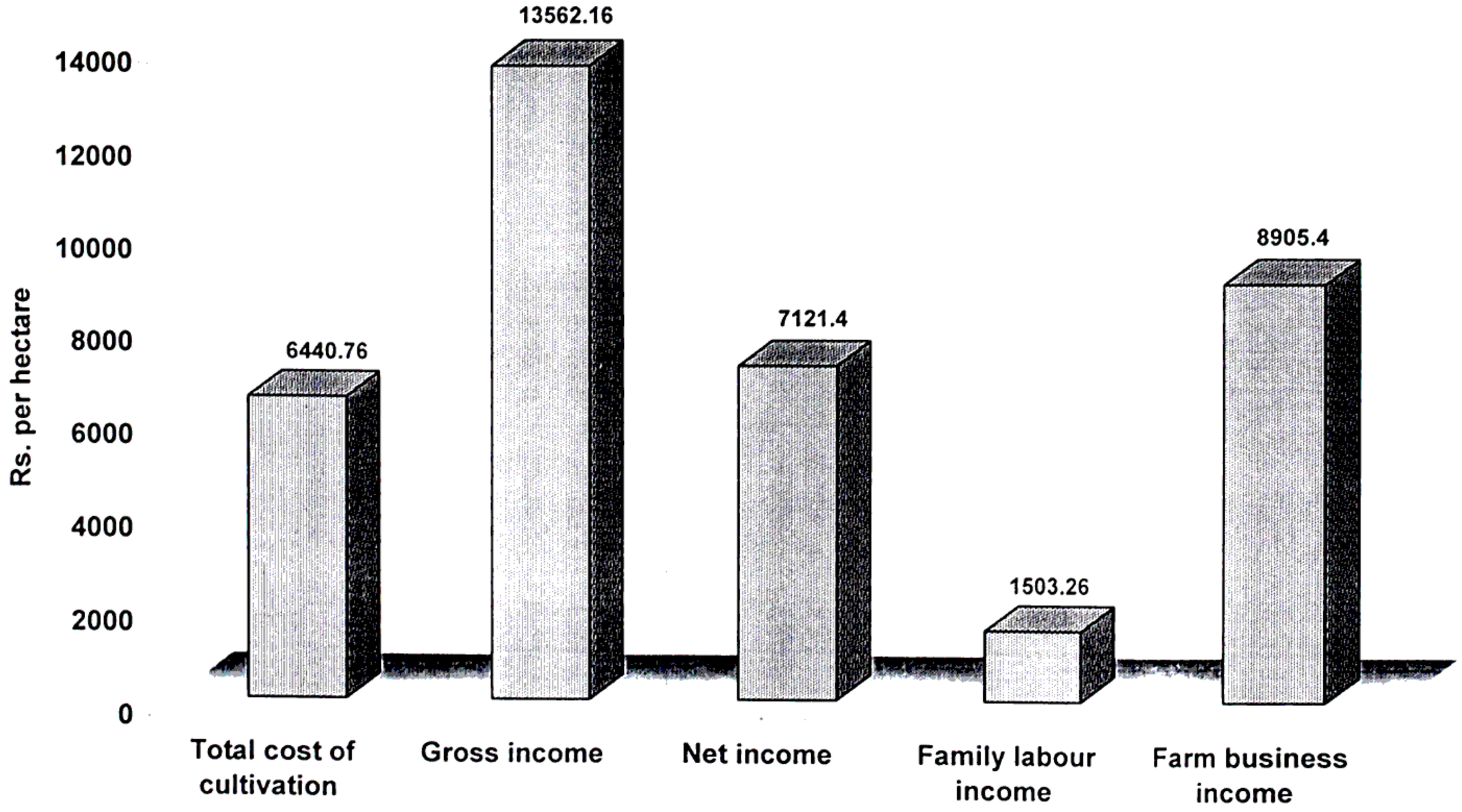


Table 4.15 indicates that the average values of net income, family labour income and farm business income came to Rs. 10241.36, Rs. 2489.73 and Rs. 12824.28 per hectare, respectively. In general, all these values were higher on the small farm size group due to intensive use of labour and material inputs.

Table 4.15: Economic analysis of farm enterprises (overall crop production)

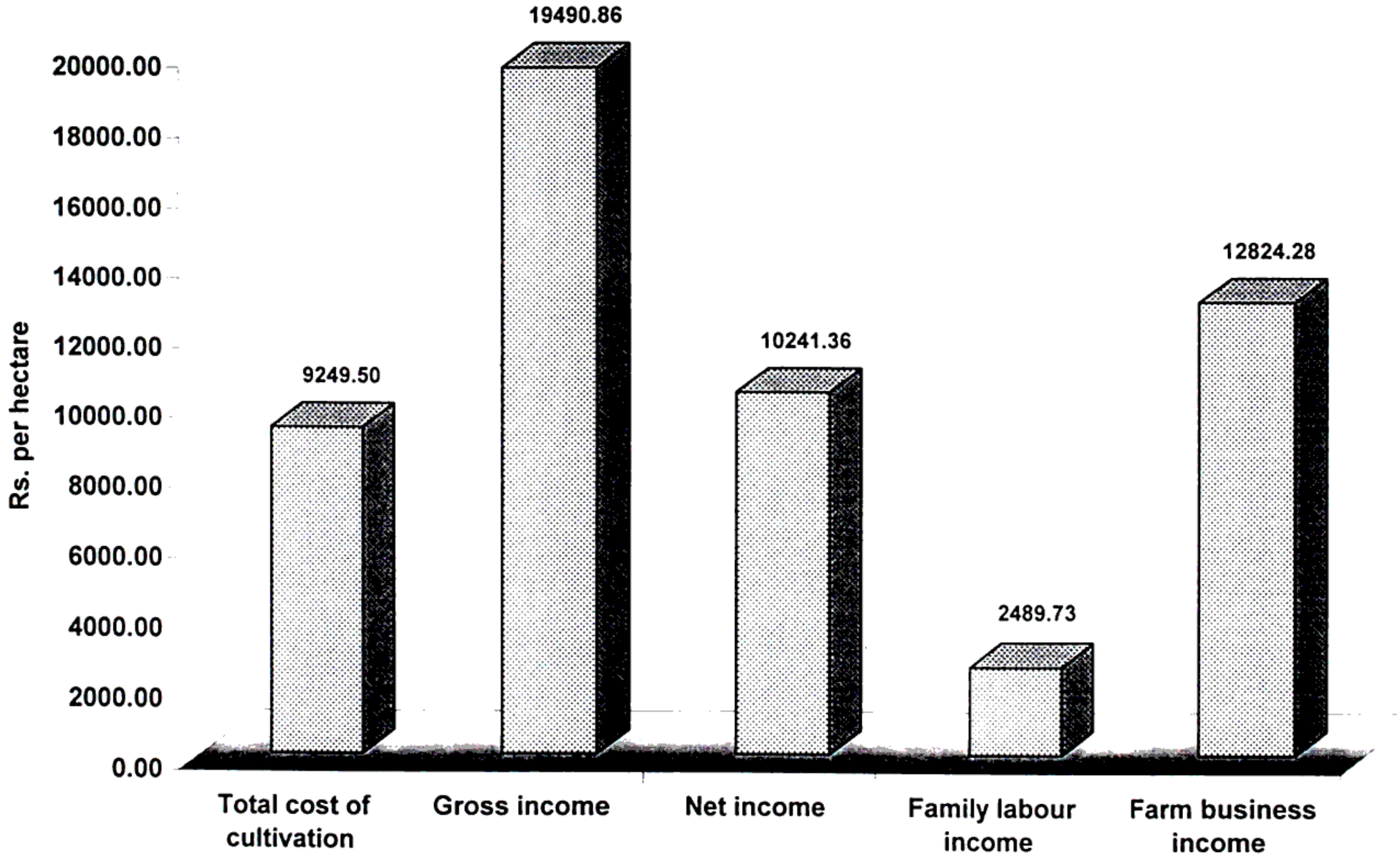
(Rs. per hectare per year)

S. No.	Economic factor	Size group of farm			
		Small	Medium	Large	Average
1	Family human labour employment (Days)	102.8	50.8	18.4	57.33
2	Hired human labour employment (Days)		43.3	51.7	31.67
3	Human labour cost (family)	5138.9	2539.6	920.7	2866.40
4	Human labour cost (hired)		2166.8	2583.6	1583.48
5	Total human labour cost	5138.9	4706.4	3504.3	4449.88
6	Bullock and machine labour cost	744.4	744.6	744.5	744.51
7	Material cost	3265.7	2787.5	3071.2	3041.49
8	Overhead cost	1750.0	1553.1	1583.6	1628.91
9	Total cost of cultivation	10154.6	9438.5	8155.4	9249.50
10	Gross income	20950.0	19496.3	18026.3	19490.86
11	Net income	10795.4	10057.8	9870.9	10241.36
12	Family labour income	4481.5	2194.8	792.9	2489.73
13	Farm business income	15276.9	12532.2	10663.8	12824.28

Economics of rearing of animal and milk production

Despite the fact that wide grazing areas are available but livestock economy could not develop in the study area. Out of the average total 4 milch animals per farm, as many as were cows. Hence, economics of production of cow's and she buffalo's milk per lactation mixed together have been worked out.

Fig 4.8: Economic analysis (average) of farm enterprises (overall crop production)



Maintenance cost and its break-up

The cost of maintenance of animals and its break-up like grassing charges, rearing charges (human labour required for management), fodder cost miscellaneous cost and overhead cost etc. per farm during a period of one-year lactation on different size of group of farms have been shown in Table 4.16.

Table 4.16: Economic analysis of farm enterprises (Rearing of animals and milk production)

(Rs. per farm per year)

S. No.	Items of maintenance	Size group			
		Small	Medium	Large	Overall average
1	Human labour for grassing (days)	66	92	112	90.00
2	Human labour (charges Rs.)	1980	2760	3360	2700.00
3	Human labour for rearing (days)	34	48	92	58.00
4	Human labour for rearing (charges Rs.)	1020	2160	5060	2746.67
5	Total human labour for grassing rearing (days)	100	140	204	148.00
	Family labour days	100	140	130	123.33
	Family labour (charges Rs.)	3000	4920	4350	4090.00
	Hired labour (days)	-	-	74	24.67
	Hired labour (charges Rs.)	-	-	4070	1356.67
6	Fodder cost (Rs.)	4824	9584	19412	11273.33
7	Miscellaneous cost (Rs.)	112	1580	3372	1854.67
8	Overhead cost (Rs.)	1120	2068	3792	2326.67
9	Total cost of maintenance	9556	18152	34996	20901.33

(Number of milch animals s = 2, m = 4, l =7)

Note : S = small size of group, M = medium size group & L = large size group

Data presented in Table 4.16 indicate that the total cost of maintenance of cow per animal per farm per year, on an average came to Rs. 20901.33. The highest cost was Rs. 34996 on the large farm (rearing on an average 7 animals per farm) and the lowest being Rs. 9556 on small farm (rearing on an average two animal). The highest cost, on an average was incurred on fodder (Rs.11273.33), followed by labour (Rs. 2746.67), charges, overhead charges (Rs. 2326.67) and miscellaneous charges (Rs. 1854.67), respectively.

Income

Values of net income, family labour income and farm business income per farm per year from rearing of animals have been worked out in Table 4.17. The table indicates that on an average the values of net income, family labour income and farm business income came to Rs. 17810, Rs. 4090 and Rs.21900, respectively per farm per year. The figure also reflected that on an average, the total income was increased with the increase of the size group.

Table 4.17: Economic analysis of farm enterprises (rearing of animals)

(Rs. per farm per year)

S. No.	Particular	Size group			
		Small	Medium	Large	Overall
1	Human labour income (days)	100	140	130	123.3
2	Human labour cost (Rs.)	3000	4920	4350	4090.00
3	Fodder cost (Rs.)	4824	9584	19412	11273.33
4	Overhead cost (Rs.)	1120	2068	3792	2326.66
5	Miscellaneous cost (Rs.)	612	1580	3372	1854.66
6	Total cost of maintenance (Rs.)	9556	18152	34996	20901.33
7	Gross income from milk and other products (Rs.)	17580	36476	62078	38711.33
8	Net income (Rs.)	8024	18324	27082	17810.00
9	Family labour income (Rs.)	3000	4920	4350	4090.00
10	Farm business income (Rs.)	11024	23244	31432	21900.00

Farm business analysis

This part of study deals with the detailed of farm business of the sample house hold/farm family. This is an important valuation of resource use and their impact to which an economist is interested while considering the economy of farm. Farm business analysis gives an account of the relationship between the costs incurred on running the farm enterprises and the returns obtained from them.

The per farm values of input costs, output costs and incomes (net income, family labour income and farm business income) from crops + milk production as a whole from enterprises on the sample farms of different size groups have been worked out in Table 4.18.

Table 4.18: Farm business analysis (Agriculture business as a whole crops + milk production)

(Rs. per farm per year)

S. No.	Particular	Size of group			
		Small	Medium	Large	Average
1	Input cost	20523	38407	78399	45776.33
2	Output cost (gross income)	40206	78315	158014	92178.33
3	Net income	19683	39908	79615	46402.00
4	Family labour income	7840	9630	8570	8680.00
5	Farm business income	27523	49538	88185	55082.00

The table refers that the farm enterprises (crop + milk production as a whole) required on an average Rs. 45776.33 per farm per year for running the farm, which is ranged from Rs. 20523 to Rs.38407 and Rs. 78399 for small, medium and large farms, respectively. The study also reveals that the farm enterprises yielded on an average output values of Rs.92178.33 and net income of Rs. 46402 per farm per year. The average values of family labour income and farm business income were worked out to Rs.8680 and Rs. 55082, respectively per farm per year. These values in general showed an increasing trend as the size of farm enterprises.

Level of employment

The main problem of farmers of tribal area is unemployment. They remained under employed for a quite long period during the year because of their smaller size of holdings, scarce of resources, lack of irrigation facilities, illiteracy, back ward nature of farmers, traditional forming system and lack of cottage and subsidiary occupation. In present study as stated objective, an attempt were made to find out the patterns and extent of employment of

farmers in agricultural sectors and presented in Tables 4.19 and 4.20 and shown graphically in Figs 4.9 & 4.10. The agricultural sectors comprises of employment of labour days in crop production, tending of animals and other agricultural works (excluding the crop production), collection of forest products and hired out employment days under agricultural sector etc. Hence, all these activities on own farm and other than own farm were considered in present study. From the table, it is clear that average

Table 4.19: Employment in agricultural sector per farm

(Days per annum)

S. No.	Particular	Size group of farm			
		Small	Medium	Large	Average
A	**Own farm**				
	(i) Crop production	111	109	98	106.00
	(ii) Tending of cattle and other Agricultural activities	100	140	204	148.00
	Total	**211**	**249**	**302**	**254.00**
B	**Other than own farm**				
	(i) Labour hired–out in agricultural sector	342	216	82	213.00
	(ii) Forest products collection	236	108	71	142.00
	(iii) Other agricultural activities	72	97	128	99.00
	Total	**650**	**421**	**281**	**450.00**
	Grand total	**861**	**670**	**583**	**704.67**

utilization of family human labour days in crop production per farm, per annum was 106 days. Out of these days, medium farmers utilized the highest i.e.109 days, followed by 111 and 98 days for small and large farmers, respectively.

The utilization of family human labour days per farm in the tending and uplift of animals shows that it was on an average 148 days per annum. The highest labour days for this purpose utilized by large farmers 204 days, followed by medium (140 days) and small (100 days), respectively. Sometimes, the farmers and their family were found to engaged in other farm activities like preparation of compost pits, bunds formation, land reclamations, farm fencing, kitchen gardening and other works, which were not directly associated with crop production, but the work was related to agriculture on own farm.

Fig 4.9: Employment in agricultural sector per farm (Days per annum)

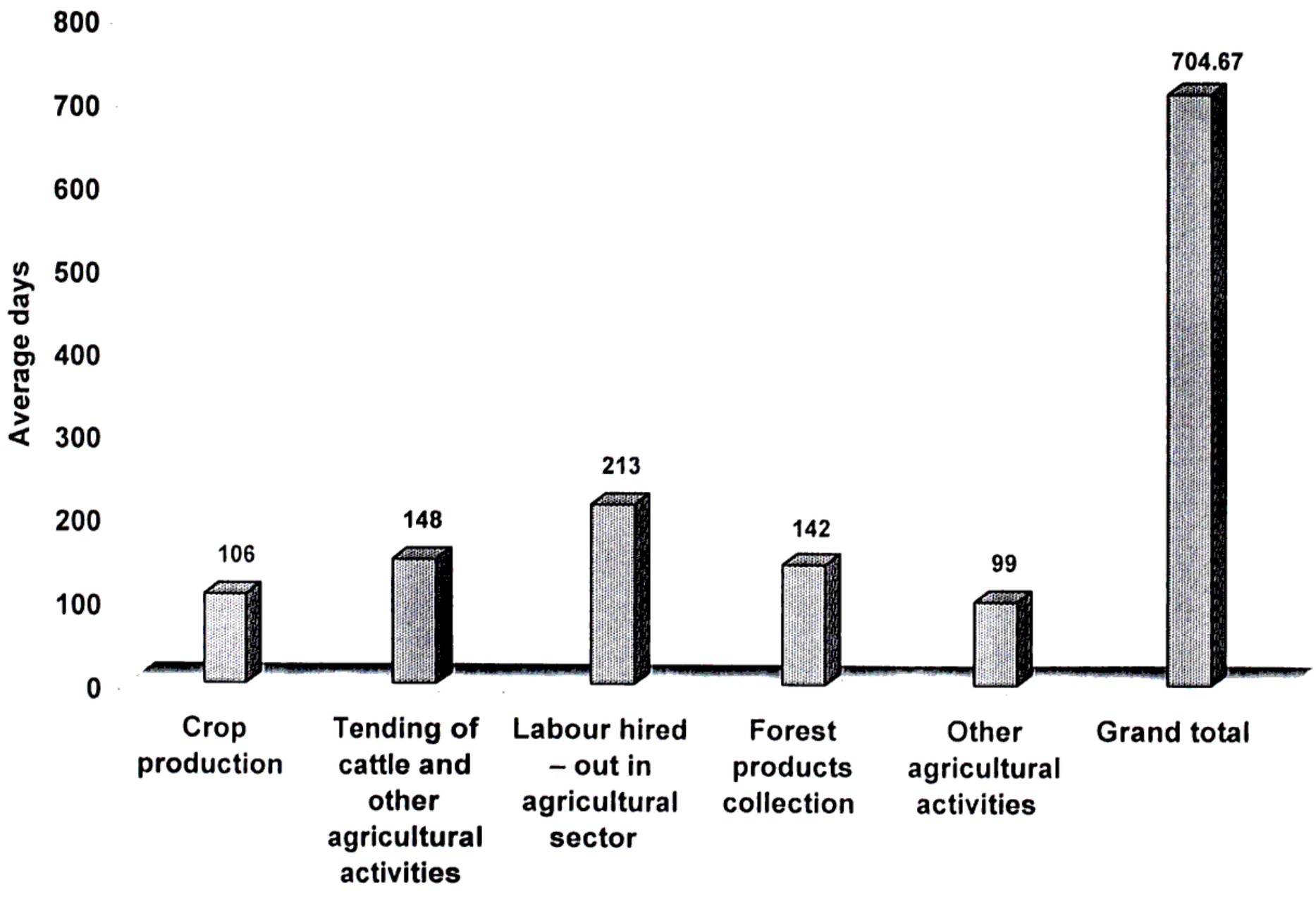
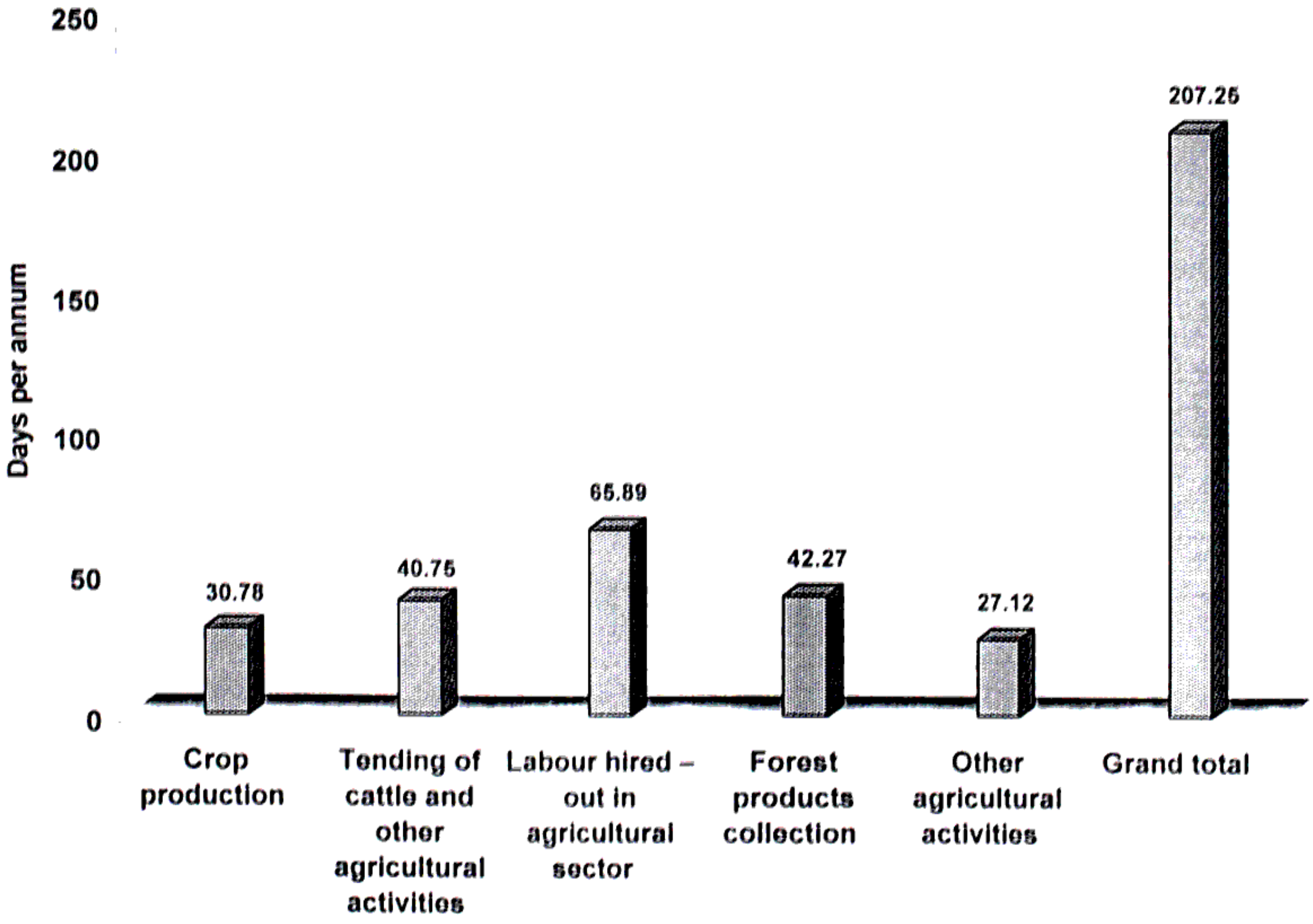


Fig 4.10: Employment in agricultural sector per worker per farm



The employment pattern in agriculture sector engaged on farm and other than own farm shows that the small farmers were highly engaged in labour hired out (342 days), followed by forest product collection (236 days).

Per worker total employment per annum

The total own farm and other than own farm i.e. labour hired out and forest product collection etc. engagement per worker and per annum under agricultural sector during the year were worked out and presented in Table 4.20.

From the data, it is clear that the economy of this area provided about 57 per cent of the annual days of employment i.e. 207.25 days to the farmer and remaining days in the year they remained without any job in this sector. On own farm, average number days for employment came to 71.54. The number of days of employment for different size group of farm i.e. small size, medium size and large size farms were observed 68.95, 77.81 and 67.86 days, respectively. The study also reveals that the large and medium farmers were mostly engaged in the self works rather than in the labour hired out. In other words, it may be said that the labour hired out days and days for collection of forest products were decreased with the increase in size group.

Table 4.20: Employment in agricultural sector per worker

(Rs. per farm per year)

S.N.	Particular	Size group of farm			
		Small	Medium	Large	Average
A	**Own farm**				
	(i) Crop production	36.27	34.06	2202	30.78
	(ii) Tending of cattle and other Agricultural activities	32.67	423.75	45.84	40.75
	Total	68.95	**77.81**	**67.86**	**71.54**
B	**Other than own farm**				
	(i) Labour hired–out in agricultural sector	111.76	67.50	18.42	65.89
	(ii) Forest products collection	77.12	33.75	15.45	42.27
	(iii) Other agricultural activities	22.29	30.31	26.76	27.12
	Total	212.41	**131.56**	**63.14**	**135.70**
	Grand total	281.37	**209.37**	**131.01**	**207.25**

Level of earning

After analyzing the economics of farm enterprises and employment and earning from other than own farm like labour hired out, forest product collection etc, the level of earning of farmers were dealt as per the objective of the study. Earning of farmers from agricultural sector is also consisting of income receipt from own farm enterprises (crop, milk and other farm's production) and other than own farms works (like labour hired out, forest product collection and other agricultural works). Per farm income from agricultural sector per annum according to different size group were worked out and presented in Table 4.21 (Figs 4.11a & 4.11b).

The table reveals that the main sources of income of the sample farmers were the crop production and tending of milch animal. On an average per annum, these sources amounted to Rs. 33148.67 and Rs. 21900, respectively on per farm basis The farmers also earned income through agricultural wages and other allied activities etc. Hence, on an average, total income from agricultural sector amounted to Rs. 66603.66 per farm per annum. Of this total, crop production contributed the highest position followed by milk production and by wages from agricultural works.

Table 4.21: Earning in agricultural sector per annum

(Rs. per farm)

S. No.	Particular	Size group of farm			
		Small	Medium	Large	Average
A	**Own farm**				
	(i) Crop production	16499	26294	56753	33148.67
	(ii) Tending of cattle and milk production	11024	23244	31432	21900.00
	(iii) Other agricultural activities	312	508	1018	612.66
	Total	**27835**	**50046**	**89203**	**55694.66**
B	**Other than own farm**				
	(i) Labour hired – out in agricultural sector	10271	3190	1210	4890.33
	(ii) Forest products collection	6085	1862	1432	3126.33
	(iii) Other agricultural activities	2408	2016	4253	2892.33
	Total	**18764**	**7068**	**6895**	**10909.00**
	Grand total	**46599**	**57114**	**96098**	**66603.66**

Total income per worker per annum

The total income per annum from all the sources of agricultural business were worked out and presented in Table 4.22 (Figs 4.12a & 4.12b).

From the table, it is clear that main substance of sampled farmers comes from own farm than the other than own farms activities. The data reveals that the total income of a worker per annum was on an average came to Rs.18224.33 only, even when both own farm and other than own farm activities were taken in to consideration. As regards, per worker income, the large size group received the highest income i.e. Rs. 21595, followed by Rs. 17849 and Rs. 15229 by medium and small size farmers, respectively per annum. This is due to maximum income came from crop production and large size group's farmer produced higher income. In other words, it may be interpreted that an increase trend in income from crop production was

Fig 4.11a: Earning in agricultural sector per annum (own farm)

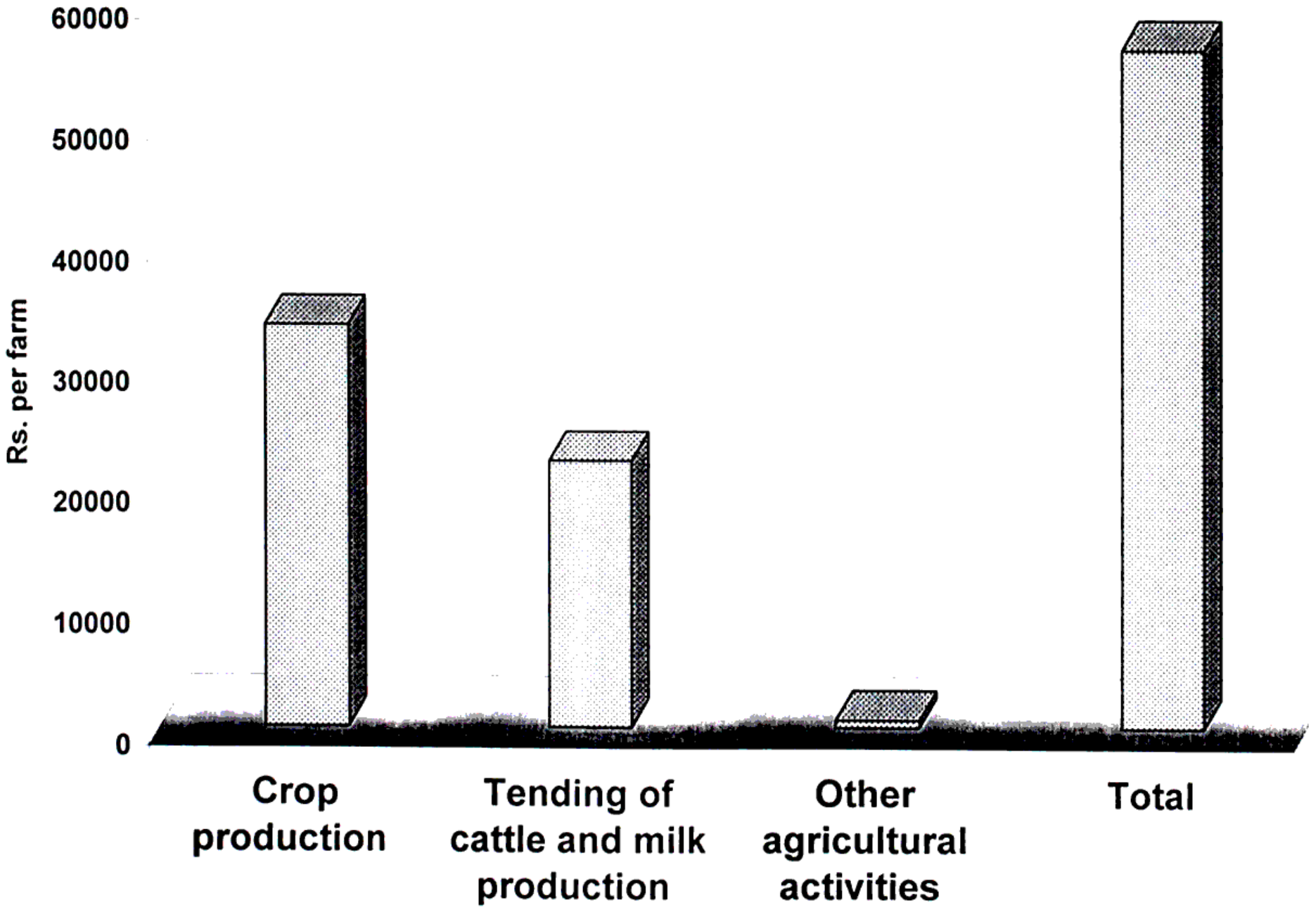
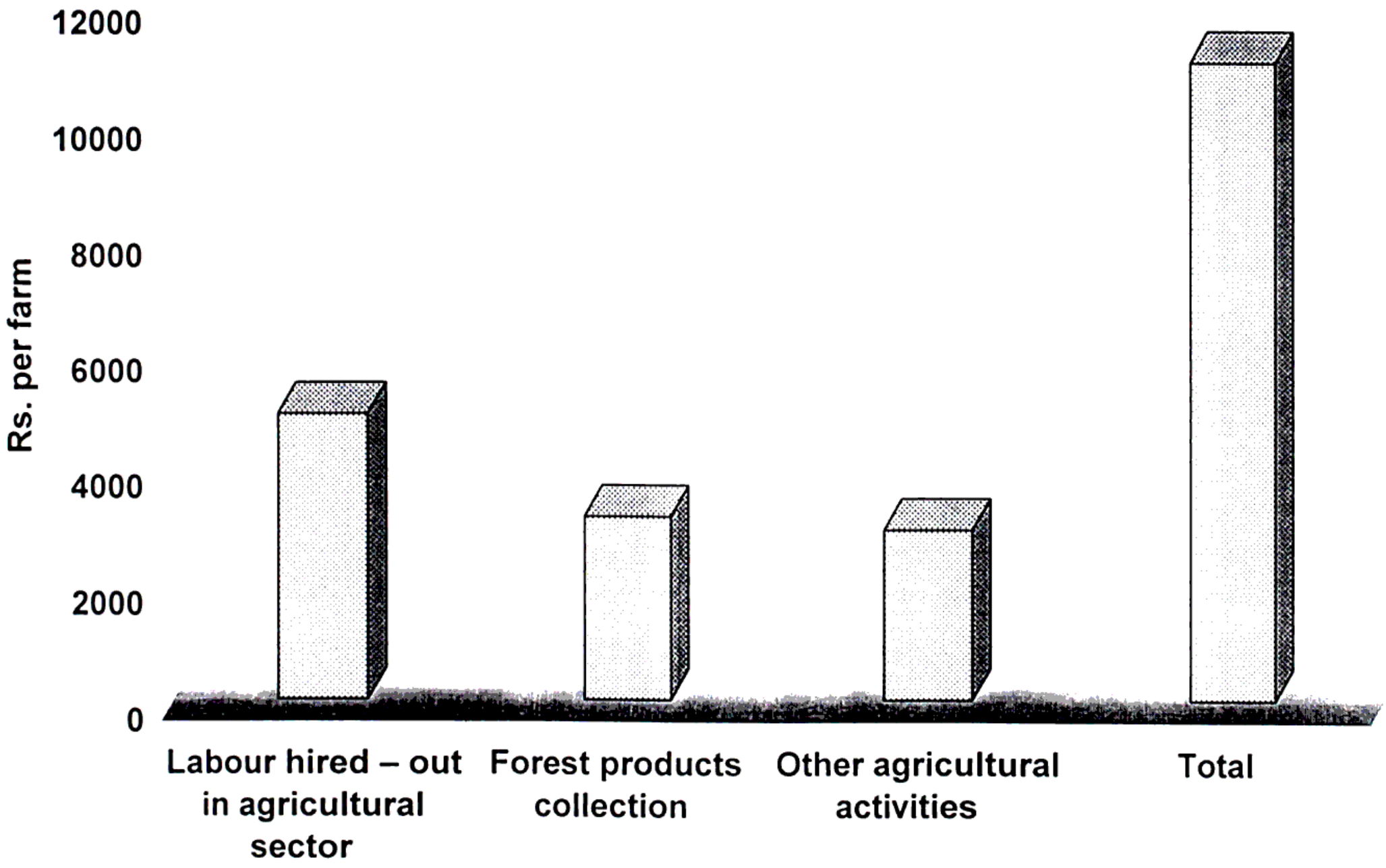


Fig 4.11b: Earning in agricultural sector per annum (other than own farm)



observed with the increase in the size of holdings. The study also reveals that the small size farmers were mostly engaged as labour hired out and earned maximum amount from this activity.

Table 4.22: Earning in agricultural sector per worker per annum

(Rs. per farm)

S. No.	Particular	Size group of farm			
		Small	Medium	Large	Average
A	**Own farm**				
	(i) Crop production	5392	8217	1275	4961.33
	(ii) Tending of cattle and milk production	3603	7264	7064	5977.00
	(iii) Other agricultural activities	102	159	229	163.33
	Total	**9097**	**15640**	**20046**	**14927.66**
B	**Other than own farm**				
	(i) Labour hired – out in agricultural sector	3357	997	272	1542.00
	(ii) Forest products collection	1989	582	322	964.33
	(iii) Other agricultural activities	787	630	956	791.00
	Total	**6133**	**2209**	**155.**	**3297.33**
	Grand total	**15229**	**17849**	**21595**	**18224.33**

Fig 4.12a: Earning in agricultural sector per worker (own farm)

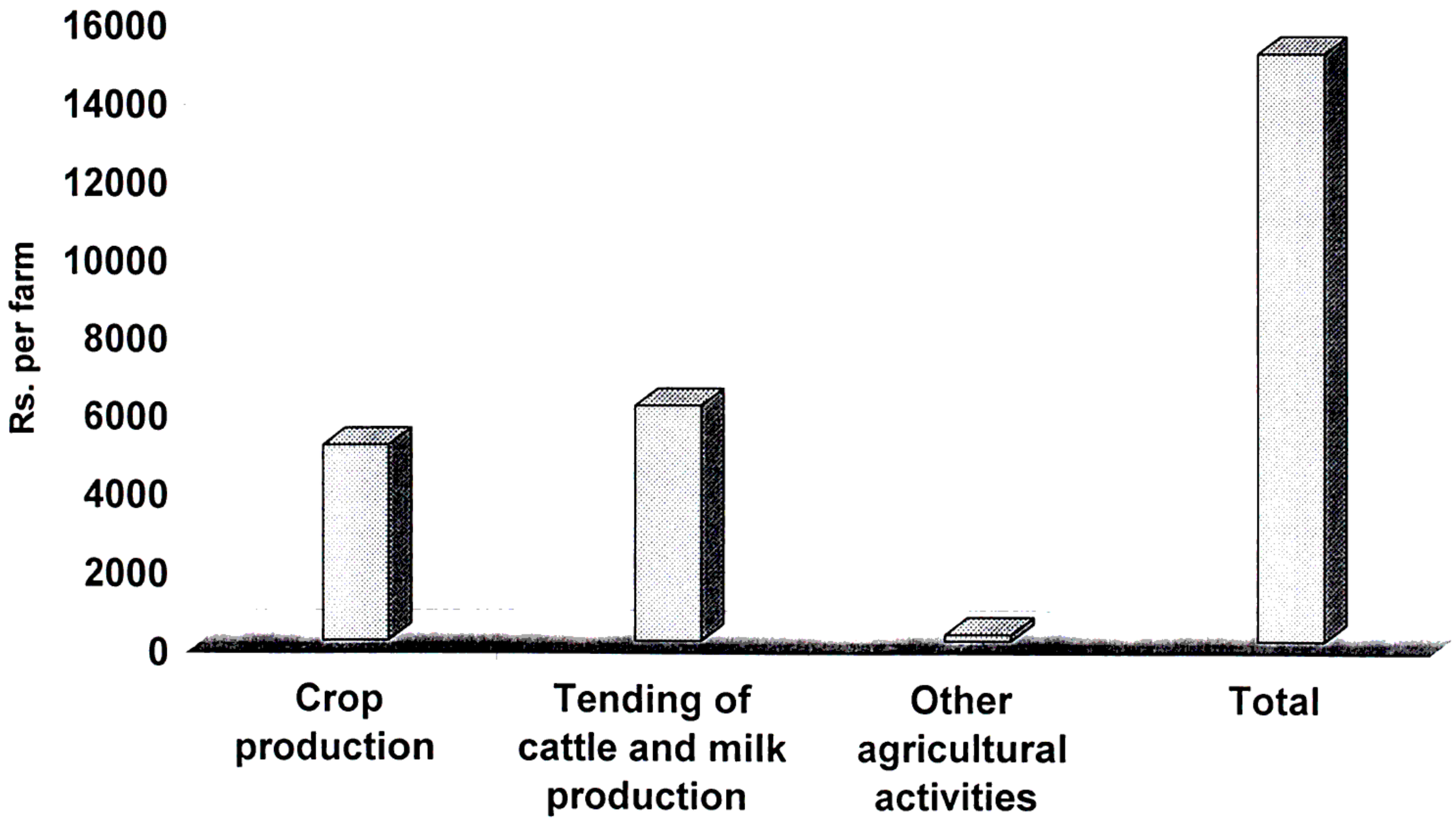
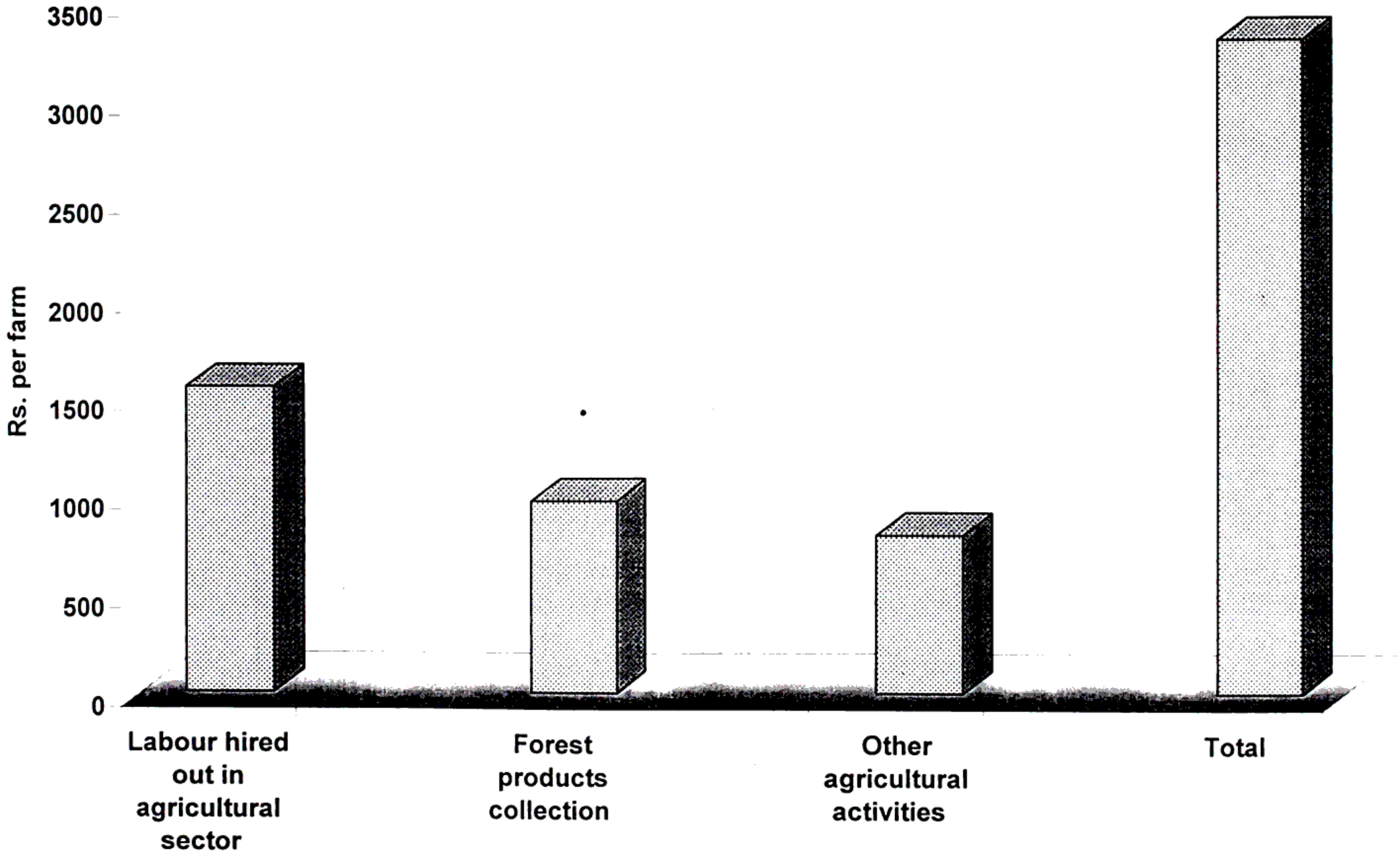


Fig 4.12b: Earning in agricultural sector per worker (other than own farm)



DISCUSSION

CHAPTER - V

DISCUSSION

The study revealed that per holding availability of male, female and children increased with the increase in farm size, respectively. It might be due to joint family condition in large size group of farm.

One interesting fact revealed by the survey is the relatively high percentage of literates among the sample households in the area and there were no illiterate persons in large size group.

The percentage of working force was observed 69 per cent of the total population. Among the working force, larger proportion (40.62%) of male was a worker than the female and children.

The per farm-family investment on fixed capital was noted to be higher with increase the size of holding in every items.

The study revealed that land accounted for the highest percentage being (84.92%) to over all investment per farm-family. This is not good feature for accepting the new technology on field, because new technology is more capital intensive and there are more scarcity of capital with tribal farmer. This finding is in the line of the result of Patel (1998).

In farming, land is the most dominant asset that governs the level of earning, employment and well being of the farm family. The study revealed that the average size of operational holding in the tribal farmers was 2.849 hectares. The average higher size of operational holding was 5.322 hectares belongs to large farm size group, followed by medium (2.146 ha) and small size group farmer i.e. 1.080 hectares only.

Irrigation not only influences the cropping pattern and cropping intensity, but also affects the level of earning and employment of the farm to a larger extent. The average total irrigated area of sample farm-family was found to be less than 45% to the net cultivated area. This reveals the situation for increasing of cropping intensity was not much better. It was also

interesting point that percentage area under irrigation to cultivated area was tended to decrease with the increase in the size of holding.

The net cultivated area of a farm does not truly represent the farm income and available employment by crop production. Therefore, double cropped area or gross cropped area was included in study. It brought to the light that there was pre dominance of kharif crops in the cropping system of sample farmers. Among kharif crop, paddy was the most commonly commercial crop covering on an average 48.68 per cent of the total kharif area. Among the rabi crops, wheat was mostly grown (63.38%) by the sample farm-family.

It is noticed in study that in general, the family worker performed all the farm operations themselves. The use of hired human labour for the cultivation was made by medium and large size farmers only a small share to total workdays required.

The cost of cultivation in study per farm showed an increasing trend with the increase in the size of farm.

The average net return over total cost of cultivation of crop per farm, per year indicated that the cultivation of crops were profitable in study area. But, it proved insufficient earning per farm per year specially for small farm.

The analysis of crop production economics per hectare basis showed that the total cost reduced as per the size of holding increased. It happened due to higher share of overhead charges in total cost of cultivation, per hectare on small size of farming and intensive use of family labour.

In general, the values of net income, family labour income and farm business income per hectare basis were higher on the farm of small size group, it was also due to intensive use of inputs like labour and other materials. The average net maintenance cost per farm per year showed the lowest on the smallest size farm and found in increasing trend with the increase in the size of holding.

The study shows that maximum of the total income was received by sale of milk in the entire three group. The figure also reflected that on an average, the total income was increased with the increase of the size of group.

The farm business as a whole (i.e. crop & milk production) indicates that the per farm average input cost came to Rs. 45776.33 per year. It was the highest being Rs.78399 on the large size group of farm and the lowest on small size group of farm being Rs.20523.

The average values of incomes obtained from total farm enterprises per farm per year (i.e. net income, family labour income, farm business income) showed an increasing trend with the increase in the size of farm. It was because of the fact the farmers of larges size group kept more land and milch animals on per farm.

The study described the nature of work done by the selected farmers and other family members in agriculture sector, during the year. It is apparent that all the days of the year were not available for work in this sector. It was observed from the study that on an average, total gainful employment was 254 days per member, per year from agriculture sector. It is also clear that the total employment days were higher in case of medium farmers than the large & small one. The study also revealed that.

(i) The maximum number of small farmers were engaged in collections of forest product.
(ii) The large farmers got highest employment days through crop production due to higher farm size.
(iii) The hired-out labour days was decreased with the increase in-group size.

In nutshell, the size wise gainful employment days per annum were increase with the increase in group size in own farm. However, it was vise-versa in labour hired out and forest product collection.

Earnings consist of remuneration against the work done in agriculture sector. In this study the level of earnings from agriculture sector, has been worked out in two main heads i.e. earning from own farm and other

than own farm. The study reveals that on an average worker per annum, the highest proportion of average earning receipt, among all the categories, from crop production on own farm i.e. Rs. 16499, Rs. 26994 and Rs. 56753 by small, medium and large farmers, respectively. This findings match with the result of Gehlot (1990). The selected farmers devoted their labour for other agricultural work except the crop production on own and other farm such as cattle production, labour hired out, forest product collection and others. Hence, the net earning from total agricultural sectors per annum received to Rs. 10909 from this average the share of small farmers was highest, followed by medium and large farmers i.e. Rs. 18764, Rs. 7068 and Rs. 6895, respectively. These findings are same more or less as reported by Soni (2001) and Sharma *et al.* (2002).

SUMMARY, CONCLUSION AND SUGGETIONS FOR FURTHER WORK

CHAPTER - VI

SUMMARY, CONCLUSION AND SUGGESTIONS FOR FURTHER WORK

6.1 SUMMARY

Sidhi is one of the backward district of Madhya Pradesh. Among the total population of the district, 45 per cent are tribal. Agriculture and forest are the most important and common sources of employment and income for these tribal. Now days, agriculture in India has reached to the stage of development, where it is being looked upon not merely as an activity supplying food and other family wants but also as a potential sources of economic, social development and for generating productive employment for agricultural labour force. But, in tribal areas the agriculture is not sole base of earnings. Because development is not satisfactory. Tribal in this developing stage not following the modern technological farming system. Mostly, they are following the traditional system and gaining only small earning and employment from agriculture. Because, economically they are the poorest of the poor in the country and socially, they possess the unique quality of living i.e. tradition bound life. In fact, these tribal have little economic role either in their own communities or in the society at large.

Hence, it has been now well realized to understand the regional problems of tribal farmers at micro levels specially of the backward areas, so that social problems assume such proportion that internal disorder and discontent may not retard the progress and development. Therefore, a scientific investigation for developing realistic plans for agriculture, social and economic development are of paramount importance. The present study "Farm Business Analysis" fully justify its importance as it will help in creation of new knowledge for spearheading income, employment and social change and securing social benefits to the tribal farmers of the area. The present study was undertaken with the following objectives:

1. To study the farm structure, resources use and cropping pattern of tribal farmers.
2. To calculate the cost of cultivation/production for major crops and allied enterprises in the study area.
3. To work out the level of earning (income) and employment on the farm.
4. To suggest the ways for economic development of tribal farmers in the study area.

The design of the study was three stages stratified random sampling in which block, village and farmer were the three random sampling units. In present study total 60 farmers in different size groups i.e. small, medium and large size was the final size of respondents sample. Survey method was used to collect the needed primary data. The study was conducted during the 2006-07 agricultural year. The average and percentage analytical tools were used to arrive at conclusive figures for interpretation of data.

6.2 CONCLUSIONS

The following conclusions are drawn from this study:

- The average size of farm family per farm was 5.17 persons. The size of farm family found to be increased with the increase of size group.
- The agriculture in the area endowed with surplus labour. The proportion of total population (family members) in all the size groups, belong to working persons were found to be higher. The over all percentage of workers and non-workers in a family was 69 and 31 per cent, respectively. It is also concluded that the productivity of labour in agriculture was very low due to heavy pressure of population on land and absence of alternative means of employment in the area.
- The capital, which is important for any economic activity was most scarce with the farmers under study. The status of tribal was very inferior because they have very little assets, land holding and less of investment in the form of modern technology. The economy of the farm- family was typically tribal in nature and farming sector found to be

predominantly influenced by the practices and method followed by the tribal (sampled farmers). The impact of green revolution in the area is shit not visible to make the farmer self sufficient in all respect amongst, different items of fixed investment on per farm, land accounted for the highest percentage being more than 84 per cent, followed by animal (about 6%), implements and machinery (about 4%), irrigation structure (about 3%) and farm building (about 1%).

- The economic structure of the sample farms showed that the average size of holding came to 4.79 hectares. But, the small farmers have only an average holding of 1.62 hectares, which is not sufficient for sustaining of a family. The farmers of area are known for their poverty. The main cause of their poverty was found to be, small size of holding per family and low productivity of land and labour.

- Agriculture in the area was found to be dependent upon nature and monsoon. The study revealed that there was 39.66% of the total cultivated area found to be under irrigation. The irrigation was mostly done for wheat crop in rabi.

- In study area, mono-cropping was all most common practice due to lack of irrigation facilities and kharif was the predominant cropping season. Among kharif crops, paddy, til and maize were the most commonly grown crop covering on an average 83% of the total cropped area in kharif. Rabi cereal crop (wheat) and oil seed crop (linseed, mustard,) were common Rabi growing crops in the area.

- The sampled farmers were having crop and milk production enterprises on own farm as the main source of their income. These family members as workers were considered for their employment on crop production, tending of cattle, other farm works, labour hired out on others farm and collection of forest product etc.

- In study an accounts of the relation ship between the cost incurred on running the farm business and the returns obtained from crop and milk production enterprises were made. The study revealed that, the per farm average values of input incurred to Rs. 24875, while average

value of output came to Rs. 53467.00 for over all crop production. The average value of farm business income was Rs. 33148.67 per farm crop production. All these values showed an increasing trend with the increase in the size of holding.

- The per farm values of input, output and farm business income from milk production as a whole on different categories of the sample farms showed that the average cost incurred was Rs. 20901.33 for total maintenance of milch animal which produce on an average output value of Rs. 38711.33 and a farm business income of Rs. 21900.00 per annum.

- The per farm values of input, output and farm business income through crop + milk production (pooled) as a whole also calculated in the study. Study revealed that a farmer needs an amount of Rs. 45776.33 per annum for input requirement of their farm business. It also found that the cropped milk production as a whole yielded on an average output value of Rs. 92178.33 and a farm business income of Rs. 55082.00 per farm. These values in general showed an increasing trend as the size of farm increases

- The average, total employment in all the activities on agriculture sector of available working farce on the sample farms came to 704.67 days. The average utilization of family member (labour) days came to 256.00 days per farm in crop production and tending of cattle and other agricultural activities. The next important activity was labour hired out. The total labours hired out employment per farm per annum came to an average 213.00 days.

- The employment pattern that the worker engaged on own farm and other than own farm showed that the small farmers were highly engaged in labour hiring out followed by forest product collection.

- On an average, a family worker gets employment in agriculture sector only for 207.25 days during a year and remained idle for rest of the period.

- ❖ As regards the level of earning of sample farmers, the average income from all the activities in agricultural sector per farm, per annum was calculated to Rs. 66603.67 of which maximum was contributed by crop production.
- ❖ The per worker income from agriculture sector, on an average was work out to Rs. 18224.33 on the sample farms.

6.3 SUGGESTIONS FOR FURTHER WORK

For further development of the area and farmers living with un-resourceful and poor socio-economic condition suggestions have to make by which the productive employment can be created in some extent, so that problems of under employment and poverty may be solved. Several approaches to increase the demand for labour can be suggested in the context of the situation prevailing in the study area. These approaches are:

i. General economic growth

Study concluded that there is scarcity of capital with farmers. The only solution to the scarcity of capital is the growth of production and savings. The farmers of the area have very little assets and less of investment in the form of high yielding technology, irrigation and implements. These conditions neither permit for intensive use of land and labour nor yielding optimum production from agriculture sector. So, it is suggested that policy makers should plan to technological improvement in the area. Agro-based industries also have a great potential for providing supplementary part time employment to farmers and their families.

ii. Choice of labour intensive techniques and activities

The selection and application of the labour intensive technology calls at present in agricultural sector. This is the only sector where under employment is a very serious. There are some periods in agriculture with scarcity of job or farmers are out of job. Thus, the choice for labour intensive productive technique would change the employment pattern and income distribution the area.

iii. Emphasis on agriculture

The farmers of the area should adopt intensive cultivation methods. This will be only possible with water management practices for efficient use of available irrigation water hence need to be developed. This practice will automatic increase the use of high yielding varieties, use of chemical fertilizers and plant protection measures etc. ultimately, these practices increase the labour requirement on one hand and push up the production level on the other.

iv. Welfare oriented schemes

The employment expansion and removal of poverty also depend on welfare oriented schemes and other development programs. The strategy of planning for generating employment opportunities through a number of welfare oriented schemes for a farmer is suggested. The provisions of basic social and economic infrastructure assume importance and received priority for attention.

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APPENDIX I

DEPARTMENT OF AGRICULTURAL ECONOMICS AND FARM MANAGEMENT

J. N. K. V. V. JABALPUR COLLEGE OF AGRICULTURE, REWA

PROFORMA

Title – Pattern of farm business of Tribal Farmers of Kusmi & Dewsar Block of District Sidhi

Investigator :

Mulchand Solanki

M.Sc. (Ag) Agriculture Economics

& Farm management

Advisor

Dr. A. Shrivastava

Professor

Agri. Eco. Farm Management

(I) General information

(a) 1. Name of cultivator …….…… Caste …….. Age ……

2. Father's Name ……

3. Village …….. Teh. …… Block……...

4. Total owned land …… total cultivated land ……..

(b) Details about the cultivator and his family

S. No.	Name of Family member	Age (Year)	Sex	Relationship	Education	Occupation	
						Main	Secondary

(f) Details about cattle

S. No.	Total no. of cattle			
	Drought	Milch	Other	Total

(g) Details about Farm machineries

S. No.	Total no. of implements			
	Hand driven	Bullock driven	Power driven	Total

(h) Land details

S. No.	Plot No.	Cultivated area	Uncultivated area	Total holding area	Irrigated area

(i) Land utilization and cropping pattern

S. No. of plot	Kharif			Rabi		
	Net area sown	Follow land	Crop sown	Net area sown	Fallow land	Crop sown

II Farm business

(i) (kharif crops)

(a) Operation- wise human, bullock and machine labour utilization for crop production

S. No.	Operation	Crops (Area)											
		Paddy			Jowar			Tur			Til		
		HL	BL	ML	HL	BL	ML	HL	BL	ML	HL	BL	ML
1	Land preparation												
2	Manuring												
3	Sowing												
4	Interculture												
5	Irrigation												
6	Harvesting												
7	Winnowing												
8	Other												
	Total												

HL = Human labour days BL = Bullock labour days ML = Machine labour days

(b) Input for crop production

Particulars	Crop			
	Paddy	Jowar	Tur	Til
1. Seed				
2. Manure				
3. Fertilizer				
4. Insecticides/ pesticides				
5. Irrigation charges				
6. Marketing				
7. Other (specify)				

(c) Total value

S. No.	Crops	Main Products		By-products		Total
		(Qtl)	(Rs.)	(Qtl)	(Rs.)	(Rs.)
1	Paddy					
2	Jowar					
3	Tur					
4	Til					

II Farm business

(ii) (Rabi crops)

(a) Operation- wise human, bullock and machine labour utilization for crop production

S. No.	Operation	Crops (Area)											
		Wheat			Lenseed			Mustered			Other		
		HL	BL	ML	HL	BL	ML	HL	BL	ML	HL	BL	ML
1	Land preparation												
2	Manuring												
3	Sowing												
4	Interculture												
5	Irrigation												
6	Harvesting												
7	Winnowing												
8	Other												
	Total												

HL = Human labour days BL = Bullock labour days ML = Machine labour days

(b) Input for crop production

Particulars	Crop			
	Wheat	Lenseed	Mustered	Other
1. Seed				
2. Manure				
3. Fertilizer				
4. Insecticides/ pesticides				
5. Irrigation charges				
6. Marketing				
7. Other (specify)				

(c) Total value

S. No.	Crops	Main Products		By-products		Total
		(Qtl)	(Rs.)	(Qtl)	(Rs.)	(Rs.)
1	Wheat					
2	Lenseed					
3	Mustered					
4	Other					

(d) Expenses on milch production

(No. of milch cattle) =

S. No.	Operations	Human labour days			Total value (Rs.)
		M	F	C	
1					
2					
3					
4	Total				

Expenses (Rs)/Year	Quantity	Value (Rs.)
Feed		
Others		
Total		

(e) Total production

Main product		By-product		Total (Rs.)
(Qtl)	Rs.	(Qtl)	(Rs.)	
Total value				

III. Employment position

(a) Employment of cultivator's family

Own farm employment (Days)

No. fo workers	Category	Crop production	Tending of cattle (days)	Other work (days)	Total days
Male					
Female					
Children					

(b) Employment of cultivator's family

Other farm employment (Days)

Category of workers	No. of workers	Crop production	Tending of cattle (days)	Other work (days)	Total days
Male					
Female					
Children					

(c) Employment on crop basis (Major crop grown)

Plot no. ..... Net area sown ..... Crops .....

S. No.	Operations	Work done by labours in days						
		Family labour			Hired labour			Total
		M	F	C	M	F	c	
1	Tillage							
2	Sowing							
3	Interculture							
4	Irrigation &protection							
5	Harvesting							
6	Threshing & winnowing							
7	Others							

(d) Total employment available for family members, in days per year

S. No.	Nature of work	Male	Female	Children	Total
1	Crop production				
2	Tending of cattle				
3	Poultry production				
4	Other farm work				
5	Labour exchange (farm work)				
6	Labour hired out (farm work)				
Total days					

(IV) Family income per year

S. No.	Source	Male	Female	Children	Total
1	Own farm crop production				
2	Cattle production				
3	Poultry production				
4	Labour on other farm (Agri.)				
5	Labour on no-specific and other farm work				
Total					

(V) Other information, if any

_____

_____

VITA

VITA

The author of the thesis, Mulchand Solanki S/o Sh. Bapu Singh Solanki was born on 3rd September, 1975 at Village – Temeria, Post – Khandlai (Jagir), Tehsil – Manawar, Distt. – Dhar (M.P.).

He completed his High School in the year 1995 and Higher Secondary in the year 1997 from M.P. Board, Bhopal.

He joined R.A.K. College of Agriculture (J.N.K.V.V.), Sehore (M.P.) for B.Sc. (Ag.) degree in the year 2005. He secured 63.20 per cent (first division) in B.Sc. (Ag.).

Subsequently, he Joined College of Agriculture (J.N.K.V.V.), Rewa (M.P.) in the year 2006 for M.Sc. (Ag.) degree in Agricultural Economics & Farm Management.

He has submitted his thesis in 2008, with course work in partial fulfillment of the requirements for the degree of M.Sc. (Ag.).

During all the period of his education from schooling to post graduation, he was very sincere and honest towards his studies.

Date :

Place : **Rewa** **(Mulchand Solanki)**