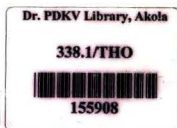


**ECONOMIC ANALYSIS OF FARM BUSINESS IN
CHANDRAPUR DISTRICT**

THESIS

**Submitted to
Dr. Panjabrao Deshmukh Krishi Vidyapeeth, Akola
In partial fulfilment of the requirements
for the Degree of**

**MASTER OF SCIENCE
IN
AGRICULTURE
(AGRICULTURAL ECONOMICS)**



**By
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DECLARATION OF STUDENT

I hereby, declare that the experimental work and its interpretation of the thesis entitled, "**ECONOMIC ANALYSIS OF FARM BUSINESS IN CHANDRAPUR DISTRICT**" or part thereof has neither been submitted for any other degree or diploma of any University, nor the data have been derived from any thesis / publication of any University or scientific organization. The source of materials used and all assistance received during the course of investigation have been duly acknowledged.

Place : Nagpur

Date : 08/11/2012


(Thombare Ramesh Anandrao)

Enrolment No. HH/1655

CERTIFICATE

This is to certify that thesis entitled "**ECONOMIC ANALYSIS OF FARM BUSINESS IN CHANDRAPUR DISTRICT**" submitted in partial fulfillment of the requirement for the degree of "**Master of Science in Agriculture (Agricultural Economics)**" of Dr. Panjabrao Deshmukh Krishi Vidyapeeth, Akola is a record of bonafide research work carried out by **Thombare Ramesh Anandrao** under my supervision and guidance.

The subject of the thesis has been approved by the Student's Advisory Committee.

Place : Nagpur

Date 08/11/2012



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(C)

List of Abbreviations

$^{\circ}\text{C}$	-	Centigrade
%	-	Percentage
<u>et al.</u>	-	et alia (and Associates)
etc.	-	et cetera
ha.	-	hectare
i.e.	-	that is
Kg.	-	Kilogram
F.Y.M.	-	Farm Yard Manure
C.L.	-	Cart load
Qtl.	-	Quintal
Rs.	-	Rupees
Viz.	-	Namely.
Hrs.	-	Hours

(D) THESIS ABSTRACT

- a) Title of the thesis : **“ECONOMIC ANALYSIS OF FARM BUSINESS IN CHANDRAPUR DISTRICT**
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ABSTRACT

In the present study an attempt has been made to carry out the Economic analysis of farm business in Chandrapur district with a view to examine the cropping pattern, cost of cultivation and farm efficiency measures. The data pertains to the year 2009-2010. In all 96 cultivators were selected from twelve village.

At overall level average size of family was 6 members. Highest illiterate people were observed in marginal size of holding. At overall level, the average size of holding was 2.11 hectares. The cropping intensity was 153.09 per cent at overall level. In kharif season paddy crop was dominated and in rabi season, gram crop was dominated.

At overall level, paddy production activity was observed on 74 farms. At overall level for paddy, the per hectare cost 'A', cost 'B' and cost 'C' were Rs. 18738.35, Rs. 27376.32 and Rs. 29949.94 respectively. At overall level for soybean, the per hectare cost 'A', cost 'B' and cost 'C' were Rs. 20001.79, Rs 27351.80 and Rs. 31777.52 respectively. At overall level for cotton, the per hectare cost 'A', cost 'B' and cost 'C' were Rs. 26765.40, Rs 33432.78 and Rs. 36410.87 respectively. At overall level for tur, the per hectare cost 'A', cost 'B' and cost 'C' were Rs. 28666.30, Rs 41390.46 and Rs. 45152.06 respectively. At overall level for moong, the per hectare cost 'A', cost 'B' and cost 'C' were Rs. 12571.95, Rs 16881.96 and Rs.18152.50 respectively. At overall level for sesamum, the per hectare cost 'A', cost 'B' and cost 'C' were Rs. 10976.85, Rs 16513.73 and Rs.17860.10 respectively. At overall level for wheat, the per hectare cost 'A', cost 'B' and cost 'C' were Rs. 20217.38, Rs 26964.28 and Rs.30243.73 respectively. At overall level for gram, the per hectare cost 'A', cost 'B' and cost 'C' were Rs. 11177.23, Rs 15570.06 and Rs.18366.96 respectively. At overall level for rabi jowar, the per hectare cost 'A', cost 'B' and cost 'C' were Rs. 14366.82, Rs 20534.98 and Rs.24326.66 respectively. At overall level for linseed, the per hectare cost 'A', cost

'B' and cost 'C' were Rs. 10509.59, Rs 18899.00 and Rs.20299.94 respectively. The B: C ratio of linseed and sesamum at cost 'C' was higher as compared to the other crop i.e. 1:2.39 and 1:1.76 respectively.

The overall crop yield index was found higher in gram crop. The highest (158.08 per cent) cropping intensity was found on large farm. At overall level, the productive man work units per man equivalent were 25.21. At overall level, returns per rupee at cost 'A', cost 'B', and cost 'C' were 2.34, 1.66 and 1.50. The operating cost ratio and gross cost ratio was the highest on marginal size farm. The highest fixed cost ratio was observed in large size farm. The highest cost per hectare ratio was found on marginal size of farm.

Chapter I

INTRODUCTION

1.1 Background Information:-

Agriculture has occupied a place of pride in Indian economy and is the main source of national income. About 65 per cent population is directly or indirectly engaged in farming. Considering this fact, agriculture should be given more importance during plan period.

Total area of the country is 3287263 square kilometer which is 2.42 per cent (7th place) of the world supports a population of 17.5 per cent. The land under agriculture is 141.23 million hectare and 43 per cent total land out of which 40 per cent is irrigated and 60 per cent is rainfed. The growth rate of agriculture and allied sector is 5.4 per cent.

Good farm records are the foundation of good farm management. When farm records can be used by farm managers to quickly analyze situations and reach decisions, they are powerful tools to use in enhancement for farm profitability.

Farm business analysis is the process of retrieving, organizing processing and analyzing information used in farm business. Decision making is a critical ingredient in the management of the modern farm.

Farm business analysis may involve either the whole farm or a single enterprise. Whole farm analysis considers business feature that affect the enterprise business. It includes balance sheet analysis which shows changes in total assets, liabilities and resulting net worth. Income statement analysis which show changes in the business receipts, expenses, and various accounting adjustments; business cash flow analysis which indicates the amount of funds entering and leaving the business and ratio analysis which can reflect what is happening in the entire business.

The farm business analysis begins with review of current conditions. The resources available to the business the current operating plan, the existing financial condition and the skills and management ability.

Early period of the farm management development almost all over the world fell within the compass of simple cost accounting of farm organization (Hegted, 1974). It is no wonder, therefore, that the early workers happened to some agronomist and soil scientists. The second period witnessed increasing recognition of the role of economic principles partially application of the production economics to the field of agriculture, which could be better identified as farm management economics. It is only over the last decade or two that farm management acquired a predominant economics and cultivator orientation which could be used both for rational policy making and helping the farmer to make better (Flankey et al 1990; Thakare et al; 1979) decision. Thus farm management has come to its own very recently. A brief history of farm management work in India and in other countries is reviewed here for its contents, applications and limitations.

In India the first institute to initiate studies on farm accounts in 1923-24 was Punjab Board of Economics Enquiry with the major objectives of studying the costs and returns as well as farm resources use pattern in different region of the state to serve as a basis for agricultural policy for making by Government

In order to increase the per unit returns from agriculture, it is necessary to study the present cropping pattern followed by the cultivators. This information needs to be studied mainly because; cropping pattern followed by the cultivators is governed by so many factors like agro -climatic differences, irrigation facilities, etc.

The farm business is concerned with organization of farmer's resources in such a way as to assist the family in meeting their family expenditure and business goals. Good management requires sound

knowledge of economic principles because they are framework for farm operations and organizations. Good management also requires knowledge of farm practices which suits to the situation considering the new developments in the field.

Farm management deals with the organization and operation on a farm with the objective of maximizing profit from the farm business on a continuous basis. The farmers need to adjust his farm organization from year to year to keep abreast of changes in methods, price variability and resources available to him.

An exhaustive study on farm management was made by P.C. Patil in 1926, an attempt was made for the first time to calculate the opportunity cost or allocate them in accordance with cost accounting principles. The studies pertaining the cost of production of various crops or cost survey were also conducted by other organization such as ICAR, Gokhale Institute of Politics and Economics, Indian Central Cotton Committee or Indian Central Oilseed Committee since 1923. The studies were more of the nature of cost of production surveys.

Chandrapur district posses various typeof soil, the soil condition along vardha painganga valleys are rich with black regur loams and clay loam along the river bed. It lies between 19.30 north's to 20.45 north latitude and 78.46 east longitude. Climate is extreme hot during summer and average rainfall is 1214mm per year.

Such study would help research workers to understand the technology adopted by the farmers and suggest new changes either in cropping pattern or in utilization so as to increase the productivity per unit of area.

It is desired to develop principle that provides understanding of agricultural practices and managerial performance, as an aid to individual farm enterprises and on a basis for agricultural policy.

The function of farm management thus may be thought of synthesizing integrating technological information, farming resources, market opportunities and prices, technical and economic risk and the knowledge and skill of cultivators into some kind of production and income optimum. Thus, farm management deals with the people as organizers and decision makers in respect of farm and agricultural production. It is people oriented rather than crops or livestock.

On the basis of this information, it will be possible to adopt strategy according to the resources level, so that there would be increase in the farm income.

The irrigation facilities are not adequate and more than 90 per cent of area is dependent upon vagaries of monsoon. On account of this, cultivators use fertilizers mostly for irrigated crops, while few farmers apply for Rainfed crops. Rice, cotton, tur rabi jowar, wheat, gram, are grown in Chandrapur district.

The comparative economics of the various crops gives an idea about their profitability which would help the farmers for allocation of scare resources. At the end, major objective of the farmer is to maximize returns from the farm as a whole. Hence the total farm business needs to be studied, since the efficiency of farm resources differ according to the availability and quality of resources. It requires examining the efficiency of such resources on the basis of different farm size also.

1.2 Importance of the study

The present study mainly focuses into the farming systems and economic analysis of farm in Chandrapur district.

Recent development in production technology have increased the choice of alternatives to which scare farm resources can be put for achieving the economic goal of maximizing the stream of farm profit. The changing cost price relationship have further distributed the low

level of farm organizations established through long years of experience of cultivation in allocating the factors of production to different farm enterprise within the given framework of physical and social environment. The share of purchased inputs has increased considerably. The farmer now produces more for market. These developments have exposed them more to the factor and product, market and prices. The work on economic analysis of farm is very rare and hence this study was undertaken with following objectives-

1. To study the socio economic characteristics of selected farmers.
2. To work out the economics of farm business.
3. To estimate the farm efficiency of different farm size of selected farmer.

1.3 Hypothesis:-

On the basis of available literature review following hypothesis were set for present study.

1. The economics of farm business management having the positive returns.
2. The efficiency of the farm at different farm size is increasing against the increase in the farm size.

1.4 Scope of the study:-

This study would help the farmers for arranging their lands which includes more profitable crops and select such rotation which would give continuous higher income by maintaining fertility status of soil. Bankers need crop production data to fix maximum credit limits for the crop loans. This study would also be helpful to the Zillah Parishad Officer and policy makers working in this area to introduce new production technology.

On the basis of this information, it will be possible to adopt strategy according to the resources level, so that there would be increase in farm income.

1.5 Limitations of the study:-

As the sample of the study is from the specific area (Chandrapur district) the application of the result will be useful only for the area which has similar situation. The present study mainly focuses into the farming system and economic analysis of farm business of farmers of Chandrapur district.

Chapter II

REVIEW OF LITERATURE

The review of literature is one of the important aspects in the research process which help the researchers to get acquainted with the subject matter under study and future channelize efforts in desirable directions.

This chapter deals with the presentation of relevant literature on same and related studies done by the past research workers.

For the present investigation collected literature is presented under the following heads.

2.1 Cropping pattern and farming system.

2.2 Labours and resource utilization.

2.3 Economic analysis of farm.

2.1 Cropping pattern and farming system

Thorge and Gadgilkar (1985) conducted a study on economics of diversification of farming in Keliwali village in Akola district. The results of the study showed that, cropping pattern in optimal plan shifted in favour of Jowar and Cotton at the cost of Mung, Wheat rotation. They indicated substantial increase in net returns due to adoption of Jowar, Cotton and annual rotation.

Vitonde and Korane (1990) studied comparative economics of high yielding varieties of cotton in Nagpur district. They observed that, 60 to 70 per cent of cultivators of small and medium group obtained Cotton 5 to 10 quintals per hectare and spend Rs.3000 to 5000 per hectare. About 40 to 50 per cent of cultivators in small, medium and large group had obtained net returns of Rs.100 to 1000 per hectare while 20 to 30 per cent cultivators had obtained net returns below

Rs.100 per hectare and remaining other obtained net returns between Rs.1000 to 5000. Net income per hectare and per quintal was more in H₄ than ANN-768 and SRT-1.

Singh and Balishter (1995) studied integrated farming system in Bitchpuri block of Agra district of western Uttar Pradesh. The study revealed that, by adopting the mentioned practices farmers can easily obtained a net profit to the extent of up to Rs.24000 per year from the holding of one hectare irrigated land. The result further indicated that the mixed farming with milch animal along with growing fodder crop on the same land unit generated more employment potential with uniform demand for labour throughout the year in comparison to arable farming.

Rangaswamy *et al.* (1995) studied rice based farming system available approach. A model was developed for holding of 0.4 hectare to suit the small and marginal farmers of Tamil Nadu Agriculture University, Coimbatore from 1987-1992. The study revealed that, the total net income under rice-poultry-fish-mushroom integrated farming system was Rs.12025 and net income for conventional cropping system was Rs. 6334 per year from 0.4 hectare area. Practicing integrated farming system gave an additional net income of Rs. 5091 per year over conventional cropping system. Moreover, it generated an additional employment of 453 man days per year over conventional cropping system from a specified area and thus helped in effective utilization of family labours round the year. It also minimized the risk associated with crop production.

Joshi (1998) examined the cropping pattern followed in Vidarbha was diversified in nature. Cotton and Jowar dominated the cropping pattern in all the six groups, these two crops account for as high as 78.56 per cent of the total area for the sample as a whole. Area under high yielding varieties of crops was much less being 9.41 per cent 8.58 per cent of the cotton crops for the sample as a whole respectively.

Panda and Patro (1998) studied Rice-Dairy farming system in Orissa. They concluded that, the total net income under Rice-Dairy farming was Rs. 12359 and net income in conventional approach was only Rs. 9895 per year from 0.6 hectare. Moreover, it generated an additional employment of 398 man days per year over conventional cropping system from specified area and thus helped in the recycling of farm waste and by product round the year. It also minimized the risk associated with crop production.

Sonthivel *et al.* (1998) used the farming system approach for sustainable yield and income under rainfed vertisole in Tamil Nadu. The study on the integrated farming system initiated during 1989-90 and studied in 1994-95 at regional research station, Arappu Kottal farm. The study concluded that, with the adoption of integrated farming system with cropping rainfed fruit trees and goat rearing on dry land, there would be a considerable increase in income for small and marginal farmers.

Pagire *et al.* (2002) examined the comparative farming systems in Ahmednagar district of Maharashtra State. The study revealed that, the crop+dairy farming system was provided much more employment to male and female workers (110 and 136 days). Per hectare income was nearly double in crop+dairy farming system than that of crop only system. The output-input ratio was also higher (1.49) in crop+dairy farming system. Out of these two farming system, the crop+dairy system was observed to be more profitable than crop farming.

Mohanty and Mishra (2003) studied rice-fish farming in the rainfed medium lands of Eastern India. They revealed that, to increase the productivity from unit volume of rainwater and unit area of land without bringing about environmental degradation. Besides increase income, provides better nutritional security and generates employment opportunity. In rainfed medium lands rice-fish integration based on the principle of rain water conservation has highest rice yields of 3629 kg/ha and fish and prawn yield 1282 kg/ha in a season without

application of pesticides. Runoff water collected in the refuge is utilized for rearing of fish and prawns in addition to its use for supplemental irrigation during dry spells.

Dawit and Basavaraja (2004) studied production and marketing of wheat in Dharwad district. They observed that, the major item of the cost incurred rainfed wheat cultivation by all the categories of farmers was the amount spent on human labour followed by bullock labour. On an average the wheat producer is 32.39 man-days (hired+family) valued at RS. 1295.6 per hectare and 7.96 bullock pair days (Rs 1194 per hectare). The small farmer employed highest number of man-days per hectare (33.79) valued at Rs.1350 (15.07%), while the large farmers used 31 man-days per hectare and cost incurred towards the same was 1240 sharing 14.07 per cent of the total cost of cultivation. The share of labour was 26 per cent of total human labour on small farms. Whereas on large farms it was found to be 31 per cent. Similarly, bullock labour employed on small and large farms was found to be 8.54 pair days and 7.38 pair days respectively. The small producer spent relatively more on fixed cost items per hectare (Rs.4780.8) compared to their large counter parts (Rs.4721.6). It was noticed that the average yield per hectare was found to be 9.8 quintal and 9.6 per quintal for small and large producer respectively. The gross returns per hectare were found to be marginally higher for larger producer (Rs.10797) as compared to small producer (Rs.10518). The net returns per hectare were found to be higher (Rs. 1989.78) for large producer as compared to small producer (Rs.1561.2).

Singh et.al.(2008)studied economics of sugarcane-based farming system in western Uttar Pradesh. They observed that, amongst 38 farming systems prevalent in the western Uttar Pradesh region, sugarcane-livestock-cereals-fodder has been found the major system being followed by a majority of farmers. It has been found that sugarcane farmer keeps in general two dairy animals, largely for household milk consumption. The major income source of farmers in

the area has been found sugarcane (58 per cent), followed by livestock and cereal crops. The study has revealed that marginal farmers take highest credit, while large farmers take minimum credit. It has also been observed that facility of Kisan Credit Card (KCC) is being availed by only 21 per cent farmers. Farming activity-wise analysis has revealed that sugarcane provides maximum employment, followed by livestock and wheat. In terms of income, the study has observed that a family worker earns Rs. 41,270 per year in the study area, which is much lower than that in Punjab (Rs.74,080/year). The study has suggested that a combination of technology, policy and institutional innovations is needed for improvement in productivity and profitability of crops and livestock in the area.

Chinnappa (2009) studied economic evolution of different cropping system in water scarcity region of Bhadra command area, Karnataka, India. In order to find out the relative profitability of cropping system, measure like farm business income to income to family labour and input-output coefficient were computed. Paddy-Groundnut and Paddy-Jowar system with gross income of Rs.22915.50 and Rs.21874.00 respectively were observed. In respect of net income also, Cotton followed by list registering highest figure of Rs.11289.64. The input-output coefficient of cotton-groundnut and paddy-jowar was 1.79 and 1.72 respectively. From the foregoing analysis, it could be concluded that cotton-groundnut, paddy-groundnut, and paddy-jowar system were found to be profitable providing reasonable income to farmer's community Groundnut after cereal crop had beneficial effect on soil health.

Kalpna *et al.* (2009) studied crop diversification for increasing productivity and profitability in irrigated uplands of Tamil Nadu .A field experiment was undertaken during kharif 2005,rabi 2005-2006 and summer 2006 at Tamil Nadu Agriculture University, Coimbatore under All-India Co-ordinated Research project on cropping system to identify the most biologically efficient and profitable system for the irrigated

uplands of western zone of Tamil Nadu. Among the nine sequence the highest gross returns was recorded with Sugarbeet-Maize-Groundnut system (Rs.10, 01,783/ha) followed by Beetroot-groundnut-maize+cowpea system (Rs.9,01,530/ha) and cotton+greengram-maize-sunflower system (Rs.89,257/ha). However, the net returns was highest in maize-cowpea-tomato with Rs.44 353/ha followed by beetroot-greengram-maize+cowpea system with Rs.40,098/ha. The highest B:C ratio was recorded under maize-cowpea-tomato with 2.08 followed by cotton+soybean-sesbania aculeate-sunflower system with 2.00.

Tripathi (2010) studied comparative economics of organic and inorganic farming in Amravati district. Study revealed that, the cropping intensity of organic and inorganic farming was 147.27 and 140.44 per cent respectively. Net returns obtained at cost 'A' cost 'B' and cost 'C' was Rs. 14189.13, Rs.9278.66 and Rs.7753.46 and Rs.16148.18, Rs.10587.3 and Rs.9878.5 and Rs.12166.85, Rs.7644.34 and Rs.7028.84 and Rs.13909.19, Rs.8682.96 and Rs.7970 for cotton, tur, moong and wheat respectively. Input-output ratios were higher in organic farming as compared to inorganic farming. They were 2.54 against 1.95, 1.66 against 1.35 and 1.49 against 1.27 at cost 'A' cost 'B' and cost 'C' respectively. For mung the input-output ratio at cost 'A' cost 'B' and cost 'C' was 2.50 against 2.66, 1.61 against 1.43 and 1.54 against 1.38, respectively, while for wheat it was 2.23 against 1.76, 1.52 against 1.32 and 1.49 against 1.28 cost 'A' cost 'B' and cost 'C' respectively.

2.2 Labour and resource utilization

Shete *et al.* (1995) examined the resource use and input-output relationship of mixed and arable farming in Ahmednagar district of Maharashtra. They concluded that, the use of all resources was higher on mixed farms compared to arable farms in both the irrigated and unirrigated regions. In mixed farms of irrigated regions total value of

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output increased with increase in gross cropped area and human labour, while it decreased with the expenses on livestock.

Prabhakaran and Thirunakkarasa (1995) studied the income and employment dynamics of Goat farms in different agro climatic zones of Tamil Nadu. They concluded that, on an average 184, 309 and 437 labour days were generated per household per annum on small, medium and large size categories respectively. Cost of production per annum was Rs. 1909, 4130 and 6557 for small, medium and large herds of which net income was Rs. 1200, Rs. 1879, and Rs. 6800 for small, medium and large herd respectively.

Hulgar *et al.* (1999) studied adoption level and profitability of different combinations of farm enterprises in existing farming system. The data were collected from 100 farmers in Nagamangala and Mandya district of Karnataka. The study revealed that, the overall adoption of improved practices of crop was slightly higher than the farmers who grown ragi as a major crop. The adoption level of improved practice of sheep rearing cost was Rs. 18076 for the farmer who grown ragi as a major crop while in case of farmers who had grown sugarcane as a major crop was about Rs. 42984.

Singh *et al.* (1997) studied the consistency in income and employment generations in various farming system in Uttar Pradesh. This study on integration of crop and livestock system was carried out from 1984-85 to 1990-91. The study revealed that, the maximum gross returns of Rs.51723 was received from cow unit, Rs.2585 from arable unit with one milch animal and Rs. 16230 from pure arable unit. Inclusion of one milch animal resulted into an increase of about Rs.9000 in gross income as compared arable farming. The unit with three cross bred cows on one hectare canal irrigation land gave maximum net returns of Rs.21312 which was about two times of net income obtained from unit with three buffaloes (Rs.9426) and four times the income from arable farming with one animal. Mixed farming system generated maximum employment higher man days (630) were

recorded in buffaloes unit followed by cow (559) man days and arable farming (334) man days.

Gumaste and Borude (2000) studied the profitability of dairy enterprises in Konkan region of Maharashtra State. A sample of 200 dairy farmers was selected by three stage random sampling for the year 1996-97. The study indicated that, fixed capital requirement for crop was higher than dairy enterprises. While working capital requirement of dairy was more than crop enterprises. However, profitability worked out on the basis of farm business income, the dairy enterprise showed its dominance over crop enterprise.

Shendage (2002) studied the employment and income generation through different farming system in Amravati district of Vidarbha region. Total 60 cultivators who adopted the farming system viz; crop enterprise- crop+dairy, crop+poultry and crop+horticulture were selected. Data were collected by survey method for the year 1996-97. The study concluded that, the crop+poultry farming system provided the maximum employment per male and female together constituting 296 man days followed by 172 man days in crop+ dairy farming system. Per hectare employment, per farm total net income received was the highest (Rs.39711.64) in crop+horticulture farming system followed by Rs. 22720.95 in crop+dairy farming system. However, per hectare total net income was the highest (Rs.18230.24) in crop+poultry farming system, followed by (Rs.16275.26) in crop+horticulture farming system.

Jadhav *et al.* (2002) studied optimal resource use for crop production in rainfed and irrigated region of western Maharashtra. Cobb-Douglas production function was used for testing existing use of farm resource. The functional analysis showed that the five variables viz; Area (X1), human labour (X2), bullock labour(X3), manures and fertilizers (X4) and working capital (X5) together explained 54.52%-80.12% and 55.85%-74.19% variation in crop production in irrigated and rainfed regions respectively. The regression co-efficient of human

labour was positive and significant for all farm size group indicating scope for additional use of human labour. The co-efficient of bullock labour was significantly positive for small farms in irrigated region only whereas manure and fertilizer and working capital showed scope for higher use than existing in irrigated region.

Srilatha *et al.* (2003) studied that seed is a very vital input and a dynamic instruments for increasing agriculture production. At present Andhra Pradesh is the seed capital of India, being endowed with an excellent climate suitable for seed production particularly of hybrid varieties. The total quantity of seed produced in the State during 2001-02 was about to 20.51 lakh quintals and the seed distributed for different crops in the State was about 12.61 lakh quintals. Seed replacement ratio in Andhra Pradesh (49 per cent) is more than double when compared to India (20 per cent). The area and seed requirement for hybrids is much higher than the local varieties for Maize, Sunflower and Cotton crops. The gap between the certified seed requirement and its production was highest for Sunflower with 86.87% followed by Maize (70.34%) and Cotton (63.69%). Finally it could be concluded that certified seed production under hybrid increased to overcome the gap between certified seed requirement and production.

2.3 Economic Analysis of Farm

Johnson(1956) in his paper entitled analysis of farm cost and return in United States emphasized that, cost and return studies revealed interfarm decision and indicates most profitable enterprise for the farm and also provided the basis for agricultural programmes designed to accelerate the desirable changes in farm production. There were primary indicators to relative economics of the enterprises. The farm budgeting approach was developed to solve this problem and it contributed significantly to measurement of relative efficiency of resources used in various enterprises.

which small and medium farms were operated at loss of Rs.1517 and Rs.1409 whereas Rs.401 and Rs.191 for per farm and per hectare respectively whereas large farms, there were net returns the farm business per hectare to the tune of Rs.246.

Kalyankar (1992) studied economic analysis of farm business in assured rainfall zone of Maharashtra. He found that, at present level of technology and input-output prices, returns from farming on 28 per cent farms were not sufficient to meet out pocket expenses. Further farm business income was not sufficient to cover costs on 2/3 farm holding in the study area.

Sudke and Eswarprasad (1995) studied farm business analysis in Latur district (Maharashtra State). They observed that, production efficiency was highest (235.21%) in case of Kharif sunflower followed by rabi jowar (215.05%). It was lowest (107.25%) in safflower. The crop yield index was highest (153.97%) in medium farms followed by small (149.86%) and large (144.95%) farms. The labour efficiency was highest in small farms (0.43%) followed by large (0.39%) and medium (0.37%) farms. The operating efficiency was highest in medium farms (0.51%) followed by small (0.50%) and large (0.47%) farms. The cost per hectare of cropped area was highest in medium farms (Rs.3217.00) followed by small (Rs.3014.00) and large (Rs.92977.00) farms. The gross (cost) ratio was indicative of profit margin for the business as whole. They showed reverse trend with farm size of holding i.e. It was highest in small farms (0.73%) followed by (0.71%) in medium farms and lowest (0.64%) in large farms. Capital per unit of gross income showed negative association with farm size of holding i.e. It was highest in small size farms (2.46%) farms. followed by medium (1.81%) and lowest in large (1.49%) farms. Capital per unit of labour also showed similar trend, it was highest in small size farms (132.88%) followed by medium (97.67%) lowest in large size farms (80.34%). The rate of capital turnover was highest in large farms (463.61%) followed by medium (248.15%) and small (147.65%) farms.

Gadre and Mahalle (1998) studied the cost and returns of dairy enterprises as an adjunct to crop husbandry in Vidarbha region of Maharashtra State. The study covered a sample of 113 farms selected from eight districts of Vidarbha Region. The study revealed that, cost of rearing a cross bred cow and buffalo worked out to Rs. 7665 & Rs. 9902 respectively. Whereas the gross returns were Rs. 10496 & Rs. 16296 respectively. Further it was observed that the highest net returns was obtained by small farmers from both cross bred and buffalo, which worked out to Rs.3891 & Rs.1053 respectively.

Radha *et al.* (1995) studied role of dairying as an adjunct to crop husbandry in Andhra Pradesh. Twenty landless labour having dairy as the main enterprise and twenty each from small and marginal farmers were selected randomly. The data were collected for agricultural year 1992-1993 by direct interview method. The result of the study indicated that, the farmers in the study area obtained net returns of Rs. 10549 from agriculture. The analysis revealed that by maintaining one milch animal as an adjunct to crop husbandry and incurring an additional expenditure of Rs. 4485 for cultivating one hectare of land, the farmers would be in position to derive an additional employment 76 man days or 24 percent of the total employment per year.

Reddy and Maraly (1996) studied identification of profitable diversified farming system with two enterprise combinations was conducted in Guntur district of Andhra Pradesh. The data were collected from 120 samples. Farmers comprising small, medium and large for agricultural year 1993-94. Based on the net B:C ratio, the most profitable combinations were identified. The combination of Paddy+Sheep and Goat was most profitable to small farmers while Paddy+Poultry were profitable to medium and large farms.

Dhaka and Jain (2000) studied the economic analysis of dairy and crop farming system in Haryana. The data were collected from 200 respondent's farmer for year 1997-98. The investment pattern on dairy

farming system indicated that maximum investment was made on milch animal followed by cattle shed and dairy equilibrium.

Deshpande *et.al.* (2002) studied the comparative economics of different farming system in Amravati district. In all 60 samples, cultivators were randomly selected and grouped into four farming system containing farmers in each group. The data were collected for agricultural year 1996-97. The study revealed that the highest per hectare net returns was accounted from crop+poultry farming system which was estimated to Rs.18230 of which contribution of crops to total net income was 26.46 per cent. The contribution of poultry unit to the total net farm income was estimated to be 73.54 per cent. The second highest income from the cropping sequence was crop+orange that yielded net returns of Rs. 12675.26 per hectare. The highest income generating subsidiary enterprise on the selected farms was poultry, followed by orange and dairy, which in turn contributed to 73.54, 73.13 and 57.27 per cent of the total net income respectively.

Veerkar and Kamble (2002) studied the economics of crop + dairy farming in Chiplun block of Ratnagiri district. Data were collected from 100 farmers who were performing crop + dairy combinations for the agricultural year 1999-2000. The result indicated that the crop production activity sustained loss on small and medium farms to the extent of Rs. 2268 and Rs. 1147 respectively. However on large farm this activity gave a profit, which ranged from Rs. 2596 on small farms to Rs. 4026 on large farms with overall profit of Rs. 3211. The combination to Rs. 7525 on large farms with overall per farm net profit of Rs. 1999.

Satpute *et al.* (2002) studied the economics of crop livestock system in scarcity zone of Marathwada region. Andur village from Tuljapur taluka of Osmanbad district was selected. The entire population of selected village was surveyed and four farming systems namely crop + local cow, crop + local cow + buffalo, crop + buffalo + crossbred and crop + buffalo + goat were identified. Thirty

respondent farmers were selected for every farming system and data were collected for agricultural year 2000-01. It was revealed from the study that the total per hectare expenditure for livestock was to the tune of Rs. 33813. The total expenditure of Rs. 41023 was seen for crop + buffalo + crossbred farming system. The lowest per hectare expenditure of Rs. 24730 was observed for crop + local cow farming system, on an average gross returns of Rs. 44745 were achieved. The gross returns of Rs. 32050, 40299, 55249 & 44380 were achieved for selected farming system. The gross expenditure and gross return from selected farming system were to the tune of Rs. 60215 and Rs. 74215 at overall level. The highest gross returns of Rs. 85140 followed by Rs. 75692 were obtained for crop + buffalo + crossbred and crop + local cow + buffalo system. The crop + buffalo + crossbred farming system was found to be superior over rest of farming systems.

Naik *et al.* (2002) studied the economics of farming system in South Konkan coastal region of Maharashtra State. It was observed that ,in sole cropping, 100 percent income was contributed by the crops. In mixed farming (crop + dairy), 34.40 per cent income was contributed by dairy enterprise and remaining by crops. Regarding crop + poultry, 16.17 per cent of income was contributed by poultry enterprises and remaining 58.33 per cent income was contributed by crop production. It was also revealed that only crop provided 197.58 man days employment, where as crop + dairy farming system provided 242.49 man days employment. Crop + poultry system had provided 203.18 man days' employment and crop + dairy + poultry farming system provided total employment of 248.09 man days.

Elamurugannan (2003) studied an economics of mixed farming in rainfed agriculture, Erode district of Tamil Nadu. He studied on diversification of farming with livestock enterprise in dry tacks of livestock enterprise on farm income and to prepare optimum plans for crop and livestock enterprise combinations. He revealed that cost of cultivation was higher for cotton, tomato and coconut followed by other

crops and net returns were also higher in these crops. In dairy and sheep rearing enterprises, the cost of rearing was higher in large farms followed by medium and small farms. Among the four enterprise combination, farms with crops, dairy and sheep rearing had the higher annual net income; conversely farms with only crop enterprise had lowest annual income per farm. 'As the size of group increased from small to large, the contribution of crop to total annual income per farm increased'

Mahalle (2003) studied an economics of production of hybrid cotton for the year 2001-02. The overall level per hectare gross returns was Rs.17070.06. The farm business income i.e. profit over Cost 'A' was Rs. 6995.08 while net return over Cost 'C' was Rs.2165.00. The B:C ratio at cost 'A' and Cost 'B' were 1.69 and 1.14.

Muruganand and Mamasiyam (2005) studied on Cost and returns per acre around the different sizes of land holding in farm irrigated, un-irrigated and pooled in Tamil Nadu – A microanalysis concluded that the cost of production and the output per acre in the medium farms were higher than the marginal farms. The medium farmers have enjoyed greater monetary benefits than the marginal farmers in the study area. The input-output ratio in terms of total production cost was higher for medium farms at Rs.1.95 followed by small farms at Rs.1.80, marginal farms at Rs.1.64 and large farms at Rs.1.62. It seems that the benefit generated by acquiring one rupee of total production costs was the maximum for medium farms and was the least for large farms.

Salunke, (2007) studied farm business analysis of different size of farms in Amravati district .The cropping intensity was highest on large farms. The input output ratio of orange crop at cost A, B and C was highest i.e. 1:5.6, 1:2.8 and 1:2.7 respectively. The lowest input output was in soybean crop i.e. 1:2.1, 1:1.57 and 1:1.49, at cost 'A', cost'B' and cost'C' respectively, gross output-input ratio was highest on large size i.e. 3.34. The gross ratio was highest in marginal size

group i.e. 0.89 medium size group was good because the per hectare net cash income was highest in medium size group.

Sushila Kaul *et al.* (2009) studied economic analysis of productivity and profitability in rice production in India. The study indicated that there has been significant improvement in productivity of rice crop in the beginning of advent of new technology. The total revenue for the crop has been increasing continuously from an average value of Rs. 2360 during 1980-81 to Rs.8890 during 2000-01. However, net revenue was falling and was negative for the year 2000-01. An effort should be made to improve rice productivity to increase profitability and net revenue from the crop and the states like Madhya Pradesh, Rajasthan, Bihar and Orissa showing lower yields be given more attention in this regard.

Singh *et al.* (2010) studied economics of commercial young age silk worm (*Bombyx. mori. L*) rearing center. An analysis was made to estimate the cost of production chawki rearing with the successful model developed at the commercial CRCs depending their economic viability and commercial feasibility hence the economic has been worked out for a commercial CRCs which can rear @5000 dfls/batch in every 10 days interval and cater the needs of 100-120 areas mulberry area. Farmer raised reeling cocoons from 0.8/ha mulberry garden could get 1500 kg cocoons/year and income would be Rs.75,000 however if he engaged in commercial CRC his income would be Rs.1,08,000.It is obvious that establishing a commercial CRC is more profitable economic venture.

Nagare, J. V (2010) studied economic analysis of kharif groundnut in Buldhana district. The study revealed that, per hectare gross returns from groundnut cultivation was Rs.388124.50. The gross returns ranged from Rs.33915 in low adoption group and Rs.43875 in high adoption group. Cost 'A' was observed to be the lowest in small adoption group (19401.67) highest in high level group (Rs.23911.81). Cost 'B' at over all level was Rs.289241.91, Cost 'B' was lowest in low

adoption group (Rs.25159.10) and highest in high adoption group (Rs.32123.52). Cost 'C' at over all level was Rs.31272.91. It was lowest in low adoption group (Rs.27952.10) and highest in high adoption group (Rs.34637.52). Input-output ratio at cost 'C' in low adoption group was lowest (1:1.22), in medium adoption group (1:1.24) and in high adoption group it was highest (1:1.27). Results from the study lead to the conclusion was 65 per cent of selected farmers were using less than 80 per cent recommended yield. The net returns were higher in high level of adopter group. The input-output ratio was higher in high level of adopter group than medium and low adopter group.

Ram Suresh *et al.* (2012) studied economics of production and marketing of aromatic crops in Uttar Pradesh. He observed that the economics of production of three medicinal and aromatic plants, viz. Menthol mint, tulsi and vetiver has been worked out using farm level data from the districts of the Barabanki, Sitapur and Raibareli in Uttar Pradesh. The cultivation of these plant species has been found to be highly profitable, and farmers of these districts need to be made aware about this fact. The net returns over total cost have been found higher for vetiver (Rs.1,53,933/ha), followed by menthol mint (Rs.53,250/ha) and tulsi (Rs.40,094/ha). The benefit cost ratio however has been observed to be highest for menthol mint (3.27), followed by tulsi (3.21) and vetiver (3.04). The employment generation potential of these three crops has also been found quite high. The education of farmers has been found to be influencing the cultivation the aromatic crops.

Jeen T. Srinivasan (2012); studied an economic analysis of paddy cultivation in the cole land of kerala. It was observed that the average size of individual land holding across all Padasekharams in the cole land is 0.36 hectare. The marginal farmers have an average area of 0.31 hectare where as small farmer is 1.25 hectare. The average yield of paddy per hectare from kole farm is found to be 5162 kg per

hectare where as it has been 3705 kg per hectare in Kerala during 2006-07.

The cost of cultivation per hectare of paddy cultivation is about Rs. 45588. The analysis of cost of cultivation land holding size wise shows that small holder cultivator incurs significantly lesser cost. Cost incurred by marginal farmer is Rs. 46503 per hectare; it is only 27,983 for small holder cultivator. Among the components of costs considered here, labour costs formed the single largest item and accounted for 65 per cent. The cost incurred on the input varied between 3 to 8 per cent of the total cost. It is seen that small farmers are incurring approximately 10 percent lower cost on labour and comparatively higher cost on fertilizer when compared with marginal farmers. The farmer growing paddy in the kole land realised a gross return of Rs. 56,730 per hectare. Output has been valued at the procurement price of Rs. 11 per kg. The average net benefit from paddy cultivation is found to be Rs. 11,142 per hectare. This is as low as Rs. 2335 for small padasekharams. While small holder cultivators have a net profit Rs. 27,736 per hectare, it was low as Rs.10279 for marginal holders. We also worked out the ratio of gross value of output and the costs. The ratio was found to be 1.54 for all categories of farmers and ranged from 1.30 for small Padasekharams to 2.58 for small holder cultivators.

Chapter III

METHODOLOGY

Adoption of sound Methodology is of vital importance in the economics study. It comprises of collection of data, sampling technique, designing of schedule, analysis of data, presentation and interpretation of result. The different techniques used and methods adopted in this study are described in this chapter.

3. Sampling Procedure

In the present study multistage random sampling technique was used.

3.1 Selection of the district

The first stage of this procedure was selection of district. Since the study comprise of economic analysis of farm, it was thought proper to select Chandrapur district which is located between 19.30 north to 20.45 north latitude and 78.46 east longitude with average rainfall ranging between 1214 mm per year.

3.2 Selection of sample

The Chandrapur district contains fifteen tahsils out of these six tehasils viz; Chimur, Nagbhid, Sindevahi, Mul, Chandrapur and Warora were selected for study. Two villages were selected from each tahsils. The details of selected village wise farmers and their distribution are presented in table 3.1

Table 3.1 Details of selected village wise farmers and their Distribution

Sr.No.	Name of the villages	Name of Talukas	Total no. Of farmer
1	Bhisi	Chimur	8
2	Amboli	Chimur	8
3	Kanpur	Nagbhid	8
4	Shankarpur	Nagbhid	8
5	Korgoan	Sindevahi	8
6	Navargoan	Sindevahi	8
7	Durgapur	Chandrapur	8
8	Chota nagpur	Chandrapur	8
9	Mul	Mul	8
10	Rajoli	Mul	8
11	Shegoan	Warora	8
12	Warora	Warora	8
	Total		96

A list of farmers from the selected villages was obtained. The farmers were categorizing into marginal, small, medium and large on the basis of size of holding. From each village ten cultivators were selected from four size of holding randomly. The details are as below.

Table 3.2 Details of selected farmers and their distribution according to size of holding

Size group	Range of area in hectare	No. of cultivators
Marginal	Up to 1.00	33
Small	1.01 to 2.00	29
Medium	2.01 to 4.00	23
Large	4.01 and above	11
	Total	96

The details of selected farmers and their distribution are presented in Table 3.3.

Table 3.3 Details of selected farmers and their distribution

Sr.No.	Name of the village	No. of selected farmers				Total
		Marginal	Small	Medium	Large	
1	Bhisi	3	3	2	0	8
2	Amboli	3	2	2	1	8
3	Shankarpur	3	3	2	1	8
4	Kanpur	2	2	3	1	8
5	Navargoan	3	2	2	1	8
6	Korgoan	3	2	2	1	8
7	Durgapur	3	2	2	1	8
8	Nagpur	2	2	3	1	8
9	Rajoli	3	2	2	1	8
10	Mul	2	3	2	1	8
11	warora	3	3	1	1	8
12	Shegoan	3	3	1	1	8
	Total	33	29	23	11	96

3.3 Collection of data

The information about the farming business was collected by personal interview method through specially designed schedule for the year 2009–10. The information was collected from the selected cultivators was mainly related to his family and farm. This includes number of family members, labour available from the family for cultivation of crops, income sources and education level. As regards land it includes total area and area under cultivation, cropping pattern, sources of irrigation. Further the information regarding livestock owned by the cultivators was also collected.

The details information regarding cultivation practices followed by the cultivator on various inputs such as labour, fertilizer; seed, insecticides and pesticides etc. along with details about various operation carried by the cultivator was collected.

3.4 Analysis

3.4.1 Cost concept: - The standard cost concept i.e. cost 'A'. Cost 'B', cost 'C' was used.

Cost 'A':- It includes the expenditure on seed, manures and fertilizers, hired human labour, bullock labour, land revenue, irrigation charges, machinery charges, interest on working capital and depreciation on farm implements.

Cost 'B':- It includes cost 'A' plus interest on fixed capital and rental value of land.

Cost 'C': - It includes cost 'B' plus imputed value of family labour.

3.4.2 Evaluation of input factors

3.4.2.1 Human labour

It was divided into two i.e. a) hired human labour b) family labour

a) Hired human labour

Actual amount paid both in cash and kind by farmers was noted. Permanent hired labours to whom actual amount paid both in cash and kind annually by farmers were also noted.

b) Family labour

The value of family labour was imputed at the existing rate of the attached farm labour. When attached labour was not engaged then it was imputed at the prevailing wage rate of the hired labour from time to time.

3.4.2.2 Bullock Labour

Owned bullocks were charged by considering prevailing hiring charges and bullock labour and actual maintenance cost.

3.4.2.3 Seed cost

The actual cost of purchased seed was considered. The owned seeds were charged at prevailing in market price.

3.4.2.4 Manures and fertilizer

The cost of manures and fertilizer applied to the crop were considered. Farm yard manure prepared on farm was evaluated of prevailing market price. The purchased manure and fertilizers were evaluated at the actual price paid by the farmer.

3.4.2.5 Irrigation Charges

Irrigation charges were calculated at the rate of charges actually paid by the cultivators. Regarding electricity, repairs of machinery and the labour charges paid for the irrigation operation.

3.4.2.6 Land Revenue

Land revenue varies according to the fertility of soil. The total land revenue was distributed for each crop according to area under crop.

3.4.2.7 Implement Charges

Hired implement and machinery were considered as per actual charges paid by the cultivator.

3.4.2.8 interest on working capital

Interest on working capital was estimated at the rate of 6% per annum and for seasonal crops it was considered for the crop duration.

3. 4.2.9 Depreciation

It includes depreciation charges and repairing charges of implements and machinery. The depreciation charges on implements, machine and farms building were work out by straight line method. In case of repairs to implements the actual cost incurred was taken into account.

It was calculated by-

$$\frac{\text{Purchased price} - \text{Junk value}}{\text{Expected life}}$$

3.4.2.10 Rental Value of land

Rental value of land means the charges for the use of the land. It was calculated as 1/6 of the total gross value of produce less land revenue.

3.4.2. 11 interest on fixed capital

It was calculated at the rate of 10 per cent per annum.

3.4.2. 12 Gross returns

Physical quantities of main and by product were noted. It was evaluated at the market price.

3.4.2.13 Net Returns

Net returns at cost 'A', cost 'B', cost 'C' were worked out by deducting the expenditure from the gross income.

Net returns = Gross returns – Gross expenditure

Net returns at cost 'A' = Gross returns – cost 'A'

Net returns at cost 'B' = Gross returns – cost 'B'

Net returns at cost 'C' = Gross returns – cost 'C'

3.4.3 Farm business analysis

The various farm efficiency measures used in the farm business analysis were as under.

3.4.3.1 Land use efficiency

a) Yield per hectare (Production efficiency):-

The production efficiency of a farm was worked out for each crop enterprise as percentage to average yield of the district.

$$\text{Production efficiency} = \frac{\text{Yield of crop on farm}}{\text{Average yield in the district}} \times 100$$

a) **Crop yield index**

It is measure of comparison of the yields of all crops on a given farm with the average yield of these crops in the locality.

$$\text{Crop yield index} = \frac{\text{Yield per hectare on the farm}}{\text{Average yield of the locality}} \times 100$$

C) Intensity of cropping

It measures the use of land for cropping purpose during a given year.

$$\text{Cropping Intensity} = \frac{\text{Gross cropped area}}{\text{Net cropped area}} \times 100$$

3.4.3.2 Labor efficiency measures

By comparing labour efficiency we can know whether the labour of farm is more or less than actual required.

a) Crop hectarage per man equivalent

The significance of this measure is influence by the varying proportion of crop with high or low labour requirement. Man equivalent is the average number of man required for any particular work.

$$\text{Crop hectarage per man equivalent} = \frac{\text{Total cropped area (in ha)}}{\text{Man equivalent}}$$

b) Productive man work units per man equivalent

$$\text{P.M.W.U. per man} = \frac{\text{Total P.M.W.U.}}{\text{Man equivalents}}$$

3.4.3.3 Ratio measures

1) Cost Ratios

a) Cost per hectare

Both operating and fixed costs per hectare was computed as below.

$$\text{Cost per hectare} = \frac{\text{Total costs}}{\text{No. of hectares}}$$

b) Gross (cost) ratio

The gross (cost) ratio or ratio of total externals to gross income is a combined measure of the profit making ability of the farm .

$$\text{Gross cost ratio} = \frac{\text{Total expenses}}{\text{Gross income}}$$

c) Operating cost ratio

Operating cost ratio shows the proportion of total income used in 1) hiring labour 2) buying seeds, fuel and other annual supplies and 3) in keeping equipment in operation etc.

$$\text{Operating cost ratio} = \frac{\text{All variable cost}}{\text{Gross income}}$$

d) Fixed cost ratio

Fixed cost ratio calculated by a ratio determined by dividing the total fixed costs by gross profit. It includes 1) Land revenue 2) Water taxes 3) Depreciation 4) Rental value of land 5) Interest on fixed capital.

$$\text{Fixed cost ratio} = \frac{\text{Fixed expenses}}{\text{Gross income}}$$

B) Capital ratio

Capital ratios were used for the analysis of the organization with respect to the resources of farm.

a) capital per unit of gross income

It was worked out as capital per unit of gross income.

$$\text{Capital per unit of gross income} = \frac{\text{Total capital invested}}{\text{Gross income}}$$

3.4.3.4 Aggregate measures

There are various measures which can be used to evaluate farm income and profit.

- 1) **Total capital** – Overall value of capital used for different farm asset .
- 2) **Gross income** - It is the total value of main produce and by produce.
- 3) **Gross expenses** – it is the total expenses incurred on input.
- 4) **Net worth** - it is the excess of assets over liabilities.

- 5) **Net cash income** - Total cash receipts from production minus total cash operating expenses.
- 6) **Net farm income** - It was calculated as per net cash income farm production plus or minus change in the inventory.
- 7) **Farm earning** - It was calculated as net farm income plus value of farm privilege (farm products used at home).
- 8) **Family labour analysis** - It was calculated farm earning minus interest charges on farm capital or analysis of family labour required in whole life cycle of crop.
- 9) **Economic analysis of farm** - It is total aggregate of net farm income and value of farm privileges (farm produce used for home consumption)
- 10) **Returns to management** - It was calculated as family labour earning minus imputed values of the family labour.

Chapter IV

SOCIO ECONOMIC FEATURE OF CHANDRAPUR DISTRICT.

Maharashtra state has six revenue divisions that are viz Mumbai, Nasik, Pune, Aurangabad, Amravati, and Nagpur. Vidarbha area includes Amravati and Nagpur division.

Vidarbha as a whole contribute for Cotton, Paddy, Jowar, Oilseeds, Soyabean, Citrus crop and Forest timber. The present study confined to Chandrapur district of Eastern Vidarbha.

The agro climatic conditions differ from place to place. The two places in close infinity may or may not have identical climatic conditions. These variations call for study also provides background for study area. Some of the important aspects of Chandrapur district which would provide useful background for study area and understanding of the salient features of the farmers in the study area.

4.1 LOCATION

Chandrapur district is located in the eastern edge of Maharashtra in Nagpur division and forms the eastern part of Vidarbha region.

It comprises 15 tahsils. It lies between $19^{\circ}30'N$ to $20^{\circ}45' N$ latitude and $78^{\circ}46' E$ longitude.

It is the easternmost district of the state Maharashtra. The districts bounded by Nagpur, Bhandara and Wardha on the northern side. Yavatmal on the western side, Gadchiroli on the eastern side and Adilabad district of Andhra Pradesh on the southern side.



Fig. 1 Map of Chandrapur district showing study area (Not as per scale)

Physiographically the district is situated in the Wainganga and Wardha river basin. The eastern and western boundaries of the district are well defined by the river Wainganga and Wardha.

Chandrapur district occupies an area of 11,443 square kilometer which contribute 3.72 percent of the total area of the state and had population of 17, 71,994.

4.2 Climate:-

Owing to the geographical location and physical features the climate of district can be classified as tropical hot climate with high range of temperature throughout the year. Primarily there are two prominent seasons on the district the very hot summer and moderate winter. The summer months are very hot and prolonged while winter is short and mild. The southwest monsoon brings lot of rainfall during rainy season and there is no draught prone area in the district.

The temperature starts decreasing from month of October. December is the coldest month. The daily mean temperature starts rising from the month of February and May is the peak summer month when maximum temperature goes up to 43 and minimum temperature is 28 to 29 . the south west monsoon season is from June to September. The average annual rainfall is about 1214 mm. the eastern part receives more rainfall than west. Average no. of rainy days is 60 to 65 throughout the district. The relative humidity is very high during monsoon season which exceeds 70 percent but after monsoon season it fall down rapidly and in summer it is only 20 percent.

4.3 Topography of the soil:-

The district has an elevation between 250 meter above mean sea level. Chandrapur district can be divided in to two regions on the basis of district physiographic features:-

1. The plain of fertile region lying in river valley of the Wardha, the Penganga and the Wainganga River. The widely spread and flat terrain exhibits mostly rolling topography with residual knolls of the hills in the southern portion while in the northern portion that is Brahmapuri tahsil, fairly wide flood and alluvial plains covered with fertile loams are observed. The flat terrain of Chandrapur district on the whole lies generally between 250 meter. In the Penganga valley, flat terrain covers very little area in parts of the district in Rajura and Chandur tahsils exhibits mostly hilly topography. The hills are known as gadchandur and Manikgarh hills the altitude in general rises to 500 meter above mean sea level.
2. The upland hill region lies between the Wardha and Wainganga river comprising parts of Worora, Chandrapur and major part of Brahmapuri tahsils. It has sandy soils.

The soil of the district is well defined and conducive for growing crops of various kinds. The most fertile soil are found in the Wardha and Wainganga valley. The various kinds of soil known as local name 'kali kanahar', mummad, kardi,wardi,pandhri and retari.

4.4 Agriculture

Agriculture is the most important economic activity in the Chandrapur district. Kharif and rabi are two seasons followed in the district. The kharif season commences with advent of the rains in the month of June and is followed by rabi season (winter month).

4.4.1 Crops and cropping pattern

The total area as well as relative area under different crops in Nagpur district for 2009-2010 is presented in Table.

Table 4.1 Cropping pattern of Chandrapur District (2009-10)

Name of crop	Area "00" ha
Kh. Rice	1426
Summer Rice	19
Wheat	305
Kh. Jowar	97
Rb. Jowar	207
Kh. Maize	0
Tur	262
Moong	8
Urid	4
Other kh.pulses	18
Gram	252
Other Rb.pulses	322
Kh. G.nut	0
Summer G.nut	1
Rb. Sunflower	0
Summer Sunflower	0
Soybean	1595
Linseed	260
Rapeseed & mustard	0
Sugarcane	0
Cotton	496

4.4.2 Land use pattern

Land use pattern shows that geographical area of Chandrapur district is 10918 hectare and net cultivated area is 4515 hectare of the total geographical area. The pattern of land utilization in the district reflects the cultivation potential of the district and also the extent to which it can fully explained.

Table 4.2 Land use pattern of Chandrapur district (2009-10).

Particulars	Total area ("00"ha)	Per cent to total geographical area
Total geographical area	10918	100
Area under forest	3882	35.55
Non agricultural land	917	8.39
Barren and uncultivated land	262	2.39
Cultivated waste	366	3.35
Permanent pasture and grazing	560	5.12
Land under miscellaneous crops	120	1.09
Current fallow	160	1.46
Other fallow	136	1.24
Net sown area	4515	41.35
Area sown more than once	979	8.96

4.4.3. Cropping pattern of Selected Tahsil:

The total area as well as relative area under different crops in selected tahsil of Chandrapur district for 2009-2010 is presented in Table 4.3.

Table 4.3 Cropping pattern of Selected Tahsil (2009-2010):

Sr. No.	Name of crop	Chimur Area in ha	Nagbhid Area in ha	Sindevahi Area in ha	Chandrapur Area in ha	Mul Area in ha	Worora Area in ha
1.	Paddy	17467	23977	12055	1700	7455	767
2.	Jowar	-	-	-	-	-	3
4.	Maize	-	-	-	-	-	-
5.	Wheat	1840	710	180	2425	194	2950
6.	Rabi Jowar	1460	-	55	10	417	1340
6.	Tur	3955	2400	925	950	600	6490
7.	Moong	-	100	0	5	-	20
8.	Udid	-	100	-	-	-	20
9.	Gram	1425	521	140	1115	235	5480
10.	Other pulses	305	100	0	0	40	6
11.	Sesamum	0	100	100	0	45	0
12.	Soybean	27150	115	40	13650	2950	39511
13.	Linseed	730	86	7	15	48	1530
14.	Cotton	390	0	0	1800	0	14020

Source: Joint Director of Divisional Agriculture Office, Chandrapur.

4.4.4 Land utilization

It is more or less a mixed tract. Western tract of the district grows Paddy, Cotton, Jowar and Soyabean thus it forms a mixed tract.

Cotton and Paddy are main cash and food crops of the district. Jowar has the fixed position followed by Cotton crops in the cropping pattern of the district. After taking paddy, wheat and gram taken in the region amongst the majority cultivators. Wherever there is a assured irrigation. Soybean cultivation in kharif season.

4.4.5 Crop rotation

The district has two agricultural seasons viz. Kharif and Rabi. The main crops grown in Kharif season are Paddy, Soyabean, Cotton , Tur, while Wheat, Gram, rabi Jowar , linseed are the main rabi crops. The perennial crops like Mango and Lemon are also grown. Now farmers of the region are shifted towards growing forest trees.

4.5 Transport and communication

Chandrapur district is well connected with railways, airways, bus and truck transport. All the tahsils places are well connected to district headquarters. The agricultural and industrial products are quickly transported to the district and States by trucks and railways.

4.6 Input supply:-

The farm inputs are made available to the farmers by the co-operative society functioning at the tahsil level as well as village. The loan is provided by the DCCB to the cultivators. The short term loan is made available by the DCCB while long term loan are provided by LDB and the commercial banks.

Chapter V

RESULTS AND DISCUSSION

The study deals with economic analysis of farm business having different levels of resource base in order to meet the objectives of study. Data were analyzed for the year 2009-2010 and the major findings of this study are presented in this chapter.

5.1 Economic characteristics of selected farmers.

A study on some socio-economic aspects such as size of family farm size, annual income and cost of cultivation is necessary to know the economic condition of the farmers.

5.1.1 Average size of family of selected farmers.

Family size and its components are basically the functions of economic and social characteristics, custom and religious belief of society. The study of size of family will help us to get an idea about labour force available for farm operation from the family. The details of family size of selected farmers are presented in Table 5.1.

Table 5.1 Average size of family of selected farmers:-

(Nos.)

Sr. No.	Particular	Size Groups				
		Marginal	Small	Medium	Large	Overall
1	Male	2 (40.00)	2 (33.33)	2 (33.34)	2 (40.00)	2 (33.33)
2	Female	1 (20.00)	2 (33.34)	2 (33.33)	2 (40.00)	2 (33.33)
3	Children	2 (40.00)	2 (33.33)	2 (33.33)	1 (20.00)	2 (33.34)
	Total	5 (100.00)	6 (100.00)	6 (100.00)	5 (100.00)	6 (100.00)

(Figures in parentheses indicate percentage to the total)

It is revealed from the Table 5.1 that, the average size of family was 5 members in marginal, 6 members in small and medium groups, whereas 5 family members were observed in large group. The overall

average size of family was 6 members including 33.33 per cent male, 33.33 per cent female, 33.34 per cent children per family.

5.1.2 Educational status of selected farmers

Education is an important factor in understanding importance and availability of new technology and its adoption. It is also one of the important aspects which affect the standard of living of farmers. The information regarding the educational status of selected farmers is presented in Table 5.2.

Table 5.2 Educational status of selected farmers:-

Sr. No.	Particulars	Size group				Overall
		Marginal	Small	Medium	Large	
1	Illiterate	6 (18.18)	3 (10.35)	2 (8.70)	1 (9.09)	12 (12.50)
2	Primary school	6 (18.18)	6 (20.69)	7 (30.43)	3 (27.28)	22 (22.91)
3	Middle school	4 (12.12)	5 (17.24)	4 (17.39)	2 (18.18)	15 (15.62)
4	High school	9 (27.27)	5 (17.24)	5 (21.74)	2 (18.18)	21 (21.88)
5	Higher Secondary	5 (15.15)	6 (20.69)	3 (13.04)	2 (18.18)	16 (16.67)
6	Graduate & above	3 (9.10)	4 (13.79)	2 (8.70)	1 (9.09)	10 (10.42)
7	Total	33 (100.00)	29 (100.00)	23 (100.00)	11 (100.00)	96 (100.00)

(Figures in parentheses indicate percentage to the total)

It can be seen from Table 5.2 that, at overall level 12.50 per cent of farmers are illiterate and rest of them have educated, among them 22.91 per cent, 15.62 per cent, 21.88 per cent, 16.67 per cent and 10.42 per cent people have completed their primary school, middle school, high school, higher secondary, graduate and above level of education respectively. Highest illiterate people were observed in marginal size of holding.

It is concluded from the above discussion that the Illiteracy level of farmers carrying various farm business activities decreases with increase in size of holding.

5.1.3 Land utilization pattern of selected farmers:-

Land utilization indicates the area of land actually utilized in different purpose like crop production, irrigated, un-irrigated, etc. The Table 5.3 present per farm land utilization pattern of selected farmers.

Table 5.3 Land utilization pattern of selected farmers:-

Sr. No.	Particulars	Size group				
		Marginal	Small	Medium	Large	Over all
1	Total land holding	0.82 (100.00)	1.49 (100.00)	3.10 (100.00)	5.57 (100.00)	2.11 (100.00)
2	Current fallow	0.04 (4.88)	0.07 (4.70)	0.30 (9.68)	0.56 (10.05)	0.17 (8.06)
3	Net cultivated area	0.78 (95.12)	1.42 (95.30)	2.80 (90.32)	5.01 (89.95)	1.94 (91.94)
4	Area sown more than once	0.34 (41.46)	0.73 (48.99)	1.56 (50.32)	2.92 (52.42)	1.03 (48.82)
5	Gross cropped area	1.12 (136.58)	2.15 (144.29)	4.36 (140.64)	7.93 (142.37)	2.97 (140.76)
6	Cropping Intensity (%)	143.59	151.41	155.71	158.28	153.09

(Figures in parentheses indicate percentage to average size of holding)

It is revealed from Table 5.3 that at overall level, the average size of holding was 2.11 hectares. The average farm size of marginal, small, medium and large size group was 0.82, 1.49, 3.10 and 5.57 hectares respectively. However, the net cultivated area was 0.78, 1.42, 2.80 and 5.01 hectares respectively. The percentage of cultivable land was more in case of small size group i.e. 95.30 per cent. While the proportion of area sown more than once was more in case of large size group i.e. 52.42 per cent, and the lowest in marginal size group i.e.41.46 per cent. The cropping intensity was worked out 153.09 per

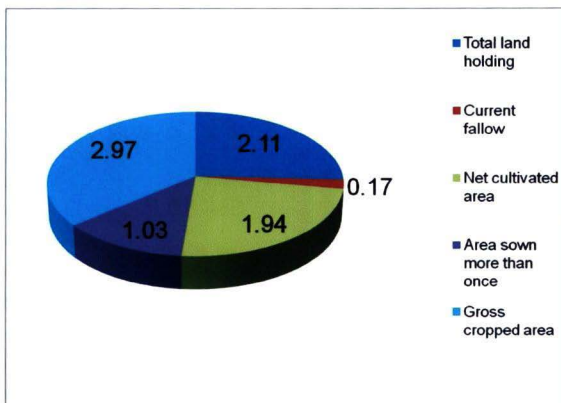


Fig. 2. Land utilization pattern of farmers at overall level (area in ha.)

cent at overall level. The cropping intensity is higher on large holding because of more intensive use of land.

5.1.4 Cropping pattern of selected farmers:-

Cropping pattern of selected farmers is said to be the result during post experience of farming, the type of soil available, irrigation resources and the pattern of distribution of rainfall. The cropping pattern refers to the proportion of the area under different crops. The cropping pattern of selected farmers is presented in Table 5.4.

Table 5.4 Cropping pattern of selected farmers

(Area in ha)

Sr. No.	Particulars	Size group				
		Marginal	Small	Medium	Large	Overall
A Kharif crops						
1	Paddy	0.56 (49.87)	0.89 (41.47)	1.56 (35.78)	1.83 (23.08)	1.04 (35.08)
2	Tur	0.02 (1.78)	0.09 (4.19)	0.18 (4.13)	0.65 (8.20)	0.15 (5.06)
3	Moong	0.00 (0.00)	0.00 (0.00)	0.03 (0.69)	0.13 (1.64)	0.02 (0.67)
4	Soybean	0.06 (5.34)	0.25 (11.65)	0.49 (11.24)	1.17 (14.75)	0.35 (11.80)
5	Sesamum	0.00 (0.00)	0.00 (0.00)	0.09 (2.06)	0.23 (2.90)	0.045 (1.52)
6	cotton	0.14 (12.47)	0.19 (8.86)	0.45 (10.32)	1.00 (12.61)	0.33 (11.13)
	Total	0.78 (69.46)	1.42 (66.17)	2.80 (64.22)	5.01 (63.18)	1.94 (65.26)
B Rabi Crops						
1	Wheat	0.059 (5.25)	0.15 (6.99)	0.36 (8.26)	0.55 (6.94)	0.21 (7.08)
2	Rabi jowar	0.024 (2.14)	0.096 (4.47)	0.16 (3.67)	0.38 (4.79)	0.11 (3.71)
3	Gram	0.12 (10.69)	0.28 (13.05)	0.51 (11.70)	1.06 (13.37)	0.37 (12.48)
4	Other pulses	0.14 (12.47)	0.18 (8.39)	0.44 (10.09)	0.75 (9.46)	0.29 (9.78)
5	Linseed	0.00 (0.00)	0.02 (0.93)	0.09 (2.06)	0.18 (2.27)	0.06 (1.85)
	Total of Rabi	0.34 (30.54)	0.73 (33.83)	1.56 (35.78)	2.92 (36.82)	1.03 (34.74)
	Gross cropped area	1.12 (100.00)	2.15 (100.00)	4.36 (100.00)	7.93 (100.00)	2.97 (100.00)

(Figures in parentheses indicate percentage to gross cropped area)

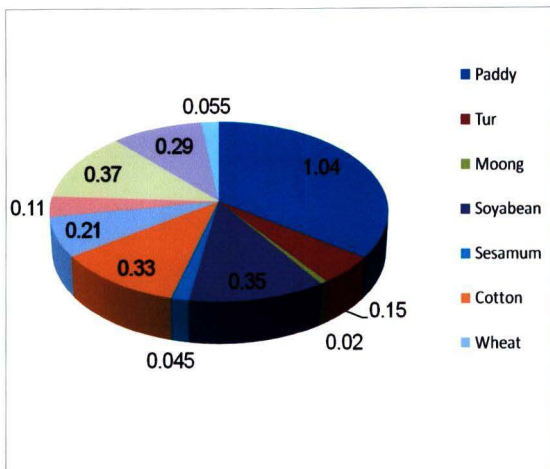


Fig 3 Cropping pattern of selected farmers at overall level (area in ha.)

It is revealed from Table 5.4 that, in kharif season the cropping pattern in all groups was dominated by paddy crop. The average area under kharif crop was 1.94 hectares (65.26 per cent) while the area under rabi crop was 1.03 hectares (34.74 per cent). Among the groups, percent share of area under kharif crop was the highest (69.46 per cent) in marginal farms. While the area under rabi crop was the highest in large group i.e. 36.82 per cent. The wheat and gram were major crops in selected sample farmers. The share of Paddy in gross cropped area was the highest in marginal farms (49.87 per cent) followed by small (41.47 per cent). At overall level, in kharif season, the highest are occupied by paddy (35.08 per cent) followed by soybean (11.80 per cent) and cotton (11.13 per cent) while in rabi season gram occupied highest area followed by other pulses which includes lakhori, wal, udid, pea. At overall level, the share of paddy was (35.08 per cent) followed by soybean (11.80 per cent). It is concluded from the above discussion that, in kharif season the cropping pattern was dominated by paddy crop where as in rabi season, it was dominated by gram crop.

Table 5.5 Fixed capital investment of the selected farmers in Chandrapur district

Sr.No.	Types of the assets	Marginal		Small		Medium		Large		Overall	
		per farm	per hectare	per farm	per hectare	per farm	per hectare	per farm	per hectare	per farm	per hectare
1	Land	203270.71 (91.30)	147889.52 (91.30)	442082.48 (92.70)	222999.53 (92.70)	653643.45 (94.65)	251230.70 (94.65)	1841027.72 (95.37)	276444.22 (95.37)	780573.66 (94.03)	225163.92 (94.03)
2	Building	7569.77 (3.40)	5507.39 (3.40)	15165.29 (3.18)	7649.82 (3.18)	20993.94 (3.04)	8069.11 (3.04)	51541.83 (2.67)	7739.39 (2.67)	23824.81 (2.87)	6872.49 (2.87)
3	Live stock										
a	Draft animal	5120.73 (2.30)	3725.58 (2.30)	7630.33 (1.60)	3848.97 (1.60)	6215.31 (0.90)	2388.88 (0.90)	13512.84 (0.70)	2029.05 (0.70)	9546.52 (1.15)	2753.79 (1.15)
b	Milch animal	2003.76 (0.90)	1457.84 (0.90)	3719.79 (0.78)	1876.37 (0.78)	2762.36 (0.40)	1061.73 (0.40)	6756.42 (0.35)	1014.53 (0.35)	4731.76 (0.57)	1364.92 (0.57)
c	Other dry animal	1580.75 (0.71)	1150.07 (0.71)	3147.51 (0.66)	1587.70 (0.66)	2209.89 (0.32)	849.38 (0.32)	5405.14 (0.28)	811.62 (0.28)	4316.69 (0.52)	1245.19 (0.52)
4	Implements and machinery	3094.70 (1.39)	2251.55 (1.39)	5150.48 (1.08)	2598.05 (1.08)	4765.07 (0.69)	1831.48 (0.69)	12161.55 (0.63)	1826.15 (0.63)	7139.14 (0.86)	2059.35 (0.86)
5	Total	222640.43 (100.00)	161981.95 (100.00)	476895.88 (100.00)	240560.44 (100.00)	690590.02 (100.00)	265431.27 (100.00)	1930405.49 (100.00)	289864.97 (100.00)	830132.58 (100.00)	239459.66 (100.00)
6	Total(Excluding land)	19369.72 (8.70)	14092.43 (8.70)	34813.40 (7.30)	17560.91 (7.30)	36946.57 (5.35)	14200.57 (5.35)	89377.77 (4.63)	13420.75 (4.63)	49558.92 (5.97)	14295.74 (5.97)

(Figures in parentheses indicate percentage to the total)

5.1 Fixed capital investment of selected farmers.

The capital assets considered in the present study are land, farm building, livestock, implements and machineries, etc. The average fixed investment pattern of different groups of selected farmers is presented in Table 5.5.

It is revealed from Table 5.5 that, the value of land on marginal holding was Rs. 147889.52 per hectare and Rs. 203270.71 per farm which accounted 91.30 per cent of the total capital investment. The total investment on livestock was Rs. 6333.49 per hectare and Rs. 8705.24 per farm which accounted 3.91 per cent. The investment on building was Rs. 5507.39 per hectare and Rs. 7569.77 per farm which accounted 3.40 per cent of the total investment. The investment on implement and machinery was Rs. 2251.55 per hectare and Rs. 3094.70 per farm which accounted 1.39 per cent.

The value of land on small holding was Rs. 222999.53 per hectare and Rs. 442082.48 per farm which accounted 92.70 per cent of the total capital investment. The total investment on livestock was Rs. 7313.04 per hectare and Rs. 14497.63 per farm which accounted 3.04 per cent. The investment on building was Rs. 7649.82 per hectare and Rs. 15165.29 per farm which accounted 3.18 per cent of the total investment. The investment on implement and machinery was Rs. 2598.05 per hectare and Rs. 5150.48 per farm which accounted 1.08 per cent.

The value of land on medium holding was Rs. 251230.70 per hectare and Rs. 653643.45 per farm which accounted 94.65 per cent of the total capital investment. The total investment on livestock was Rs. 4299.99 per hectare and Rs. 11187.56 per farm which accounted 1.62 per cent. The investment on building was Rs. 8069.11 per hectare and Rs. 20993.94 per farm which accounted 3.04 per cent of the total investment. The investment on implement and machinery was Rs. 1831.48 per hectare and Rs. 4765.07 per farm which accounted 0.69 per cent.

The value of land on large holding was Rs. 276444.22 per hectare and Rs. 1841027.72 per farm which accounted 95.37 per cent of the

total capital investment. The total investment on livestock was Rs. 3855.20 per hectare and Rs. 25674.38 per farm which accounted 1.33 per cent. The investment on building was Rs. 7739.39 per hectare and Rs. 51541.83 per farm which accounted 2.67 per cent of the total investment. The investment on implement and machinery was Rs. 1826.15 per hectare and Rs. 12161.55 per farm which accounted 0.63 per cent.

The value of land on overall was Rs. 225163.92 per hectare and Rs. 780573.66 per farm which accounted 94.03 per cent of the total capital investment. The total investment on livestock was Rs. 5363.90 per hectare and Rs. 18594.97 per farm which accounted 2.24 per cent. The investment on building was Rs 6872.49 per hectare and Rs. 23824.81 per farm which accounted 2.87 per cent of the total investment. The investment on implement and machinery was Rs. 2059.35 per hectare and Rs. 7139.14 per farm which accounted 0.86 per cent.

5.2 Farm business activities on the selected farm.

The information about various activities carried out on the farm is very essential. The details of various activities for selected farms are presented in Table 5.6

Table 5.6 Farm business activities on the selected farm.

Sr. No.	Activities	Size group				Total n=96
		Marginal n=33	Small n=29	Medium n=22	Large n=11	
A)	Crop activities					
1)	Paddy	22	23	21	08	74
2)	Soybean	09	15	16	10	50
3)	Cotton	11	10	07	05	33
4)	Tur	05	13	15	10	43
5)	Moong	00	00	03	02	05
6)	Sesamum	00	00	07	04	11
7)	Wheat	11	21	23	11	66
8)	Gram	20	25	16	11	72
9)	Rabi Jowar	04	06	06	03	19
10)	Linseed	00	03	07	03	13
B)	Dairy and other activities	13	17	15	08	53

It is observed from Table 5.6 that, the crop production and dairy + other activity were the major activities on the farm of selected farmers.

At overall level, paddy production activity was observed on 74 farms which were the highest as compared to other activities, followed by gram observed on 72 farms. The 53 farmers were maintained dairy + other activities

As a subsidiary activity It is observed that, number of farms having dairy activity was 13 for marginal, 17 for small, 15 for medium and 8 for large farm size. Among the crops, other than paddy, soybean, tur, cotton and wheat were major crop activities.

5.3.1 Per hectare cost of cultivation.

The per hectare cost of cultivation for various crop under study was worked using cost concept explained in methodology. The estimation of cost helps us to know the profitability of particular crop enterprise.

The per hectare item wise cost for paddy crop cultivation was worked out for overall level and presented in Table 5.7. It is observed from table 5.7, that, on an overall level average use of hired male labour were 28.30 days and female labour was 67.82 days. At overall, the average use of seed was found to be 67.01 Kg. and N., P. and K were used 55.38 Kg, 19.76 Kg. and 14.99 Kg. respectively. At overall, average use of manure and machinery labour was 6.90 Qt. and 10.17 Hrs. respectively. At overall, the average cost required for irrigation was Rs. 456.99. The average cost 'A' was Rs. 18738.35 whereas cost 'B' and cost 'C' was Rs. 27376.32 and Rs. 29949.94 respectively. The average gross income was Rs. 49586.96. Among the different items of expenditure in (cost A) hired human labour accounted highest share i.e. 27.95 per cent followed by bullock labour 8.35 per cent and machinery 7.70 per cent. The yield obtained at overall level was 36.68 Qtl. The per quintal cost of production was Rs. 635.75. In case of marginal group (Appendix I -A) the cost 'A', cost 'B' and cost 'C' was Rs. 21395.53, Rs.

31023.53 and Rs. 33492.75 with per quintal cost of production is Rs. 661.27. In case of small group (Appendix I -B) the cost 'A', cost 'B' and cost 'C' was Rs. 18950.24, Rs. 28369.40 and Rs. 30499.21 with per quintal cost of production is Rs. 566.61. In case of medium group (Appendix I -C) the cost 'A', cost 'B' and cost 'C' was Rs. 20121.14, Rs. 28814.26 and Rs. 31986.24 with per quintal cost of production is Rs. 664.42. In case of large group (Appendix I -D) the cost 'A', cost 'B' and cost 'C' was Rs. 18798.33, Rs. 27893.88 and Rs. 30452.10 with per quintal cost of production is Rs. 604.47.

The per hectare item wise cost for soybean crop cultivation was worked out for overall level and presented in Table 5.8. It is observed from table 5.8, that, on an overall level average use of hired male labour were 27.48 days and female labour was 70.29 days. At overall, the average use of seed was found to be 73.22 Kg. and N., P. and K were used 64.97 Kg., 38.35 Kg. and 34.46 Kg. respectively. At overall, average use of manure and machinery labour was 4.86 Qt. and 7.96 Hrs. respectively. The average cost 'A' was Rs. 20001.79 whereas cost 'B' and cost 'C' was Rs. 27351.80 and Rs. 31777.52 respectively. The average gross income was Rs. 42109.09. Among the different items of expenditure in (cost A) hired human labour accounted highest share i.e. 26.60 per cent followed by bullock labour 6.18 per cent and machinery 5.36 per cent. The yield obtained at overall level was 18.68 Qtl. The per quintal cost of production was Rs. 1665.34. In case of marginal group (Appendix II -A) the cost 'A', cost 'B' and cost 'C' was Rs. 19398.82, Rs. 26603.78 and Rs. 30689.33 with per quintal cost of production is Rs. 1626.12. In case of small group (Appendix II-B) the cost 'A', cost 'B' and cost 'C' was Rs. 18750.77, Rs. 26009.43 and Rs. 30109.16 with per quintal cost of production is Rs. 1589.17. In case of medium group (Appendix II -C) the cost 'A', cost 'B' and cost 'C' was Rs. 22319.19, Rs. 29947.69 and Rs. 34451.87 with per quintal cost of production is Rs. 1766.33. In case of large group (Appendix II -D) the cost 'A', cost 'B' and cost 'C' was Rs. 19203.74, Rs. 26401.54 and Rs. 30988.77 with per quintal cost of production is Rs. 1644.16.

Table:5.7 Per hectare cost of cultivation for paddy (Overall)

SR. NO.	ITEM		UNITS	UNITS Req.	PRICE PER UNIT	COST IN RS.	PERCENT TO TOTAL
1	Hired Human Labour	Male	DAYS	28.30	122.04	3453.73	11.53
		Female	DAYS	67.82	72.49	4916.27	16.41
		Total	DAYS	96.12			8370.00
2	Bullock Labour	Hired	DAYS	3.35	250.66	839.71	2.80
		Owned	DAYS	6.63	250.66	1661.88	5.55
		Total	DAYS	9.98			2501.59
3	Machine	Hired	Hrs.	10.17	226.66	2305.13	7.70
		Owned	Hrs.	0.00	0.00	0.00	0.00
		Total	Hrs.	10.17			2305.13
4	Seed		Kg.	67.01	22.95	1537.88	5.13
5	Manure		Qt	6.90	67.15	463.34	1.55
6	Fertilizer	N	Kg.	55.38	15.54	860.61	2.87
		P	Kg.	19.76	25.96	512.97	1.71
		K	Kg.	14.99	35.65	534.39	1.78
		Total		90.13			1907.97
7	Irrigation		Rs.			456.99	1.53
8	Incidental		Rs.			37.09	0.12
9	Plant protection		Rs.			493.59	1.65
10	Repairs		Rs.			69.35	0.23
11	Depreciation		Rs.			171.27	0.57
12	Land Revenue		Rs.			61.30	0.20
13	Int. On Working Capital		Rs.			362.86	1.21
14	COST "A"		Rs.			18738.35	62.57
15	Rental Value Of Land		Rs.			8203.19	27.39
16	Int. On Fixed Capital		Rs.			434.77	1.45
17	COST "B"		Rs.			27376.32	91.41
18	Family Labour Charges	Male	DAYS	13.42	122.04	1637.78	5.47
		Female	DAYS	12.91	72.49	935.85	3.12
		Total	DAYS	26.33			2573.62
19	COST "C"		Rs.			29949.94	100.00
20	Yield	Main	Qt	36.68	1171.11	42956.31	
		Bye	Qt	45.89	144.49	6630.65	
21	Value Of Total Produce		Rs.			49586.96	
22	Per Qtls . Cost Of Production					635.75	

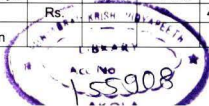


Table:5.8 Per hectare cost of cultivation for soybean (Overall)

SR. NO.	ITEM		UNITS	UNITS	PRICE	COST IN	PERCENT
				Req.	PER UNIT	RS.	TO TOTAL
1	Hired Human Labour	Male	DAYS	27.48	122.38	3363.00	10.58
		Female	DAYS	70.29	72.40	5089.00	16.01
		Total	DAYS	97.77		8452.00	26.60
2	Bullock Labour	Hired	DAYS	3.09	252.27	779.51	2.45
		Owned	DAYS	4.70	252.27	1185.67	3.73
		Total	DAYS	7.79		1965.18	6.18
3	Machine	Hired	Hrs.	7.96	214.02	1703.60	5.36
		Owned	Hrs.	0.00	0.00	0.00	0.00
		Total	Hrs.	7.96		1703.60	5.36
4	Seed		Kg.	73.22	33.31	2438.96	7.68
5	Manure		Qt	4.86	66.15	321.49	1.01
6	Fertilizer	N	Kg.	64.97	16.32	1060.31	3.34
		P	Kg.	38.35	25.87	992.11	3.12
		K	Kg.	34.46	35.18	1212.30	3.81
		Total		137.78		3264.73	10.27
7	Irrigation		Rs.			0.00	0.00
8	Incidental		Rs.			79.01	0.25
9	Plant protection		Rs.			861.67	2.71
10	Repairs		Rs.			193.86	0.61
11	Depreciation		Rs.			277.51	0.87
12	Land Revenue		Rs.			58.17	0.18
13	Int. On Working Capital		Rs.			385.61	1.21
14	COST "A"		Rs.			20001.79	62.94
15	Rental Value Of Land		Rs.			6960.01	21.90
16	Int. On Fixed Capital		Rs.			390.00	1.23
17	COST "B"		Rs.			27351.80	86.07
18	Family Labour Charges	Male	DAYS	15.02	122.38	1838.15	5.78
		Female	DAYS	35.74	72.40	2587.58	8.14
		Total	DAYS	50.76		4425.72	13.93
19	COST "C"		Rs.			31777.52	100.00
20	Yield	Main	Qt	18.68	2218.42	41440.09	
		Bye	Qt	6.28	106.53	669.01	
21	Value Of Total Produce		Rs.			42109.09	
22	Per Qtls . Cost Of Production					1665.34	

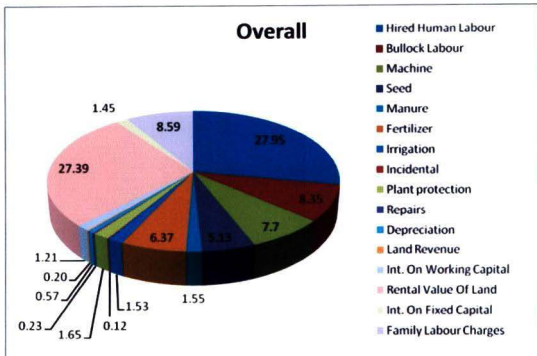


Fig 4 Cost of cultivation of paddy (overall)

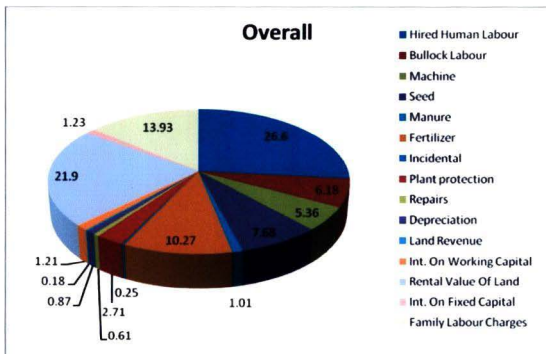


Fig 5 Cost of cultivation of soybean (overall)

The per hectare item wise cost for cotton crop cultivation was worked out for overall level and presented in Table 5.9. It is observed from table 5.9, that, on an overall level average use of hired male labour were 15.08 days and female labour was 104.51 days. At overall, the average use of seed was found to be 2.14 Kg. and N., P. and K were used 46.62 Kg., 20.73 Kg. and 20.73 Kg. respectively. At overall, average use of manure and machinery labour was 5.30 Qt. and 10.88 Hrs. respectively. The average cost 'A' was Rs. 26765.40 whereas cost 'B' and cost 'C' was Rs. 33432.78 and Rs. 36410.87 respectively. The average gross income was Rs. 38513.12. Among the different items of expenditure in (cost A) hired human labour accounted highest share i.e. 26.00 per cent followed by machinery 16.52 per cent and bullock labour 10.27 per cent. The yield obtained at overall level was 10.95 Qtl. The per quintal cost of production was Rs. 3325.19. In case of marginal group (Appendix III -A) the cost 'A', cost 'B' and cost 'C' was Rs. 23921.58, Rs. 30151.87 and Rs. 32661.98 with per quintal cost of production is Rs. 3199.02. In case of small group (Appendix III-B) the cost 'A', cost 'B' and cost 'C' was Rs. 25805.76, Rs. 32417.64 and Rs. 35121.62 with per quintal cost of production is Rs. 3213.32. In case of medium group (Appendix III -C) the cost 'A', cost 'B' and cost 'C' was Rs. 27233.18, Rs. 33913.35 and Rs. 37055.98 with per quintal cost of production is Rs. 3377.94. In case of large group (Appendix III -D) the cost 'A', cost 'B' and cost 'C' was Rs. 27931.53, Rs. 34800.37 and Rs. 37961.86 with per quintal cost of production is Rs. 3371.39.

The per hectare item wise cost for tur crop cultivation was worked out for overall level and presented in Table 5.10. It is observed from table 5.10, that, on an overall level average use of hired male labour were 37.22 days and female labour was 50.59 days. At overall, the average use of seed was found to be 33.92 Kg and N., P. and K were used 87.74 Kg, 40.84 Kg. and 39.13 Kg. respectively. At overall, average use of manure and machinery labour was 6.02 Qt. and 35.44 Hrs. respectively. The average cost 'A' was Rs. 28666.30 whereas cost 'B' and cost 'C' was Rs. 41390.46 and Rs. 45152.06 respectively. The

average gross income was Rs. 74957.14. Among the different items of expenditure in (cost A) hired human labour accounted highest share i.e. 18.32 per cent followed by machinery 17.56 per cent and bullock labour 6.95 per cent. The yield obtained at overall level was 19.17 Qtl. The per quintal cost of production was Rs. 2270.64. In case of marginal group (Appendix IV-A) the cost 'A', cost 'B' and cost 'C' was Rs. 27676.14, Rs. 38466.36 and Rs. 42648.61 with per quintal cost of production is Rs. 2522.61. In case of small group (Appendix IV-B) the cost 'A', cost 'B' and cost 'C' was Rs. 27020.09, Rs. 38259.46 and Rs. 41680.27 with per quintal cost of production is Rs 2368.35. In case of medium group (Appendix IV-C) the cost 'A', cost 'B' and cost 'C' was Rs. 30472.40, Rs. 43204.55 and Rs. 46956.83 with per quintal cost of production is Rs. 2379.31. In case of large group (Appendix IV-D) the cost 'A', cost 'B' and cost 'C' was Rs. 28463.39, Rs. 42012.28 and Rs. 45876.68 with per quintal cost of production is Rs. 2159.80.

Table:5.9 Per hectare cost of cultivation for cotton (Overall)

SR. NO.	ITEM		UNITS	UNITS Req.	PRICE PER UNIT	COST IN RS.	PERCENT TO TOTAL
1	Hired Human Labour	Male	DAYS	15.08	123.98	1869.62	5.13
		Female	DAYS	104.51	72.69	7596.83	20.86
		Total	DAYS	119.59			9466.45
2	Bullock Labour	Hired	DAYS	11.55	250.56	2893.97	7.95
		Owned	DAYS	3.37	250.56	844.39	2.32
		Total	DAYS	14.92			3738.36
3	Machine	Hired	Hrs.	9.09	552.87	5025.59	13.80
		Owned	Hrs.	1.79	552.87	989.64	2.72
		Total	Hrs.	10.88			6015.23
4	Seed		Kg.	2.14	1651.74	3534.72	9.71
5	Manure		Qt	5.30	66.88	354.46	0.97
6	Fertilizer	N	Kg.	46.62	15.68	731.00	2.01
		P	Kg.	20.73	25.61	530.90	1.46
		K	Kg.	20.73	35.69	739.85	2.03
		Total		88.08			2001.75
7	Irrigation		Rs.			0.00	0.00
8	Incidental		Rs.			52.74	0.14
9	Plant protection		Rs.			454.16	1.25
10	Repairs		Rs.			119.31	0.33
11	Depreciation		Rs.			179.38	0.49
12	Land Revenue		Rs.			76.73	0.21
13	Int. On Working Capital		Rs.			772.12	2.12
14	COST "A"		Rs.			26765.40	73.51
15	Rental Value Of Land		Rs.			6342.12	17.42
16	Int. On Fixed Capital		Rs.			325.25	0.89
17	COST "B"		Rs.			33432.78	91.82
18	Family Labour Charges	Male	DAYS	17.29	123.98	2143.61	5.89
		Female	DAYS	11.48	72.69	834.48	2.29
		Total	DAYS	28.77			2978.10
19	COST "C"		Rs.			36410.87	100.00
20	Yield	Main	Qt	10.95	3517.18	38513.12	
		Bye	Qt	0.00	0.00	0.00	
21	Value Of Total Produce		Rs.			38513.12	
22	Per Qtls . Cost Of Production					3325.19	

Table:5.10 Per hectare cost of cultivation for tur (Overall)

Sr. No.	Item		Units	Units Req.	Price per Unit	Cost in Rs.	Percent to Total
1	Hired Human Labour	Male	DAYS	37.22	122.74	4568.38	10.12
		Female	DAYS	50.59	73.23	3704.71	8.20
		Total	DAYS	87.81			8273.09
2	Bullock Labour	Hired	DAYS	5.66	253.73	1436.11	3.18
		Owned	DAYS	6.71	253.73	1702.53	3.77
		Total	DAYS	12.37			3138.64
3	Machine	Hired	Hrs.	35.44	223.71	7928.28	17.56
		Owned	Hrs.	0.00	0.00	0.00	0.00
		Total	Hrs.	35.44			7928.28
4	Seed		Kg.	33.92	73.84	2504.65	5.55
5	Manure		Qt	6.02	66.01	397.38	0.88
6	Fertilizer	N	Kg.	87.74	15.54	1363.48	3.02
		P	Kg.	40.84	26.48	1081.44	2.40
		K	Kg.	39.13	36.66	1434.51	3.18
		Total		167.71			3879.43
7	Irrigation		Rs.			0.00	0.00
8	Incidental		Rs.			71.54	0.16
9	Plant protection		Rs.			1123.19	2.49
10	Repairs		Rs.			142.68	0.32
11	Depreciation		Rs.			316.86	0.70
12	Land Revenue		Rs.			66.79	0.15
13	Int. On Working Capital		Rs.			823.77	1.82
14	COST "A"		Rs.			28666.30	63.49
15	Rental Value Of Land		Rs.			12426.07	27.52
16	Int. On Fixed Capital		Rs.			298.09	0.66
17	COST "B"		Rs.			41390.46	91.67
18	Family Labour Charges	Male	DAYS	23.38	122.74	2869.66	6.36
		Female	DAYS	12.18	73.23	891.94	1.98
		Total	DAYS	35.56			3761.60
19	COST "C"		Rs.			45152.06	100.00
20	Yield	Main	Qt	19.17	3825.42	73333.30	
		Bye	Qt	6.38	254.52	1623.84	
21	Value Of Total Produce		Rs.			74957.14	
22	Per Qtls . Cost Of Production					2270.64	

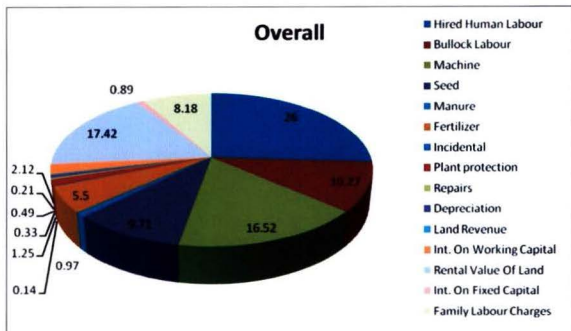


Fig 6 Cost of cultivation of cotton (overall)

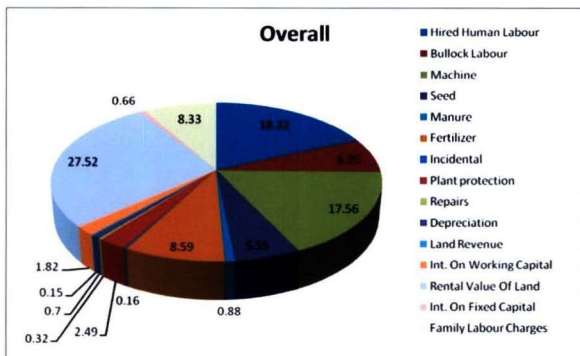


Fig 7 Cost of cultivation of tur (overall)

The per hectare item wise cost for moong crop cultivation was worked out for overall level and presented in Table 5.11. It is observed from table 5.11, that, on an overall level average use of hired male labour were 13.33 days and female labour was 40.00 days. At overall, the average use of seed was found to be 16.19 Kg and N., P. and K were used 35.23 Kg, 44.28 Kg. and 0.00 Kg. respectively. At overall, average use of manure and machinery labour was 4.85 Qt. and 7.61 Hrs. respectively. The average cost 'A' was Rs. 12571.95 whereas cost 'B' and cost 'C' was Rs. 16881.96 and Rs. 18152.50 respectively. The average gross income was Rs. 23742.91. Among the different items of expenditure in (cost A) hired human labour accounted highest share i.e. 25.89 per cent followed by machinery 9.18 per cent and bullock labour 9.17 per cent. The yield obtained at overall level was 6.86 Qtl. The per quintal cost of production was Rs. 2593.38. In case of medium group (Appendix V-A) the cost 'A', cost 'B' and cost 'C' was Rs. 13833.92, Rs. 18138.20 and Rs. 19643.58 with per quintal cost of production is Rs. 3010.80. In case of large group (Appendix V-B) the cost 'A', cost 'B' and cost 'C' was Rs. 11810.31, Rs. 16123.16 and Rs. 17277.59 with per quintal cost of production is Rs. 2342.84.

The per hectare item wise cost for sesamum crop cultivation was worked out for overall level and presented in Table 5.12. It is observed from table 5.12, that, on an overall level average use of hired male labour were 12.61 days and female labour was 21.90 days. At overall, the average use of seed was found to be 2.55 Kg. and N., P. and K were used 38.33 Kg., 25.23 Kg. and 21.42 Kg. respectively. At overall, average use of manure and machinery labour was 4.28 Qt. and 5.11 Hrs. respectively. The average cost 'A' was Rs. 10976.85 whereas cost 'B' and cost 'C' was Rs. 16513.73 and Rs. 17860.10 respectively. The average gross income was Rs. 31411.31. Among the different items of expenditure in (cost A) hired human labour accounted highest share i.e.17.39 per cent followed by bullock labour 15.67 per cent and machinery 6.87 per cent. The yield obtained at overall level was 6.19 Qtl. The per quintal cost of production was Rs. 2849.64. In case of

medium group (Appendix VI-A) the cost 'A', cost 'B' and cost 'C' was Rs. 12028.23, Rs. 17528.32 and Rs 18759.16 with per quintal cost of production is Rs. 3032.51. In case of large group (Appendix VI-B) the cost 'A', cost 'B' and cost 'C' was Rs. 10217.07, Rs. 15782.77 and Rs. 17213.42 with per quintal cost of production is Rs. 2718.81.

Table:5.11 Per hectare cost of cultivation for moong (Overall)

SR. NO.	ITEM		UNITS	UNITS Req.	PRICE PER UNIT	COST IN RS.	PERCENT TO TOTAL
1	Hired Human Labour	Male	DAYS	13.33	124.14	1654.79	9.12
		Female	DAYS	40.00	76.13	3045.20	16.78
		Total	DAYS	53.33		4699.99	25.89
2	Bullock Labour	Hired	DAYS	1.42	250.39	355.55	1.96
		Owned	DAYS	5.23	250.39	1309.54	7.21
		Total	DAYS	6.65		1665.09	9.17
3	Machine	Hired	Hrs.	7.61	219.01	1666.67	9.18
		Owned	Hrs.	0.00	0.00	0.00	0.00
		Total	Hrs.	7.61		1666.67	9.18
4	Seed		Kg.	16.19	103.09	1669.03	9.19
5	Manure		Qt	4.85	66.42	322.14	1.77
6	Fertilizer	N	Kg.	35.23	15.92	560.86	3.09
		P	Kg.	44.28	26.30	1164.56	6.42
		K	Kg.	0.00	0.00	0.00	0.00
		Total		79.51		1725.43	9.51
7	Irrigation		Rs.		0.00	0.00	
8	Incidental		Rs.		27.14	0.15	
9	Plant protection		Rs.		292.85	1.61	
10	Repairs		Rs.		57.14	0.31	
11	Depreciation		Rs.		283.81	1.56	
12	Land Revenue		Rs.		41.42	0.23	
13	Int. On Working Capital		Rs.		121.25	0.67	
14	COST "A"		Rs.		12571.95	69.26	
15	Rental Value Of Land		Rs.		3915.73	21.57	
16	Int. On Fixed Capital		Rs.		394.28	2.17	
17	COST "B"		Rs.		16881.96	93.00	
18	Family Labour Charges	Male	DAYS	7.61	124.14	944.71	5.20
		Female	DAYS	4.28	76.13	325.84	1.79
		Total	DAYS	11.89		1270.54	7.00
19	COST "C"		Rs.		18152.50	100.00	
20	Yield	Main	Qt	6.86	3408.31	23381.01	
		Bye	Qt	3.33	108.68	361.90	
21	Value Of Total Produce		Rs.		23742.91		
22	Per Qtls . Cost Of Production				2593.38		

Table:5.12 Per hectare cost of cultivation of sesamum(Overall)

Sr. No.	Item		Units	Units Req.	Price per Unit	Cost in Rs.	Percent to Total
1	Hired Human Labour	Male	DAYS	12.61	122.16	1540.44	8.63
		Female	DAYS	21.90	71.48	1565.41	8.76
		Total	DAYS	34.51		3105.85	17.39
2	Bullock Labour	Hired	DAYS	5.23	250.39	1309.54	7.33
		Owned	DAYS	5.95	250.39	1489.82	8.34
		Total	DAYS	11.18		2799.36	15.67
3	Machine	Hired	Hrs.	5.11	239.96	1226.20	6.87
		Owned	Hrs.	0.00	0.00	0.00	0.00
		Total	Hrs.	5.11		1226.20	6.87
4	Seed		Kg.	2.55	271.94	693.45	3.88
5	Manure		Qt	4.28	66.48	284.53	1.59
6	Fertilizer	N	Kg.	38.33	15.54	595.65	3.34
		P	Kg.	25.23	26.31	663.80	3.72
		K	Kg.	21.42	35.64	763.41	4.27
		Total		84.98		2022.86	11.33
7	Irrigation		Rs.			0.00	0.00
8	Incidental		Rs.			32.61	0.18
9	Plant protection		Rs.			232.14	1.30
10	Repairs		Rs.			48.57	0.27
11	Depreciation		Rs.			267.85	1.50
12	Land Revenue		Rs.			54.52	0.31
13	Int. On Working Capital		Rs.			208.91	1.17
14	COST "A"		Rs.			10976.85	61.46
15	Rental Value Of Land		Rs.			5180.70	29.01
16	Int. On Fixed Capital		Rs.			356.19	1.99
17	COST "B"		Rs.			16513.73	92.46
18	Family Labour Charges	Male	DAYS	7.61	122.16	929.64	5.21
		Female	DAYS	5.83	71.48	416.73	2.33
		Total	DAYS	13.44		1346.37	7.54
19	COST "C"		Rs.			17860.10	100.00
20	Yield	Main	Qt	6.19	5038.85	31190.48	
		Bye	Qt	2.30	96.01	220.83	
21	Value Of Total Produce		Rs.			31411.31	
22	Per Qtls . Cost Of Production					2849.64	

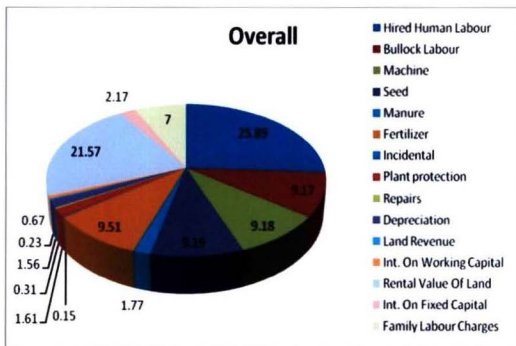


Fig 8 Cost of cultivation of moong (overall)

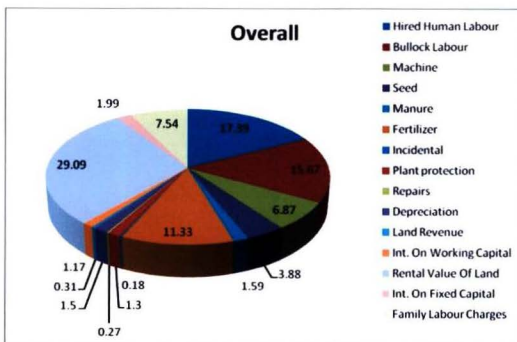


Fig 9 Cost of cultivation of sesamum (overall)

The per hectare item wise cost for wheat crop cultivation was worked out for overall level and presented in Table 5.13. It is observed from table 5.13, that, on an overall level average use of hired male labour were 14.32 days and female labour was 26.79 days. At overall, the average use of seed was found to be 103.39 Kg. and N., P. and K. were used 83.10 Kg, 38.34 Kg. and 37.33 Kg. respectively. At overall, average use of bullock labour was 10.23 days and machinery labour was 9.85 Hrs. respectively. At overall, the average cost required for irrigation was Rs. 1415.29. The average cost 'A' was Rs. 20217.38 whereas cost 'B' and cost 'C' was Rs. 26964.28 and Rs. 30243.73 respectively. The average gross income was Rs. 39119.41. Among the different items of expenditure in (cost A) hired human labour accounted highest share i.e. 12.17 per cent followed by bullock labour 8.47 per cent and machinery 7.38 per cent. The yield obtained at overall level was 31.31 Qtl. The per quintal cost of production was Rs. 951.12. In case of marginal group (Appendix VII -A) the cost 'A', cost 'B' and cost 'C' was Rs. 17590.03, Rs. 23813.39 and Rs. 26850.97 with per quintal cost of production is Rs. 897.38. In case of small group (Appendix VII-B) the cost 'A', cost 'B' and cost 'C' was Rs. 20484.00, Rs. 27095.76 and Rs. 30447.39 with per quintal cost of production is Rs. 976.98. In case of medium group (Appendix VII -C) the cost 'A', cost 'B' and cost 'C' was Rs. 21109.59, Rs. 27944.90 and Rs. 31143.46 with per quintal cost of production is Rs. 967.83. In case of large group (Appendix VII -D) the cost 'A', cost 'B' and cost 'C' was Rs. 19585.44, Rs. 26470.33 and Rs. 29892.50 with per quintal cost of production is Rs. 925.63.

The per hectare item wise cost for gram crop cultivation was worked out for overall level and presented in Table 5.14. It is observed from table 5.14, that, on an overall level average use of hired male labour were 11.57 days and female labour was 20.60 days. At overall, the average use of seed was found to be 75.81 Kg and N., P. and K were used 22.01 Kg, 32.69 Kg. and 2.89 Kg. respectively. At overall, average use of bullock labour was 9.75 and machinery was 4.68 Hrs. respectively. The average cost 'A' was Rs. 11177.23 whereas cost 'B'

and cost 'C' was Rs. 15570.06 and Rs.18366.96 respectively. The average gross income was Rs. 23902.94. Among the different items of expenditure in (cost A) hired human labour accounted highest share i.e. 15.91 per cent followed by bullock labour 13.28 per cent and machinery 5.10 per cent. The yield obtained at overall level was 10.35 Qtl. The per quintal cost of production was Rs. 1716.89. In case of marginal group (Appendix VIII -A) the cost 'A', cost 'B' and cost 'C' was Rs. 10405.21, Rs. 14689.75 and Rs. 17549.62 with per quintal cost of production is Rs. 1670.52. In case of small group (Appendix VIII-B) the cost 'A', cost 'B' and cost 'C' was Rs. 11954.69, Rs. 15766.05 and Rs. 19062.03 with per quintal cost of production is Rs. 1799.32. In case of medium group (Appendix VIII -C) the cost 'A', cost 'B' and cost 'C' was Rs. 11085.03, Rs. 15600.24 and Rs. 18430.63 with per quintal cost of production is Rs. 1674.17. In case of large group (Appendix VIII -D) the cost 'A', cost 'B' and cost 'C' was Rs. 10988.38, Rs. 15320.60 and Rs. 17698.36 with per quintal cost of production is Rs. 1684.78.

Table:5.13 Per hectare cost of cultivation of wheat (Overall)

Sr. No.	Item		Units	Units Req.	Price Per Unit	Cost In Rs.	Percent To Total
1	Hired Human Labour	Male	DAYS	14.32	121.99	1746.90	5.78
		Female	DAYS	26.79	72.13	1932.36	6.39
		Total	DAYS	41.11		3679.26	12.17
2	Bullock Labour	Hired	DAYS	5.43	250.30	1359.13	4.49
		Owned	DAYS	4.80	250.30	1201.44	3.97
		Total	DAYS	10.23		2560.57	8.47
3	Machine	Hired	Hrs.	9.85	226.45	2230.53	7.38
		Owned	Hrs.	0.00	0.00	0.00	0.00
		Total	Hrs.	9.85		2230.53	7.38
4	Seed		Kg.	103.39	54.16	5599.60	18.51
5	Manure		Qt	0.00	0.00	0.00	0.00
6	Fertilizer	N	Kg.	83.10	15.50	1288.05	4.26
		P	Kg.	38.34	26.15	1002.59	3.32
		K	Kg.	37.33	36.75	1371.88	4.54
		Total		158.77		3662.52	12.11
7	Irrigation		Rs.			1415.29	4.68
8	Incidental		Rs.			68.83	0.23
9	Plant protection		Rs.			276.65	0.91
10	Repairs		Rs.			95.09	0.31
11	Depreciation		Rs.			162.23	0.54
12	Land Revenue		Rs.			75.04	0.25
13	Int. On Working Capital		Rs.			391.77	1.30
14	COST "A"		Rs.			20217.38	66.85
15	Rental Value Of Land		Rs.			6444.86	21.31
16	Int. On Fixed Capital		Rs.			302.04	1.00
17	COST "B"		Rs.			26964.28	89.16
18	Family Labour Charges	Male	DAYS	19.22	121.99	2344.65	7.75
		Female	DAYS	12.96	72.13	934.80	3.09
		Total	DAYS	32.18		3279.45	10.84
19	COST "C"		Rs.			30243.73	100.00
20	Yield	Main	Qt	31.31	1234.60	38655.33	
		Bye	Qt	10.77	43.09	464.08	
21	Value Of Total Produce		Rs.			39119.41	
22	Per Qtls . Cost Of Production					951.12	

Table:5.14 Per hectare cost of cultivation of gram (Overall)

SR. NO.	ITEM		UNITS	UNITS	PRICE	COST IN RS.	PERCENT TO TOTAL
				Req.	PER UNIT		
1	Hired Human Labour	Male	DAYS	11.57	123.49	1428.78	7.78
		Female	DAYS	20.60	72.48	1493.09	8.13
		Total	DAYS	32.17		2921.87	15.91
2	Bullock Labour	Hired	DAYS	5.73	250.13	1433.24	7.80
		Owned	DAYS	4.02	250.13	1005.52	5.47
		Total	DAYS	9.75		2438.77	13.28
3	Machine	Hired	Hrs.	4.68	200.13	936.61	5.10
		Owned	Hrs.	0.00	0.00	0.00	0.00
		Total	Hrs.	4.68		936.61	5.10
4	Seed		Kg.	75.81	33.66	2551.76	13.89
5	Manure		Qt	0.00	0.00	0.00	0.00
6	Fertilizer	N	Kg.	22.01	15.72	346.00	1.88
		P	Kg.	32.69	26.46	864.98	4.71
		K	Kg.	2.89	36.33	104.99	0.57
		Total		57.59		1315.97	7.16
7	Irrigation		Rs.			0.00	0.00
8	Incidental		Rs.			40.85	0.22
9	Plant protection		Rs.			401.65	2.19
10	Repairs		Rs.			70.24	0.38
11	Depreciation		Rs.			208.20	1.13
12	Land Revenue		Rs.			77.76	0.42
13	Int. On Working Capital		Rs.			213.55	1.16
14	COST "A"		Rs.			11177.23	60.86
15	Rental Value Of Land		Rs.			3906.06	21.27
16	Int. On Fixed Capital		Rs.			486.77	2.65
17	COST "B"		Rs.			15570.06	84.77
18	Family Labour Charges	Male	DAYS	15.23	123.49	1880.75	10.24
		Female	DAYS	12.64	72.48	916.15	4.99
		Total	DAYS	27.87		2796.90	15.23
19	COST "C"		Rs.			18366.96	100.00
20	Yield	Main	Qt	10.35	2251.77	23305.82	
		Bye	Qt	3.98	150.03	597.12	
21	Value Of Total Produce		Rs.			23902.94	
22	Per Qtls . Cost Of Production					1716.89	

The per hectare item wise cost for rabi jowar crop cultivation was worked out for overall level and presented in Table 5.15. It is observed from table 5.15, that, on an overall level average use of hired male labour were 23.15 days and female labour was 38.68 days. At overall, the average use of seed was found to be 9.86 Kg and N., P. and K were

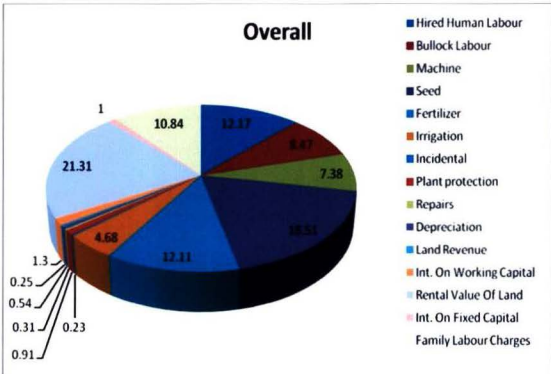


Fig 10 Cost of cultivation of wheat (overall)

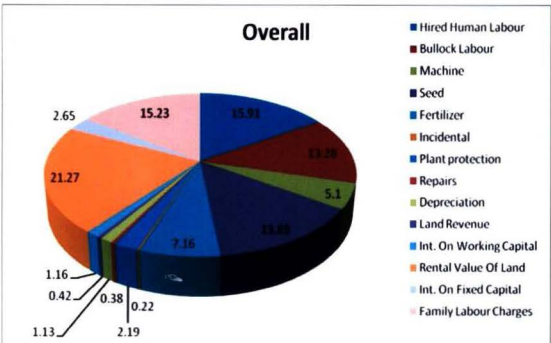


Fig 11 Cost of cultivation of gram (overall)

used 51.40 Kg, 30.43 Kg and 14.38 Kg respectively. At overall, average use of bullock labour was 10.78 days and machinery was 6.79 Hrs. respectively. The average cost 'A' was Rs. 14366.82 whereas cost 'B' and cost 'C' was Rs. 20534.98 and Rs. 24326.66 respectively. The average gross income was Rs. 35896.90. Among the different items of expenditure in (cost A) hired human labour accounted highest share i.e.22.96 per cent followed by bullock labour 11.30 per cent and machinery 6.00 per cent. The yield obtained at overall level was 18.94 Qtl. The per quintal cost of production was Rs 870.01. In case of marginal group (Appendix IX -A) the cost 'A', cost 'B' and cost 'C' was Rs. 13342.16, Rs. 19023.47 and Rs. 23587.14 with per quintal cost of production is Rs 907.34. In case of small group (Appendix IX-B) the cost 'A', cost 'B' and cost 'C' was Rs. 13941.57, Rs. 20195.12 and Rs. 24863.10 with per quintal cost of production is Rs. 845.63. In case of medium group (Appendix IX -C) the cost 'A', cost 'B' and cost 'C' was Rs. 13616.04, Rs. 20074.73 and Rs. 23846.51 with per quintal cost of production is Rs. 785.26. In case of large group (Appendix IX -D) the cost 'A', cost 'B' and cost 'C' was Rs 15426.46, Rs. 21389.71 and Rs 24468.93 with per quintal cost of production is Rs. 950.50.

The per hectare item wise cost for linseed crop cultivation was worked out for overall level and presented in Table 5.16. It is observed from table 5.16, that, on an overall level average use of hired male labour were 12.17 days and female labour was 21.08 days. At overall, the average use of seed was found to be 26.95 Kg and N., P. and K were used 60.43 Kg, 23.47 Kg and 3.26 Kg respectively. At overall, average use of bullock labour was 8.03 days and machinery was 6.08 Hrs. respectively. The average cost 'A' was Rs 10509.59 whereas cost 'B' and cost 'C' was Rs 18899.00 and Rs20299.94 respectively. The average gross income was Rs. 48510.83. Among the different items of expenditure in (cost A) hired human labour accounted highest share i.e.14.77 per cent followed by bullock labour 9.90 per cent and machinery 7.01 per cent. The yield obtained at overall level was 13.69Qtl. The per quintal cost of production was Rs 1458.22. In case of small group

(Appendix X-A) the cost 'A', cost 'B' and cost 'C' was Rs. 12090.99, Rs. 20974.20 and Rs. 22464.86 with per quintal cost of production is Rs. 1654.03. In case of medium group (Appendix X -B) the cost 'A', cost 'B' and cost 'C' was Rs. 11025.35, Rs.19585.57 and Rs. 20927.37 with per quintal cost of production is Rs. 1489.73. In case of large group (Appendix X -C) the cost 'A', cost 'B' and cost 'C' was Rs 9485.78, Rs.17524.87 and Rs 18959.10 with per quintal cost of production is Rs. 1365.70.

Table:5.15 Per hectare cost of cultivation rabi jowar (Overall)

SR. NO.	ITEM		UNITS	UNITS Req.	PRICE PER UNIT	COST IN RS.	PERCENT TO TOTAL
1	Hired Human Labour	Male	DAYS	23.15	121.73	2818.05	11.58
		Female	DAYS	38.68	71.53	2766.78	11.37
		Total	DAYS	61.83		5584.83	22.96
2	Bullock Labour	Hired	DAYS	6.57	255.01	1675.42	6.89
		Owned	DAYS	4.21	255.01	1073.59	4.41
		Total	DAYS	10.78		2749.01	11.30
3	Machine	Hired	Hrs.	6.79	214.94	1459.44	6.00
		Owned	Hrs.	0.00	0.00	0.00	0.00
		Total	Hrs.	6.79		1459.44	6.00
4	Seed		Kg.	9.86	52.87	521.30	2.14
5	Manure		Qt	0.00	0.00	0.00	0.00
6	Fertilizer	N	Kg.	51.40	16.27	836.28	3.44
		P	Kg.	30.43	26.22	797.87	3.28
		K	Kg.	14.38	36.23	520.99	2.14
		Total		96.21		2155.14	8.86
7	Irrigation		Rs.		964.91	3.97	
8	Incidental		Rs.		38.42	0.16	
9	Plant protection		Rs.		241.28	0.99	
10	Repairs		Rs.		95.08	0.39	
11	Depreciation		Rs.		205.35	0.84	
12	Land Revenue		Rs.		75.87	0.31	
13	Int. On Working Capital		Rs.		276.19	1.14	
14	COST "A"		Rs.		14366.82	59.06	
15	Rental Value Of Land		Rs.		5906.95	24.28	
16	Int. On Fixed Capital		Rs.		261.22	1.07	
17	COST "B"		Rs.		20534.98	84.41	
18	Family Labour Charges	Male	DAYS	13.42	121.73	1633.62	6.72
		Female	DAYS	30.17	71.53	2158.06	8.87
		Total	DAYS	43.59		3791.68	15.59
19	COST "C"		Rs.		24326.66	100.00	
20	Yield	Main	Qt	18.94	1480.90	28048.25	
		Bye	Qt	36.57	214.62	7848.65	
21	Value Of Total Produce		Rs.		35896.90		
22	Per Qtls . Cost Of Production				870.01		

Table:5.16 Per hectare cost of cultivation of linseed (Overall)

SR. NO.	ITEM		UNITS	UNITS Req.	PRICE PER UNIT	COST IN RS.	PERCENT TO TOTAL
1	Hired Human Labour	Male	DAYS	12.17	121.82	1482.55	7.30
		Female	DAYS	21.08	71.93	1516.28	7.47
		Total	DAYS	33.25		2998.83	14.77
2	Bullock Labour	Hired	DAYS	3.69	250.38	923.90	4.55
		Owned	DAYS	4.34	250.38	1086.65	5.35
		Total	DAYS	8.03		2010.55	9.90
3	Machine	Hired	Hrs.	6.08	234.20	1423.94	7.01
		Owned	Hrs.	0.00	0.00	0.00	0.00
		Total	Hrs.	6.08		1423.94	7.01
4	Seed		Kg.	26.95	56.06	1510.82	7.44
5	Manure		Qt	0.00	0.00	0.00	0.00
6	Fertilizer	N	Kg.	60.43	16.25	981.99	4.84
		P	Kg.	23.47	26.40	619.61	3.05
		K	Kg.	3.26	36.31	118.37	0.58
		Total		87.16		1719.97	8.47
7	Irrigation		Rs.			0.00	0.00
8	Incidental		Rs.			25.86	0.13
9	Plant protection		Rs.			231.52	1.14
10	Repairs		Rs.			56.52	0.28
11	Depreciation		Rs.			259.78	1.28
12	Land Revenue		Rs.			72.25	0.36
13	Int. On Working Capital		Rs.			199.56	0.98
14	COST "A"		Rs.			10509.59	51.77
15	Rental Value Of Land		Rs.			8012.89	39.47
16	Int. On Fixed Capital		Rs.			376.52	1.85
17	COST "B"		Rs.			18899.00	93.10
18	Family Labour Charges	Male	DAYS	8.04	121.82	979.43	4.82
		Female	DAYS	5.86	71.93	421.51	2.08
		Total	DAYS	13.90		1400.94	6.90
19	COST "C"		Rs.			20299.94	100.00
20	Yield	Main	Qt	13.69	3518.91	48173.88	
		Bye	Qt	5.86	57.50	336.95	
21	Value Of Total Produce		Rs.			48510.83	
22	Per Qtls . Cost Of Production					1458.22	

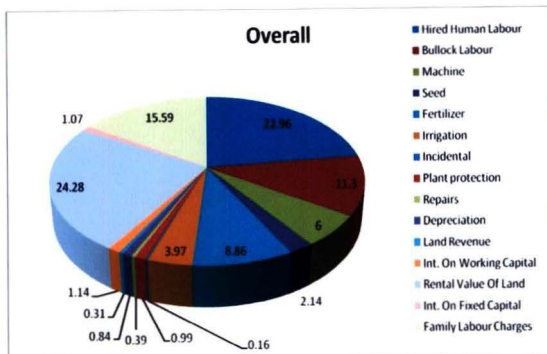


Fig 12 Cost of cultivation of rabi jowar (overall)

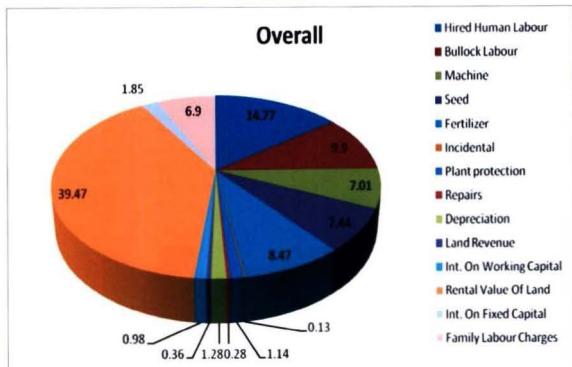


Fig 13 Cost of cultivation of linseed (overall)

5.3.2 Economics of different activities of selected farmers.

It is well known that the farmers are always interested in increasing their income from farm as a whole, instead of individual crop. They try to achieve this object through allocation of their land and other resources at their command to different activities. The efforts have been made in the fore going to work out gross and net returns were taken into consideration and while calculating economics of dairy and other activities per animal, cost and returns were taken into consideration and the results are presented in Table 5.17.

It was observed from Table 5.17 that, the net returns at pocket expenses (at cost 'A') in tur and linseed were higher as compare to other crops i.e. Rs. 46289.59 and Rs. 38030.63 respectively and also at cost 'C' net return was higher in tur and linseed i.e. 29803.80 and 28210.63 respectively. The B: C ratio of linseed and sesamum at cost 'C' was higher as compared to the other crop i.e. 2.39 and 1.76 respectively. The lowest B: C ratio at total cost was observed in case of cotton i.e. 1.06. The net returns per dairy animal were 10046.13 at cost 'A' and Rs. 7274.45 at cost 'C' on the selected farms. Among rabi crops linseed observed profitable crop at both cost 'A' and cost 'C' i.e. Rs. 38030.63 and Rs. 28210.6 respectively. The B: C ratio of wheat and cotton were found to be lowest at cost 'C' i.e. 1.29 and 1.06 respectively as compare to other crop activities.

Table 5.17 Economics of different activities of selected farmers

Sr.No	Crops	Gross Return	Cost(Rs)			Net return at cost			B:C Ratio at cost		
			Cost A	Cost B	Cost C	A	B	C	A	B	C
A)	Crop activities(per ha)										
1	Paddy	49586.92	18708.05	27371.86	29941.66	30878.87	22215.06	19645.26	2.65	1.81	1.66
2	Soybean	42109.11	20006.23	27356.84	31779.53	22102.88	14752.27	10329.58	2.10	1.54	1.33
3	Tur	74957.15	28667.56	41391.75	45153.35	46289.59	33565.4	29803.80	2.61	1.81	1.66
4	Moong	23742.9	12570.77	16880.76	18151.3	11172.13	6862.14	5591.60	1.89	1.41	1.31
5	Sesamum	31415.5	10974.89	16512.44	17858.81	20440.61	14903.06	13556.69	2.86	1.90	1.76
6	Cotton	38573.1	26759.06	33426.42	36402.74	11814.04	5146.68	2170.36	1.44	1.15	1.06
7	Wheat	39119.37	20190.4	26937.29	30216.74	18928.97	12182.08	8902.63	1.94	1.45	1.29
8	Rabi Jowar	35896.88	14365.82	20533.98	24366.87	21531.06	15362.9	11530.01	2.50	1.75	1.47
9	Gram	23902.89	11176.53	15569.34	18366.24	12726.36	8333.55	5536.65	2.14	1.54	1.30
10	Linseed	48510.85	10480.22	18899.28	20300.22	38030.63	29611.57	28210.63	4.63	2.57	2.39
B)	Dairy activity	18586.85	8540.72	10148.6	11312.4	10046.13	8438.25	7274.45	2.17	1.83	1.64

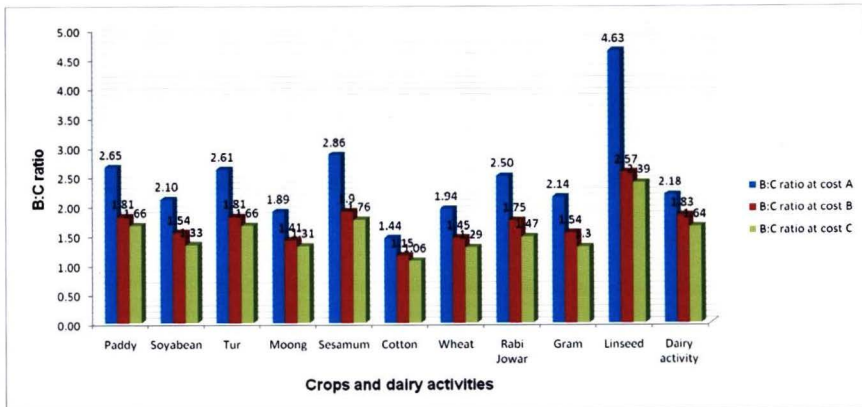


Fig. 14 B:C ratio at various cost for crop production and dairy activities.

5.2 Farm Efficiency measures of different size of farms.

A measure stick is necessary to provide guides and standard for appraising accuracy of decision regarding the used resources. One method of production is said to be more than the other when it yields a greater valuable output per unit of valuable input from an economic stand point, efficiency is desirable and the science of farm management deals with such principles and theories of farm business organization which are instrumental increasing the efficiency of the business – various farm efficiency measure in present study are.

5.4.1 Land use efficiency

5.4.2 Labour efficiency

5.4.3 Financial Efficiency

5.4.4 Ratio measures

5.4.1 Land use efficiency

5.4.1.1 Yield per hectare on the farm

Yield per hectare of the major crops grown by the cultivator is presented in Table 5.18.

The Table 5.18 revealed that, in case of soybean overall average per hectare yield was 18.68 quintals in which medium group reaps the highest yield (19.11) followed by large, small and marginal.

In case of moong, sesamum, cotton and tur the overall average yield grain was 6.86, 6.19, 10.95 and 19.17 quintals, respectively. However, the per hectare yield of moong of medium and large size group was 6.42 and 7.21 quintals respectively. The per hectare yield of sesamum of medium and large size group was 6.11 and 6.25 quintals, respectively. The per hectare yield of cotton of marginal, small, medium and large size group was 10.21, 10.93, 10.97 and 11.26 quintals, respectively.

The per hectare yield of tur of marginal, small, medium and large size group was 16.25, 17.11, 19.04 and 20.41 quintals, respectively.

Table 5.18 per hectare yield of various major crops**(qt/ha)**

Group	Marginal	Small	Medium	Large	Overall
Paddy	39.71	40.49	37.84	38.87	36.68
Soybean	18.46	18.48	19.11	18.48	18.68
Moong	00.00	00.00	6.42	7.21	6.86
Tur	16.25	17.11	19.04	20.41	19.17
Cotton	10.21	10.93	10.97	11.26	10.95
Sesamum	00.00	00.00	6.11	6.25	6.19
Wheat	29.47	30.69	31.68	31.80	31.31
Rabi Jowar	16.25	18.21	19.72	19.28	18.94
Gram	10.11	10.29	10.67	10.17	10.35
Linseed	00.00	13.13	13.80	13.68	13.69

In case of paddy and wheat the overall yield was 36.68 and 31.31 quintals respectively. However, the highest and lowest yield in paddy was observed in small size group and medium size group i.e. 40.49 quintals and 37.84 quintals respectively also in wheat, the highest and lowest yield was observed in large and marginal size group i.e. 31.80 and 29.47 quintals, respectively.

In case of rabi jowar the overall average yield was 18.94 quintals and the highest yield was observed in medium size group and lowest in marginal size group.

In case of gram, the overall average yield was 10.35 quintals and the highest yield was observed in medium size group and lowest in marginal size group.

In case of linseed, the overall average yield was 13.69 quintals and the highest yield was observed in large size group and lowest in small size group.

5.4.1.2 Crop yield index of different crops of selected farmer.

It is measure of comparison of the yields of all crops on a given farm with the average yield of these crops in the locality.

The crop yield index of different crops of selected farms is given in Table 5.19.

Table 5.19 Crop yield index of different crops of selected farmers

Group	Marginal	Small	Medium	Large	Overall
Paddy	96.50	98.40	91.96	94.46	89.14
Soybean	90.94	91.03	94.14	91.03	92.02
Moong	00	00	72.13	81.01	77.08
Tur	89.19	93.91	104.50	112.02	105.21
Cotton	83.01	88.86	89.19	91.54	89.02
Sesamum	00	00	66.78	68.31	67.65
Wheat	95.84	99.80	103.02	103.41	101.82
Rabi Jowar	88.56	99.24	107.47	105.07	103.22
Gram	121.81	123.98	128.55	122.53	124.70
Linseed	00	109.26	113.11	112.13	112.21

It was observed from Table 5.19 that, the yield of different crop was higher in large farm and medium as compared to small and marginal farms and it was lower than the average yield of the Chandrapur district. (Average yield of locality of paddy, moong, tur, soybean, cotton, sesamum, wheat, rabi jowar, gram and linseed was 41.15 Qtl., 8.90 Qtl., 18.22 Qtl., 20.30 Qtl., 12.30, Qtl. 9.15 Qtl., 30.75 Qtl., and 18.35 Qtl., 8.30 Qtl., and 12.20 Qtl. respectively.)

The overall crop yield index was found higher in gram crop. Farms having dairy activity were found complementary for increase in yield of different crops. As the size of holding increase, the number of dairy activity increases which resulted in higher productivity per hectare due to availability of F.Y.M. The mutual dependence of crop and dairy animal for fodder and farm yard Manure (F.Y.M.) has resulted in increase in productivity. On an average the crop yield index for different crop was 100.00.

5.4.1.3 Cropping intensity of different farms.

The cropping intensity indicates potential of farm to take crop activities more than once in a year on the selected farms and it is presented in Table 5.20.

Table 5.20 The Cropping intensity of different farms.

Sr. No.	Size group	Gross cropped area (ha)	Net cropped area	Cropping Intensity
1	Marginal	1.12	0.78	143.59
2	Small	2.15	1.42	151.41
3	Medium	4.36	2.80	155.71
4	Large	7.93	5.01	158.28
5	Overall	2.97	1.94	153.09

It was observed from Table 5.20 that, at overall level, the cropping intensity was 153.09 per cent. The highest (158.08 per cent) cropping intensity was found in large farm followed by medium farms i.e. 155.71 per cent and small farm (151.41 per cent).

5.4.2 Labour efficiency measures on different farms.

By comparing the labour efficiency we can know whether the labour on farm is more or less than what is required. We can also find out whether the labour is relatively more or less efficient. It includes following measures.

5.4.2. Labour efficiency by crop hectareage per man equivalent of different farms

The significance of this measure was influenced by the varying proportion of crops with high or low labour requirements.

Labour requirement for different crops can be judged by comparing crop hectareage per man equivalent.

Crop hectareage per man equivalent was calculated for the crops like paddy, cotton, soybean, tur, moong, sesamum, wheat, rabi jowar, linseed and gram. Crop wise and group wise crop hectareage per man equivalent is given in Table 5.21.

The range of crop hectareage per man equivalent in different size group was more or less same for particular crop.

The hectareage available for paddy and gram was on higher site i.e. 0.169 and 0.152 respectively whereas hectareage available for moong and sesamum i.e. 0.008 and 0.022 was at lower site. The

hectareage for tur was 0.033. The hectareage available for soybean, wheat and cotton was 0.056, 0.071 and 0.054 respectively. The hectareage available for rabi jowar and linseed was 0.027 and 0.025 respectively.

Table 5.21 Labour efficiency by crop hectareage per man Equivalent of different farms.

Group	Marginal	Small	Medium	Large	average
Paddy	0.134	0.206	0.235	0.139	0.179
soybean	0.016	0.049	0.074	0.087	0.056
Cotton	0.035	0.039	0.069	0.071	0.054
Tur	0.013	0.024	0.032	0.061	0.033
Moong	0.000	0.000	0.011	0.022	0.008
Sesamum	0.000	0.000	0.036	0.051	0.022
Wheat	0.034	0.061	0.108	0.080	0.071
Gram	0.070	0.125	0.196	0.219	0.152
Jowar	0.007	0.024	0.035	0.042	0.027
Linseed	0.000	0.012	0.041	0.045	0.025

5.4.2.1 Labour efficiency by productive man work unit per man equivalent on different farms.

It is another good and accurate general measure of labour efficiency for all types of farms. The total productive man work units from a given farm represent the number of 8 hour days required under average condition and abilities to do all the work necessary on the production of crops. Productive man work unit per man equivalent on different farms is presented in Table 5.22

Table 5.22 Labour efficiency by productive man work unit per man equivalent on different farms.

Sr. No.	Size group	Total Cropped (ha) A	Average productive man Workout Unit (days) B	Total man equivalent (days) C	Ratio $\left(\frac{A \times B}{C}\right)$
1	Marginal	32.14	110.77	775.4	4.59
2	Small	56.58	103.76	830.07	7.07
3	Medium	85.8	97.44	974.44	8.58
4	Large	77.6	93.03	930.35	7.76
5	Overall	92.17	85.30	935.91	8.40

At overall level, the productive man work units per man equivalent were 8.40 while the productive man work unit per man equivalent for marginal size of farm, small size farm and large size of farm were 4.59, 7.07, and 7.76 respectively, whereas as the productive man work unit per man equivalent on medium farm was found to be 8.58. The lowest productive man work units per man equivalent were observed in case of marginal farms i.e. 4.59.

5.4.3 Financial efficiency of different farms.

The financial efficiency of different farms is measured by using net return, input output ratio and different cost ratio for the selected farmers.

5.4.3.1 The aggregate measure of selected farms.

The aggregate measure calculated are gross income, gross expenses, net returns, net farm incomes, family labour earning and farm business income of different farms. The net returns of different farms are presented in Table 5.23.

Table 5.23 Aggregate measure of selected farmers.**(Rs. /farm)**

Sr.No	Measure	Size group				Average
		Marginal	Small	Medium	Large	
I)	Gross income					
	Crops	289138.00	346962.00	413299.10	412268.88	365417.00
	Dairy activity	8630.40	11570.20	16520.40	27840.20	16140.30
	Sub total	297768.40	358532.20	429819.50	440109.08	381557.30
II)	Gross expenses					
	Crops	207480.40	234247.60	283201.70	270788.83	248929.63
	Dairy activity	4680.30	6320.40	10570.25	17470.80	9760.44
	Sub total	212160.70	240568.00	293771.95	288259.63	258690.07
III)	Net income					
	Crops	81657.60	112714.40	130097.40	141480.05	116487.36
	Dairy activity	3950.10	5249.80	5950.15	10369.40	6379.86
	Sub total	85607.70	117964.20	136047.55	151849.45	122867.23
IV)	Change in inventory	359.72	745.70	15743.83	36872.40	13430.41
V)	Interest charges @ 10 % on farm capital	782.43	1576.54	3464.10	7234.12	3264.30
V)	Imputed value of family labour	1068.30	2742.40	5476.56	13234.56	5630.46
a)	Net cash income (I-II)	85607.70	117964.20	136047.55	151849.45	122867.23
b)	Net farm income (a+IV)	85967.42	118709.90	151791.38	188721.85	136297.64
c)	Family labour earning (b-v)	84899.12	115967.50	146314.82	175487.29	130667.18
d)	Farm business income	83830.82	113225.10	140838.26	162252.73	125036.73

It was observed from Table 5.23 that, at overall level, the gross income was Rs. 381557.30 and the gross expense was Rs. 258690.07 and a net return was 122867.23. In comparison of different size groups it is observed that, the percentage of net returns in gross returns at large size group was the highest (Rs. 151849.45). The net return of marginal, small, medium and large size group were Rs. 85607.70, Rs

117964.20, Rs. 136047.55 and Rs. 151849.45 respectively. Among the activities the net returns from crop activities was higher on all size of farms as compared to dairy and other activity.

At over all level, the change in inventory was Rs. 13430.41 while the imputed value of family labour was 5630.45.

The net farm income included net cash income and the value of change in inventory was resulted in Rs. 136297.64 per farm. Family labour earning was Rs.130667.18 which is net farm income less interest on farm capital. The farm business income was Rs. 125036.73 per farm. This farm business income was Rs 83830.82 Rs. 113225.10, Rs 140838.26 and Rs. 162252.73 on marginal, small, medium and large farms, respectively.

5.4.4 Financial efficiency by different ratios on selected farms.

Financial efficiency of the different farm was measured by using input output ratio, operating cost ratio, fixed cost ratio and gross cost ratio for selected sample farmer

5.4.4.1 Input – output ratio of different farm.

Input – output ratio at cost 'A', cost 'B' and cost 'C' were considered important tools for estimation of economics of crop production. The results obtained are presented in Table 5.24.

Table 5.24 Input – output ratio of selected farms.

Sr. No.	Farm size group	At cost A	At cost B	At cost C
1	Marginal	2.16	1.57	1.39
2	Small	2.33	1.66	1.48
3	Medium	2.26	1.62	1.46
4	Large	2.39	1.69	1.52
5	Overall	2.34	1.66	1.50

The result estimated by input output ratio indicates the returns per rupee of investment. At cost 'C' the input-output ratio was higher on large size farms i.e. 1.52 followed by small size farms (1.48) and medium farms (1.46) and marginal size farms having (1.39). While the returns per rupee at cost 'B' was highest (1.69) on large farms followed

by small farms (1.66). At overall level returns per rupee at cost 'A' was 2.34, at cost 'B' was 1.66 and at cost 'C' was 1.50.

5.4.4.2 Cost ratio of selected farmers.

Cost ratio efficiency factors are used to indicate a strong or weak point in the organization or operation of the business where greater managerial attention is needed. Cost ratios are averages and their magnitude reflects physical production efficiency, selection of enterprises, price received for commodities and the expenses for the production elements.

i) Operating Cost Ratio

It is ratio of operating expenses to the gross income. It was presented in Table 5.25.

Table 5.25 Operating cost ratio in different size of farm

Sr. no.	Size Groups	Operating cost (Rs.)	Gross income(Rs.)	Ratio
1	Marginal	133726.5	289138.00	0.46
2	Small	148998.1	346962.00	0.43
3	Medium	182844.1	433299.10	0.42
4	Large	172310.4	412268.9	0.42
5	Overall	173991.66	407750.61	0.43

The operating cost ratio was the highest on marginal size farm i.e. 0.46 followed by medium, small and large size farms i.e. 0.43, 0.42 and 0.42 respectively. At overall level operating cost ratio was 0.43.

ii) Fixed Cost Ratio

It is the ratio of fixed capital invested to the gross income. The fixed cost ratios of selected farmers in Chandrapur district are presented in Table 5.26.

Table 5.26 fixed cost ratio of selected farmers.

Sr.No.	Size group	Fixed cost	Gross Income	Ratio
1	Marginal	161981.95	289138.00	0.56
2	Small	240560.44	346962.00	0.69
3	Medium	265431.27	433299.10	0.61
4	Large	289864.97	412268.9	0.70
5	Overall	239459.66	407750.61	0.59

The highest fixed cost ratio was observed in large size farm i.e. 0.70 followed by small (0.69), medium (0.61) and marginal (0.56) size of farms. At overall level fixed cost ratio was 0.59.

iii) Gross cost Ratio

It is the ratio of total expenses to gross income. The gross cost ratios are presented in Table 5.27.

Table 5.27 Gross cost ratio of selected farmers.

Sr. no.	Size group	Total expenses	Gross Income	Ratio
1	Marginal	207480.40	289138.21	0.72
2	Small	234247.60	346962.10	0.68
3	Medium	283201.70	413180.80	0.69
4	Large	270788.83	412269.00	0.66
5	Overall	272540.30	407754.70	0.67

The highest gross cost ratio was observed in Marginal farm (0.72) followed by medium size farm (0.69), small (0.68) and large size of farms (0.66) respectively. At overall level gross cost ratio was 0.67.

iv) Cost per hectare

It is ratio of cost 'C' to the gross cropped area. It is presented in Table 5.28

Table 5.28 Cost per hectare on different farms

Sr. no.	Size group	Total cost	Gross Cropped area	cost/ha (Rs.)
1	Marginal	207480.40	1.12	185250.36
2	Small	234247.60	2.15	108952.37
3	Medium	283201.70	4.36	64954.51
4	Large	270788.83	7.93	34147.39
5	Overall	272540.30	2.97	91764.41

It was observed from Table 5.28 that, the highest cost per hectare ratio was found on marginal size of farm i.e. Rs.185250.36 followed by small (Rs.108952.37), medium (Rs. 64954.52) and Large (Rs. 34147.39) farm size. At overall level cost per hectare ratio was 91764.41.

Chapter VI

SUMMARY AND CONCLUSIONS

Farm business analysis is the process of retrieving, organizing, processing and analyzing information used in farm business. Decision making is a critical ingredient in the management of the modern farm. The farm business analysis begins with review of current conditions. The resources available to the business the current operating plan, the existing financial condition and the skills and management ability. In order to increase the per unit returns from agriculture, it is necessary to study the present cropping pattern followed by the cultivators.

Farm management deals with the organization and operation on a farm with the objective of maximizing profit from the farm business on a continuous basis. Such study would help research workers to understand the technology adopted by the farmers and suggest new changes either in cropping pattern or in utilization so as to increase the productivity per unit of area.

The present study mainly focuses into the farming systems and economic analysis of farm. This study would help the farmers for arranging their lands which includes more profitable crops and select such rotation which would give continuous higher income by maintaining fertility status of soil. Bankers need crop production data to fix maximum credit limits for the crop loans. This study would also be helpful to the Zillah Parishad Officer and policy makers working in this area to introduce new production technology.

In the present study an attempt has been made to carry out the "Economic analysis of farm business in Chandrapur district", with a view to examine the cropping pattern, cost of cultivation and farm efficiency measures. The present study has been planned with the following objectives.

1. To study the socio economic characteristics of selected farmers.
2. To work out the economics of farm business.
3. To estimate the farm efficiency of different farm size of selected farmer.

The present study was carried out in six tahsils (Chimur, Nagbhid, Sindevahi, Mul, Chandrapur and Warora) of Chandrapur district. Two villages were selected from each tahsils. A sample of 33 marginal, 29 small, 23 medium and 11 large cultivators were considered for analysis. In all 96 cultivators were selected for the present study. The information about the farming business was collected by personal interview method through specially designed schedule for the year 2009–10. In the present study multistage random sampling technique was used.

The information was collected from the selected cultivators was mainly related to his family and farm. This includes number of family members, labour available from the family for cultivation of crops, income sources and education level. As regards land it includes total area and area under cultivation, cropping pattern, sources of irrigation. Further the information regarding livestock owned by the cultivators was also collected.

The details information regarding cultivation practices followed by the cultivator on various inputs such as labour, fertilizer, seed, insecticides and pesticides etc. along with details about various operation carries by the cultivator was collected. The collected data were tabulated, analyzed and result is discussed.

The result of study is summarized as follows.

The average size of family was 5 members in marginal, 6 members in small and medium groups, whereas 5 family members were observed in large group. The overall average size of family was 6

members including 33.33 per cent male, 33.33 per cent female, 33.34 per cent children per family. At overall level 12.50 per cent of farmers are illiterate and rest of them have educated. Highest illiterate people were observed in marginal size of holding. The average size of holding was 2.11 hectares at overall level. The average farm size of marginal, small, medium and large size group was 0.82, 1.49, 3.10 and 5.57 hectares respectively. However, the net cultivated area was 0.78, 1.42, 2.80 and 5.01 hectares respectively. The cropping intensity was worked out 153.09 per cent at overall level. In kharif season the cropping pattern in all groups was dominated by paddy crop. The average area under kharif crop was 1.94 hectares (65.26 per cent). The area under rabi crop was 1.03 hectares (34.74 per cent). The area under rabi crop was the highest in large group i.e. 36.82 per cent. The share of paddy in gross cropped area was the highest in marginal farms (49.87 per cent). In kharif season the cropping pattern was dominated by paddy crop where as in rabi season, it was dominated by gram crop.

The value of land on marginal holding was Rs. 147889.52 per hectare and Rs. 203270.71 per farm which accounted 91.30 per cent of the total capital investment. The value of land on small holding was Rs. 222999.53 per hectare and Rs. 442082.48 per farm which accounted 92.70 per cent of the total capital investment. The value of land on medium holding was Rs. 251230.70 per hectare and Rs. 653643.45 per farm which accounted 94.65 per cent of the total capital investment. The value of land on large holding was Rs. 276444.22 per hectare and Rs. 1841027.72 per farm which accounted 95.37 per cent of the total capital investment. The value of land on overall was Rs. 225163.92 per hectare and Rs. 780573.66 per farm which accounted 94.03 per cent of the total capital investment. The total investment on livestock was Rs. 5363.90 per hectare and Rs. 18594.97 per farm which accounted 2.24 per cent. The investment on building was Rs 6872.49 per hectare and Rs. 23824.81 per farm which accounted 2.87

per cent of the total investment. The investment on implement and machinery was Rs. 2059.35 per hectare and Rs. 7139.14 per farm which accounted 0.86 per cent.

At overall level, paddy production activity was observed on 74 farms which were the highest as compared to other activities, followed by gram observed on 72 farms. The 53 farmers were maintained dairy + other activities as a subsidiary activity. The number of farms having dairy activity was 13 for marginal, 17 for small, 15 for medium and 8 for large farm size. The per hectare item wise cost for paddy crop ~~cultivation~~ was worked out for overall level and the average cost 'A' was Rs. 18738.35 whereas cost 'B' and cost 'C' was Rs. 27376.32 and Rs.29949.94 respectively. The average gross income was Rs. 49586.96. The yield obtained at overall level was 36.68 Qtl. The per hectare item wise cost for soybean crop ~~cultivation~~ was worked out for overall level and the average cost 'A' was Rs. 20001.79 whereas cost 'B' and cost 'C' was Rs 27351.80 and Rs.31777.52 respectively. The average gross income was Rs. 42109.09. The yield obtained at overall level was 18.68 Qtl. The per hectare item wise cost for cotton crop ~~cultivation~~ was worked out for overall level and the average cost 'A' was Rs. 26765.40 whereas cost 'B' and cost 'C' was Rs 33432.78 and Rs.36410.87 respectively. The average gross income was Rs. 38513.12. The yield obtained at overall level was 10.95 Qtl.

The per hectare item wise cost for tur crop ~~cultivation~~, was worked out for overall level and the average cost 'A' was Rs 28666.30 whereas cost 'B' and cost 'C' was Rs 41390.46 and Rs.45152.06 respectively. The average gross income was Rs. 74957.14. The yield obtained at overall level was 19.17 Qtl. The per hectare item wise cost for moong crop ~~cultivation~~ was worked out for overall level and the average cost 'A' was Rs 12571.95 whereas cost 'B' and cost 'C' was Rs 16881.96 and Rs.18152.50 respectively. The average gross income was Rs 23742.91. The yield obtained at overall level was 6.86 Qtl. The per hectare item wise cost for sesamum crop ~~cultivation~~ was worked

out for overall level and the average cost 'A' was Rs 10976.85 whereas cost 'B' and cost 'C' was Rs 16513.73 and Rs.17860.10 respectively. The average gross income was Rs 31411.31. The yield obtained at overall level was 6.19 Qtl.

The per hectare item wise cost for wheat crop ~~cultivation~~ was worked out for overall level and the average cost 'A' was Rs. 20217.38 whereas cost 'B' and cost 'C' was Rs 26964.28 and Rs. 30243.73 respectively. The average gross income was Rs. 39119.41. The yield obtained at overall level was 31.31 Qtl. The per hectare item wise cost for gram crop ~~cultivation~~ was worked out for overall level and the average cost 'A' was Rs 11177.23 whereas cost 'B' and cost 'C' was Rs 15570.06 and Rs.18366.96 respectively. The average gross income was Rs. 23902.94. The yield obtained at overall level was 10.35 Qtl. The per hectare item wise cost for rabi jowar crop ~~cultivation~~ was worked out for overall level and the average cost 'A' was Rs 14366.82 whereas cost 'B' and cost 'C' was Rs 20534.98 and Rs. 24326.66 respectively. The average gross income was Rs. 35896.90. The yield obtained at overall level was 18.94 Qtl. The per quintal cost of production was Rs 870.01. The per hectare item wise cost for linseed crop ~~cultivation~~ was worked out for overall level and the average cost 'A' was Rs 10509.59 whereas cost 'B' and cost 'C' was Rs 18899.00 and Rs 20299.94 respectively. The average gross income was Rs. 48510.83. The yield obtained at overall level was 13.69 Qtl. The per quintal cost of production was Rs 1458.22.

The net returns at pocket expenses (at cost 'A') in tur and linseed were higher as compare to other crops i.e. Rs. 46289.59 and Rs. 38030.63 respectively and also at cost 'C' net return was higher in tur and linseed i.e. 29803.80 and 28210.63 respectively. The B: C ratio of linseed and sesamum at cost 'C' was higher as compared to the other crop i.e. 2.39 and 1.76 respectively. The lowest B: C ratio at total cost was observed in case of cotton i.e. 1.06. The net returns per dairy animal were 10046.13 at cost 'A' and Rs. 7274.45 at cost 'C' on the

selected farms. Among rabi crops linseed observed profitable crop at both cost 'A' and cost 'C' i.e. Rs. 38030.63 and Rs. 28210.6 respectively.

In case of moong, sesamum, cotton and tur the overall average yield grain was 6.86, 6.19, 10.95 and 19.17 quintals, respectively. In case of paddy and wheat the overall yield was 36.68 and 31.31 quintals respectively. In case of rabi jowar the overall average yield was 18.94 quintals and the highest yield was observed in medium size group and lowest in marginal size group. In case of gram, the overall average yield was 10.35 quintals and the highest yield was observed in medium size group and lowest in marginal size group. In case of linseed, the overall average yield was 13.69 quintals and the highest yield was observed in large size group and lowest in small size group. The yield of different crop was higher in large farm and medium as compared to small and marginal farms and it was lower than the average yield of the Chandrapur district.

The overall crop yield index was found higher in gram crop. Farms having dairy activity were found complementary for increase in yield of different crops. As the size of holding increase, the number of dairy activity increases which resulted in higher productivity per hectare due to availability of F.Y.M. At overall level, the cropping intensity was 153.09 per cent. The highest (158.08 per cent) cropping intensity was found in large farm followed by medium farms i.e. 155.71 per cent and small farm (151.41 per cent).

The hectareage available for paddy and gram was on higher site i.e. 0.169 and 0.152 respectively whereas hectareage available for moong and sesamum i.e. 0.008 and 0.022 was at lower site. The hectareage for tur was 0.033. The hectareage available for soybean, wheat and cotton was 0.056, 0.071 and 0.054 respectively. The hectareage available for rabi jowar and linseed was 0.027 and 0.025 respectively. At overall level, the productive man work units per man

equivalent were 25.21. The lowest productive man work units per man equivalent were observed in case of marginal farms i.e. 4.59. At overall level, the gross income was Rs 381557.30 and the gross expense was Rs.258690.07 and a net return was 122867.23. At over all level, the change in inventory was Rs. 13430.41 while the imputed value of family labour was 5630.45. The net farm income included net cash income and the value of change in inventory was resulted in Rs. 136297.64 per farm. Family labour earning was Rs.130667.18 which is net farm income less interest on farm capital. The farm business income was Rs125036.73 per farm. This farm business income was Rs 83830.82 Rs 113225.10, Rs 140838.26 and Rs162252.73 on marginal, small, medium and large farms, respectively. At cost 'C' the input-output ratio was higher on large size farms i.e. 1.52 followed by small size farms (1.48) and medium farms (1.46) and marginal size farms having (1.39). While the returns per rupee at cost 'B' was highest (1.69) on large farms followed by small farms (1.66). At overall level, returns per rupee at cost 'A' was 2.34, at cost 'B' was 1.66 and at cost 'C' was 1.50.

The operating cost ratio was the highest on marginal size farm i.e. 0.46 followed by medium, small and large size farms i.e. 0.43, 0.42 and 0.42 respectively. At overall level operating cost ratio was 0.43. The highest fixed cost ratio was observed in large size farm i.e. 0.70 followed by small (0.69), medium (0.61) and marginal (0.56) size of farms. At overall level fixed cost ratio was 0.59. The highest gross cost ratio was observed in Marginal farm (0.72) followed by medium size farm (0.69), small (0.68) and large size of farms (0.66) respectively. At overall level gross cost ratio was 0.67. The highest cost per hectare ratio was found on marginal size of farm i.e. Rs.185250.36 followed by small (Rs.108952.37), medium (Rs. 64954.52) and large (Rs. 34147.39) farm size. At overall level cost per hectare ratio was 91764.41.

Conclusions:

On the basis of results obtained from the study, following conclusions are drawn.

1. At overall level average size of family was 6 members.
2. Highest illiterate people were observed in marginal size of holding.
3. At overall level, the average size of holding was 2.11 hectares.
4. The cropping intensity was 153.09 per cent at overall level.
5. In kharif season the cropping pattern was dominated by paddy crop where as in rabi season, it was dominated by gram crop.
6. The value of land at overall level was accounted 94.03 per cent of the total capital investment.
7. At overall level, paddy production activity was observed on 74 farms.
8. At overall level for paddy crop, the per hectare cost 'A', cost 'B' and cost 'C' were Rs. 18738.35, Rs. 27376.32 and Rs. 29949.94 respectively.
9. At overall level for soybean, the per hectare cost 'A', cost 'B' and cost 'C' were Rs. 20001.79, Rs 27351.80 and Rs. 31777.52 respectively.
10. At overall level for cotton, the per hectare cost 'A', cost 'B' and cost 'C' were Rs. 26765.40, Rs 33432.78 and Rs. 36410.87 respectively.

11. At overall level for tur, the per hectare cost 'A', cost 'B' and cost 'C' were Rs. 28666.30, Rs 41390.46 and Rs. 45152.06 respectively.
12. At overall level for moong, the per hectare cost 'A', cost 'B' and cost 'C' were Rs. 12571.95, Rs 16881.96 and Rs.18152.50 respectively.
13. At overall level for sesamum, the per hectare cost 'A', cost 'B' and cost 'C' were Rs. 10976.85, Rs 16513.73 and Rs.17860.10 respectively.
14. At overall level for wheat, the per hectare cost 'A', cost 'B' and cost 'C' were Rs. 20217.38, Rs 26964.28 and Rs.30243.73 respectively.
15. At overall level for gram, the per hectare cost 'A', cost 'B' and cost 'C' were Rs. 11177.23, Rs 15570.06 and Rs.18366.96 respectively.
16. At overall level for rabi jowar, the per hectare cost 'A', cost 'B' and cost 'C' were Rs. 14366.82, Rs 20534.98 and Rs.24326.66 respectively.
17. At overall level for linseed, the per hectare cost 'A', cost 'B' and cost 'C' were Rs. 10509.59, Rs 18899.00 and Rs.20299.94 respectively.
18. The B: C ratio of linseed and sesamum at cost 'C' was higher as compared to the other crop i.e. 1:2.39 and 1:1.76 respectively.
19. The overall crop yield index was found higher in gram crop.
20. The highest (158.08 per cent) cropping intensity was found on large farm.

21. The hectareage available for paddy and gram was on higher site i.e. 0.169 and 0.152 respectively.
22. At overall level, the productive man work units per man equivalent were 25.21.
23. At overall level, the gross income was Rs 381557.30.
24. At overall level, returns per rupee at cost 'A' was 2.34, at cost 'B' was 1.66 and at cost 'C' was 1.50.
25. The operating cost ratio and gross cost ratio was the highest on marginal size farm.
26. The highest fixed cost ratio was observed in large size farm i.e. 0.70.
27. The highest cost per hectare ratio was found on marginal size of farm i.e. Rs.185250.36.

Chapter VII

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VITA

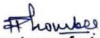
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APPENDIX I-A

Per hectare cost of cultivation for paddy (marginal)

SR. NO.	ITEM		UNITS	UNITS Req.	PRICE PER UNIT	COST IN RS.	PERCENT TO TOTAL
1	Hired Human Labour	Male	DAYS	28.30	122.04	3453.73	11.53
		Female	DAYS	67.82	72.49	4916.27	16.41
		Total	DAYS	96.12		8370.00	27.95
2	Bullock Labour	Hired	DAYS	3.35	250.66	839.71	2.80
		Owned	DAYS	6.63	250.66	1661.88	5.55
		Total	DAYS	9.98		2501.59	8.35
3	Machine	Hired	Hrs.	10.17	226.66	2305.13	7.70
		Owned	Hrs.	0.00	0.00	0.00	0.00
		Total	Hrs.	10.17		2305.13	7.70
4	Seed		Kg.	67.01	22.95	1537.88	5.13
5	Manure		Qt	6.90	67.15	463.34	1.55
6	Fertilizer	N	Kg.	55.38	15.54	860.61	2.87
		P	Kg.	19.76	25.96	512.97	1.71
		K	Kg.	14.99	35.65	534.39	1.78
		Total		90.13		1907.97	6.37
7	Irrigation		Rs.			456.99	1.53
8	Incidental		Rs.			37.09	0.12
9	Plant protection		Rs.			493.59	1.65
10	Repairs		Rs.			69.35	0.23
11	Depreciation		Rs.			171.27	0.57
12	Land Revenue		Rs.			61.30	0.20
13	Int. On Working Capital		Rs.			362.86	1.21
14	COST "A"		Rs.			18738.35	62.57
15	Rental Value Of Land		Rs.			8203.19	27.39
16	Int. On Fixed Capital		Rs.			434.77	1.45
17	COST "B"		Rs.			27376.32	91.41
18	Family Labour Charges	Male	DAYS	13.42	122.04	1637.78	5.47
		Female	DAYS	12.91	72.49	935.85	3.12
		Total	DAYS	26.33		2573.62	8.59
19	COST "C"		Rs.			29949.94	100.00
20	Yield	Main	Qt	36.68	1171.11	42956.31	
		Bye	Qt	45.89	144.49	6630.65	
21	Value Of Total Produce		Rs.			49586.96	
22	Per Qtls . Cost Of Production					635.75	

APPENDIX I-B

Per hectare cost of cultivation for paddy (small)

SR. NO.	ITEM		UNITS	UNITS Req.	PRICE PER UNIT	COST IN RS.	PERCENT TO TOTAL
1	Hired Human Labour	Male	DAYS	28.62	122.05	3493.07	11.45
		Female	DAYS	69.56	72.87	5068.84	16.62
		Total	DAYS	98.18		8561.91	28.07
2	Bullock Labour	Hired	DAYS	9.82	250.04	2455.39	8.05
		Owned	DAYS	1.61	250.04	402.56	1.32
		Total	DAYS	11.43		2857.96	9.37
3	Machine	Hired	Hrs.	9.46	229.69	2172.87	7.12
		Owned	Hrs.	0.00	0.00	0.00	0.00
		Total	Hrs.	9.46		2172.87	7.12
4	Seed		Kg.	71.05	23.37	1660.44	5.44
5	Manure		Qt	10.28	65.45	672.83	2.21
6	Fertilizer	N	Kg.	60.06	15.75	945.95	3.10
		P	Kg.	10.54	24.32	256.33	0.84
		K	Kg.	6.88	36.42	250.57	0.82
		Total		77.48		1452.85	4.76
7	Irrigation		Rs.			301.93	0.99
8	Incidental		Rs.			40.74	0.13
9	Plant protection		Rs.			537.84	1.76
10	Repairs		Rs.			77.93	0.26
11	Depreciation		Rs.			183.81	0.60
12	Land Revenue		Rs.			62.40	0.20
13	Int. On Working Capital		Rs.			366.75	1.20
14	COST "A"		Rs.			18950.24	62.13
15	Rental Value Of Land		Rs.			8940.70	29.31
16	Int. On Fixed Capital		Rs.			478.46	1.57
17	COST "B"		Rs.			28369.40	93.02
18	Family Labour Charges	Male	DAYS	10.22	122.05	1247.35	4.09
		Female	DAYS	12.11	72.87	882.46	2.89
		Total	DAYS	22.33		2129.81	6.98
19	COST "C"		Rs.			30499.21	100.00
20	Yield	Main	Qt	40.49	1147.48	46461.47	
		Bye	Qt	49.63	152.27	7557.16	
21	Value Of Total Produce		Rs.			54018.63	
22	Per Qtls . Cost Of Production						566.61

APPENDIX I-C

Per hectare cost of cultivation for paddy (medium)

SR. NO.	ITEM		UNITS	UNITS Req.	PRICE PER UNIT	COST IN RS.	PERCENT TO TOTAL
1	Hired Human Labour	Male	DAYS	30.60	121.39	3714.53	11.61
		Female	DAYS	71.61	71.84	5144.46	16.08
		Total	DAYS	102.21		8859.00	27.70
2	Bullock Labour	Hired	DAYS	1.10	251.72	276.89	0.87
		Owned	DAYS	10.09	251.72	2539.85	7.94
		Total	DAYS	11.19		2816.75	8.81
3	Machine	Hired	Hrs.	9.68	212.58	2057.77	6.43
		Owned	Hrs.	0.00	0.00	0.00	0.00
		Total	Hrs.	9.68		2057.77	6.43
4	Seed		Kg.	71.20	24.35	1733.72	5.42
5	Manure		Qt	7.78	70.29	546.86	1.71
6	Fertilizer	N	Kg.	58.59	15.68	918.69	2.87
		P	Kg.	28.89	26.25	758.36	2.37
		K	Kg.	14.43	35.60	513.71	1.61
		Total		101.91		2190.76	6.85
7	Irrigation		Rs.			610.75	1.91
8	Incidental		Rs.			41.52	0.13
9	Plant protection		Rs.			569.62	1.78
10	Repairs		Rs.			79.77	0.25
11	Depreciation		Rs.			188.48	0.59
12	Land Revenue		Rs.			36.01	0.11
13	Int. On Working Capital		Rs.			390.13	1.22
14	COST "A"		Rs.			20121.14	62.91
15	Rental Value Of Land		Rs.			8264.30	25.84
16	Int. On Fixed Capital		Rs.			428.82	1.34
17	COST "B"		Rs.			28814.26	90.08
18	Family Labour Charges	Male	DAYS	17.65	121.39	2142.53	6.70
		Female	DAYS	14.33	71.84	1029.47	3.22
		Total	DAYS	31.98		3172.00	9.92
19	COST "C"		Rs.			31986.26	100.00
20	Yield	Main	Qt	37.84	1135.23	42957.10	
		Bye	Qt	48.51	141.10	6844.76	
21	Value Of Total Produce		Rs.			49801.86	
22	Per Qtls . Cost Of Production						664.42

APPENDIX I-D

Per hectare cost of cultivation, for paddy (large)

SR. NO.	ITEM		UNITS	UNITS Req.	PRICE PER UNIT	COST IN RS.	PERCENT TO TOTAL
1	Hired Human Labour	Male	DAYS	29.19	120.99	3531.70	11.60
		Female	DAYS	69.46	71.75	4983.76	16.37
		Total	DAYS	98.65		8515.45	27.96
2	Bullock Labour	Hired	DAYS	0.00	0.00	0.00	0.00
		Owned	DAYS	9.78	250.16	2446.56	8.03
		Total	DAYS	9.78		2446.56	8.03
3	Machine	Hired	Hrs.	9.03	219.12	1978.65	6.50
		Owned	Hrs.	0.00	0.00	0.00	0.00
		Total	Hrs.	9.03		1978.65	6.50
4	Seed		Kg.	70.85	23.68	1677.73	5.51
5	Manure		Qt	7.48	69.10	516.87	1.70
6	Fertilizer	N	Kg.	52.40	15.50	812.20	2.67
		P	Kg.	20.85	26.21	546.48	1.79
		K	Kg.	20.85	34.61	721.62	2.37
		Total		94.10		2080.30	6.83
7	Irrigation		Rs.			336.89	1.11
8	Incidental		Rs.			49.19	0.16
9	Plant protection		Rs.			545.45	1.79
10	Repairs		Rs.			62.03	0.20
11	Depreciation		Rs.			192.24	0.63
12	Land Revenue		Rs.			32.78	0.11
13	Int. On Working Capital		Rs.			364.18	1.20
14	COST "A"		Rs.			18798.33	61.73
15	Rental Value Of Land		Rs.			8601.17	28.24
16	Int. On Fixed Capital		Rs.			494.38	1.62
17	COST "B"		Rs.			27893.88	91.60
18	Family Labour Charges	Male	DAYS	14.01	120.99	1695.07	5.57
		Female	DAYS	12.03	71.75	863.15	2.83
		Total	DAYS	26.04		2558.22	8.40
19	COST "C"		Rs.			30452.10	100.00
20	Yield	Main	Qt	38.87	1153.78	44847.43	
		Bye	Qt	42.94	162.00	6956.28	
21	Value Of Total Produce		Rs.			51803.71	
22	Per Qtls . Cost Of Production						604.47

APPENDIX II-A

Per hectare cost of cultivation for soybean (marginal)

SR. NO.	ITEM		UNITS	UNITS Req.	PRICE PER UNIT	COST IN RS.	PERCENT TO TOTAL
1	Hired Human Labour	Male	DAYS	24.32	124.28	3022.49	9.85
		Female	DAYS	73.42	74.18	5446.30	17.75
		Total	DAYS	97.74		8468.79	27.60
2	Bullock Labour	Hired	DAYS	6.98	260.43	1817.80	5.92
		Owned	DAYS	0.00	0.00	0.00	0.00
		Total	DAYS	6.98		1817.80	5.92
3	Machine	Hired	Hrs.	14.86	250.08	3716.19	12.11
		Owned	Hrs.	0.00	0.00	0.00	0.00
		Total	Hrs.	14.86		3716.19	12.11
4	Seed		Kg.	72.07	33.28	2398.49	7.82
5	Manure		Qt	2.92	65.95	192.57	0.63
6	Fertilizer	N	Kg.	57.65	16.30	939.70	3.06
		P	Kg.	21.62	26.30	568.61	1.85
		K	Kg.	0.00	0.00	0.00	0.00
		Total		79.27		1508.30	4.91
7	Irrigation		Rs.			0.00	0.00
8	Incidental		Rs.			72.52	0.24
9	Plant protection		Rs.			509.01	1.66
10	Repairs		Rs.			159.91	0.52
11	Depreciation		Rs.			129.73	0.42
12	Land Revenue		Rs.			48.64	0.16
13	Int. On Working Capital		Rs.			376.87	1.23
14	COST "A"		Rs.			19398.82	63.21
15	Rental Value Of Land		Rs.			6917.58	22.54
16	Int. On Fixed Capital		Rs.			287.38	0.94
17	COST "B"		Rs.			26603.78	86.69
18	Family Labour Charges	Male	DAYS	14.86	124.28	1846.80	6.02
		Female	DAYS	30.18	74.18	2238.75	7.29
		Total	DAYS	45.04		4085.55	13.31
19	COST "C"		Rs.			30689.33	100.00
20	Yield	Main	Qt	18.46	2227.85	41126.11	
		Bye	Qt	6.30	106.54	671.20	
21	Value Of Total Produce		Rs.			41797.31	
22	Per Qtls . Cost Of Production						1626.12

APPENDIX II-B

Per hectare cost of cultivation for soybean (small)

SR. NO.	ITEM		UNITS	UNITS Req.	PRICE PER UNIT	COST IN RS.	PERCENT TO TOTAL
1	Hired Human Labour	Male	DAYS	26.07	123.73	3225.64	10.71
		Female	DAYS	70.91	73.62	5220.39	17.34
		Total	DAYS	96.98		8446.04	28.05
2	Bullock Labour	Hired	DAYS	3.86	250.53	967.05	3.21
		Owned	DAYS	3.72	250.53	931.97	3.10
		Total	DAYS	7.58		1899.02	6.31
3	Machine	Hired	Hrs.	7.30	200.18	1461.31	4.85
		Owned	Hrs.	0.00	0.00	0.00	0.00
		Total	Hrs.	7.30		1461.31	4.85
4	Seed		Kg.	73.07	33.48	2446.38	8.13
5	Manure		Qt	3.58	65.43	234.24	0.78
6	Fertilizer	N	Kg.	63.61	15.75	1001.86	3.33
		P	Kg.	33.66	26.31	885.59	2.94
		K	Kg.	21.91	36.32	795.77	2.64
		Total		119.18		2683.22	8.91
7	Irrigation		Rs.			0.00	0.00
8	Incidental		Rs.			89.39	0.30
9	Plant protection		Rs.			759.31	2.52
10	Repairs		Rs.			164.75	0.55
11	Depreciation		Rs.			146.84	0.49
12	Land Revenue		Rs.			56.59	0.19
13	Int. On Working Capital		Rs.			363.67	1.21
14	COST "A"		Rs.			18750.77	62.28
15	Rental Value Of Land		Rs.			6947.35	23.07
16	Int. On Fixed Capital		Rs.			311.31	1.03
17	COST "B"		Rs.			26009.43	86.38
18	Family Labour Charges	Male	DAYS	15.32	123.73	1895.54	6.30
		Female	DAYS	29.94	73.62	2204.18	7.32
		Total	DAYS	45.26		4099.73	13.62
19	COST "C"		Rs.			30109.16	100.00
20	Yield	Main	Qt	18.48	2233.89	41282.29	
		Bye	Qt	6.59	112.50	741.38	
21	Value Of Total Produce		Rs.			42023.66	
22	Per Qtls . Cost Of Production						1589.17

APPENDIX II-C

Per hectare cost of cultivation for soybean (medium)

SR. NO.	ITEM		UNITS	UNITS Req.	PRICE PER UNIT	COST IN RS.	PERCENT TO TOTAL
1	Hired Human Labour	Male	DAYS	28.05	122.47	3435.28	9.97
		Female	DAYS	73.62	72.47	5335.24	15.49
		Total	DAYS	101.67		8770.52	25.46
2	Bullock Labour	Hired	DAYS	5.39	250.38	1349.55	3.92
		Owned	DAYS	3.09	250.38	773.67	2.25
		Total	DAYS	8.48		2123.22	6.16
3	Machine	Hired	Hrs.	7.16	211.97	1517.71	4.41
		Owned	Hrs.	0.00	0.00	0.00	0.00
		Total	Hrs.	7.16		1517.71	4.41
4	Seed		Kg.	74.77	32.99	2466.66	7.16
5	Manure		Qt	4.33	65.81	284.96	0.83
6	Fertilizer	N	Kg.	85.92	16.63	1428.85	4.15
		P	Kg.	63.00	25.75	1622.25	4.71
		K	Kg.	63.00	34.30	2160.90	6.27
		Total		211.92		5212.00	15.13
7	Irrigation		Rs.			0.00	0.00
8	Incidental		Rs.			92.92	0.27
9	Plant protection		Rs.			1004.42	2.92
10	Repairs		Rs.			181.41	0.53
11	Depreciation		Rs.			180.08	0.52
12	Land Revenue		Rs.			52.21	0.15
13	Int. On Working Capital		Rs.			433.08	1.26
14	COST "A"		Rs.			22319.19	64.78
15	Rental Value Of Land		Rs.			7178.95	20.84
16	Int. On Fixed Capital		Rs.			449.55	1.30
17	COST "B"		Rs.			29947.69	86.93
18	Family Labour Charges	Male	DAYS	15.57	122.47	1906.86	5.53
		Female	DAYS	35.84	72.47	2597.32	7.54
		Total	DAYS	51.41		4504.18	13.07
19	COST "C"		Rs.			34451.87	100.00
20	Yield	Main	Qt	19.11	2233.89	42689.64	
		Bye	Qt	6.37	109.47	697.32	
21	Value Of Total Produce		Rs.			43386.96	
22	Per Qtls . Cost Of Production						1766.33

APPENDIX II-D

Per hectare cost of cultivation for soybean (large)

SR. NO.	ITEM		UNITS	UNITS Req.	PRICE PER UNIT	COST IN RS.	PERCENT TO TOTAL
1	Hired Human Labour	Male	DAYS	28.29	121.33	3432.43	11.08
		Female	DAYS	66.51	71.40	4748.81	15.32
		Total	DAYS	94.80		8181.24	26.40
2	Bullock Labour	Hired	DAYS	0.00	0.00	0.00	0.00
		Owned	DAYS	9.30	250.06	2325.56	7.50
		Total	DAYS	9.30		2325.56	7.50
3	Machine	Hired	Hrs.	7.82	210.90	1649.24	5.32
		Owned	Hrs.	0.00	0.00	0.00	0.00
		Total	Hrs.	7.82		1649.24	5.32
4	Seed		Kg.	72.24	33.46	2417.15	7.80
5	Manure		Qt	6.35	66.59	422.85	1.36
6	Fertilizer	N	Kg.	48.44	16.30	789.57	2.55
		P	Kg.	22.17	25.75	570.88	1.84
		K	Kg.	22.17	36.75	814.75	2.63
		Total		92.78		2175.20	7.02
7	Irrigation		Rs.			0.00	0.00
8	Incidental		Rs.			62.32	0.20
9	Plant protection		Rs.			852.71	2.75
10	Repairs		Rs.			226.35	0.73
11	Depreciation		Rs.			458.99	1.48
12	Land Revenue		Rs.			65.89	0.21
13	Int. On Working Capital		Rs.			366.25	1.18
14	COST "A"		Rs.			19203.74	61.97
15	Rental Value Of Land		Rs.			6799.74	21.94
16	Int. On Fixed Capital		Rs.			398.06	1.28
17	COST "B"		Rs.			26401.54	85.20
18	Family Labour Charges	Male	DAYS	14.41	121.33	1748.37	5.64
		Female	DAYS	39.76	71.40	2838.86	9.16
		Total	DAYS	54.17		4587.23	14.80
19	COST "C"		Rs.			30988.77	100.00
20	Yield	Main	Qt	18.48	2196.38	40589.10	
		Bye	Qt	6.04	100.11	604.66	
21	Value Of Total Produce		Rs.			41193.77	
22	Per Qtls . Cost Of Production						1644.16

APPENDIX III-A

Per hectare cost of cultivation for cotton (marginal)

SR. NO.	ITEM		UNITS	UNITS	PRICE PER UNIT	COST IN RS.	PERCENT TO TOTAL
				Req.			
1	Hired Human Labour	Male	DAYS	13.19	122.03	1609.58	4.93
		Female	DAYS	98.51	72.94	7185.32	22.00
		Total	DAYS	111.70		8794.90	26.93
2	Bullock Labour	Hired	DAYS	12.12	250.16	3031.94	9.28
		Owned	DAYS	0.00	0.00	0.00	0.00
		Total	DAYS	12.12		3031.94	9.28
3	Machine	Hired	Hrs.	8.08	550.35	4446.83	13.61
		Owned	Hrs.	0.00	0.00	0.00	0.00
		Total	Hrs.	8.08		4446.83	13.61
4	Seed		Kg.	2.14	1618.61	3463.83	10.61
5	Manure		Qt	4.46	68.93	307.43	0.94
6	Fertilizer	N	Kg.	43.19	16.09	694.93	2.13
		P	Kg.	30.42	24.75	752.90	2.31
		K	Kg.	30.42	35.61	1083.26	3.32
		Total		104.03		2531.08	7.75
7	Irrigation		Rs.			0.00	0.00
8	Incidental		Rs.			46.17	0.14
9	Plant protection		Rs.			274.03	0.84
10	Repairs		Rs.			84.89	0.26
11	Depreciation		Rs.			176.17	0.54
12	Land Revenue		Rs.			74.89	0.23
13	Int. On Working Capital		Rs.			689.43	2.11
14	COST "A"		Rs.			23921.58	73.24
15	Rental Value Of Land		Rs.			5905.62	18.08
16	Int. On Fixed Capital		Rs.			324.68	0.99
17	COST "B"		Rs.			30151.87	92.31
18	Family Labour Charges	Male	DAYS	15.74	122.03	1920.75	5.88
		Female	DAYS	8.08	72.94	589.36	1.80
		Total	DAYS	23.82		2510.11	7.69
19	COST "C"		Rs.			32661.98	100.00
20	Yield	Main	Qt	10.21	3514.50	35883.05	
		Bye	Qt	0.00	0.00	0.00	
21	Value Of Total Produce		Rs.			35883.05	
22	Per Qtls . Cost Of Production						3199.02

APPENDIX III-B

Per hectare cost of cultivation for cotton (small)

SR. NO.	ITEM		UNITS	UNITS Req.	PRICE PER UNIT	COST IN RS.	PERCENT TO TOTAL
1	Hired Human Labour	Male	DAYS	14.15	125.32	1773.28	5.05
		Female	DAYS	101.79	73.45	7476.48	21.29
		Total	DAYS	115.94		9249.75	26.34
2	Bullock Labour	Hired	DAYS	9.13	250.27	2284.97	6.51
		Owned	DAYS	5.01	250.27	1253.85	3.57
		Total	DAYS	14.14		3538.82	10.08
3	Machine	Hired	Hrs.	9.13	550.59	5026.89	14.31
		Owned	Hrs.	0.00	0.00	0.00	0.00
		Total	Hrs.	9.13		5026.89	14.31
4	Seed		Kg.	2.15	1621.24	3485.67	9.92
5	Manure		Qt	5.73	69.12	396.06	1.13
6	Fertilizer	N	Kg.	67.02	15.30	1025.41	2.92
		P	Kg.	25.80	24.76	638.81	1.82
		K	Kg.	25.80	35.61	918.74	2.62
		Total		118.62		2582.95	7.35
7	Irrigation		Rs.			0.00	0.00
8	Incidental		Rs.			52.15	0.15
9	Plant protection		Rs.			380.82	1.08
10	Repairs		Rs.			89.62	0.26
11	Depreciation		Rs.			182.07	0.52
12	Land Revenue		Rs.			76.88	0.22
13	Int. On Working Capital		Rs.			744.08	2.12
14	COST "A"		Rs.			25805.76	73.48
15	Rental Value Of Land		Rs.			6313.51	17.98
16	Int. On Fixed Capital		Rs.			298.38	0.85
17	COST "B"		Rs.			32417.64	92.30
18	Family Labour Charges	Male	DAYS	16.12	125.32	2020.16	5.75
		Female	DAYS	9.31	73.45	683.82	1.95
		Total	DAYS	25.43		2703.98	7.70
19	COST "C"		Rs.			35121.62	100.00
20	Yield	Main	Qt	10.93	3507.99	38342.33	
		Bye	Qt	0.00	0.00	0.00	
21	Value Of Total Produce		Rs.			38342.33	
22	Per Qtls . Cost Of Production						3213.32

APPENDIX III-C

Per hectare cost of cultivation for cotton (medium)

SR. NO.	ITEM		UNITS	UNITS	PRICE PER UNIT	COST IN RS.	PERCENT TO TOTAL
				Req.			
1	Hired Human Labour	Male	DAYS	15.24	124.74	1901.04	5.13
		Female	DAYS	104.85	72.60	7612.11	20.54
		Total	DAYS	120.09			9513.15
2	Bullock Labour	Hired	DAYS	12.91	250.34	3231.89	8.72
		Owned	DAYS	2.23	250.34	558.26	1.51
		Total	DAYS	15.14			3790.15
3	Machine	Hired	Hrs.	9.80	550.33	5393.23	14.55
		Owned	Hrs.	2.52	550.33	1386.83	3.74
		Total	Hrs.	12.32			6780.07
4	Seed		Kg.	2.23	1621.75	3616.50	9.76
5	Manure		Qt	5.14	63.94	328.65	0.89
6	Fertilizer	N	Kg.	45.42	15.44	701.28	1.89
		P	Kg.	13.30	26.20	348.46	0.94
		K	Kg.	13.30	36.30	482.79	1.30
		Total		72.02			1532.53
7	Irrigation		Rs.			0.00	0.00
8	Incidental		Rs.			54.46	0.15
9	Plant protection		Rs.			470.87	1.27
10	Repairs		Rs.			101.94	0.28
11	Depreciation		Rs.			183.49	0.50
12	Land Revenue		Rs.			75.72	0.20
13	Int. On Working Capital		Rs.			785.65	2.12
14	COST "A"		Rs.			27233.18	73.49
15	Rental Value Of Land		Rs.			6360.76	17.17
16	Int. On Fixed Capital		Rs.			319.41	0.86
17	COST "B"		Rs.			33913.35	91.52
18	Family Labour Charges	Male	DAYS	18.64	124.74	2325.15	6.27
		Female	DAYS	11.26	72.60	817.48	2.21
		Total	DAYS	29.90			3142.63
19	COST "C"		Rs.			37055.98	100.00
20	Yield	Main	Qt	10.97	3520.41	38618.90	
		Bye	Qt	0.00	0.00	0.00	
21	Value Of Total Produce		Rs.			38618.90	
22	Per Qtls . Cost Of Production						3377.94

APPENDIX III-D

Per hectare cost of cultivation for cotton (large)

SR. NO.	ITEM		UNITS	UNITS Req.	PRICE PER UNIT	COST IN RS.	PERCENT TO TOTAL
1	Hired Human Labour	Male	DAYS	16.21	123.33	1999.18	5.27
		Female	DAYS	108.10	72.32	7817.79	20.59
		Total	DAYS	124.31			9816.97
2	Bullock Labour	Hired	DAYS	11.26	250.25	2817.82	7.42
		Owned	DAYS	5.04	250.25	1261.26	3.32
		Total	DAYS	16.30			4079.08
3	Machine	Hired	Hrs.	8.82	550.55	4855.85	12.79
		Owned	Hrs.	2.79	550.55	1536.03	4.05
		Total	Hrs.	11.61			6391.89
4	Seed		Kg.	2.16	1626.63	3513.52	9.26
5	Manure		Qt	5.58	67.65	377.49	0.99
6	Fertilizer	N	Kg.	38.55	16.25	626.44	1.65
		P	Kg.	20.99	26.30	552.04	1.45
		K	Kg.	20.99	35.40	743.05	1.96
		Total		80.53			1921.52
7	Irrigation		Rs.			0.00	0.00
8	Incidental		Rs.			54.23	0.14
9	Plant protection		Rs.			551.80	1.45
10	Repairs		Rs.			164.95	0.43
11	Depreciation		Rs.			175.58	0.46
12	Land Revenue		Rs.			78.37	0.21
13	Int. On Working Capital		Rs.			806.14	2.12
14	COST "A"		Rs.			27931.53	73.58
15	Rental Value Of Land		Rs.			6524.02	17.19
16	Int. On Fixed Capital		Rs.			344.81	0.91
17	COST "B"		Rs.			34800.37	91.67
18	Family Labour Charges	Male	DAYS	17.29	123.33	2132.38	5.62
		Female	DAYS	14.23	72.32	1029.11	2.71
		Total	DAYS	31.52			3161.49
19	COST "C"		Rs.			37961.86	100.00
20	Yield	Main	Qt	11.26	3518.15	39614.37	
		Bye	Qt	0.00	0.00	0.00	
21	Value Of Total Produce		Rs.			39614.37	
22	Per Qtls . Cost Of Production						3371.39

APPENDIX IV-A

Per hectare cost of cultivation for tur (marginal)

SR. NO.	ITEM		UNITS	UNITS Req.	PRICE PER UNIT	COST IN RS.	PERCENT TO TOTAL
1	Hired Human Labour	Male	DAYS	33.75	123.70	4174.88	9.79
		Female	DAYS	66.25	74.81	4956.16	11.62
		Total	DAYS	100.00			9131.04
2	Bullock Labour	Hired	DAYS	11.25	250.00	2812.50	6.59
		Owned	DAYS	0.00	0.00	0.00	0.00
		Total	DAYS	11.25			2812.50
3	Machine	Hired	Hrs.	32.50	221.15	7187.38	16.85
		Owned	Hrs.	0.00	0.00	0.00	0.00
		Total	Hrs.	32.50			7187.38
4	Seed		Kg.	31.25	74.20	2318.75	5.44
5	Manure		Qt	6.25	66.00	412.50	0.97
6	Fertilizer	N	Kg.	80.00	16.30	1304.00	3.06
		P	Kg.	45.00	25.30	1138.50	2.67
		K	Kg.	25.00	36.30	907.50	2.13
		Total		150.00			3350.00
7	Irrigation		Rs.			0.00	0.00
8	Incidental		Rs.			68.75	0.16
9	Plant protection		Rs.			1187.50	2.78
10	Repairs		Rs.			122.50	0.29
11	Depreciation		Rs.			228.75	0.54
12	Land Revenue		Rs.			58.75	0.14
13	Int. On Working Capital		Rs.			797.73	1.87
14	COST "A"		Rs.			27676.14	64.89
15	Rental Value Of Land		Rs.			10571.47	24.79
16	Int. On Fixed Capital		Rs.			218.75	0.51
17	COST "B"		Rs.			38466.36	90.19
18	Family Labour Charges	Male	DAYS	26.25	123.70	3247.13	7.61
		Female	DAYS	12.50	74.81	935.13	2.19
		Total	DAYS	38.75			4182.25
19	COST "C"		Rs.			42648.61	100.00
20	Yield	Main	Qt	16.25	3823.08	62125.05	
		Bye	Qt	5.00	331.25	1656.25	
21	Value Of Total Produce		Rs.			63781.30	
22	Per Qtis . Cost Of Production						2522.61

APPENDIX IV-B

Per hectare cost of cultivation for tur (small)

SR. NO.	ITEM		UNITS	UNITS	PRICE PER UNIT	COST IN RS.	PERCENT TO TOTAL
				Req.			
1	Hired Human Labour	Male	DAYS	36.24	121.66	4408.96	10.58
		Female	DAYS	53.02	72.31	3833.88	9.20
		Total	DAYS	89.26			8242.83
2	Bullock Labour	Hired	DAYS	10.73	259.57	2785.19	6.68
		Owned	DAYS	0.00	0.00	0.00	0.00
		Total	DAYS	10.73			2785.19
3	Machine	Hired	Hrs.	30.87	226.11	6980.02	16.75
		Owned	Hrs.	0.00	0.00	0.00	0.00
		Total	Hrs.	30.87			6980.02
4	Seed		Kg.	32.88	74.50	2449.56	5.88
5	Manure		Qt	3.18	64.63	205.52	0.49
6	Fertilizer	N	Kg.	95.97	15.30	1468.34	3.52
		P	Kg.	43.62	26.75	1166.84	2.80
		K	Kg.	33.89	36.30	1230.21	2.95
		Total		173.48			3865.38
7	Irrigation		Rs.			0.00	0.00
8	Incidental		Rs.			59.06	0.14
9	Plant protection		Rs.			1208.05	2.90
10	Repairs		Rs.			132.55	0.32
11	Depreciation		Rs.			249.66	0.60
12	Land Revenue		Rs.			64.42	0.15
13	Int. On Working Capital		Rs.			777.84	1.87
14	COST "A"		Rs.			27020.09	64.83
15	Rental Value Of Land		Rs.			10995.41	26.38
16	Int. On Fixed Capital		Rs.			243.96	0.59
17	COST "B"		Rs.			38259.46	91.79
18	Family Labour Charges	Male	DAYS	21.14	121.66	2571.89	6.17
		Female	DAYS	11.74	72.31	848.92	2.04
		Total	DAYS	32.88			3420.81
19	COST "C"		Rs.			41680.27	100.00
20	Yield	Main	Qt	17.11	3810.71	65201.25	
		Bye	Qt	5.70	203.11	1157.73	
21	Value Of Total Produce		Rs.			66358.98	
22	Per Qtls . Cost Of Production						2368.35

APPENDIX IV-C

Per hectare cost of cultivation for tur (medium)

SR. NO.	ITEM		UNITS	UNITS Req.	PRICE PER UNIT	COST IN RS.	PERCENT TO TOTAL
1	Hired Human Labour	Male	DAYS	38.57	122.20	4713.25	10.04
		Female	DAYS	56.19	73.28	4117.60	8.77
		Total	DAYS	94.76			8830.86
2	Bullock Labour	Hired	DAYS	0.00	266.35	0.00	0.00
		Owned	DAYS	11.42	266.35	3041.72	6.48
		Total	DAYS	11.42			3041.72
3	Machine	Hired	Hrs.	36.90	231.80	8553.42	18.22
		Owned	Hrs.	0.00	0.00	0.00	0.00
		Total	Hrs.	36.90			8553.42
4	Seed		Kg.	35.47	74.07	2627.26	5.60
5	Manure		Qt	5.47	66.60	364.30	0.78
6	Fertilizer	N	Kg.	99.76	15.30	1526.33	3.25
		P	Kg.	45.95	26.75	1229.16	2.62
		K	Kg.	50.47	36.75	1854.77	3.95
		Total		196.18			4610.26
7	Irrigation		Rs.			0.00	0.00
8	Incidental		Rs.			67.85	0.14
9	Plant protection		Rs.			952.38	2.03
10	Repairs		Rs.			145.23	0.31
11	Depreciation		Rs.			345.23	0.74
12	Land Revenue		Rs.			58.09	0.12
13	Int. On Working Capital		Rs.			875.80	1.87
14	COST "A"		Rs.			30472.40	64.89
15	Rental Value Of Land		Rs.			12435.96	26.48
16	Int. On Fixed Capital		Rs.			296.19	0.63
17	COST "B"		Rs.			43204.55	92.01
18	Family Labour Charges	Male	DAYS	23.57	122.20	2880.25	6.13
		Female	DAYS	11.90	73.28	872.03	1.86
		Total	DAYS	35.47			3752.29
19	COST "C"		Rs.			46956.83	100.00
20	Yield	Main	Qt	19.04	3850.29	73309.52	
		Bye	Qt	6.42	257.75	1654.76	
21	Value Of Total Produce		Rs.			74964.28	
22	Per Qtls . Cost Of Production						2379.31

APPENDIX IV-D

Per hectare cost of cultivation for tur (large)

SR. NO.	ITEM		UNITS	UNITS	PRICE	COST IN	PERCENT
				Req.	PER UNIT	RS.	TO TOTAL
1	Hired Human Labour	Male	DAYS	37.22	123.42	4593.69	10.01
		Female	DAYS	44.58	73.37	3270.83	7.13
		Total	DAYS	81.80		7864.53	17.14
2	Bullock Labour	Hired	DAYS	6.25	250.00	1562.50	3.41
		Owned	DAYS	7.50	250.00	1875.00	4.09
		Total	DAYS	13.75		3437.50	7.49
3	Machine	Hired	Hrs.	36.80	218.43	8038.22	17.52
		Owned	Hrs.	0.00	0.00	0.00	0.00
		Total	Hrs.	36.80		8038.22	17.52
4	Seed		Kg.	33.75	73.35	2475.56	5.40
5	Manure		Qt	7.50	65.93	494.48	1.08
6	Fertilizer	N	Kg.	78.19	15.75	1231.49	2.68
		P	Kg.	36.25	26.30	953.38	2.08
		K	Kg.	36.25	36.75	1332.19	2.90
		Total		150.69		3517.06	7.67
7	Irrigation		Rs.			0.00	0.00
8	Incidental		Rs.			79.16	0.17
9	Plant protection		Rs.			1180.56	2.57
10	Repairs		Rs.			147.63	0.32
11	Depreciation		Rs.			337.91	0.74
12	Land Revenue		Rs.			73.75	0.16
13	Int. On Working Capital		Rs.			817.04	1.78
14	COST "A"		Rs.			28463.39	62.04
15	Rental Value Of Land		Rs.			13218.48	28.81
16	Int. On Fixed Capital		Rs.			330.41	0.72
17	COST "B"		Rs.			42012.28	91.58
18	Family Labour Charges	Male	DAYS	23.88	123.42	2947.27	6.42
		Female	DAYS	12.50	73.37	917.13	2.00
		Total	DAYS	36.38		3864.39	8.42
19	COST "C"		Rs.			45876.68	100.00
20	Yield	Main	Qt	20.41	3819.61	77958.24	
		Bye	Qt	6.80	263.99	1795.13	
21	Value Of Total Produce		Rs.			79753.37	
22	Per Qtls . Cost Of Production						2159.80

APPENDIX V-A

Per hectare cost of cultivation for moong (medium)

SR. NO.	ITEM		UNITS	UNITS	PRICE	COST IN	PERCENT
				Req.	PER UNIT	RS.	TO TOTAL
1	Hired Human Labour	Male	DAYS	12.85	126.18	1621.41	8.25
		Female	DAYS	38.57	74.26	2864.21	14.58
		Total	DAYS	51.42		4485.62	22.84
2	Bullock Labour	Hired	DAYS	5.28	250.24	1321.27	6.73
		Owned	DAYS	3.28	250.24	820.79	4.18
		Total	DAYS	8.56		2142.05	10.90
3	Machine	Hired	Hrs.	8.57	225.04	1928.59	9.82
		Owned	Hrs.	0.00	0.00	0.00	0.00
		Total	Hrs.	8.57		1928.59	9.82
4	Seed		Kg.	15.71	106.39	1671.39	8.51
5	Manure		Qt	4.85	67.01	325.00	1.65
6	Fertilizer	N	Kg.	47.14	16.30	768.38	3.91
		P	Kg.	67.14	26.30	1765.78	8.99
		K	Kg.	0.00	0.00	0.00	0.00
		Total		114.28		2534.16	12.90
7	Irrigation		Rs.			0.00	0.00
8	Incidental		Rs.			22.85	0.12
9	Plant protection		Rs.			264.28	1.35
10	Repairs		Rs.			52.85	0.27
11	Depreciation		Rs.			234.28	1.19
12	Land Revenue		Rs.			38.57	0.20
13	Int. On Working Capital		Rs.			134.27	0.68
14	COST "A"		Rs.			13833.92	70.42
15	Rental Value Of Land		Rs.			3918.57	19.95
16	Int. On Fixed Capital		Rs.			385.71	1.96
17	COST "B"		Rs.			18138.20	92.34
18	Family Labour Charges	Male	DAYS	8.57	126.18	1081.36	5.50
		Female	DAYS	5.71	74.26	424.02	2.16
		Total	DAYS	14.28		1505.39	7.66
19	COST "C"		Rs.			19643.58	100.00
20	Yield	Main	Qt	6.42	3649.31	23428.57	
		Bye	Qt	2.85	110.27	314.27	
21	Value Of Total Produce		Rs.			23742.84	
22	Per Qtls . Cost Of Production						3010.80

APPENDIX V-B

Per hectare cost of cultivation for moong (large)

SR. NO.	ITEM		UNITS	UNITS Req.	PRICE PER UNIT	COST IN RS.	PERCENT TO TOTAL
1	Hired Human Labour	Male	DAYS	13.57	123.17	1671.42	9.67
		Female	DAYS	40.71	77.03	3135.89	18.15
		Total	DAYS	54.28		4807.31	27.82
2	Bullock Labour	Hired	DAYS	0.00	0.00	0.00	0.00
		Owned	DAYS	5.71	250.19	1428.58	8.27
		Total	DAYS	5.71		1428.58	8.27
3	Machine	Hired	Hrs.	7.14	215.09	1535.74	8.89
		Owned	Hrs.	0.00	0.00	0.00	0.00
		Total	Hrs.	7.14		1535.74	8.89
4	Seed		Kg.	16.42	101.57	1667.78	9.65
5	Manure		Qt	2.85	66.41	189.27	1.10
6	Fertilizer	N	Kg.	29.28	15.60	456.77	2.64
		P	Kg.	32.85	26.31	864.28	5.00
		K	Kg.	0.00	0.00	0.00	0.00
		Total		62.13		1321.05	7.65
7	Irrigation		Rs.			0.00	0.00
8	Incidental		Rs.			29.28	0.17
9	Plant protection		Rs.			307.14	1.78
10	Repairs		Rs.			59.28	0.34
11	Depreciation		Rs.			308.57	1.79
12	Land Revenue		Rs.			42.85	0.25
13	Int. On Working Capital		Rs.			113.45	0.66
14	COST "A"		Rs.			11810.31	68.36
15	Rental Value Of Land		Rs.			3914.28	22.66
16	Int. On Fixed Capital		Rs.			398.57	2.31
17	COST "B"		Rs.			16123.16	93.32
18	Family Labour Charges	Male	DAYS	7.14	123.17	879.43	5.09
		Female	DAYS	3.57	77.03	275.00	1.59
		Total	DAYS	10.71		1154.43	6.68
19	COST "C"		Rs.			17277.59	100.00
20	Yield	Main	Qt	7.21	3239.54	23357.08	
		Bye	Qt	3.57	108.04	385.70	
21	Value Of Total Produce		Rs.			23742.79	
22	Per Qtls . Cost Of Production						2342.84

APPENDIX VI-A

Per hectare cost of cultivation for sesamum (medium)

SR. NO.	ITEM		UNITS	UNITS Req.	PRICE PER UNIT	COST IN RS.	PERCENT TO TOTAL
1	Hired Human Labour	Male	DAYS	13.88	123.48	1713.90	9.14
		Female	DAYS	23.88	71.89	1716.73	9.15
		Total	DAYS	37.76		3430.64	18.29
2	Bullock Labour	Hired	DAYS	9.44	250.12	2361.13	12.59
		Owned	DAYS	0.00	0.00	0.00	0.00
		Total	DAYS	9.44		2361.13	12.59
3	Machine	Hired	Hrs.	6.38	243.82	1555.57	8.29
		Owned	Hrs.	0.00	0.00	0.00	0.00
		Total	Hrs.	6.38		1555.57	8.29
4	Seed		Kg.	2.36	267.77	631.94	3.37
5	Manure		Qt	2.77	67.19	186.12	0.99
6	Fertilizer	N	Kg.	42.77	15.30	654.38	3.49
		P	Kg.	38.88	26.31	1022.93	5.45
		K	Kg.	38.88	36.30	1411.34	7.52
		Total		120.53		3088.66	16.46
7	Irrigation		Rs.			0.00	0.00
8	Incidental		Rs.			23.33	0.12
9	Plant protection		Rs.			194.44	1.04
10	Repairs		Rs.			43.88	0.23
11	Depreciation		Rs.			240.55	1.28
12	Land Revenue		Rs.			41.66	0.22
13	Int. On Working Capital		Rs.			230.31	1.23
14	COST "A"		Rs.			12028.23	64.12
15	Rental Value Of Land		Rs.			5163.43	27.52
16	Int. On Fixed Capital		Rs.			336.66	1.79
17	COST "B"		Rs.			17528.32	93.44
18	Family Labour Charges	Male	DAYS	7.22	123.48	891.53	4.75
		Female	DAYS	4.72	71.89	339.32	1.81
		Total	DAYS	11.94		1230.85	6.56
19	COST "C"		Rs.			18759.16	100.00
20	Yield	Main	Qt	6.11	5073.65	31000.00	
		Bye	Qt	2.50	92.22	230.55	
21	Value Of Total Produce		Rs.			31230.55	
22	Per Qtls . Cost Of Production						3032.51

APPENDIX VI-B

Per hectare cost of cultivation for sesamum (large)

SR. NO.	ITEM		UNITS	UNITS Req.	PRICE PER UNIT	COST IN RS.	PERCENT TO TOTAL
1	Hired Human Labour	Male	DAYS	11.66	120.96	1410.39	8.19
		Female	DAYS	20.41	71.15	1452.17	8.44
		Total	DAYS	32.07		2862.57	16.63
2	Bullock Labour	Hired	DAYS	2.08	250.40	520.83	3.03
		Owned	DAYS	10.41	250.40	2606.66	15.14
		Total	DAYS	12.49		3127.50	18.17
3	Machine	Hired	Hrs.	4.16	235.38	979.18	5.69
		Owned	Hrs.	0.00	0.00	0.00	0.00
		Total	Hrs.	4.16		979.18	5.69
4	Seed		Kg.	2.70	273.92	739.58	4.30
5	Manure		Qt	5.41	66.23	358.30	2.08
6	Fertilizer	N	Kg.	35.00	15.75	551.25	3.20
		P	Kg.	15.00	26.30	394.50	2.29
		K	Kg.	8.33	36.76	306.21	1.78
		Total		58.33		1251.96	7.27
7	Irrigation		Rs.			0.00	0.00
8	Incidental		Rs.			39.58	0.23
9	Plant protection		Rs.			260.41	1.51
10	Repairs		Rs.			52.08	0.30
11	Depreciation		Rs.			288.33	1.68
12	Land Revenue		Rs.			64.16	0.37
13	Int. On Working Capital		Rs.			193.42	1.12
14	COST "A"		Rs.			10217.07	59.36
15	Rental Value Of Land		Rs.			5194.86	30.18
16	Int. On Fixed Capital		Rs.			370.83	2.15
17	COST "B"		Rs.			15782.77	91.69
18	Family Labour Charges	Male	DAYS	7.91	120.96	956.79	5.56
		Female	DAYS	6.66	71.15	473.86	2.75
		Total	DAYS	14.57		1430.65	8.31
19	COST "C"		Rs.			17213.42	100.00
20	Yield	Main	Qt	6.25	5013.33	31333.31	
		Bye	Qt	2.29	96.43	220.83	
21	Value Of Total Produce		Rs.			31554.14	
22	Per Qtls . Cost Of Production						2718.81

APPENDIX VII-A

Per hectare cost of cultivation for wheat (marginal)

SR. NO.	ITEM		UNITS	UNITS Req.	PRICE PER UNIT	COST IN RS.	PERCENT TO TOTAL
1	Hired Human Labour	Male	DAYS	9.47	124.22	1176.36	4.38
		Female	DAYS	16.84	72.82	1226.29	4.57
		Total	DAYS	26.31		2402.65	8.95
2	Bullock Labour	Hired	DAYS	7.36	266.38	1960.56	7.30
		Owned	DAYS	0.00	0.00	0.00	0.00
		Total	DAYS	7.36		1960.56	7.30
3	Machine	Hired	Hrs.	12.10	232.71	2815.79	10.49
		Owned	Hrs.	0.00	0.00	0.00	0.00
		Total	Hrs.	12.10		2815.79	10.49
4	Seed		Kg.	102.63	53.85	5526.63	20.58
5	Manure		Qt	0.00	0.00	0.00	0.00
6	Fertilizer	N	Kg.	92.36	16.35	1510.09	5.62
		P	Kg.	24.21	26.30	636.72	2.37
		K	Kg.	13.25	35.50	470.38	1.75
		Total		129.82		2617.18	9.75
7	Irrigation		Rs.			1444.74	5.38
8	Incidental		Rs.			42.10	0.16
9	Plant protection		Rs.			163.15	0.61
10	Repairs		Rs.			73.68	0.27
11	Depreciation		Rs.			136.84	0.51
12	Land Revenue		Rs.			65.78	0.24
13	Int. On Working Capital		Rs.			340.93	1.27
14	COST "A"		Rs.			17590.03	65.51
15	Rental Value Of Land		Rs.			5962.31	22.21
16	Int. On Fixed Capital		Rs.			261.05	0.97
17	COST "B"		Rs.			23813.39	88.69
18	Family Labour Charges	Male	DAYS	17.36	124.22	2156.46	8.03
		Female	DAYS	12.10	72.82	881.12	3.28
		Total	DAYS	29.46		3037.58	11.31
19	COST "C"		Rs.			26850.97	100.00
20	Yield	Main	Qt	29.47	1213.55	35763.32	
		Bye	Qt	9.47	42.79	405.22	
21	Value Of Total Produce		Rs.			36168.54	
22	Per Qtls . Cost Of Production						897.38

APPENDIX VII-B

Per hectare cost of cultivation for wheat (small)

SR. NO.	ITEM		UNITS	UNITS Req.	PRICE PER UNIT	COST IN RS.	PERCENT TO TOTAL
1	Hired Human Labour	Male	DAYS	12.55	123.88	1554.69	5.11
		Female	DAYS	24.65	72.69	1791.81	5.88
		Total	DAYS	37.20		3346.50	10.99
2	Bullock Labour	Hired	DAYS	7.67	250.27	1919.57	6.30
		Owned	DAYS	3.02	250.27	755.82	2.48
		Total	DAYS	10.69		2675.39	8.79
3	Machine	Hired	Hrs.	11.16	227.14	2534.88	8.33
		Owned	Hrs.	0.00	0.00	0.00	0.00
		Total	Hrs.	11.16		2534.88	8.33
4	Seed		Kg.	101.16	54.25	5487.93	18.02
5	Manure		Qt	0.00	0.00	0.00	0.00
6	Fertilizer	N	Kg.	89.30	15.75	1406.48	4.62
		P	Kg.	40.23	25.60	1029.89	3.38
		K	Kg.	40.23	36.40	1464.37	4.81
		Total		169.76		3900.74	12.81
7	Irrigation		Rs.			1530.23	5.03
8	Incidental		Rs.			66.97	0.22
9	Plant protection		Rs.			243.02	0.80
10	Repairs		Rs.			85.81	0.28
11	Depreciation		Rs.			146.27	0.48
12	Land Revenue		Rs.			68.83	0.23
13	Int. On Working Capital		Rs.			397.43	1.31
14	COST "A"		Rs.			20484.00	67.28
15	Rental Value Of Land		Rs.			6328.28	20.78
16	Int. On Fixed Capital		Rs.			283.48	0.93
17	COST "B"		Rs.			27095.76	88.99
18	Family Labour Charges	Male	DAYS	18.60	123.88	2304.17	7.57
		Female	DAYS	14.41	72.69	1047.46	3.44
		Total	DAYS	33.01		3351.63	11.01
19	COST "C"		Rs.			30447.39	100.00
20	Yield	Main	Qt	30.69	1235.54	37918.72	
		Bye	Qt	10.69	43.40	463.95	
21	Value Of Total Produce		Rs.			38382.67	
22	Per Qtls . Cost Of Production						976.98

APPENDIX VII-C

Per hectare cost of cultivation for wheat (medium)

SR. NO.	ITEM		UNITS	UNITS Req.	PRICE PER UNIT	COST IN RS.	PERCENT TO TOTAL
1	Hired Human Labour	Male	DAYS	16.26	121.15	1969.90	6.33
		Female	DAYS	29.63	72.20	2139.29	6.87
		Total	DAYS	45.89		4109.19	13.19
2	Bullock Labour	Hired	DAYS	6.14	250.19	1536.17	4.93
		Owned	DAYS	3.37	250.19	843.14	2.71
		Total	DAYS	9.51		2379.31	7.64
3	Machine	Hired	Hrs.	10.12	228.58	2313.23	7.43
		Owned	Hrs.	0.00	0.00	0.00	0.00
		Total	Hrs.	10.12		2313.23	7.43
4	Seed		Kg.	104.81	54.03	5662.88	18.18
5	Manure		Qt	0.00	0.00	0.00	0.00
6	Fertilizer	N	Kg.	94.45	15.30	1445.09	4.64
		P	Kg.	44.21	26.30	1162.72	3.73
		K	Kg.	44.21	35.76	1580.95	5.08
		Total		182.87		4188.76	13.45
7	Irrigation		Rs.			1346.99	4.33
8	Incidental		Rs.			72.28	0.23
9	Plant protection		Rs.			294.45	0.95
10	Repairs		Rs.			90.36	0.29
11	Depreciation		Rs.			167.34	0.54
12	Land Revenue		Rs.			75.66	0.24
13	Int. On Working Capital		Rs.			409.15	1.31
14	COST "A"		Rs.			21109.59	67.78
15	Rental Value Of Land		Rs.			6524.82	20.95
16	Int. On Fixed Capital		Rs.			310.48	1.00
17	COST "B"		Rs.			27944.90	89.73
18	Family Labour Charges	Male	DAYS	19.87	121.15	2407.25	7.73
		Female	DAYS	10.96	72.20	791.31	2.54
		Total	DAYS	30.83		3198.56	10.27
19	COST "C"		Rs.			31143.46	100.00
20	Yield	Main	Qt	31.68	1234.86	39120.36	
		Bye	Qt	11.08	43.55	482.53	
21	Value Of Total Produce		Rs.			39602.90	
22	Per Qtls . Cost Of Production						967.83

APPENDIX VII-D

Per hectare cost of cultivation for wheat (large)

SR. NO.	ITEM		UNITS	UNITS Req.	PRICE PER UNIT	COST IN RS.	PERCENT TO TOTAL
1	Hired Human Labour	Male	DAYS	14.42	121.81	1756.50	5.88
		Female	DAYS	27.54	71.52	1969.66	6.59
		Total	DAYS	41.96		3726.16	12.47
2	Bullock Labour	Hired	DAYS	2.29	250.55	573.76	1.92
		Owned	DAYS	9.50	250.55	2380.23	7.96
		Total	DAYS	11.79		2953.98	9.88
3	Machine	Hired	Hrs.	7.86	219.00	1721.34	5.76
		Owned	Hrs.	0.00	0.00	0.00	0.00
		Total	Hrs.	7.86		1721.34	5.76
4	Seed		Kg.	103.27	54.37	5614.79	18.78
5	Manure		Qt	0.00	0.00	0.00	0.00
6	Fertilizer	N	Kg.	60.32	15.30	922.90	3.09
		P	Kg.	33.44	26.30	879.47	2.94
		K	Kg.	33.44	36.30	1213.87	4.06
		Total		127.20		3016.24	10.09
7	Irrigation		Rs.			1418.03	4.74
8	Incidental		Rs.			73.77	0.25
9	Plant protection		Rs.			311.47	1.04
10	Repairs		Rs.			114.75	0.38
11	Depreciation		Rs.			174.42	0.58
12	Land Revenue		Rs.			81.47	0.27
13	Int. On Working Capital		Rs.			379.01	1.27
14	COST "A"		Rs.			19585.44	65.52
15	Rental Value Of Land		Rs.			6568.51	21.97
16	Int. On Fixed Capital		Rs.			316.39	1.06
17	COST "B"		Rs.			26470.33	88.55
18	Family Labour Charges	Male	DAYS	19.34	121.81	2355.81	7.88
		Female	DAYS	14.91	71.52	1066.36	3.57
		Total	DAYS	34.25		3422.17	11.45
19	COST "C"		Rs.			29892.50	100.00
20	Yield	Main	Qt	31.80	1240.33	39442.49	
		Bye	Qt	10.81	42.31	457.37	
21	Value Of Total Produce		Rs.			39899.87	
22	Per Qtls . Cost Of Production						925.63

APPENDIX VIII-A

Per hectare cost of cultivation for gram (marginal)

SR. NO.	ITEM		UNITS	UNITS Req.	PRICE PER UNIT	COST IN RS.	PERCENT TO TOTAL
1	Hired Human Labour	Male	DAYS	12.14	126.74	1538.62	8.77
		Female	DAYS	20.23	75.09	1519.07	8.66
		Total	DAYS	32.37		3057.69	17.42
2	Bullock Labour	Hired	DAYS	7.38	250.03	1845.22	10.51
		Owned	DAYS	0.00	0.00	0.00	0.00
		Total	DAYS	7.38		1845.22	10.51
3	Machine	Hired	Hrs.	5.23	200.31	1047.62	5.97
		Owned	Hrs.	0.00	0.00	0.00	0.00
		Total	Hrs.	5.23		1047.62	5.97
4	Seed		Kg.	74.28	32.94	2446.78	13.94
5	Manure		Qt	0.00	0.00	0.00	0.00
6	Fertilizer	N	Kg.	28.57	15.30	437.12	2.49
		P	Kg.	28.57	26.50	757.11	4.31
		K	Kg.	0.00	0.00	0.00	0.00
		Total		57.14		1194.23	6.80
7	Irrigation		Rs.			0.00	0.00
8	Incidental		Rs.			40.47	0.23
9	Plant protection		Rs.			273.81	1.56
10	Repairs		Rs.			52.38	0.30
11	Depreciation		Rs.			176.42	1.01
12	Land Revenue		Rs.			71.42	0.41
13	Int. On Working Capital		Rs.			199.16	1.13
14	COST "A"		Rs.			10405.21	59.29
15	Rental Value Of Land		Rs.			3833.35	21.84
16	Int. On Fixed Capital		Rs.			451.19	2.57
17	COST "B"		Rs.			14689.75	83.70
18	Family Labour Charges	Male	DAYS	15.23	126.74	1930.25	11.00
		Female	DAYS	12.38	75.09	929.61	5.30
		Total	DAYS	27.61		2859.86	16.30
19	COST "C"		Rs.			17549.62	100.00
20	Yield	Main	Qt	10.11	2252.02	22767.92	
		Bye	Qt	4.40	150.16	660.70	
21	Value Of Total Produce		Rs.			23428.63	
22	Per Qtls . Cost Of Production						1670.52

APPENDIX VIII-B

Per hectare cost of cultivation for gram (small)

SR. NO.	ITEM		UNITS	UNITS Req.	PRICE PER UNIT	COST IN RS.	PERCENT TO TOTAL
1	Hired Human Labour	Male	DAYS	13.88	125.58	1743.05	9.14
		Female	DAYS	22.11	74.89	1655.82	8.69
		Total	DAYS	35.99		3398.87	17.83
2	Bullock Labour	Hired	DAYS	10.11	250.19	2529.42	13.27
		Owned	DAYS	0.00	0.00	0.00	0.00
		Total	DAYS	10.11		2529.42	13.27
3	Machine	Hired	Hrs.	5.29	200.16	1058.85	5.55
		Owned	Hrs.	0.00	0.00	0.00	0.00
		Total	Hrs.	5.29		1058.85	5.55
4	Seed		Kg.	76.47	32.88	2514.33	13.19
5	Manure		Qt	0.00	0.00	0.00	0.00
6	Fertilizer	N	Kg.	22.94	15.75	361.31	1.90
		P	Kg.	25.52	26.31	671.43	3.52
		K	Kg.	12.35	36.31	448.43	2.35
		Total		60.81		1481.16	7.77
7	Irrigation		Rs.			0.00	0.00
8	Incidental		Rs.			33.17	0.17
9	Plant protection		Rs.			388.23	2.04
10	Repairs		Rs.			58.82	0.31
11	Depreciation		Rs.			183.29	0.96
12	Land Revenue		Rs.			79.29	0.42
13	Int. On Working Capital		Rs.			229.26	1.20
14	COST "A"		Rs.			11954.69	62.71
15	Rental Value Of Land		Rs.			3342.78	17.54
16	Int. On Fixed Capital		Rs.			468.58	2.46
17	COST "B"		Rs.			15766.05	82.71
18	Family Labour Charges	Male	DAYS	17.76	125.58	2230.30	11.70
		Female	DAYS	14.23	74.89	1065.68	5.59
		Total	DAYS	31.99		3295.99	17.29
19	COST "C"		Rs.			19062.03	100.00
20	Yield	Main	Qt	10.29	1942.21	19985.34	
		Bye	Qt	4.35	125.76	547.06	
21	Value Of Total Produce		Rs.			20532.40	
22	Per Qtls . Cost Of Production						1799.32

APPENDIX VIII-C

Per hectare cost of cultivation for gram (medium)

SR. NO.	ITEM		UNITS	UNITS Req.	PRICE PER UNIT	COST IN RS.	PERCENT TO TOTAL
1	Hired Human Labour	Male	DAYS	11.51	122.18	1406.29	7.63
		Female	DAYS	20.75	71.56	1484.87	8.06
		Total	DAYS	32.26		2891.16	15.69
2	Bullock Labour	Hired	DAYS	3.10	250.75	777.33	4.22
		Owned	DAYS	6.05	250.75	1517.04	8.23
		Total	DAYS	9.15		2294.36	12.45
3	Machine	Hired	Hrs.	4.70	200.25	941.18	5.11
		Owned	Hrs.	0.00	0.00	0.00	0.00
		Total	Hrs.	4.70		941.18	5.11
4	Seed		Kg.	76.05	33.56	2552.24	13.85
5	Manure		Qt	0.00	0.00	0.00	0.00
6	Fertilizer	N	Kg.	21.84	16.31	356.21	1.93
		P	Kg.	40.92	26.25	1074.15	5.83
		K	Kg.	0.00	0.00	0.00	0.00
		Total		62.76		1430.36	7.76
7	Irrigation		Rs.			0.00	0.00
8	Incidental		Rs.			39.07	0.21
9	Plant protection		Rs.			357.14	1.94
10	Repairs		Rs.			80.67	0.44
11	Depreciation		Rs.			210.33	1.14
12	Land Revenue		Rs.			76.80	0.42
13	Int. On Working Capital		Rs.			211.72	1.15
14	COST "A"		Rs.			11085.03	60.14
15	Rental Value Of Land		Rs.			4019.84	21.81
16	Int. On Fixed Capital		Rs.			495.37	2.69
17	COST "B"		Rs.			15600.24	84.64
18	Family Labour Charges	Male	DAYS	15.54	122.18	1898.68	10.30
		Female	DAYS	13.02	71.56	931.71	5.06
		Total	DAYS	28.56		2830.39	15.36
19	COST "C"		Rs.			18430.63	100.00
20	Yield	Main	Qt	10.67	2250.48	24012.62	
		Bye	Qt	3.78	150.06	567.23	
21	Value Of Total Produce		Rs.			24579.85	
22	Per Qtls . Cost Of Production						1674.17

APPENDIX VIII-D

Per hectare cost of cultivation for gram (large)

SR. NO.	ITEM		UNITS	UNITS Req.	PRICE PER UNIT	COST IN RS.	PERCENT TO TOTAL
1	Hired Human Labour	Male	DAYS	9.74	121.54	1183.80	6.69
		Female	DAYS	19.48	70.53	1373.92	7.76
		Total	DAYS	29.22		2557.72	14.45
2	Bullock Labour	Hired	DAYS	4.61	250.29	1153.84	6.52
		Owned	DAYS	6.32	250.29	1581.83	8.94
		Total	DAYS	10.93		2735.67	15.46
3	Machine	Hired	Hrs.	4.01	200.35	803.40	4.54
		Owned	Hrs.	0.00	0.00	0.00	0.00
		Total	Hrs.	4.01		803.40	4.54
4	Seed		Kg.	75.64	34.58	2615.63	14.78
5	Manure		Qt	0.00	0.00	0.00	0.00
6	Fertilizer	N	Kg.	19.14	15.21	291.12	1.64
		P	Kg.	31.02	26.88	833.82	4.71
		K	Kg.	0.00	0.00	0.00	0.00
		Total		50.16		1124.94	6.36
7	Irrigation		Rs.			0.00	0.00
8	Incidental		Rs.			48.37	0.27
9	Plant protection		Rs.			502.56	2.84
10	Repairs		Rs.			75.35	0.43
11	Depreciation		Rs.			235.55	1.33
12	Land Revenue		Rs.			79.91	0.45
13	Int. On Working Capital		Rs.			209.27	1.18
14	COST "A"		Rs.			10988.38	62.09
15	Rental Value Of Land		Rs.			3828.21	21.63
16	Int. On Fixed Capital		Rs.			504.01	2.85
17	COST "B"		Rs.			15320.60	86.57
18	Family Labour Charges	Male	DAYS	13.07	121.54	1588.53	8.98
		Female	DAYS	11.19	70.53	789.23	4.46
		Total	DAYS	24.26		2377.76	13.43
19	COST "C"		Rs.			17698.36	100.00
20	Yield	Main	Qt	10.17	2250.21	22884.64	
		Bye	Qt	3.76	150.03	564.11	
21	Value Of Total Produce		Rs.			23448.75	
22	Per Qtls . Cost Of Production						1684.78

APPENDIX IX-A

Per hectare cost of cultivation, for rabi jowar (marginal)

SR. NO.	ITEM		UNITS	UNITS Req.	PRICE PER UNIT	COST IN RS.	PERCENT TO TOTAL
1	Hired Human Labour	Male	DAYS	23.75	123.95	2943.81	12.48
		Female	DAYS	36.25	73.79	2674.89	11.34
		Total	DAYS	60.00			5618.70
2	Bullock Labour	Hired	DAYS	11.25	261.11	2937.49	12.45
		Owned	DAYS	0.00	0.00	0.00	0.00
		Total	DAYS	11.25			2937.49
3	Machine	Hired	Hrs.	4.37	203.80	890.61	3.78
		Owned	Hrs.	0.00	0.00	0.00	0.00
		Total	Hrs.	4.37			890.61
4	Seed		Kg.	8.12	51.18	415.58	1.76
5	Manure		Qt	0.00	0.00	0.00	0.00
6	Fertilizer	N	Kg.	48.75	16.30	794.63	3.37
		P	Kg.	31.25	25.75	804.69	3.41
		K	Kg.	8.75	35.27	308.61	1.31
		Total		88.75			1907.93
7	Irrigation		Rs.			812.50	3.44
8	Incidental		Rs.			42.50	0.18
9	Plant protection		Rs.			131.25	0.56
10	Repairs		Rs.			86.25	0.37
11	Depreciation		Rs.			171.25	0.73
12	Land Revenue		Rs.			71.25	0.30
13	Int. On Working Capital		Rs.			256.86	1.09
14	COST "A"		Rs.			13342.16	56.57
15	Rental Value Of Land		Rs.			5402.56	22.90
16	Int. On Fixed Capital		Rs.			278.75	1.18
17	COST "B"		Rs.			19023.47	80.65
18	Family Labour Charges	Male	DAYS	13.75	123.95	1704.31	7.23
		Female	DAYS	38.75	73.79	2859.36	12.12
		Total	DAYS	52.50			4563.68
19	COST "C"		Rs.			23587.14	100.00
20	Yield	Main	Qt	16.25	1476.92	23999.95	
		Bye	Qt	32.50	272.09	8842.93	
21	Value Of Total Produce		Rs.			32842.88	
22	Per Qtls . Cost Of Production						907.34

APPENDIX IX-B

Per hectare cost of ~~Cultivatives~~ for rabi jowar (small)

SR. NO.	ITEM		UNITS	UNITS Req.	PRICE PER UNIT	COST IN RS.	PERCENT TO TOTAL
1	Hired Human Labour	Male	DAYS	24.64	122.55	3019.63	12.15
		Female	DAYS	37.14	71.78	2665.91	10.72
		Total	DAYS	61.78		5685.54	22.87
2	Bullock Labour	Hired	DAYS	11.78	257.70	3035.71	12.21
		Owned	DAYS	0.00	0.00	0.00	0.00
		Total	DAYS	11.78		3035.71	12.21
3	Machine	Hired	Hrs.	5.71	207.97	1187.51	4.78
		Owned	Hrs.	0.00	0.00	0.00	0.00
		Total	Hrs.	5.71		1187.51	4.78
4	Seed		Kg.	8.92	50.85	453.58	1.82
5	Manure		Qt	0.00	0.00	0.00	0.00
6	Fertilizer	N	Kg.	50.71	16.76	849.90	3.42
		P	Kg.	28.92	25.31	731.97	2.94
		K	Kg.	8.21	36.77	301.88	1.21
		Total		87.84		1883.75	7.58
7	Irrigation		Rs.			883.23	3.55
8	Incidental		Rs.			44.64	0.18
9	Plant protection		Rs.			153.57	0.62
10	Repairs		Rs.			89.64	0.36
11	Depreciation		Rs.			183.21	0.74
12	Land Revenue		Rs.			72.85	0.29
13	Int. On Working Capital		Rs.			268.34	1.08
14	COST "A"		Rs.			13941.57	56.07
15	Rental Value Of Land		Rs.			5936.06	23.87
16	Int. On Fixed Capital		Rs.			317.50	1.28
17	COST "B"		Rs.			20195.12	81.23
18	Family Labour Charges	Male	DAYS	15.71	122.55	1925.26	7.74
		Female	DAYS	38.21	71.78	2742.71	11.03
		Total	DAYS	53.92		4667.97	18.77
19	COST "C"		Rs.			24863.10	100.00
20	Yield	Main	Qt	18.21	1460.15	26589.33	
		Bye	Qt	36.42	259.86	9464.10	
21	Value Of Total Produce		Rs.			36053.43	
22	Per Qtls . Cost Of Production						845.63

APPENDIX IX-C

Per hectare cost of cultivation, for rabi jowar (medium)

SR. NO.	ITEM		UNITS	UNITS Req.	PRICE PER UNIT	COST IN RS.	PERCENT TO TOTAL
1	Hired Human Labour	Male	DAYS	22.77	120.53	2744.47	11.51
		Female	DAYS	36.66	70.62	2588.93	10.86
		Total	DAYS	59.43		5333.40	22.37
2	Bullock Labour	Hired	DAYS	4.16	250.40	1041.66	4.37
		Owned	DAYS	6.11	250.40	1529.94	6.42
		Total	DAYS	10.27		2571.61	10.78
3	Machine	Hired	Hrs.	7.22	197.18	1423.64	5.97
		Owned	Hrs.	0.00	0.00	0.00	0.00
		Total	Hrs.	7.22		1423.64	5.97
4	Seed		Kg.	9.44	51.05	481.91	2.02
5	Manure		Qt	0.00	0.00	0.00	0.00
6	Fertilizer	N	Kg.	48.61	15.75	765.61	3.21
		P	Kg.	28.05	26.31	738.00	3.09
		K	Kg.	11.94	36.76	438.91	1.84
		Total		88.60		1942.52	8.15
7	Irrigation		Rs.			958.33	4.02
8	Incidental		Rs.			34.72	0.15
9	Plant protection		Rs.			240.27	1.01
10	Repairs		Rs.			93.88	0.39
11	Depreciation		Rs.			191.94	0.80
12	Land Revenue		Rs.			82.22	0.34
13	Int. On Working Capital		Rs.			261.61	1.10
14	COST "A"		Rs.			13616.04	57.10
15	Rental Value Of Land		Rs.			6211.75	26.05
16	Int. On Fixed Capital		Rs.			246.94	1.04
17	COST "B"		Rs.			20074.73	84.18
18	Family Labour Charges	Male	DAYS	13.88	120.53	1672.96	7.02
		Female	DAYS	29.72	70.62	2098.83	8.80
		Total	DAYS	43.60		3771.78	15.82
19	COST "C"		Rs.			23846.51	100.00
20	Yield	Main	Qt	19.72	1491.01	29402.72	
		Bye	Qt	38.05	219.74	8361.11	
21	Value Of Total Produce		Rs.			37763.82	
22	Per Qtls . Cost Of Production						785.26

APPENDIX IX-D

Per hectare cost of cultivation for rabi jowar (large)

SR. NO.	ITEM		UNITS	UNITS Req.	PRICE PER UNIT	COST IN RS.	PERCENT TO TOTAL
1	Hired Human Labour	Male	DAYS	22.38	121.65	2722.53	11.13
		Female	DAYS	41.90	71.68	3003.39	12.27
		Total	DAYS	64.28		5725.92	23.40
2	Bullock Labour	Hired	DAYS	4.28	250.33	1071.41	4.38
		Owned	DAYS	6.19	250.33	1549.54	6.33
		Total	DAYS	10.47		2620.96	10.71
3	Machine	Hired	Hrs.	7.61	233.87	1779.75	7.27
		Owned	Hrs.	0.00	0.00	0.00	0.00
		Total	Hrs.	7.61		1779.75	7.27
4	Seed		Kg.	11.19	55.43	620.26	2.53
5	Manure		Qt	0.00	0.00	0.00	0.00
6	Fertilizer	N	Kg.	54.76	16.35	895.33	3.66
		P	Kg.	33.33	26.75	891.58	3.64
		K	Kg.	21.42	36.31	777.76	3.18
		Total		109.51		2564.66	10.48
7	Irrigation		Rs.			1047.62	4.28
8	Incidental		Rs.			36.66	0.15
9	Plant protection		Rs.			321.42	1.31
10	Repairs		Rs.			101.42	0.41
11	Depreciation		Rs.			238.09	0.97
12	Land Revenue		Rs.			73.33	0.30
13	Int. On Working Capital		Rs.			296.37	1.21
14	COST "A"		Rs.			15426.46	63.05
15	Rental Value Of Land		Rs.			5730.64	23.42
16	Int. On Fixed Capital		Rs.			232.61	0.95
17	COST "B"		Rs.			21389.71	87.42
18	Family Labour Charges	Male	DAYS	11.42	121.65	1389.24	5.68
		Female	DAYS	23.57	71.68	1689.50	6.90
		Total	DAYS	34.99		3078.74	12.58
19	COST "C"		Rs.			24468.45	100.00
20	Yield	Main	Qt	19.28	1487.60	28680.93	
		Bye	Qt	36.19	169.74	6142.89	
21	Value Of Total Produce		Rs.			34823.82	
22	Per Qtls . Cost Of Production						950.50

APPENDIX X-A

Per hectare cost of cultivation for linseed (small)

SR. NO.	ITEM		UNITS	UNITS Req.	PRICE PER UNIT	COST IN RS.	PERCENT TO TOTAL
1	Hired Human Labour	Male	DAYS	11.66	121.50	1416.69	6.31
		Female	DAYS	23.33	72.51	1691.66	7.53
		Total	DAYS	34.99			3108.35
2	Bullock Labour	Hired	DAYS	5.00	250.25	1251.25	5.57
		Owned	DAYS	3.33	250.25	833.33	3.71
		Total	DAYS	8.33			2084.58
3	Machine	Hired	Hrs.	8.33	220.09	1833.35	8.16
		Owned	Hrs.	0.00	0.00	0.00	0.00
		Total	Hrs.	8.33			1833.35
4	Seed		Kg.	28.33	57.36	1625.01	7.23
5	Manure		Qt	0.00	0.00	0.00	0.00
6	Fertilizer	N	Kg.	91.66	16.30	1494.06	6.65
		P	Kg.	41.66	26.30	1095.66	4.88
		K	Kg.	0.00	0.00	0.00	0.00
		Total		133.32			2589.72
7	Irrigation		Rs.			0.00	0.00
8	Incidental		Rs.			38.30	0.17
9	Plant protection		Rs.			241.66	1.08
10	Repairs		Rs.			58.33	0.26
11	Depreciation		Rs.			211.66	0.94
12	Land Revenue		Rs.			68.45	0.30
13	Int. On Working Capital		Rs.			231.59	1.03
14	COST "A"		Rs.			12090.99	53.82
15	Rental Value Of Land		Rs.			8473.21	37.72
16	Int. On Fixed Capital		Rs.			410.00	1.83
17	COST "B"		Rs.			20974.20	93.36
18	Family Labour Charges	Male	DAYS	8.33	121.50	1012.10	4.51
		Female	DAYS	6.60	72.51	478.57	2.13
		Total	DAYS	14.93			1490.66
19	COST "C"		Rs.			22464.86	100.00
20	Yield	Main	Qt	13.33	3813.45	50833.29	
		Bye	Qt	6.66	62.56	416.65	
21	Value Of Total Produce		Rs.			51249.94	
22	Per Qtls . Cost Of Production						1654.03

APPENDIX X-C

Per hectare cost of cultivation for linseed (large)

SR. NO.	ITEM		UNITS	UNITS Req.	PRICE PER UNIT	COST IN RS.	PERCENT TO TOTAL
1	Hired Human Labour	Male	DAYS	12.63	121.68	1536.82	8.11
		Female	DAYS	15.26	70.88	1081.63	5.71
		Total	DAYS	27.89		2618.45	13.81
2	Bullock Labour	Hired	DAYS	2.63	250.15	657.89	3.47
		Owned	DAYS	6.31	250.15	1578.45	8.33
		Total	DAYS	8.94		2236.34	11.80
3	Machine	Hired	Hrs.	4.73	233.67	1105.26	5.83
		Owned	Hrs.	0.00	0.00	0.00	0.00
		Total	Hrs.	4.73		1105.26	5.83
4	Seed		Kg.	26.84	52.95	1421.18	7.50
5	Manure		Qt	0.00	0.00	0.00	0.00
6	Fertilizer	N	Kg.	42.10	15.75	663.08	3.50
		P	Kg.	12.10	26.76	323.80	1.71
		K	Kg.	7.89	36.32	286.56	1.51
		Total		62.09		1273.44	6.72
7	Irrigation		Rs.			0.00	0.00
8	Incidental		Rs.			17.89	0.09
9	Plant protection		Rs.			242.10	1.28
10	Repairs		Rs.			39.47	0.21
11	Depreciation		Rs.			273.68	1.44
12	Land Revenue		Rs.			78.90	0.42
13	Int. On Working Capital		Rs.			179.08	0.94
14	COST "A"		Rs.			9485.78	50.03
15	Rental Value Of Land		Rs.			7660.15	40.40
16	Int. On Fixed Capital		Rs.			378.94	2.00
17	COST "B"		Rs.			17524.87	92.44
18	Family Labour Charges	Male	DAYS	8.42	121.68	1024.55	5.40
		Female	DAYS	5.78	70.88	409.69	2.16
		Total	DAYS	14.20		1434.23	7.56
19	COST "C"		Rs.			18959.10	100.00
20	Yield	Main	Qt	13.68	3374.12	46157.96	
		Bye	Qt	4.73	58.42	276.33	
21	Value Of Total Produce		Rs.			46434.29	
22	Per Qtls . Cost Of Production						1365.70

QUESTIONNAIRE

1. General Information

- a) Name of the cultivator
- b) Sex c) Age d) Education
- e) Village f) Tahsil g) District.....

2) Information of member of family

Sr.No.	Name of member	Sex	Age	Relation with head	Education	Occupation	
						Main	Sub
1							
2							
3							
4							
5							
6							
7							

3) Information of agricultural land

Sr.No.	Details	Total land (ha)	Fallow land (ha)	Cultivable land (ha)	Irrigated land (ha)	Unirrigated land (ha)	Land revenue	Current value of land(ha)
1								
2								
3								
4								
5								
	Other							

4) Other fixed capital farm assets

Sr.No.	Details	No	Year of construction/ purchased	Price at construction/ purchased	Present value	Remaining life	Repairing charges
1	Godown						
2	Cattle shed						
3	Wells						
4	Irrigation pipe						
5	Oil engine, engine pump, engine house						
6	Other						
7	total						

5) Information regarding housing property

Sr.No.	Area	No. of rooms	Types of raw material			Current value
			Shone/brick cement	Shone/brick soil	Other type	
1						
2						
3						
4						

If rented	Year of construction	Expenditure on repair during the year

6) Inventory of farm implements and machineries

Sr.No.	Name of implements	No	Year of purchase	Purchase value	Present value	Remaining live	Repairing charges (Rs.)
A	Implements						
1	Wooden Plough						
2	Harrow						
3	Bullock cart						
4	Iron plough						
5	Other						
B.	Machineries						
1.	Tractor						
a.	Tractor plough/ implements						
b.	Cultivator						
c.	Harrow						
d.	Puddler						
e.	Trolley						
2	Electric motor						
3	Thresher						
4	Sprayers						
a	Hand pump						
b	Power sp.						
5	Duster						
6	Winnower						
7	Oil engine						
8	Other tools						
9	Total						

8) Production wise labour and machinery utilization for crop production.

Sr.No	Operation	No./ unit	Labour Units								Bullock pairs		Implement machinery	Input used			
			Hired				family				Day	Rate		Name	Qty.	Rate	Value
			ML	Rate	FL	Rate	ML	Rate	FL	Rate							
A)	Preparatory tillage																
1	Ploughing																
2	Harrowing																
3	Clod crushing																
4	Manuring																
5	Other																
B)	Seed and sowing																
C)	Seed treatment																
D)	Thinning / gap filling																
E)	Fertilizer application																
1	Basal dose N																
2	Top dressing																
3	Foliar application																
	N																
	P																
	K																
F	Spraying of insecticide and pesticide																
1																	
2																	
3																	
G	Weeding																
H	Irrigation																
I.	Harvesting and threshing																
J	winowing																
K	Transportation to the market																
	Total																

9) Income received from farm produce

Sr.N o.	Commodity	Production				Gross return
		Main production (qt.)		By produce		
		Qty.(qtl)	Rate(Rs)	Qty.	Rate	
1						
2						
3						
4						
5						

10) Disposal of farm produce (quintals)

Home consumption	Fed no animal	Sold out	Other disposal	Total

11) Details of livestock

Sr.N o.	Types of livestock	Breed local/improved	Running age year	Current value	If purchase	
					Date of purchase	Cost (Rs.)
1	Bullock					
2	Cow					
3	Buffalo					
4	Goat					
5	Sheep					
6	Hens					
7	Others					

12) Maintenance cost of rearing of animals

Sr.No.	Particulars	Bullock	Cow	Buffalo	Goat	Sheep	Hen	Others
1	No. of animals							
2	Working day							
3	Dry fodder							
4	Green fodder							
5	Concentrates							
6	Medicine, veterinary Aids							
7	Labour charges							
8	Other							
9	Total							

13) Income received from livestock during last year

Sr.No.	Types	Total production		Domestic use		Sold out		Remarks
		Qty.	Value	Qty.	Value	Qty.	Value	
1	Milk							
2	Butter							
3	Ghee							
4	Khowa							
5	Eggs							
6	Poultry birds							
7	FYM							
8	Sales of animals and other							
9	Manure							



14) Other source of Income

Sr.No.	Particulars	Rs.
1	Income received from agriculture	
2	Income received from livestock	
3	Income received from implements	
4	Income received from skill work	
5	Income received from Plantation	
6	Income received from institution / service	
7	Income received from Non institutions	
8	Income received from trade and business	
9	other	

15) status of credit availed

Sr. No.	Name of agent	Amount of loan	Rate of loan taken	Period of loan	Purpose for which loan was taken	Rate of interest
1	Co-operative society					
2	LDB					
3	Nationalized Bank					
4	Money lender					
5	Friend/neighbour					
6	others					

16) Repayment during year (Rs)

Principle amounts	Interest amounts	Amount of outstanding loan	Reason for non repayment