AERC, Jabalpur - Research Study No. - 132

Market Imperfections and Farm Profitability in Madhya Pradesh

Study Sponsored by
Ministry of Agriculture and Farmers Welfare
(Govt. of India

AGRO- ECONOMIC RESEARCH CENTRE
Jawaharlal Nehru Krishi Vishwa Vidyalaya,
Jabalpur (M.P.) 482004

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AGRO- ECONOMIC RESEARCH CENTRE FOR
MADHYA PRADESH AND CHHATTISGARH

Jawaharlal Nehru Krishi Vishwa Vidyalaya, Jabalpur (M.P.)

PREFACE

The present study entitled "Market Imperfections and Farm Profitability in Madhya Pradesh" has been assigned by the Directorate of Economics and Statistics Ministry of Agriculture Government of India to this centre in the year 2018-19 under the close coordination of Agricultural Economics Research Unit, Institute of Economic Growth, New Delhi.

The study comprises 400 households of four major crops (wheat, rice, soybean and chickpea) producing districts viz. Hoshanbad, Vidisha, Ujjain and Balaghat of Madhya Pradesh. The study reveals that as per producers' point of view, the input as well as output market of farm products was found towards perfection in the State as more than 60 per cent of sample HHs of the study area were found to be satisfied with the disposal of their crop and livestock products. They all were reported that price of various inputs was found to be reasonable and its quality was also found to be fair enough. It became possible due to introduction of various schemes and their effective implementation for increasing production and procurement of farm products by the Government of Madhya Pradesh. Along with this the State Government also provided handsome bonus over end above the MSP to the farmers for procurement of food grains.

On behalf of the Centre, I express deep sense of gratitude to prof. P.K.Bisen, Hon'ble Vice-Chancellor and Chairman, Advisory Body of AERC, Jabalpur, Smt. Promodita Satish, Advisor, AER Division, Ministry of Agriculture and Farmers' Welfare, Govt. of India, New Delhi, Dr. D. Khare, Dean, Faculty of Agriculture, Dr. P.K.Mishra, Director Research Services, Dr. (Smt.) Om Gupta, Director Extension Services and Dr. R.M.Sahu, Dean, College of Agriculture/Prof. & Head (Dept. of Agril. Econ.& F.M.), Jawaharlal Nehru Krishi Vishwa Vidyalaya, Jabalpur for providing the valuable guidance and all facilities during various stages in successful completion of this study of high importance.

I extend heartfelt thanks to Dr. C. S. C. Sekhar, Professor and Coordinator, Institute of Economic Growth for providing valuable guidelines and time to time suggestions for conducting the study successfully.

The present study was conducted by Dr. H. O. Sharma, Dr. Deepak Rathi and Dr. H. K. Niranjan of this centre. The field investigation, tabulation, analysis, interpretation and drafting of the report were performed by them. I wish to express my deep sense of gratitude to team members namely; Mr. R. P. Pandey, Mr. S. S. Thakur, Mr. R. S. Bareliya and Mr. Akhilesh Kuril & Mr. P. K. Patidar for their untiring efforts in bringing this innovative study to its perfect shape.

I express sincere thanks to Shri Champa Lal Kewda, Shri Amar Singh, Shri C. R. Gaur and Shri Jitendra Singh Deputy Director of Agriculture, of Ujjain, Vidisha, Balaghat and Hoshangabad districts respectively and their field staff for providing not only secondary data but also extending great assistance in collection of primary data from the selected respondents.

I hope the findings and suggestions made in the study would be useful to policy makers of the State and Govt. of India.

Date : 12.11.2020

Place: Jabalpur

Prof. & Director

(Hari Om Sharma)

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EXECUTIVE SUMMARY

Market imperfections are common in input as well as output marketing in developing countries. Hence, a useful analysis of these two market are required to judge the functioning of input and output market and their effect on the erosion of farm profitability in Madhya Pradesh with following specific objectives.

1) To analyze the product markets (output) including price received marketing channels, market structure, and bottlenecks.
2) To analyze the input markets, including seeds, fertilizer, and labour market structure, and problems in accessing the same.
3) To analyze the government support structure, including access to credit and
4) To analyze the coping strategies of farmers during economic hardships and their social networks.

The study confined to four major crops (wheat, rice, soybean and chickpea) of Madhya Pradesh. One major district having maximum production in the state related to selected crop has been selected for the study. Therefore, Hoshagabad district for Wheat, Ujjain for soybean, Vidisha for Chickpea and Balaghat for Rice have been selected for the study. A list of the blocks in these selected districts has been prepared and a block having maximum production of respective selected crops was selected for the study. Therefore, Seonimalwa, Badnagar, Gulabganj, Balaghat blocks have been selected from Hoshangabad, Ujjain, Vidisha and Balaghat districts, respectively in Madhya Pradesh. A list of all the villages in the selected blocks has been prepared and a village near to headquarters and a village far away to headquarters have been selected randomly for the study. Therefore, Rampura & Gadaria, Paldhuna & Badganwa, Badkhera Gambhir & Badkhera Kachwa and Bhuttehazari & Merigaon villages have been selected respectively from Hoshangabad, Ujjain, Vidisha and Balaghat districts of Madhya Pradesh. A list of cultivators from each selected village was prepared and 50 households have been selected randomly from each selected villages for in-depth study. Thus 100 HHs were selected from each selected district of Madhya Pradesh.

These households were further classified in different land size categories i.e. marginal (<1 hectare), small (1-2 hectares), medium (2.1-4 hectares), large (4.1-10 hectares) and very large (>10 hectares). Therefore, 87, 117, 124,51 and 27 HHs were selected respectively in marginal, small, medium, large and very large land size categories

9.1 Major Findings

The major finding related to Crop Production and Input Market, Animal Products and Input Market, Labour Market, Credit Market, Assets Endoments and Problems in Farming, Economic Risk, Copping Strategies and Social Network are presented in this sub-head.

9.1.1 Crop Production and Input Market

- The study reveals that Kharif (50.31%) and Rabi (49.69%) were found to be major seasons. Soybean(91%), rice (7%) & Urd (2%) and wheat (70%), chickpea (26%) & garlic (2%) were found to be major farm products grown in kharif and rabi season, respectively. The cropping intensity of an average HH was found to be used his operated area 198 per cent, which was found to be increased with increase in size of farms from 195 (marginal) to 199 (very large) per cent per year. He was found to harvested of 3526, 3435, 1053 and 999 kg/ha of wheat, rice, soybean and chickpea, respectively with the average yield of 2253 kg./ha of all these crops. He was found to receive Rs. 49778 per ha in a year from cultivation crops. He was used to receive highest sale value of main product from wheat (Rs.64907/ha) followed by rice (Rs. 59031/ha), chickpea (Rs.41140/ha.) and soybean (Rs.34035/ha). Although, the price received by him from a kg of grain was found to be highest in case of chickpea (Rs.41.18/kg) as compared to soybean (Rs. 32.33/kg), wheat (18.41/kg) and rice (Rs.17.19/kg).
- The majority of sample HHs were found to sale rice and wheat to cooperative/govt. agencies followed by input dealers and regulated market & local village. However, none of the HH was found to sell produce of rice and wheat to local village merchant and input dealers respectively, while the majority of sample HHs related to soybean and chick pea were found to dispose of the produce through regulated market followed by local village merchant and input dealers & cooperative / govt. agencies and none the HH was found to sell soybean produce to cooperative / govt. agencies.
- The majority of them were found to be satisfied from the disposal of crop produces in the market. The others were found to dissatisfy due to delayed payment followed by lower market price. The main reason of dissatisfaction was lower market price, unreasonable price due to no govt. purchase,very few sellers (35.48%) and private sellers collude.
- The majority of HHs growing rice (70.48%), soybean (71.72%) and wheat (92.23%) production, respectively found that the price of the produce was reasonable, while majority of chickpea growers (87.98%)

reported was non- reasonable price.

- The majority of HHs were found use to farm saved seed (53.44%), followed by exchanged seed (28.87%) and purchased from the others (17.69%). None of the sample HHs reported that he borrowed seed from the others for cultivation of major crops expect soybean. The majority of selected soybean growers reported that they used to purchase seed (56.59%), followed by farm saved seed (38.08%), exchanged from the others (3.46%), and borrowed from the others (1.87%).
- An average rice, soybean, wheat and chickpea growers were found to spend Rs. 2624, Rs. 5763, Rs.4052 and Rs. 5254/- respectively on seed to cultivate crops in a hectare of land. The majority (> 60%) of HHs reported that the quality of seed purchased by them at reasonable price from different agencies for cultivation of crops was of good followed by satisfactory quality. The others reported price of the seed was unreasonable due to private sellers collude, no price control on prices of seed , prices not subsidized by the government and no cooperative/ government agencies involved in the control of price of crop produce in the area under study.
- An average HH was found to invest Rs. 61662/ha/year on other inputs to cultivate crops share of leased in land was 60.24 per cent. The total expenditure excluding land was found to be Rs. 24520 /ha /year in cultivation of crops in the area under study. The total expenditure on cultivation of crops in a hectare in a year was found to vary across size of farms from Rs. 52546 (marginal) to 69883 (small) per ha/year in the area under study. Out of total expenditure incurred (excluding leased in land) in cultivation of crops per hectare was found to be maximum in human labour (43%) followed by fertilizer (18%), hiring of machinery (14%), plant protection chemicals (9%), electricity (5%), maintenance cost (3%), diesel (2%),animal labour (1%) and irrigation charges (1%) in the area under study.
- The percentage expenditure to total expenditure on all the expenses were found to increase with increased size of farms except expenditure on manure and animal labour, which was found to be decreased with increased in the size of farms in cultivation of crops.
- Cent per cent sample HHs reported that they used to purchase fertilizer, plant protection chemicals, diesel, electricity and irrigation for production of major crops. Cent per cent sample farmers also reported that they used farm saved manures and animal labours for cultivation of crops. At overall level 37.50 and 62.50 per cent sample HHs were found to use farm saved and hired human labour,

respectively in cultivation of crops. The majority of them were found to procure fertilizers from cooperative societies (87.25%) followed by input dealers. Cent per cent sample HHs were found to ranked good to diesel & plant protection chemical which were used by them for cultivation of crops. The majority of them that the quality of fertilizer (64.75%), manures (91.57%), electricity (92.28%), plant protection chemical (100%), human labour (78.25%), animal labour (70.69%) and irrigation (91.00%) were good, which they procured for production of crops.

- The cent percent sample HHs reported good ranking to the price of manures (100%) followed by fertilizer (91.00%), electricity (95.99%), animal labour (87.50%), irrigation (96.00%) and human labour (62.50%), while only 64.90 and 92.36 per cent sample HHs reported the price of plant protection chemical and diesel were satisfactory. The HHs reported the reasons of unreasonable price of plant protection chemicals were no price control. At overall level the majority of sample HHs reported that the main reasons of unreasonable rate of fertilizer were private sellers collude (55.56), no price control (27.78%) and very few sellers (16.67%). The majority of them also reported that the main reasons of unreasonable price of plant protection chemicals were no price control, private sellers collude and no subsidy available to purchase inputs. The majority of sample HHs reported that the main reasons of unreasonable rate of human labour and diesel was no price control (100.00%). The cent per cent sample HHs reported that the main reason of unreasonable price of minor repair and irrigation was no subsidy available in the market. The majority of them reported that the main reasons of unreasonable rate of cost of hiring of machinery were no price control, no subsidy available and very few sellers. The main reasons of unreasonable rate of leased in land were no price control and very few sellers (25%) as reported by the majority of Hhs.

9.1.2 Animal Products and Input Market

- The majority of HHs were found to dispose animal products directly to other HHs (49%) followed by local traders (45%) and commission agent (6%). The majority of small and marginal sample HHs found to dispose products directly to the other HHs while, majority of large and very large sample HHs disposed animal products to local traders. The cent per cent of sample HHs across size of farms reported dissatisfaction with the disposal of animal products due to delayed payment.
- An average HHs was found to sell animal products of Rs. 7381 per year out of which, the sale of milk was found to be maximum (72%)

followed by other products (18%) and live animal (10%). He was found to invest Rs. 16053 per year for purchase of inputs related to animal husbandry in his farm out of which, cost of cattle and buffalo (47%) was found to be more as compared to labour charges (25%), green fodder (12%), concentrate (9%), dry fodder (4%) and cost of seed/goat or pig (3%).

- The various agencies were found to involve in procurement of inputs related to animal husbandry across size of farms. All the HHs reported that they used farm saved green fodder and purchase concentrate from input dealers (65.23%) followed by local traders (34.77%). They were also found to procure cattle/buffalo (96.38%), sheep/goat (90.91%) and dry fodder (92.11%) from their owned farms and found to be satisfied with the quality of animal seed of cattle/buffalo (75.36%), sheep/goat (100.00%), green fodder (57.35%), dry fodder (52.69%) and concentrate (100.00%). They also reported that the price of animal seed related to sheep and goat, green dodder & dry fodder and other expenses are reasonable. Rest of them reported that the price of concentrates was unreasonable due to there is no govt. seller related to the concentrates. They also reported that the cost of animal seeds related to cattle/buffalo (98.19%), sheep/goat (90.91) and veterinary charges (97.33%) were also reasonable. The price of concentrate was found to be high (44.44%) followed by reasonable (42.65%) and very high (12.90%).

9.1.3 Labour Market

- There were found to be noticed that 3 types of labours viz. family labour, farm servant and causal labours used in various farm operations and live stock activities across size of farms. The male and female farm servants were found be observed only in large and very large size of farms. The casual male and female were found to be increased with the increase in size of farms from 6 male & 5 female (marginal) to 22 male& 24 female (very large) per HH.
- An average male and female family & casual labour and farm servant was found to be worked for 8 and 10 hrs. /day respectively in various operations of farm and live stock activities. An average HHs was found to provide employment to family labour, farm servants and hired casual labours for 161(male) & 156 (female), 146 (male) & 146 (female) and 148(male) & 136 (female) days, respectively in a year. Amongst different size of farm none of the marginal, small and medium size of sample HHs were found to employ farm servant in their farms. As the size of farms increases from marginal to very large the number of family labour days decreases from 166 (male) & 171 (female) to 157 (male)

& 145 (female), while number of hired casual labour days increases with increase in size of farms from 107 (male) & 115 (female) to 184 (male) & 168 (female). The average wage rate per labour per day (Rs.246/day) was found to vary from Rs. 244 to 248 for male and female casual labour. The majority of sample HHs reported the wage rate are high (63%) followed by reasonable (20%) and very high (17%). They were reported that working in MNERGA, limited labour supply and control of contractor on labour supply were found to be main reasons for non reasonable wage rate of labour for farming and live stock operations. The numbers of labours engaged in MGNREGA were found to be more in marginal (10) as compared to small (5) and medium (1) size of farms in a year . The percentage of wage respond to MGNREGA wages was found to be more in the month of September (25%) as compared other months of a year. The average per day wage rate received in MGNREGA was found to be only Rs.180/day.

- The 45 per cent of HHs reported that they were engaged as wage labours on others' farm during the last year and received an average wage rate of Rs. 237.45 per day. As the size of farms increases the wage labours engaged on others' farm were found to be decreases from marginal (23.00%) and very large(1.00%) size of farm.

9.1.4 Credit Market

- The samples HHs were found to borrow capital from different institutional (Commercial bank, cooperative societies, non-govt/ common group and Self Help Groups, and non-institutional sources (fallow farmers and money lenders). The majority of HHs was found to borrow capital from commercial bank (54.58%) and cooperative bank (40.85%). Very few HHs were found to borrow money from micro finance/common group (0.33%), SHGs (0.33%), fellow farmers/neighbours (1.63%) and agricultural money lenders (2.29%). As the size of farm increases the number of HHs who borrowed money from commercial bank were found to increases, while HHs who borrowed money from cooperative society were found to decreased in the area under study.
- An average HH was found to borrow Rs. 638615 per annum from the different sources of credit, which was found to be increases with size of farms from Rs. 601385 (marginal) to 1119000 (very large). They were found to borrow money for capital and current expenditure in farm business from commercial bank, cooperative bank, microfinance common group and SHGs, while borrowed money was used in farm business, consumption expenditure marriage

and ceremony from fellow farmers. None of the farmer was also taken any loan for current expenditure in farm business from fellow farmer/neighbours and for consumption purpose from money lenders.

- Out of total borrowers only 17.32 per cent were found to repay their loan to sources of credit from they borrowed money. The percentage of HHs repaid their loan were found to be more in marginal and small categories as compared to large, medium and very large categories. Amongst different sources of borrowing cent per cent borrower were found to repay the amount in micro finance/common group, SHGS, fellow farmer/neighbours and money lenders.
- The main reason of non repayment of borrowed money were expecting debt waiver and income always less than the expectation, while the main reason of non payment of borrowed money to cooperative banks were income always less than the expectation expecting debt waiver and payment will be made after harvesting as reported by majority of Hhs.

9.1.5 Assets Endowments

- Out of total sample HHs (400) 86.25 per cent (345) assets were found to be involved in allied activities viz. live stock husbandry and only 6.96, 3.19, 24.93 and 0.58 per cent have tractors, threshers, diesel/electric pumps and other machine at their farms. An average HH had an assets of Rs. 63314/- only, which showed increasing trend with size of farms. An average HH was found to b spend Rs. 13864/year for repairing and maintenance of their farm assets. Out of 345 HHs only 15.07 per cent HHs (52) received income from their productive resources during the last year, which were found to be more in small (19) followed by medium (14), marginal (7), large (6) and very large (6) size of farms. An average HH was found to receive an annual income of Rs. 16301/year from their productive resources. Amongst different productive resources livestock resource (Rs.10699/year) was found to be more productive as compared to hiring of thresher (Rs.388/year), diesel/electric pumps (Rs.14/year) and poultry production (Rs.14/year). An average HH was found to in loss of Rs. 60884 per year from their productive resources.
- The extension agents (89.5%) followed by private commercial agents (87%), progressive farmers (66.75%) were found to be main sources of technical advice accessed for production of crop and livestock products. Officers of the Veterinary Dept., scientists of KrishiVigyan Kendra, Radio/TV/ Newspaper and scientist of Agri. University/College were also found to be other sources of technical

advice accessed by the sample HHs for crop and livestock management. The frequency of contact with progressive farmers & radio/TV/newspaper/internet, extension agents, agricultural university/college, officers of the Veterinary Department daily, monthly, need based and seasonal as reported by majority of sample HHs, while the frequency of contact with private commercial agents (including dealer contractor) was found to be daily as well as weekly, monthly, seasonal, need based and casual. The technical advice from private commercial agents including dealer contractor (87%), extension agent (80%) and progressive farmer (67%) more as compared to other sources.

- The more than 90 percent sample HHs across different size of farms related to rice and wheat production were found to be awared to Minimum Support Price (MSP) of rice, wheat, soybean and chickpea in the area under study. The Cent per cent rice and wheat HHs across size of farms and reported that NAFED (through their cooperative societies) was the only agency for procurement of their produce, while the Cent per cent HHs related to soybean and chickpea across size of farms reported that they don't know about the procurement agencies related to produce of soybean and chickpea. As the size of farm increases the quantity sold and value of produce was also found to be increased in the study area.
- The various govt. schemes viz PM-KISAN and PMSNY are running in the area under study but HHs were found to be benefited through Pradhan Mantri Samman Nidihi Youjana (PMSNY). An average sample HH received Rs. 2323/- in last year under PMSNY in which he found to be receive 84.71 per cent in 1st instalment and rest in 2nd instalment in the area under study. None of the HHs was found to be insuring crop additionally apart from taking crop loan. The negligence of govt to take responsibility of crop losses (34.55%), complicated process of crop insurance scheme (30.91%), lack of awareness about crop insurance scheme (23.46%) and delay in claim settlement (10.91%) was the major reason of not insuring their crop by the majority of HHs under crop insurance at overall level

9.1.6 Problems in Farming, Economic Risk, Copping Strategies and Social Network

- Only few (12.8%) sample HHs reported that income from farming is adequate. Amongst different categories of farms, more numbers of marginal (26.4%) followed by small (14.4%), medium (8.1%) and large (3.9%) HHs reported that income from farming is adequate. None of the very large HHs

reported that the income from farming is adequate in the area under study. The main reasons of inadequate income from farming were found to be too high rainfall (87.25%), yield fluctuating a lot (69.75%), pest attack of diseases, (68.75%), destroy of crop by animals (67.50%), absence of storage facility (65.75%), high interest rate of money lenders (61.50%), temperature fluctuating a lot (60.0%), shortage labour during peak operation period (58.0%), small size of holding (57.25%), rainfall fluctuating a lot (53.50%), rodent attack (52.50%) and lack of marketing facilities (50.50%) as reported by majority of sample Hhs.

- Reduced health expenditure (73.50%), sold livestock (58.0%), sold land (41.25%), took children out of school (32.0%), deferred social and family function (28.50%), store crop for better price (21.58%) and borrowed from friend & relatives (20.25%) measures were followed by HHs to reduce their economic risks in farming.
- Gram Panchayat, Agricultural cooperative societies, *mahila mandal*, Self-Help Group, political party, caste association and credit cooperative societies were found to be the major organizations benefitting HHs in the area under study.
- The majority of members HHs reported that they obtained information regarding government schemes, improved agriculture of practices of crop and livestock management, input uses and sources of credit from the gram panchayat.

9.2 Conclusion and Policy Implications

The following conclusions and policy implications are drawn from the above findings.

- The problem was observed in marketing of soybean and chickpea as government of Madhya Pradesh not procuring these commodities on Minimum Support Price (MSP). Although, State Government is providing bonus over and above the MSP in-spite of that chickpea/soybean growers were not satisfied with the price, which they were getting from the market. Since, agriculture is a State subject under the constitution, therefore it has become imperative to establish a Commission for Agriculture Cost and Prices (CACP) in the State on the line of Centre's CACP. With the development of agriculture marketing from primary to secondary and tertiary in the State, MSP is required to be declared for all the crops/vegetables grown in the State. Kerala State has already started declaring MSP for all the agricultural commodities grown in their State. The similar model may be adopted by the Government of Madhya Pradesh to motivate and encourage the farmers.

- The majority of HHs opined that income from farming is not sufficient due to low yield, insect and pest attack, shortage of labour and lack of marketing facilities etc. It was also observed during the course of investigation that they were not adopting full package and practices of crops grown. Therefore, lot of emphasis is required to be given to strengthen the extension machineries for development of skill of the farming community and encourage them for adoption of full package and practices of crops grown by them to harvest higher yield.
- The availability and accessibility of green fodder at affordable prices is required to be ensured round the year in the State. Hence, silage and hay making technology should be transferred among farmers. Concentrates are also found to be main ingredients for improving the quality and quantity of milk, but these were not found to available to HHs at reasonable price. Therefore, necessary regulatory framework is required to be developed for making quality concentrates available and accessible at affordable prices.
- It was observed that an average HHs was employed only for about 160 days in agriculture and allied activities during the year. Therefore, efforts should be made to generate non-farm employment avenues to ensure full time employment round the year. This could become possible as the agricultural marketing is transforming from primary to secondary and lot of infrastructural development are taking place around the villages, which requires need based capacity building among the rural HHs. The farmers should also be motivated to adopt Integrated Farming System (IFS) for generating additional employment and income throughout the year.
- The timely repayment of loan disbursing to Commercial and Cooperative Bank is a major issue as majority of the HHs could not repay loan due to price realised of different agricultural commodities was less than their expectation and loan waiver policy adopted by the Government. Therefore, Government should avoid to adopt loan waiver policy and required to introduced other mechanism for timely repayment of loan viz. providing easy loan for next season, discount on timely repayment of loan etc. The App based digitalized process for sanctioning and disbursing of agricultural loan is required to be introduced for generating transparency and efficiency by saving various costs/leakages.
- The assets possessed by the sample HHs were found to be less productive. Therefore, priority should be given on capacity building for generating income through these assets.

Some App based solution are coming up for custom hiring, therefore farmers should be made aware to register themselves in such activities to generate income from their assets.

- It was observed during the investigation that farmers were not getting need getting solution for their need based problems. They were unaware about Kisan Call Centre Toll free No. 1800-180-1551. Thus, to solve their need based problems they are motivated to be aware through extensive campaigning.
- The majority of HHs reported that they were not got any benefit from Kisan Mitra, Gram Panchayat, SHGs, and Cooperative societies. This calls for strengthening of these bodies for empowerment farming community.
- The government should take initiative for capacity building of FPOs on various aspects such as awareness about various schemes of agricultural inputs and outputs and other schemes related to agriculture and allied sectors, marketing of inputs and outputs, processing and value addition, entrepreneurship skills, accounts, business laws, export and import, marketing strategies, market intelligence, trade literacy etc. and providing hand holding support at various levels to make them confident enough and self-reliance in performing various business and various day to day activities their by ensuring profitability to member farmers on continuous basis for the long term and helping them in building international brand of their products.
- It has become imperative to take immediate steps for making markets efficient not only by incentivizing the farming community for producing crops but by increasing the farmers' share in consumer rupee. It is required to establish valuable and viable long term value chain not only to provide livelihood security to the deprived farmers of the State but at the same time ensure nutritional food security at national level thereby reducing the burden of imports and saving foreign exchange reserves.
- The input as well as output market of farm products was found towards perfection in the State as more than 60 per cent of sample HHs of the study area were found to be satisfied with the disposal of their crop and livestock products. All of them reported that price of various inputs was found to be reasonable and its quality was also found to be fair enough. It became possible due to introduction of various schemes and their effective implementation for increasing production and procurement of farm products by the Government of Madhya Pradesh (Appendix -1). Along with this Government of Madhya Pradesh also

provided handsome bonus over and above the MSP to the farmers for procurement of food grains. Kisan Samriddhi Yojana (Rs. 4,000/farmer/year) was also introduced by the State Government over and above the Kisan Samman Nidhi (Rs. 6000/ farmer/year) to support the farmers for enhancing production. With the result of timely interventions of all the above schemes State could win prestigious Krishi Karman Award under various categories consecutively for the last 6 years (Appendix-2). The Government of Madhya Pradesh also performed well in harvesting and procurement of farm produce under pandemic COVID-19 situation.

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CHAPTER - I

INTRODUCTION

1.1 Background

Market imperfections are common in rural markets in developing countries and the efficiency implications of market imperfections have been a controversial issue, Marshall claimed that share tenancy was an inefficient institutional arrangement and developed the separable farm household model as a benchmark approach to the analysis of rural economies. The presence or absence of market imperfections may have significant efficiency and other policy implications (Stein Holden et al. 2001). There are about 90.2 million agricultural households in India (nearly 58% of the total number of rural households), as per the key indicators of Situation of Agricultural Households in India, NSSO, 2014. The number of operational holdings in the country were 146 million 86% of these were marginal (68% - <1ha) and small holdings (18% - 1-2 ha) (Agriculture Census, 2015-16). The average size of operational holding has declined to 1.08 ha (2015-16) compared to 1.15 ha (2010-11). The livelihood of agricultural households are wage labour and livestock. Nearly 9, 00,000 households in rural India were landless (NSSO, 2014). Among the agricultural households having less than 0.01 hectares area, 56% reported wage/salary employment as their principal source of income and another 23% reported livestock as their principal source of income (NSSO, 2014). Hence, wage employment and livestock are two very important source of sustenance in rural India after cultivation. The average monthly income of an agricultural household was about Rs. 6426 (2012-13). Of this, nearly 60% accrued from cultivation and livestock, while nearly 32 percent came from wage/salary employment. Looking at the factor costs in crop production, an estimated 24 percent is spent on fertilizer and manure; 21% *on* human *labour* and nearly 11% on seeds. Similarly, 77% of the expenditure on livestock is incurred on account of animal feed. Hence, a careful analysis of these input markets and reduction of costs in these markets will go a long way in improving viability of crop production and livestock rearing.

Credit is a very vital component of the rural economy. nearly half of the estimated 90.2 million agricultural households are reported to have been indebted and about a quarter of these households reported borrowed from moneylenders. A farm product is rarely sold by the farmer direct to household consumers. Except for the most perishable farm products,

perhaps the most typical marketing channel is farmer-local trader-whole seller-retailer-consumer. Of these middlemen, it is the independent retailer, who has been most adequately covered by the general theory of imperfect competition. In this condition farmers never able to maximize their farm profitability. There are some reasons for different market imperfections even though India is an agricultural country; still its agricultural marketing has been defective. The Indian farmers are unable to get a reasonable price for the products even after their hard work and are fully exploited by the middlemen.

In Product Market Imperfections of the Indian Agricultural marketing is the presence of too many middlemen and exploitation of farmers by them. On one hand, these middlemen exploit the farmers by purchasing the produce at lower prices, and on the other hand, they exploit the customers by demanding higher prices from them. The only aim of a number of commission agents, brokers, etc. are to derive a higher income from the middle processes. These middlemen take undue advantage of the poor farmer on the basis of their financial resources. *i.e.* Defective Weights and Scales. The biggest imperfections of agricultural marketing that arises due to weights and scales. Usually, in rural areas Bricks, Kilo bats etc. are used as weights and in urban markets also defective weights are found. Most of the traders keep separate weights for purchase and sale of grain. The Indian farmers those are illiterate who are easier to be fooled by the money lenders, traders, middlemen, due to their simple nature. Similarly, lack of unity among farmers also causes their exploitation because Indian farmers are spread in distant areas in rural places. They are unable to meet with each other and resolve their problems; as a result, they do not get a fair price for their produce. In rural areas, there is a lack of financial resources, due to which even their emergency requirements are not fulfilled. Similarly, some financial facilities, like, installments on loans for pumping-set, tractor, thrasher, etc. have to be paid on a monthly or quarterly basis due to which they have to sell the product as soon as possible. Thus, as the lack of financial assistance, is a problem for the farmers; so does the receipt of loan also puts them in the problem. The agricultural marketing is also very defective in India because here organized marketing is like, cooperative societies, government marketing activities, regulated markets, e-marketing etc not working in a proper manner. As a result, the farmer remains entangled in exploitation. Thus, the lack of an organized marketing system is harmful to farmers. That is -why; the farmer sells his product personally to different people.

The middlemen takes full advantage of the unorganized farmers. The transportation is also expensive because mandi and market are far away from villages. The bullock carts can take the product only up to a limited area. Due to lack of transport facilities, the farmer is unable to take his produce to the appropriate market and is unable to receive a fair price for his product. An important deficiency of Indian agricultural marketing is the lack of storage. Due to lack of this facility, the farmer is unable to keep his product safely until it can fetch a fair price, and he is forced to sell his product at a low price. The insufficient and unscientific facilities of shortage that are available waste large quantities of grains. Approximately, 20% to 30% grains are lost due to rats, insects, etc. and the farmers have to bear crores of loss due to lack of these facilities. The lack of standardization and grading is clearly visible in the Indian agricultural marketing, due to which fixing a deal in relation to these products becomes difficult. Due to the lack of proper standardization and grading the customers have a problem in purchasing the product. The Indian farmer has no knowledge of marketing technologies. He believes in information acquired from the businessmen and money lenders of the village. Now, the government transmits the rates of the market on the TV/internet etc. , which has definitely benefited but the condition of the mandies not up to the mark. Hence, more hidden charges that the middlemen and the traders jointly make fool the simple farmers. The facts relating to the corrupt policies of the mandis the inappropriate marketing system is so deep laden in India that about 5% of the amount is deducted from the farmer's produce in the name of donations, 'Chanda' etc. The farmers are paid a low price, as they lack appropriate knowledge about market prices, their fluctuations, government policies, etc. Thus, by keeping the rates secret, the farmers are cheated. Before the sale, large amounts of grains are taken from the farmers as samples. By declaring the product to be of sub-standard quality minimum prices are paid for it.

On the other hand as regards to input market, in spite of the larger scale mechanization of agriculture in some parts of the country, most of the agricultural operation in larger parts is carried on by human labour using simple and conventional tools and implements like sickle, tifan , khurpi etc. It results in huge wastage of human labour and in low yield per capita labour force. Seed is a critical and basic input for attaining higher crop yields and sustained growth in agricultural production. Distribution of assured quality seed is as critical as the production of such seeds. Unfortunately, good quality seeds are out of reach of the majority of farmers, specially small

and marginal farmers mainly because of exorbitant price of better seeds. Farmers also suffer due to lack of irrigation facilities, Moreover, ordinary varieties of seed can be replaced by better high yielding varieties if there is an assured supply of water. The need for the construction of minor irrigation works of a local nature is both urgent and pressing. In fact, the total water potential in the country is more than adequate to irrigate the whole areas under cultivation. However, the present problem is one of discovering cheap and easy methods of utilizing these vast supplies of water. Agriculture is an important industry and like all other industries it also requires capital.

The number of sale points are still inadequate. The farmers have to travel long distances to buy the fertilizers. Quite often, the suppliers of the fertilizers at many sale points are not sufficient to meet the demand for fertilizers in the area. At many sale points, the fertilizers are not stocked at a time when farmers want to purchase. Sometimes, the quantity of fertilizers in the bags is less than the specified one. Although, this happens because of mishandling but is deliberate also. When the supply is less than the demand for fertilizers in an area, during a specified season, the dealers charge a price higher than the statutory or normal price. The number of pesticides/insecticides depots are also inadequate. Each depot covers more than 10 to 15 villages. Farmers have to travel long distances to get their requirements for plant protection chemicals. This increases the cost of material and results in the wastage of the farmer's time. Most of the time, the demand gets blunted. There is a short supply of the pesticides of a particular brand in the market because of insufficient production. (Acharya & Agrawal 2013)

The role of capital input is becoming more and more important with the advancement of farm technology. Since the agriculturist's capital is locked up in his lands and stocks, he is obliged to borrow money for stimulating the tempo of agricultural production. Although, different Banks and Govt. agencies have provided agricultural loan but there are lots of formalities to get loan. Villagers get easy money after mortgage their land. The main supplier of money to the farmers are the money-lender, traders and commission agents, who charge high rate of interest and purchase the agricultural produce at very low price. The rate of population growth has decelerated, resulting in a decline in growth rate of persons in working age. Labour force participation rate of women has shown a secular declining trend over the past four decades due to, among other things, increasing enrolment in education streams at the different level an increasing number of persons from cultivator

households are joining the ranks of wage labour or self – employed in the non-farm activity. The number of persons commuting to urban areas for work has steadily increased and rural to urban migration has also emerged as an important form of migration. Wage rates are higher at the time of operations as well as labour shortage also.

The problem of small and fragmented holdings is more serious is densely populated and intensively cultivated. The land belonging to the father is equally distributed of land does not entail a collection or consolidated one, but is nature is fragmented. Sub-division and fragmentation of the holdings is one of the main causes of low income. A lot of time and labour is wasted in moving seeds, manure, implements and cattle from one piece of land to another. Irrigation becomes difficult on such small and fragmented fields, Further; a lot of fertile agricultural land is wasted in providing boundaries. Under such circumstances, the farmer cannot concentrate on improvement. Large tracts of fertile land suffer from soil erosion by wind and water. The similar condition also exists in case of Madhya Pradesh. Keeping above fact in mind the present study attempts to study the functioning of output and input markets and their effect on the erosion of farm profitability in Madhya Pradesh with following specific objectives.

1.2 Objectives of the Study

1) To analyze the product markets (output) including price received marketing channels, market structure, and bottlenecks.
2) To analyze the input markets, including seeds, fertilizer, and labour market structure, and problems in accessing the same.
3) To analyze the government support structure, including access to credit.
4) To analyze the coping strategies of farmers during economic hardships and their social networks.

1.3 Relevant Literature Review

Literature review is a comprehensive summary of previous research on a topic. The purpose of literature review is to identify need for justifying the research, identify the relationship of works in context of its contribution to the topic and to other works. The resume of research study provides how to make research more precise through review of literature. Some of important available literatures are reviewed as under.

Holden *et al.* (2001) studied market imperfections and land productivity in the Ethiopian highlands and found that there are significant market imperfections in labor and land markets in the study area and that these

imperfections affect plot level land profitability. Household male and female labour per unit of land had a significant positive effect on land productivity, showing that the labour market and rental market for land do not redistribute these resources efficiently. An insignificant resource stock variable is a necessary but not sufficient indicator of efficient resource allocation for this resource. Even though land productivity increased with household labour force. They did not find a significant inverse farm size-land productivity relationship. The reasons for this may be farms managed by female headed households are smaller than average and with lower productivity and that population pressure had a negative effect on land productivity. They suggested that inefficiency may be reduced by improving the labour and rental markets for land

Pemsl *et al.* (2004) assessed the profitability of Bt-cotton in Karnataka. They used a stochastic partial budgeting approach that captures the key pest control properties of Bt cotton taking into account uncertainty of pest pressure, control effectiveness and prices to assess the profitability effects of Bt varieties. The results of the simulation model reveal that under the current price situation a prophylactic chemical control strategy dominates the use of Bt varieties in both, irrigated and non-irrigated cotton. The effect of a higher cotton price is assessed in a second scenario that depicts a Bt cotton variety with improved fiber quality than varieties currently approved for commercial planting. Under this assumption, the Bt strategy would be slightly better than the prophylactic use of chemical pesticides.

Gennaro (2005) defined a market imperfection an anything that interferes with market/trade. This includes two dimensions. First, imperfections cause a rational market participant to deviate from holding the market portfolio. Second, imperfections cause a rational market participant to deviate from his preferred risk level. He observed market imperfections affect virtually every transaction in some way, generating costs that interfere with trades that rational individuals make, or would make, in the absence of the imperfection. Understanding these costs gives us insight regarding the total costs of transactions, where to place them, or whether to make them at all. Market imperfections also generate profit opportunities for entrepreneurs who can reduce or eliminate them. Institutions or individuals who can lower costs tracing to imperfections have a competitive advantage and can earn economic

rents until competing firms adapt. Imperfections can and do change over time, but they collectively never go to zero.

Bhatia (2006) studied the sustainability and trends in profitability of Indian agriculture. The study is based on the secondary data culled from the publications of the Department of Agriculture and Department of Statistics, Govt. of India. A tremendous development and spectacular growth have been observed in agriculture during the past five decades, 1949-50 to 1999-2000. However, there has not been any spectacular modification in the technology since 1980s, leding to a continuous deceleration in the rates of growth of both production and productivity of most crops in recent years. Because of decline in yield, the economic condition of farmers has deteriorated. On the other side, nonagricultural sector has shown a growth of 6 per cent. This increasing disparity between per capita income of agricultural and non-agricultural sectors is likely to raise social disorder in the farming class.

Yesuf and Kohlin (2008) studied market imperfections and farm technology adoption decisions in highlands of Ethiopia and concluded that most of the other factors that significantly affected either of the technology adoption decisions were reflections of the prevailing factor market and institutional imperfections in the study villages. Households with relatively high subjective discount rates and higher degrees of risk aversion were less likely to adopt soil conservation structures and modern fertilizers, respectively. In an imperfect credit and insurance market environment, variations across households in these two behavioral measures were mainly explained by differences in households' physical and financial endowments. Limited access to the formal credit market was another outcome of factor market imperfection. This variable strongly explained variation in fertilizer adoption decision, but not the soil conservation adoption decision.

Lovo, Stefania (2008) examined the market imperfections of agricultural production in different production regimes households groups (classes) within rural farm households in South Africa. Determined on the basis of the labour regime adopted: small peasants (working both on and off farm), self-cultivators (autarkic in labor) and hiring in households. Membership in the three categories is determined by the endogenous shadow wage and the effective market wages. Market imperfections, which prevent

household from accessing markets, are expected to have different impacts on heterogeneous households; in this study, a Brant test on coefficient constancy helps to identify the household specific factors affecting market participation. In an imperfect market context, asset endowments and liquidity status can affect the labor allocation strategy chosen by the household. Market imperfections are translated into wage differential where transactions costs and the marginal value of liquidity determine the difference between the hiring in and out wage. Access to land has a positive impact on the ability of the household to rely on own activity and become employer of labor. The lack of liquidity induces household members to work off farm and restricts the ability of acquiring farm inputs including hired labour. He suggested that promoting the development of the labor market and improving local infrastructures can help farmers to gain alternative income sources and cope with liquidity shortage.

Prasanna *et al.* (2009) analyzed the relationship between farm productivity and farm structure has been analyzed focusing mainly on one channel of transmission of this relationship, viz. input-use pattern in rice production in different States of India and found that market imperfections aggravate the negative effect of land inequity on productivity. The results of the study have shown that smallholders' share in inputs like fertilizers, and irrigation has increased over time, but a large number of smallholders still do not have access to these resources. The study has demonstrated that policies like fertilizer subsidy, agricultural credit, and minimum support prices are able to address market imperfections only partially. Hence, for improving productivity and profitability of rice production of smallholders in particular and other farmers in general, addressing of structural inequity needs attention besides a focus on technology development.

Dev and Rao (2010) studied the farm profitability of rice and wheat in different States of India and found that the farm profitability of rice improved in AP, HP, Haryana and Punjab during the study period, while it declined for other states. On the other hand, returns for wheat rose for all the states considered in the study. However, all the states viz. AP, Asam. Bihar, Chhattisgarh, Gujarat, HP, Hariyana, Jharkhand, Kerala, Karnatka, MP, Orisa, Punjab, Rajasthan, TN, UP, Uttarakhand and West Bengal. However, all the States cover variable costs (A_2) in rice and wheat with the exceptions being Uttarakhand

for wheat. The situation in Jharkhand is also not remunerative enough to the farming community of wheat. The returns over variable costs for rice are much higher for HP, Punjab, Haryana, Chhattisgarh than other states. The higher profitability for wheat as compared to rice can also be seen in the growth rates of returns at constant prices.

Narayanamoorthy (2013) selected Punjab for studying the profitability of wheat because it is one of the major wheat cultivating States in India. Though, they do not see any uniform trend over the years in terms of profitability of wheat, farmers were able to reap moderate profits in four out of seven time points, when cost C_2 is considered for calculation. The profit over cost C_2 varied from Rs. 5300 to Rs. 5800/ha during 2001-02 and 2006-07. If cost C_3 is used for calculating profit, the loss incurred by the farmers increased to five out of seven times. The extent of profitability is also reduced substantially in the last two time periods. The cost of cultivation has generally increased at relatively faster rate during the 1990s. But, contrary to expectation, profit earned by the farmers from wheat was found to be better under both cost C_2 and cost C_3 conditions during post-1990s. This increased profit from wheat possibly because of the steep increase in MSP announced by the government.

Jack (2013) studied market inefficiencies and the adoption of agricultural technologies in developing countries and found that poor circumstances, created by poorly functioning economic markets in rural areas, lower the profits that a farmer receives from technology adoption. Examples of these market imperfections was found due to lack of formal insurance providers, financial institutions or the ability to buy, sell, own, or reliably hold onto one's land. At the same time, in the absence of any market inefficiencies, unprofitable technologies will, rightly, go un-adopted.

Ogunmefun and Achike (2015) studied farm profitability of selecting informal insurance measures for selected enterprises by rural farmers in Odogbolu local government area of Nigeria and observed that the gross margin of the farmers who cultivated more than one crop, and reared one poultry or small ruminant animal have more income than those who do not. This research work also showed that rural farmers use different informal insurance measures like diversification of crop and livestock enterprises, contract farming, keeping buffer stock, savings, land fragmentation and others to manage risks that they routinely face. Out of the ten

(10) informal insurance measures studied, diversification was the most practiced among the respondents while contract farming is the least used by the respondents. Recommendations include encouraging farmers to adopt the most profitable farming systems and informal insurance measures to help rural people have a stable income.

Takeshima (2016) studied market imperfection for tractor service provision in Nigeria and observed that indivisibility of large tractors and limited mobility of supplies may cause imperfections in the custom tractor hiring market. In order to distinguish the impacts of technology adoption at the extensive margin from those at the intensive margin, in the empirical analyses for the research presented here they tested these hypotheses focusing on the differences among marginal adopters of tractor hiring services and non-adopters with similar characteristics. The results are adoptions patterns of tractor services are partly explained by basic factor endowments, suggesting that the market for custom hiring is in some way functioning efficiently in response to economic conditions.

Thus, it is concluded from the above review that an anything that interferes with market/trade defined as a market imperfection. This affect virtually every transaction in some way, generating costs that interfere with trades that rational individuals make, or would make, in the absence of the imperfection. Market imperfections also generate profit opportunities for entrepreneurs who can reduce or eliminate them. Institutions or individuals who can lower costs tracing to imperfections have a competitive advantage and can earn economic rents until competing firms adapt. Imperfections can and do change over time, but they collectively never go to zero (Gennaro, 2005). There were found a significant market imperfections in labor and land markets and these imperfections affect land profitability. Household male and female labour per unit of land had a significant positive effect on land productivity, showing that the labour market and the rental market for land do not redistribute these resources efficiently. The inefficiency may be reduced through improve the labour market and the rental markets for land.

The technology adoption decisions were significantly affected factor market and institutional imperfections. The households with relatively high subjective discount rates and higher degrees of risk aversion were less likely to adopt soil conservation structures and modern fertilizers, respectively. In an

imperfect credit and insurance market environment, variations across households in these two behavioral measures were mainly explained by differences in households' physical and financial endowments. Limited access to the formal credit market was another outcome of factor market imperfection (Helden *et al.*, 2001). In an imperfect markets context, asset endowments and liquidity status can affect the labor allocation strategy chosen by the household. Land has a positive impact on the ability of the household to rely on own activity and become employer of labour. The lack of liquidity induces household members to work off farm and restricts the ability of acquiring farm inputs including hired labour. Promoting the development of the labor market and improving local infrastructures can help farmers to gain alternative income sources and cope with liquidity shortage (Lovo 2008). Market imperfections aggravate the negative effect of land inequity on productivity. The smallholders' share in inputs like fertilizers, and irrigation has increased over time, but a large number of smallholders still do not have access to these resources. Improving productivity and profitability of crop production of smallholders in particular and other farmers in general, addressing of structural inequity needs attention besides a focus on technology development (Prasanna, 2009). Poor circumstances, created by poorly functioning economic markets in rural areas, lower the profits that a farmer receives from technology adoption. The market imperfection was due to lack of formal insurance providers, financial institutions or the ability to buy, sell, own, or reliably hold on to one's land. In the absence of any market inefficiencies, unprofitable technologies will, rightly, go un-adopted (Jack, 2013). Encouraging farmers to adopt the most profitable farming systems and informal insurance measures to help rural people have a stable income. The market for custom hiring is in some way functioning efficiently in response to economic conditions (Takeshima, 2006). This increased profit from crop products possibly because of the steep increase in MSP announced by the government (Narayanamoorthy, 2013).

1.4 Research and Methodology

The study confined to four major crops (wheat, rice, soybean and chickpea) of Madhya Pradesh (Fig. 1.1). One major district having maximum production in the state related to selected crop has been selected for the study. Therefore, Hoshagabad district for Wheat, Ujjain for soybean, Vidisha for Chickpea and Balaghat for Rice have been selected for the study (Fig. 1.2). A list of the

blocks in these selected districts has been prepared and a block having maximum production of respective selected crops was selected for the study. Therefore, Seonimalwa, Badnagar, Gulabganj, Balaghat blocks have been selected from Hoshangabad, Ujjain, Vidisha and Balaghat districts, respectively in Madhya Pradesh. A list of all the villages in the selected blocks has been prepared and a village near to headquarters and a village far away to headquarters have been selected randomly for the study.

Therefore, Rampura & Gadaria, Paldhuna & Badganwa, Badkhera Gambhir &

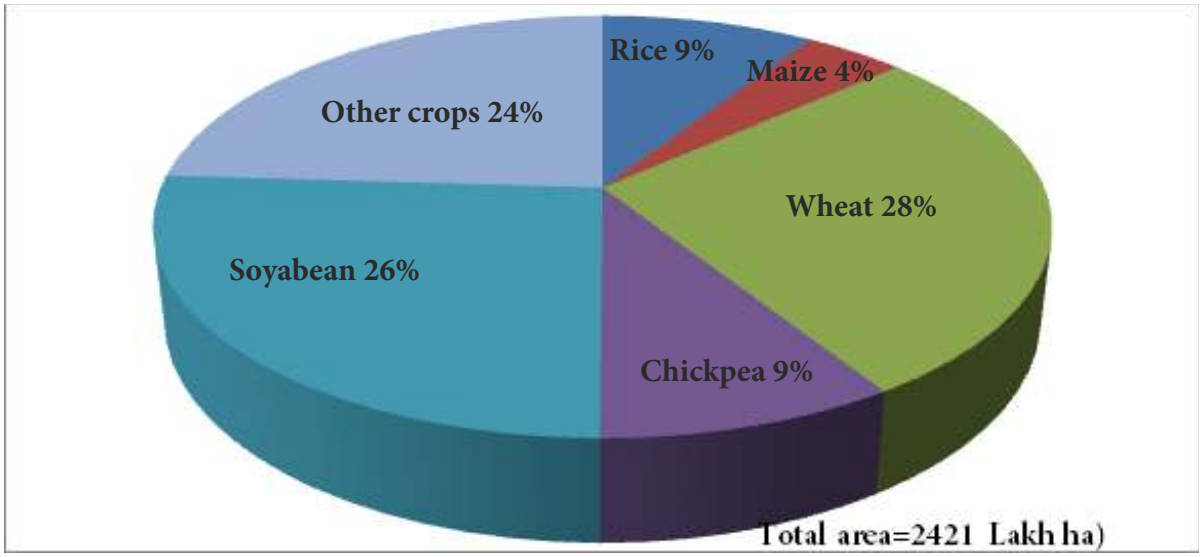

Fig. 1. 1:Area of different crops in Madhya Pradesh

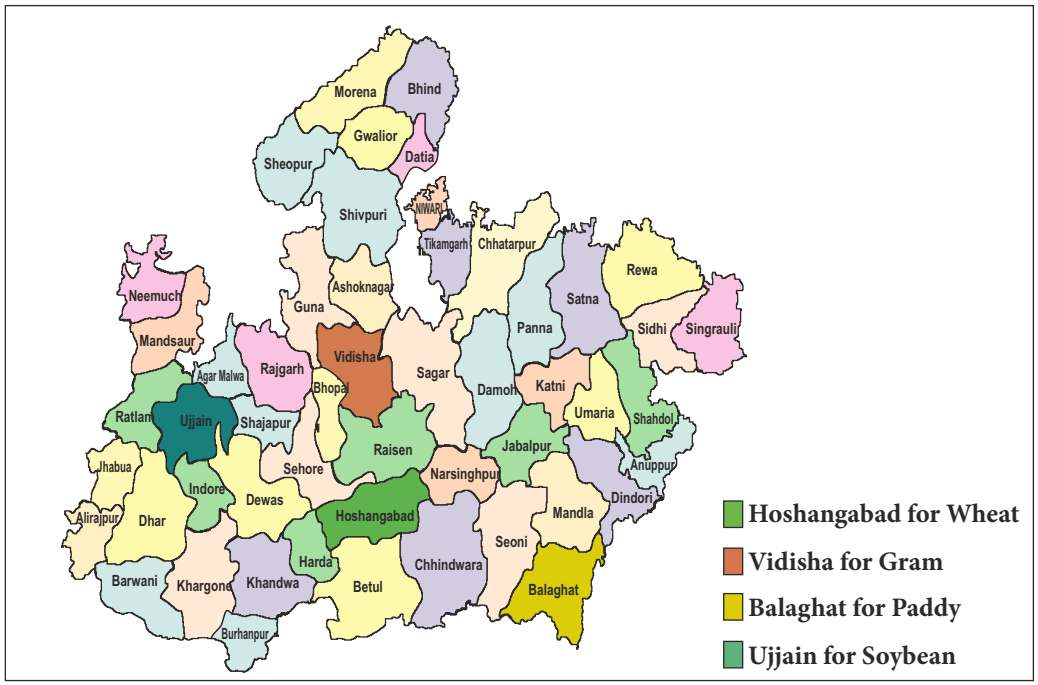

Fig. 1. 2:Selected districts for the study in Madhya Pradesh

Table 1.1:Numbers of respondents selected for the study

S. No.	Name of the Districts	Name of the Blocks	Crop Selected	Name of the Villages	Respondents
1	Hoshangabad	Hoshangabad and Seonimalwa	Wheat	Rampura, Gadaria	100
2	Balaghat	Balaghat	Rice	Bhuttehazari, Merigaon	100
3	Ujjain,	Ujjain and Badnagar	Soybean	Paldhuna, Badganwa	100
4	Vidisha	Vidisha andGulabganj	Chick Pea	Badkhera Kachwa, Badkhera Gambheer	100
Total					**400**

Badkhera Kachwa and Bhuttehazari & Merigaon villages have been selected respectively from Hoshangabad, Ujjain, Vidisha and Balaghat districts of Madhya Pradesh. A list of cultivators from each selected village was prepared and 50 households have been selected randomly from each selected villages for in-depth study. Thus 100 HHs were selected from each selected district of Madhya Pradesh (Table 1.1).

These households were further classified in different land size categories i.e. marginal (<1 hectare), small (1-2 hectares), medium (2.1-4 hectares), large (4.1-10 hectares) and very large (>10 hectares). Therefore, 87, 117, 124,51 and 27 HHs were selected respectively in marginal, small, medium, large and very large land size categories (Table 1.2).

Hence, the study is related to 400 households of four major crops (wheat, rice, soybean and chickpea) producing districts of Madhya Pradesh. The primary data were collected through interview schedule (Appendix-I) provided by the Co-cordinator,

Table 1.2: Selected respondents across size of farm (Numbers)

Particulars	Total
Marginal	87 (21.75)
Small	111 (31.00)
Medium	124 (12.75)
Large	51 (100)
Very Large	27 (6.75)
Overall	**400 (100)**

Figure in parenthesis shows percentage to total

Institute of Economic Growth, New Delhi, which was pre-tested in the condition of Madhya Pradesh before the collection of data. The primary data were related to Agricultural Year 2019-20.

1.5 Limitation of the Study

The study doesn't claim its completeness in all aspects and certainly had some limitations. The data related to the objectives of the study were collected from the selected respondents. The information provided by them is based on interview and they don't keep any record of their farming practices. Therefore, the information provided by them is entirely based on their recall memory thus, there is possibility of certain biasness enter in the study.

1.6 Organization of the Study

The study comprises nine chapters, chapter I include introduction, objectives, review of literature & research methodology. Chapter II deals with Overview of Agriculture in Madhya Pradesh, Crop Production and Input Market have been discussed in detail in chapter III. Animal Products and Input market are presented in Chapter-IV, Labour Market is described in Chapter V, Credit Market is discussed in chapter-VI, Assets Endoments has been discussed in Chapter VII, Problems in Farming, Economic Risk, Copping Strategies and Social Network have been described in chapter–VIII, Summary, Conclusion and Policy Implication have been dealt in chapter IX followed by References.

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CHAPTER - II

OVERVIEW OF AGRICULTURE IN MADHYA PRADESH

This chapter deals with the description of the Madhya Pradesh, overview of sample villages, land use pattern of sample household with their social, occupation and annual income with livestock and machinery endowment.

2.1 Description of Madhya Pradesh

Demographic Features, Working Population, Agro Climatic Zone of Madhya Pradesh, Soil and Climate, Operational Holdings, Land use Pattern, Cropping Pattern, Source wise Irrigated Area, Market Structure in Madhya Pradesh and Storage Facilities of Madhya Pradesh are described in this sub- head.

Table 2.1 : Demographic features of Madhya Pradesh

Particulars	Madhya Pradesh
Geographical Situation	
Latitude	$21^{0}5'$ to $26^{0}88'$N
Longitude	$74^{0}03'$ to $82^{0}90'$ E
Mean sea level (Meter)	1350
Rainfall (mm)	949.1
Area (in sq Km	308252
Population Indicators (% to total population)	
Population (Lakh)	726.3
Male	51.79
Female	48.21
SC	15.62
ST	21.09
Urbanization Population (%)	21.09
Density /km	236
Literacy (%)	69.32
Sex Ratio (per 1000)	931
Total workers (% to Total population)	43.47

Source: Census, 2011

2.1.1 Demographic Features

Madhya Pradesh lies in between latitude $21^{0}50'$ to $26^{0}88'$N and longitude $74^{0}03'$ to $82^{0}90'$E and situated 1350 meters from MSL covering 308252 sq km area with population of 726.30 lakh with a density of 236 person/km and sex ratio of 931 female over 1000 male. The total working population, the total workers population to total population was found to be

Table 2.2 : Location of Madhya Pradesh

S. No.	Particulars	Number
1	Number of Divisions	10
2	Number of Tehsils	412
3	Number of Blocks	313
4	Number of Villages	54903
5	No. of districts	52
6	No. of Gram Panchayat	23043
7	No. of electrified Village	35910
8	Percentage of electrified village to total villages	65.41

43.47 per cent to total population in the state (Table 2 .1).

Madhya Pradesh has 10 commissionaire divisions (Chambal, Gwalior, Bhopal, Ujjain, Indore, Sagar, Rewa, Jabalpur, Hosangabad (Narmadapurum) & Shahdol and divided into 52 districts, 412 Tehsils, 313 blocks and 54,903 villages (Table 2.2) .

2.1.2 Working Population

The total working population out of total population of the state was found to be 43.47 per cent with 53.56 and 32.64 per cent male and female, out of total male and female population, respectively. The majority of the population engaged as agricultural labourers (38.61%) followed by cultivators (31.18%), other workers (27.17%) and workers in household industries (3.04%) The majority of male population was engaged as other worker (33.43%) followed by cultivators (32.71%), agricultural labourers (31.31%) and workers in household industries (2.54%), while, more than half female population were engaged as agricultural labourer followed by cultivators (28.47%), other worker (16.14%) and workers in household industries (3.92%) (Table 2.3).

Table 2.3 : Composition working population in Madhya Pradesh

Particulars	Total Population	Total Workers (Main and Marginal)	Cultivators	Agricultural Labourers	Workers in Household Industry	Other Workers
Total	72626809	31574133 (43.47)	9844439 (31.18)	12192267 (38.61)	959259 (3.04)	8578168 (27.17)
Male	37612306	20146970 (53.56)	6591064 (32.71)	6310657 (31.32)	511048 (2.54)	6734201 (33.43)
Female	35014503	11427163 (32.64)	3253375 (28.47)	5881610 (51.47)	448211 (3.92)	1843967 (16.14)

Source: Census, 2011

2.1.3 Agro Climatic Zone of Madhya Pradesh

The State fall under catchment of Yamuna, Ganga, Narmada, Mahanadi and Godavari rivers. On the basis of board land features and different soil and rain fall pattern, the State classified in 5 physiographic regions and 11 agro-climatic zones (Table 2.4)

1. Northern low lying plains comprising Gwalior, Bhind and Morena districts and extended to Bundelkhand up to the west of Panna range and excludes certain parts of Rewa district between Panna and Kaymore hills of Bundelkhand.
2. The Malwa and Vindhha Plateu comprises of Vidisha, Shivpuri, Datia, Guna,Ujjain and Mandsour districts and parts of Sehore, Raisen and Dewas districts. It consists of large undulating plains of black cotton soil dotted with flat-topped hills. It has hilly Vindhyan Plateau situated in the north of Narmada Valley and to the south

Fig. 2.1 :Map of agro-climatic zones of Madhya Pradesh

of the low-lying regions of Bundelkhand and Baghelkhand. It spared from east to Malwa plateau to Maikal and Dorea hills of satpura range.

3. The Narmada Valley stretching from Jabalpur in the east up to Barwani district in the west. It is nearly 560 km long and 48 Km wide and is walled on the north by the Vindhya Range and on the south by Satpura range. It covers the districts of Jabalpur, Narsinghpur, Hosangabad, Khandwa, Khargone, Barwani, Dhar and some parts of Raisen, Sehore, and Dewas districts.

4. The Satpura range runs from West to East for about 640 km through Khandwa, Betul, Chhindwara, Seoni, Mandla, Bilaspur and Sarguja districts. Its northern spurs go into Hosangabad and Narsighpur districts and in the south an extensive spur of 160 km covers entire Balaghat distrcts.

5. Madhya Pradesh also covers Balaghat and Shahdol districts of Chhattisgarh Plains and Northern Hills of Chhattisgarh zone respectively. The State is bordered on the west by Gujrat, on the North-East by Uttar Pradesh, on the East by Chhattisgarh, and on the South by Maharastra.

Table 2.4 : Districts/Tehsils covered under various agro-climatic regions of Madhya Pradesh

S. No.	Agro-Climatic Regions	Districts/Tehsils	Geographical Area (% to Geographical Area)
1	Malwa Plateau	Indore, Dhar (Dhar, Badnawar, Sardarpur tehsils) Shajapur, Mandsour, Neemuch, Ratlam, Ujjain, Dewas, Rajgarh districts and Petlawad tehsil of Jhabu9a district	51.47 (16.74)
2	Vindhya Plateau	Bhopal, vidisha, Sehore(Sehore, Ashtha, Ichhwar, Narsullaganj tehsils) Raisen (Raisen, Gairatganj, Begamganj, Silwani, Goharganj, Udaipura tehsils), Damoh, Guna(Chachora&Raghogarh tehsils) &Sagar districts	42.59 (13.85)
3	Central Narmada Valley	Hoshangabad (Seoni-Malwa,Hoshangabad,Sohagpur tehsils), Harda, Narsighpur districts, Budhani and Barelli tehsil of Sehore and Raisen districts respectively	17.45 (5.67)
4	Satpura Plateau	Betul, Chhindwara districts	21.93 (7.13)
5	Jhabua Hills	Jhabua, Jobat, Alirajpur tehsils of Jhabua district &kukshi tehsil of Dhar district	6.88 (2.24)
6	Gird Region	Gwalior, Bhind, Morena, Sheopur-kalan, Guna(Mungawali and Ashoknagar tehsils), Shivpuri (Shivpuri, Kalaras, Pohari tehsils)	31.85 (10.36)
7	Kymore Plateau `	Jabalpur, Katni, Rewa, Panna, Satna, Sidhi, Seoni and Gopadbanas&Deosar tehsils of Sidhi district.	31.85 (10.36)
8	Bundelkhand Region	Tikamgarh, Chhatarpur, Datia districts, Karela, Pachore tehsil of Shivpuri and Guna tehsil of Guna district	22.82 (7.42)
9	Nimar Valley	Khandwa, Khargone, Barwani district, Mahawar tehsil of Dhar district and Harda district	25.17 (8.18)
10	Northern Hills of Chhattisgarh	Shahdol, Umariay, Mandla, Dindori district &Singrauli tehsil of Sidhi district	28.17 (9.16)
11.	Chhattisgarh plain	Balaghar district	9.25 (3.00)
Madhya Pradesh			**307.56 (100.00)**

Source: Directorate of Statistics and Economics

2.1.4 Soil and Climate

The main soil types found in Madhya Pradesh are alluvial, deep black, medium black, Shallow black, mixed red and black, mixed red and yellow and skeletal soils. (Table 2.5)

Table 2.5 : Soil types and districts covered in Madhya Pradesh.

Types of Soil	Districts covered
Alluvial Soil	Bhind, Morena and Gwalior
Deep Black Soil	Hoshangabad and Narsinghpur
Medium Black Soil	Jabalpur, Sagar, Vidisha, Sehore, Damoh, Guna, Bhopal, Raisen, Rajgarh, Indore, Dewas, Ujjain, Mandsour, Shajapur, Ratlam, Dhar, Khargone and Khandawa
Shallow Black Soil	Betul, Chhindwara and Seoni
Red & Black Soil	Shivpuri, Rewa, Satna, Panna, Sidhi, Chagttarpur, Tikamgarh, Datia and some parts of Guna district.
Red & Yellow Soil	Balaghat
Gravelly Soil	Mandla

The climate of Madhya Pradesh by virtue of its location is predominately moist sub humid to dry sub humid, semi arid to dry sub-humid and semi arid in East, West and Central plateau and Hills respectively, according to agro-climatic regions of India. The seasons in Madhya Pradesh are given below (Table 2.6)

The annual rainfall received in the State varies from 800 mm. in the Northern and Western regions to 1600 mm in the Eastern districts. In some years rainfall goes much below to the normal. The most of rainfall is received in the Monsoon season from June to September and about 10 per cent of the rainfall is received in the remaining months of the year. The maximum temperature during extreme summer reaches as high as 47^{0}C and the minimum during winter dips up to 2^{0}C. The maximum normal temperature varies between 25^0 to 35^{0}C and minimum normal between 10^0 to 20^{0}C. The relative humidity ranges from 40 to 70 per cent throughout the year.

Table2.6 : Seasons and their periods in Madhya Pradesh

Seasons	Period	
	From	To
Rainy	June	September
Post Monsoon	October	November
Winter	December	February
Summer	March	May

2.1.5 Operational Holdings

The total numbers of holding were found to be 88.72 lakhs with 158.35 lakh hectare area under these holdings in the state (Table 2.7).

Table 2.7 : Number and area of operational holdings

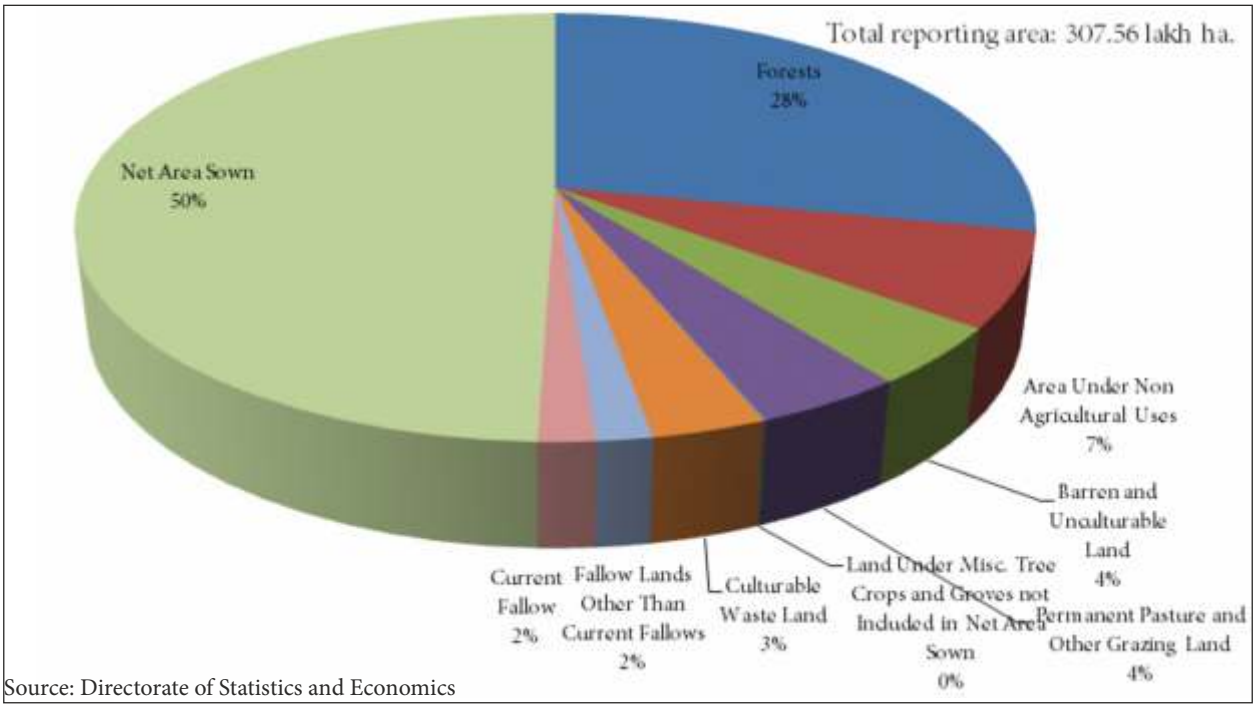
Particulars	Number (000)	Area (in "000" ha.)
Marginal	3891.02 (43.86)	1915.35 (12.10)
Small	2448.65 (27.60)	3466.14 (21.89)
Semi-medium	1654.83 (18.65)	4510.22 (28.48)
Medium	789.14 (8.89)	4544.53 (28.70)
Large	88.73 (1.00)	1399.63 (8.84)
Total	**8872.38 (100)**	**15835.87 (100)**

Source: Agriculture Census, 2011

The maximum number of operational holdings belongs to the marginal (43.86%) followed by small (27.60%), semi medium (18.65%), medium (8.89%) and large (1.00%), the area covered under these holdings was found to be 12.10, 21.89, 28.48, 28.70 and 8.84 per cent, respectively. As the size of holdings increases the number of holdings decreases, showing inverse relationship between number and area operated under different size of holdings.

2.1.6 Land use Pattern

The Madhya Pradesh state has 307.56 lakh ha of geographical area. out of which almost 50 per cent was found to be under cultivation. Amongst other parameter of land the area under forest contributed around 28 per cent followed by area under non-agricultural uses (7%), barren and unculturable land (4%), permanent pasture and other grazing land (4%), culturable waste land (3%), fallow lands other than current fallows (2%), current fallows (2%) (Fig. 2.2)

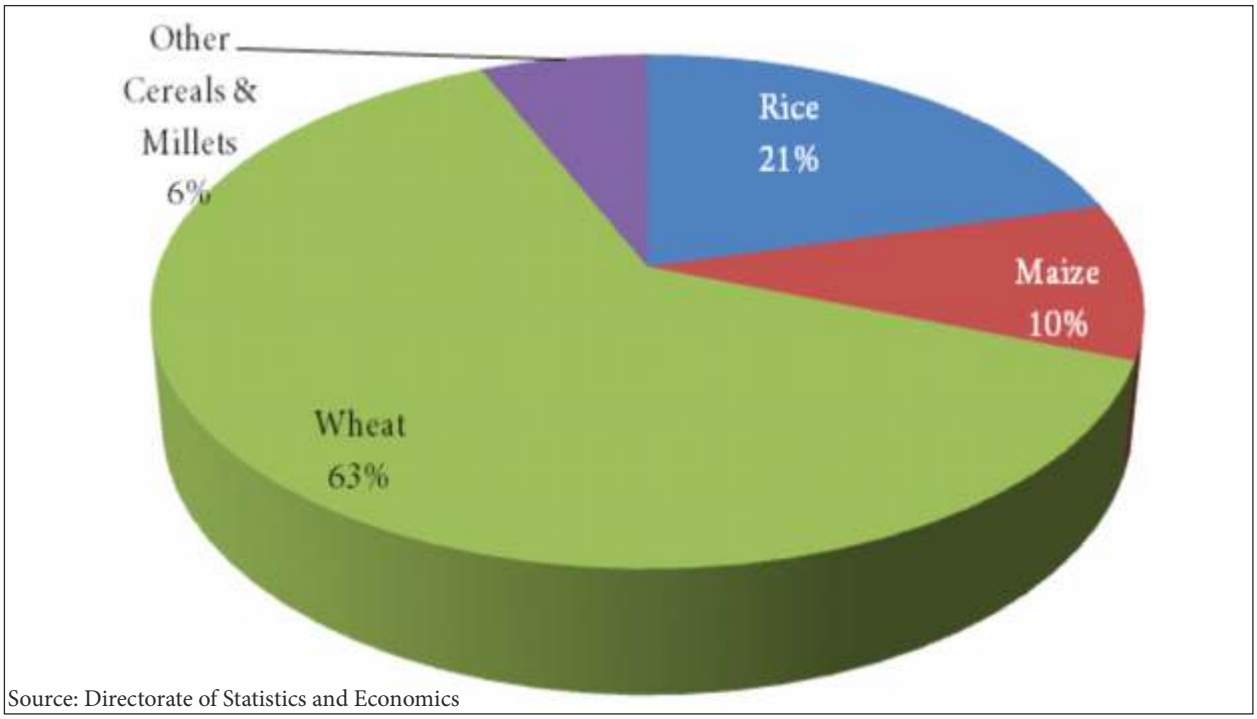


Source: Directorate of Statistics and Economics

Fig. 2.2 :Share of different parameters of land use pattern in MP

2.1.7 Cropping Pattern

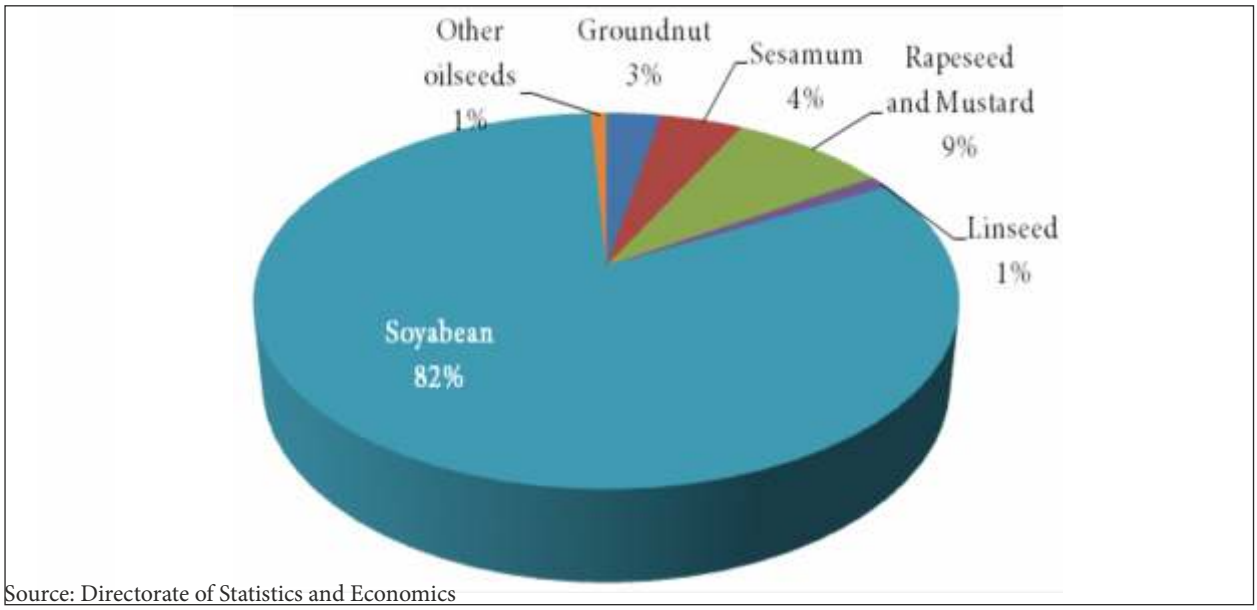
The gross cropped area of Madhya Pradesh was found to be 242.14 lakh hectares dominated by cereals and millets, which occupied 42.17 per cent gross cropped area followed by oilseeds (30.40%), pulses (19.49%), other non food crops (0.02%) total fruits and vegetables (1.89%), total species (1.85%) and sugarcane (0.50%). Amongst different cereals wheat (62.77%) occupied maximum area followed by rice (20.92%), maize (9.86%) and other cereals (6.46%) (Fig2.3). In case of



Source: Directorate of Statistics and Economics

Fig. 2.3 :Percentage area occupied under different cereals to total cereals in MP

oilseeds soybean (81.99%) occupied maximum area followed by mustard (8.53%), sesame(4.52%), ground nut(3%), linseed(1.10%) and other oilseed (0.86%) (Fig 2.4). In case of pulses, chickpea (45%) occupied maximum area followed by arhar (10%) and other pulses including moong, urd, etc. (45%) in Madhya Pradesh. The area sown more than once was found to be 37.11 per cent to gross cropped area with cropping intensity of 159 percent (Fig 2.5).



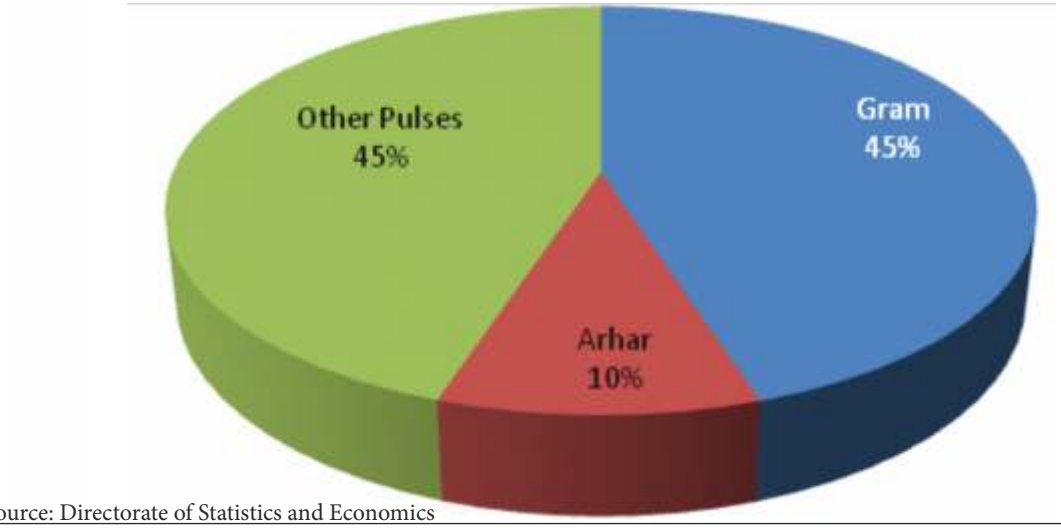
Source: Directorate of Statistics and Economics

Fig. 2.4 :Percentage area occupied under different oilseeds to total oilseeds in MP

Table 2.8 : Cropping pattern of Madhya Pradesh (ha.) 2016-17

Particulars	Madhya Pradesh
Rice	2136116 (20.92)
Maize	1006499 (9.86)
Wheat	6409504 (62.77)
Other Cereals & Millets	659704 (6.46)
Total Cereals and Millets	10211823 (42.17)
Gram	2126766 (45.06)
Arhar	473540 (10.03)
Other Pulses	2119672 (44.91)
Total Pulses	**4719978 (19.49)**
Total Food Grains	**14931801 (61.67)**
Sugarcane	120052 (0.50)
Total Condiments and Spices	**447626 (1.85)**
Total Fruits and Vegetable	**457673 (1.89)**
Total Food Crop	15957306 (65.90)
Groundnut	220897 (3.00)
Sesamum	332390 (4.52)
Rapeseed and Mustard	627918 (8.53)
Linseed	81267 (1.10)
Soybean	6035486 (81.99)
Other oilseeds	63422 (0.86)
Total Oilseeds	**7361380 (30.40)**
Other Non Food Crops	4884 (0.02)
Gross Cropped Area (GCA)	24214048 (100.00)
Area Sown More Than Once	8986044
Net Area Sown	15228004
Cropping Intensity (%)	159

Source: Directorate of Statistics and Economics



Source: Directorate of Statistics and Economics

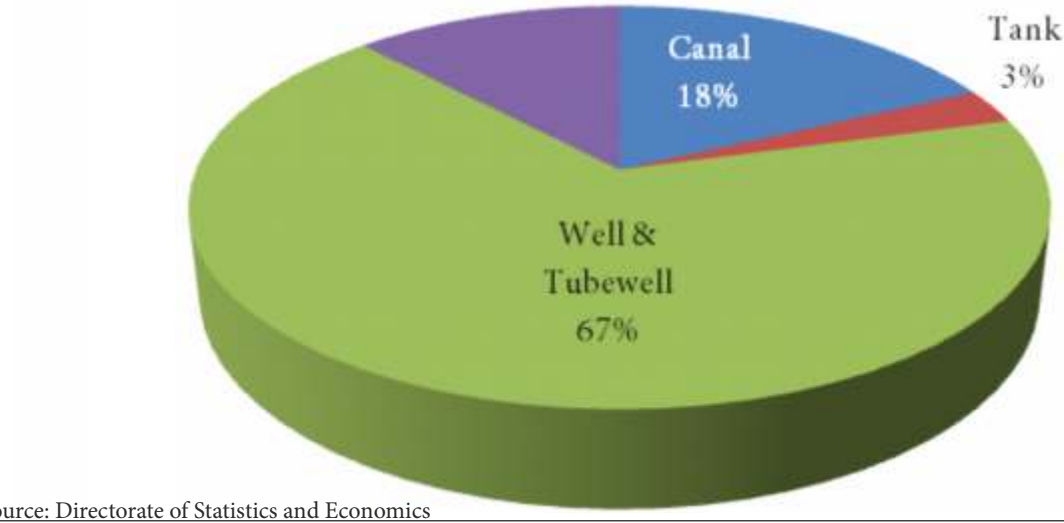
Fig. 2.5 :Percentage area occupied under different pulses to total pulses in MP

2.1.8 Source Wise Irrigated Area

The 44.07 per cent area out of Gross Cropped Area (242.14 lakh ha.) was found to be irrigated in the State (Fig. 2.6). The major source of irrigation was found to be well/tube well (67%) followed by canal (18%), other source (12%) and tank (3%).

2.1.9 Market Structure in Madhya Pradesh

In Madhya Pradesh regulatory framework for agricultural marketing is unique and consists of two distinct set of measures. One of these is development and regulation of primary markets, popularly called "Regulated Markets" and the second set is the regulation of market through a series of legal instruments. Regulation of primary markets was taken up as an institutional innovation and construction of well laid-out market yard was considered as an essential requirement of effective implementation of the regulation programme.



Source: Directorate of Statistics and Economics

Fig. 2.6 :Percentage irrigated area to gross irrigated areaby different sources in MP

As the programme was a developmental-cum legal measure, it took considerable time to extend it to a wider scale. Berar Cotton and Grain Market Law, 1897 was the first law which provided the basis for the regulation of markets all over the country. Till 1950 there was not any regulated market in the State. The then Government of Madhya Bharat passed the Madhya Bharat Agricultural Produce Market's Act in 1952, this was modeled mostly on the lines of Bombay Act. With the reorganization of the State in 1956, more than one act were operative simultaneously in different regions of the State. The programme got momentum after passing of the Madhya Pradesh Agricultural Markets Act, 1960 which came in force from 15th October, 1960.Further in accordance with the recommendations of the National Agriculture Commission, the M.P. State Agricultural Marketing Board i.e. MPSAMB (also known as Mandi Board) came into existence from 1973 under the provisions of M.P. Krishi Upaj Mandi Adhiniyam 1972. It is a three tier organization of which the first tier consists of regulated markets. These are the physical and institutional infrastructure at the first contact point for farmers to encash their farm marketable surpluses. Presently 557 regulated markets are there in the State, out of which 259 are wholesale markets having elaborate infrastructure also known as Krishi Upaj Mandi and remaining 298 with low level of infrastructure known as Sub Mandi (Table 2.9).

In addition to these there are haat bazars in the rural areas where farmers and other people congregate periodically to sell their farm

Table 2.9 : Numbers of mandies and sub-mandies in Madhya Pradesh

Name of Division	No of Districts	Number of Agricultural Produce Market				Total - Mandi	Total Sub-Mandi
		A	B	C	D		
Bhopal	5	6	9	6	14	35	48
Narmadapuram	3	6	2	2	4	14	9
Indore	8	6	8	8	12	34	62
Ujjain	7	10	5	8	19	42	50
Gwalior	5	3	5	9	12	29	27
Chambal	3	0	1	2	13	16	12
Sagar	5	3	4	10	19	36	21
Jabalpur	8	4	7	7	17	35	47
Rewa	7	1	1	4	12	18	22
Total	51	39	42	56	122	259	298

"A" Category= Income > Rs.3 crore 50 lakhs per annum, "B" Category= Income > Rs 2 crores and up to 3 crores 50 lakhs per annum,
"C" Category= Income > Rs 1 crore and up to 2 crore per annum and "D"category= Upto Rs.1 crore per annum

Source : MP Mandi board, Bhopal

marketable surpluses and buy their essential requirements. The needed physical infrastructure was found to be lacking in these *haats* the Krishi Upaj Mandi have administrative control over there sub-mandies in their respective areas. The second tier of the MPSAMB structural channel is the Regional office, which have their demarcated area of operation and the Mandies situated in the area of operation are affiliated to the Division office for administrative control. There are 7 Divisional Offices in the State individually having minimum 18 to maximum of 49 Mandi Committees under its jurisdiction. At the State level the said two tiers are amalgamated with MPSAMB i.e. Mandi Board which has its office at the state capital i.e. Bhopal. The State has the distinction of eliminating middlemen from the process of agricultural marketing, adopting the Citizen charter to ensure right of information to the public and installing the democratically elected governing bodies in the Mandi committees. The aim of agricultural marketing societies is to ensure fair price and to protect the interest of farmers who are left behind in the competitive marketing scenario and the mission of achieving this by enforcing the existing act and rules most effectively and also by devising and implementing new technologies aimed at reducing pre and post-harvest losses through appropriate methods and encourage value addition.

Rules based on the prescribed standards under the sub-section (1) of section 25 of Madhya Pradesh Agricultural Produce Market Act 1962 (Serial number 24 years 1963) and

Table 2.10 :Arrival of production in regulated market of Madhya Pradesh (2018)

Particulars	Arrival (lakh t)	Production (lakh t)	% of production
Wheat	106.69	159.1	67.06
Paddy	9.92	41.2	24.07
Maize	9.02	35.4	25.49
Jowar	0.11	5.7	1.93
Gram	7.26	46	15.78
Tur	2.87	8.4	34.19
Lentil	2.70	6.8	39.75
Moong & urd	5.44	6.9	79.05
Pea	2.88	3.2	89.58
Soybean	19.71	53.2	37.05
Groundnut	0.16	3.5	4.54
Linseed	0.22	0.55	40.87
Sesame	0.34	1.97	17.07
Mustard	1.48	9.8	15.09

Source: http://mpmandiboard.gov.in/mandi/agriinfoyearE.asp,Agriculture statistics at a glance 2018, mpkrishi.org

Rule (3) of the Co-ordinate Madhya Pradesh Agricultural Produce Market (Mandi Committee Classification) Rules, 1961 (2) According to the provisions of clauses (b), (c) and (d), there is a provision to classify the agricultural produce market committees of the state on the basis of their annual income (last 3 financial years).

In these regulated markets arrival of more than 50 per cent production was found to be observed in case of field pea (89.58%), moong & urd (79.05%) and wheat (67.05%), while it was found to be less than 50 per cent in case of linseed (40.87%), lentil (39.75%), soybean (37.05%), tur (34.19%), maize (24.19%), paddy (24.07%) and remaining crops ranged between Jowar (1.93%)to sesame (17.07%)production was arrived (Table 2.10).

2.1.10 Storage Facilities

Warehouses are scientific storage structure specially constructed for the protection of the quantity and quality of stored products. Warehouses meet the financial needs of the person who stores the product. Nationalized banks advance credit on the security of the warehouse receipt issued for the stored products to the extent of 75 to 80 percent of their value. Because of this farmer can hold their produce for good price.

Madhya Pradesh Warehousing and Logistics Corporation is running 234 branches of warehouses in MP for the scientific storage of agriculture and minor forest produce, seeds, fertilizers, agricultural implements and notified commodities offered by individuals, co-operative societies and other institutions. MPWLC was started with 6 branches with 11000 tons capacity and has grown manifold with the present storage capacity (own) of 27.57 lakhs (upto September 2019-20) metric tons. The Corporation is a founder member of National Association of Warehousing Corporations.

2.1.11 e-NAM

National Agriculture Market is an online trading platform for agricultural commodities in India. The market facilitates farmers, traders and buyers with online trading in commodities. The market is helping in better price discovery and provides facilities for smooth marketing of their produce.

On the e-NAM platform, farmers can opt to trade directly on their own through the mobile app or through registered commission agents. Their are 77 Agriculture produce market committee (APMC) providing e-NAM Platform markets in Madhya Pradesh to provide better grading and assaying services, the Agriculture Department is looking at looping in AGMARK for better certification (Table 2.11).

Apart from this various schemes and their effective implementation for increasing

Table 2.11 : No. of mandies which are doing online trading under e-NAM in Madhya Pradesh

S. No.	Name of District	Name of Madies	Total No of Madies
1.	Balaghat	Balaghat	1
2	Barwani	Krishi Upaj Mandi Samiti -Ajand , Sendhwa	2
3	Bhopal	Berasia, Karond	2
4	Burhanpur	Burhanpur	1
5	Chhatarpur	Chhatarpur	1
6	Chindwara	Chindwara, Krishi Upaj Mandi Samiti -Pnadhurna, Krishi Upaj Mandi Samiti-Saunsar	3
7	Damoh	Damoh	1
8	Dewas	Dewas, Khategaon	2
9	Dhar	Dhar, Krishi Upaj Mandi Samiti -Dhamnod, Krishi Upaj Mandi Samiti-Gandhawani, Krishi Upaj Mandi Samiti -Kukshi	4
10	Guna	Guna, Krishi Upaj Mandi Samiti -Kumbhraj	2
11	Gwalior	Ashok nagar, Dabra, Datia, Krishi Upaj Mandi Samiti -Lashkar, Krishi Upaj Mandi Samiti-Shivpuri	5
12	Harda	Harda, Khirkiya, Timarni	3
13	Hoshangabad	Itarasi, Krishi Upaj Mandi Samiti -Banapura, Pipariya	3
14	Indore	Indore, Mhow, Sanwer	3
15	Jabalpur	Jabalpur, Sehora, Sahpura -Bhitoni	3
16	Katni	Katni	1
17	Khandwa	Khanwada	1
18	Khargone	`Khargone, Krishi Upaj Mandi Samiti -Badwaha, Krishi Upaj Mandi Samiti-Bhikagaon, Krishi Upaj Mandi Samiti -Karhi, Krishi Upaj Mandi Samiti-Sanawad	5
19	`Mandla	Mandla	1
20	Mandsour	Mandsour	1
21	Morena	Morena	1
22	Narsinghpur	Gadawara, Krishi Upaj Mandi Samiti -Kareli	2
23	Neemach	Neemach	1
24	Raisen	Bareli, Krishi Upaj Mandi Samiti -Raisen, Krishi Upaj Mandi Samiti -Uadipura, Obaidullaganj	4
25	Rajgarh	Biaora	1
26	Ratlam	Jaora,Ratlam	2
27	Rewa	Rewa	1
28	Sagar	Bina, Krishi Upaj Mandi Samiti -Khurai, Sagar	3
29	Satna	Krishi Upaj Mandi Samiti -Nagod, Satna	2
30	Sehore	Astha, Krishi Upaj Mandi Samiti -Nasrullaganj, Sehore	3
31	Seoni	Seoni	1
32	Shajapur	Agar, Shajapur	2
33	Seopur	Seopur Kalan	1
34	Shivpuri	Krishi Upaj Mandi Samiti -Kolaras	1
35	Singrauli	Krishi Upaj Mandi Samiti -Singrauli	1
36	Tikarmgarh	Tikamgarh	1
37	Ujjain	Badnagar, Mahidpur, Ujjain	3
38	Vidisha	Ganj Basoda, Vidisha	2
Total			**77**

Source: https://enam.gov.in/web/mandis-online

production and procurement of farm products by the Government of Madhya Pradesh (Appendix-1). Along with this Government of Madhya Pradesh also provided handsome bonus over and above the MSP to the farmers for procurement of food grains. Kisan Samriddhi Yojana (Rs. 4,000/farmer/year) was also introduced by the State Government over and above the Kisan Samman Nidhi (Rs. 6000/ farmer/year) to support the farmers for enhancing production. With the result of timely interventions of all the above schemes State could win prestigious Krishi Karman Award under various categories consecutively for the last 6 years (Appendix-2).

2.2 Overview of Sample Respondents

The overview of sample respondents, their land use pattern, social groups, occupation and annual income with livestock and machinery endowment deals in this sub head.

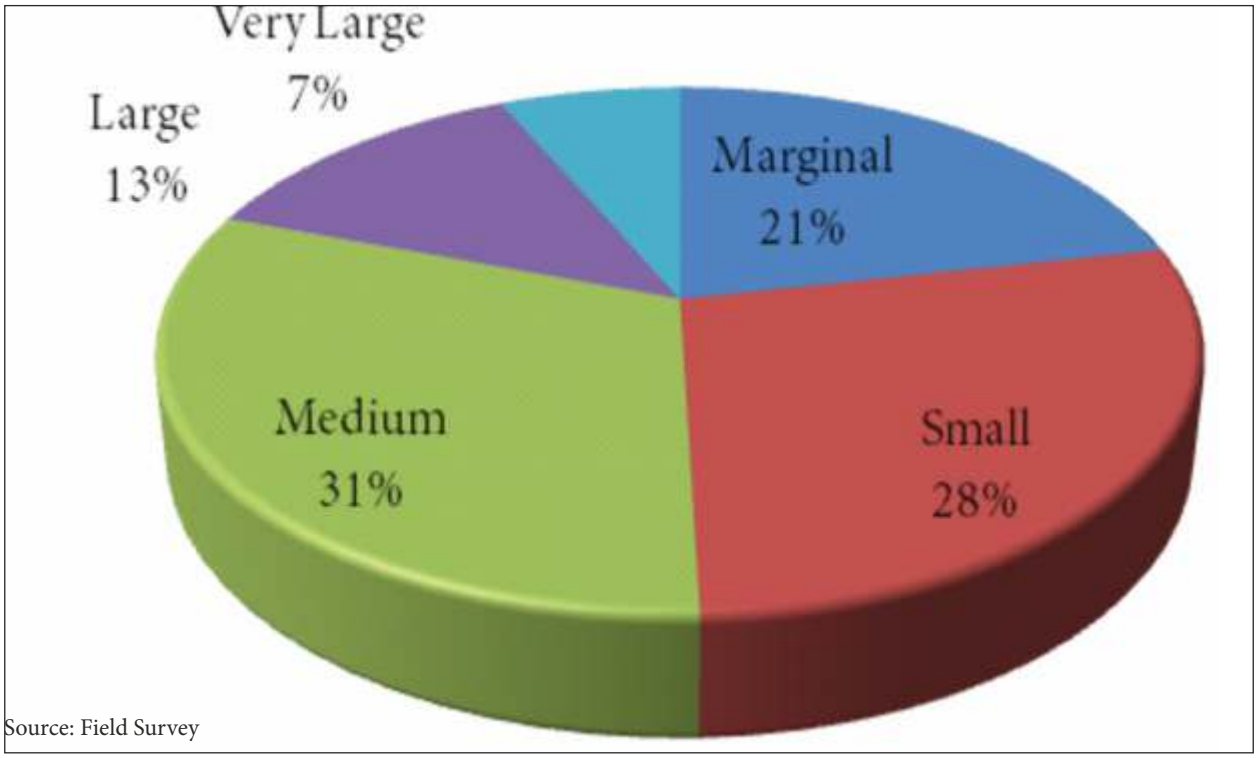
Table 2.12 :Distribution of households by social group across size of farm (Numbers)

Particulars	Gen	OBC	SC	ST	Total
Marginal	8 (9.2)	64 (73.56)	10 (11.49)	5 (5.75)	87 (100)
Small	4 (3.6)	83 (74.77)	14 (12.61)	10 (9.01)	111 (100)
Medium	13 (10.48)	99 (79.84)	10 (8.06)	2 (1.61)	124 (100)
Large	6 (11.76)	43 (84.31)	2 (3.92)	0 (0)	51 (100)
Very Large	2 (7.41)	24 (88.89)	1 (3.7)	0 (0)	27 (100)
Overall	**33 (8.25)**	**313 (78.25)**	**37 (9.25)**	**17 (4.25)**	**400 (100)**

Figure in parenthesis shows percentage to total

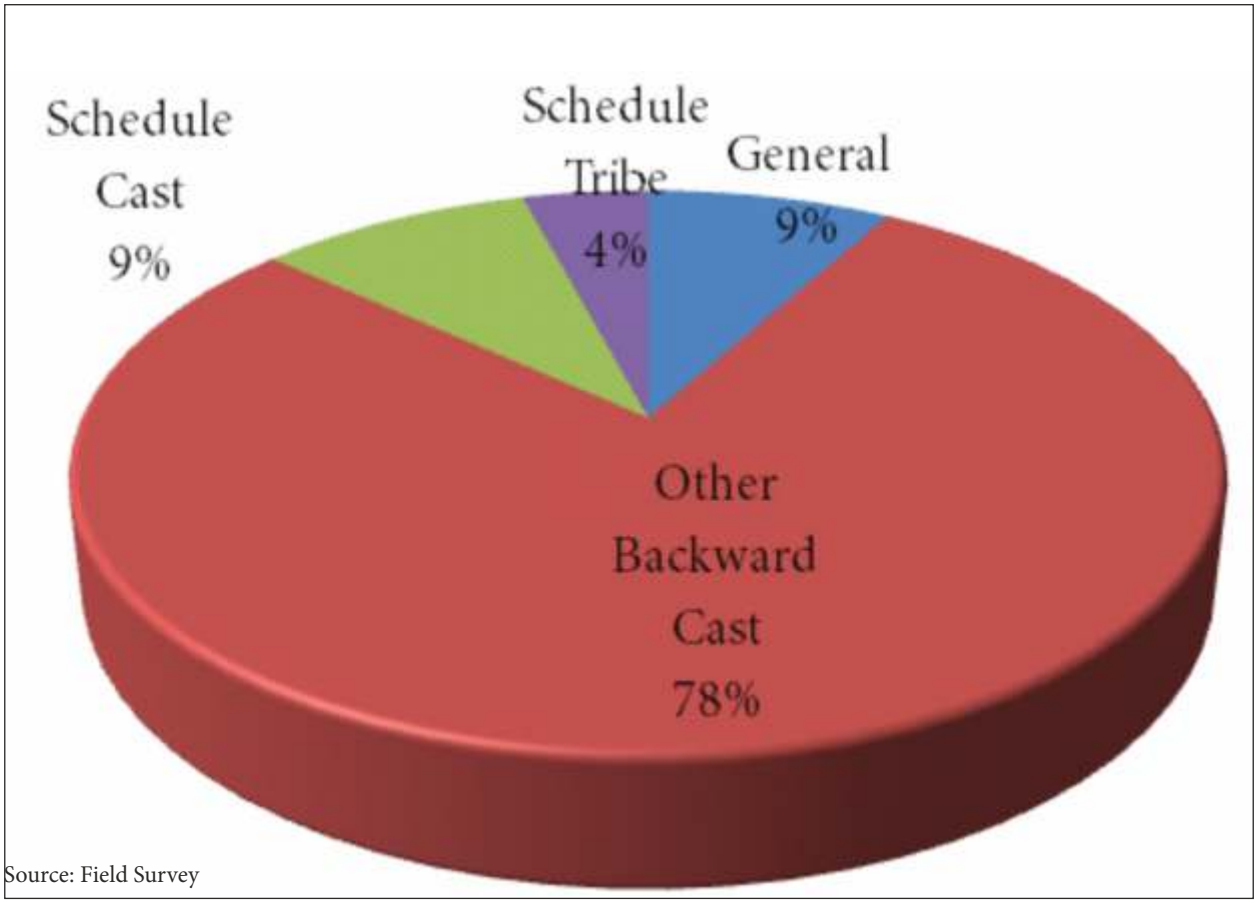
2.2.1 Distribution of Households

The selected households have been classified according to their size of holdings. Out of total HHs (400), the maximum HHs were found to be of medium (31%) followed by small (28%), marginal (21%), large (13%) and very large (7%) size of holdings (Fig. 2.7). Out of total HHs the majority of them belongs to OBC (78.25%) followed by scheduled cast (9.25%), General (8.25%) and scheduled tribe (4.25%) in the area under study (Fig. 2.8). The percentages of these were found to be similar in different size of farms with little variations. Although none of HHs related to SC, ST categories found in large and very large size of farms.



Source: Field Survey

Fig. 2.7 :Distribution of households across size of farms



Source: Field Survey

Fig. 2.8 :Distribution of households by social group

2.2.2 Occupation of Sample Households

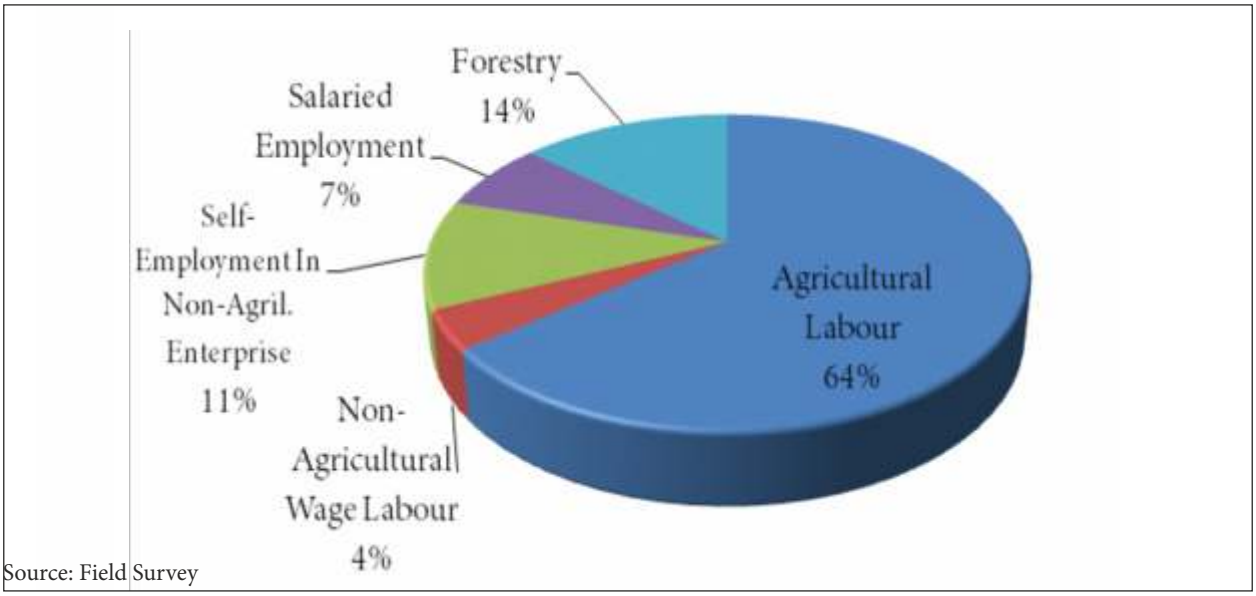
Cent per cent of selected HHs of all the categories were found to be primarily depends on agriculture for their livelihood. Out of the total HHs, 31.5 per cent were found to be engaged in secondary occupation (Table 2.13).

Agricultural labour (64.29%) followed by forestry (13.49%), self-employment (11.11%), salaried (7.14%) and non-agricultural wage labour (3.97%) were found to be major sources of income in secondary occupations in the area under study (Fig. 2.9). These findings were found to be similar across size of farms. Although 9, 4, 2 medium, very large and large farmers were found to be engaged themselves in forestry as a secondary occupation.

Table 2.13 : Distribution of households occupation across landholding categories

Particulars	Primary Occupation	Secondary Occupation					
	Cultivators	Agril. labour	Non-Agril. wage labour	Self-employment in Non-Agril. Entp.	Salaried Employment	Forestry	Total
Marginal	87.00	27 (72.97)	0 (0)	8 (21.62)	1 (2.7)	1 (2.7)	37 (100)
Small	111.00	34 (75.56)	2 (4.44)	6 (13.33)	2 (4.44)	1 (2.22)	45 (100)
Medium	124.00	20 (54.05)	3 (8.11)	0 (0)	5 (13.51)	9 (24.32)	37 (100)
Large	51.00	0 (0)	0 (0)	0 (0)	0 (0)	4 (100)	4 (100)
Very Large	27.00	0 (0)	0 (0)	0 (0)	1 (33.33)	2 (66.67)	3 (100)
Overall	400.00	81 (64.29)	5 (3.97)	14 (11.11)	9 (7.14)	17 (13.49)	126 (100)

Figure in parenthesis shows percentage to total, Source: Field Survey



Source: Field Survey

Fig. 2.9 :Major secondary occupation of sample HHs

2.2.3 Average Size of Landholding

The average size of operational holdings in different size of farms was found to be 5.62 ha. The average net operated area of marginal, small, medium, large and very large size of farms were found to be 0.72, 1.46, 2.83, 5.76 and 17.34 ha, respectively in the area under study. Out of total net operated area 96.26 per cent (5.41ha.) was found under irrigation. Irrigated area to net operated area was found to be similar across size of holdings with little variation i.e. marginal (97.23), small (95.20), medium (97.88), large (95.14), and very large (96.37) size of farms (Table 2.14).

Table 2.14 :Average size of landholding (in hectares)

Particulars	Total landholding	Leased-in	Leased-out land	NOA	Irrigated land	Un-irrigated land
Marginal	0.64	0.08	0.00	0.72	0.70 (97.23)	0.02
Small	1.39	0.07	0.00	1.46	1.39 (95.20)	0.07
Medium	2.68	0.15	0.00	2.83	2.77 (97.88)	0.06
Large	5.41	0.34	0.00	5.76	5.48 (95.14)	0.27
Very Large	17.22	0.12	0.00	17.34	16.71 (96.37)	0.63
Total	**5.47**	**0.15**	**0.00**	**5.62**	**5.41 (96.26)**	**0.21**

Figure in parenthesis shows percentage to Net operated area, Source: Field Survey

2.2.4 Distribution of Animals

At overall level, out of total sample HHs the majority of them have milch cows (46.5%), followed by milch buffaloes (34.25%) bullocks (12.25%) and goats (5.5%) in the area under study (Table 2.15).

All these finding were found to be similar across size of farms, although, very large sample HHs have more number of milch buffaloes (66.67%) as compared to milch cows (51.85%). Only 1 HH related to small farms was found to rear poultry birds in his farm (Table 2.15)

Table 2.15 :Distribution of animals across size of landholding

Particulars	Milch Cows	Milch Buffaloes	Bullocks	Goats	Sheep	Poultry	No of HHs
Marginal	39 (44.83)	20 (22.99)	13 (14.94)	6 (6.9)	0 (0)	0 (0)	87 (100)
Small	59 (53.15)	35 (31.53)	16 (14.41)	9 (8.11)	0 (0)	1 (0.9)	111 (100)
Medium	50 (40.32)	43 (34.68)	16 (12.9)	7 (5.65)	0 (0)	0 (0)	124 (100)
Large	24 (47.06)	21 (41.18)	3 (5.88)	0 (0)	0 (0)	0 (0)	51 (100)
Very Large	14 (51.85)	18 (66.67)	1 (3.7)	0 (0)	0 (0)	0 (0)	27 (100)
Overall	**186 (46.5)**	**137 (34.25)**	**49 (12.25)**	**22 (5.5)**	**0 (0)**	**1 (0.25)**	**400 (100)**

Figure in parenthesis shows percentage to no. of HHs, Source: Field Survey

2.2.5 Fixed Capital (Machinery)

The distribution of farm machinery across size of farms was also classified and presented in table 2.16. It is observed from the data that the majority of HHs have electric pumps (81.25%) followed by tube–wells (41.5%), diesel pumps (39.25%), tractors (23.75%), well (21.75%), thresher (17%), bullock cart (12%) and combine harvesters (0.75%).

The data reveals that as the size of farm increases the tube wells, wells, electric pumps, diesel pumps, tractors, thresher and combine harvesters were also found to be increased, while total bullock carts were found to be decreased in relative terms in the area under study.

Table 2.16 : Distribution of HHs by farm machinery possession across the size of farms

Particulars	Tube-wells	Bore-well	Electric Pump	Diesel Pump	Bullock Cart	Tractor/ trolly	Thresher	Combine Harvester	Others	No of HHs
Marginal	27 (31.03)	9 (10.34)	64 (73.56)	36 (41.38)	11 (12.64)	3 (3.45)	3 (3.45)	0 (0)	25 (28.74)	87 (100)
Small	39 (35.14)	25 (22.52)	86 (77.48)	34 (30.63)	21 (18.92)	14 (12.61)	9 (8.11)	1 (0.9)	50 (45.05)	111 (100)
Medium	52 (41.94)	21 (16.94)	97 (78.23)	48 (38.71)	12 (9.68)	24 (19.35)	17 (13.71)	0 (0)	56 (45.16)	124 (100)
Large	25 (49.02)	21 (41.18)	51 (100)	25 (49.02)	4 (7.84)	30 (58.82)	19 (37.25)	1 (1.96)	25 (49.02)	51 (100)
Very Large	23 (85.19)	11 (40.74)	27 (100)	14 (51.85)	0 (0)	24 (88.89)	20 (74.07)	1 (3.7)	22 (81.48)	27 (100)
Overall	166 (41.5)	87 (21.75)	325 (81.25)	157 (39.25)	48 (12)	95 (23.75)	68 (17)	3 (0.75)	178 (44.5)	400 (100)

Figure in parenthesis shows percentage to no. of HHs, Source: Field Survey

2.3 Summary of the Chapter

In Madhya Pradesh regulatory framework for agricultural marketing is unique and consists of two distinct set of measures. One of these is development and regulation of primary markets, popularly called "Regulated Markets" and the second set is the regulation of market through a series of legal instruments. Regulation of primary markets was taken up as an institutional innovation and construction of well laid-out market yard was considered as an essential requirement of effective implementation of the regulation programme. With the recommendations of the National Agriculture Commission, the M.P. State Agricultural Marketing Board i.e. MPSAMB (also known as Mandi Board) came into existence from 1973 under the provisions of M.P. Krishi Upaj Mandi Adhiniyam 1972. It is a three tier organization of which the first tier consists of regulated markets. These are the

physical and institutional infrastructure at the first contact point for farmers to encash their farm marketable surpluses. Presently 557 regulated markets are there in the State, out of which 259 are wholesale markets having elaborate infrastructure also known as Krishi Upaj Mandi and remaining 298 with low level of infrastructure known as Sub Mandi. In these regulated markets arrival of more than 50 per cent production was found to be observed in case of field pea (89.58%), moong & urd (79.05%) and wheat (67.05%), while it was found to be less than 50 per cent in case of linseed (40.87%), lentil (39.75%), soybean (37.05%), tur (34.19%), maize (24.19%), paddy (24.07%) and remaining crops ranged between Jowar (1.93%)to sesame (17.07%)production was arrived (2019). Their are 77 Agriculture produce market committee (APMC) providing e-NAM Platform markets in Madhya Pradesh to provide better grading and assaying services.

Madhya Pradesh Warehousing and Logistics Corporation is running 234 branches of warehouses in MP for the scientific storage of agriculture and minor forest produce, seeds, fertilizers, agricultural implements and notified commodities offered by individuals, co-operative societies and other institutions. MPWLC was started with 6 branches with 11000 tons capacity and has grown manifold with the present storage capacity (own) of 27.57 lakhs (upto September 2019-20) metric tons.

The study comprises of 400 HHs of different crops, out of which, the maximum HHs were found to be of medium (31%) followed by small (28%), marginal (21%), large (13%) and very large (7%) size of holdings. The cent per cent of selected HHs of all the categories were found to be primarily depends on agriculture for their livelihood. Out of the total HHs, 31.5 per cent were found to be engaged in secondary occupation. The majority of them have milch cows (46.5%), followed by milch buffaloes (34.25%) bullocks (12.25%) and goats (5.5%) in the area under study and very large sample HHs have more number of milch buffaloes (66.67%) as compared to milch cows (51.85%). The majority of HHs have electric pumps (81.25%) followed by tube–wells (41.5%), diesel pumps (39.25%), tractors (23.75%), well (21.75%), thresher (17%), bullock cart (12%) and combine harvesters. As the size of farm increases the tube wells, wells, electric pumps, diesel pumps, tractors, thresher

and combine harvesters were also found to be increased, while total bullock carts were found to be decreased in relative terms in the area under study.

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CHAPTER - III

CROP PRODUCTION AND INPUT MARKET

Agricultural inputs and related services are the basic requirements for agricultural sector. Agribusiness is expected to be booming sector in the next decades. Agribusiness sector consists of businesses that supply farm inputs such as seeds, fertilizers, pesticides, farm machineries etc. as well as sales and distribution of farm products and related services. An efficient delivery system of agricultural inputs and services can play a pivotal role in the agricultural productivity. This chapter deals with cropping pattern, annual HH income, output & input market of major crop products.

3.1 Allocation of Area to different farm Products

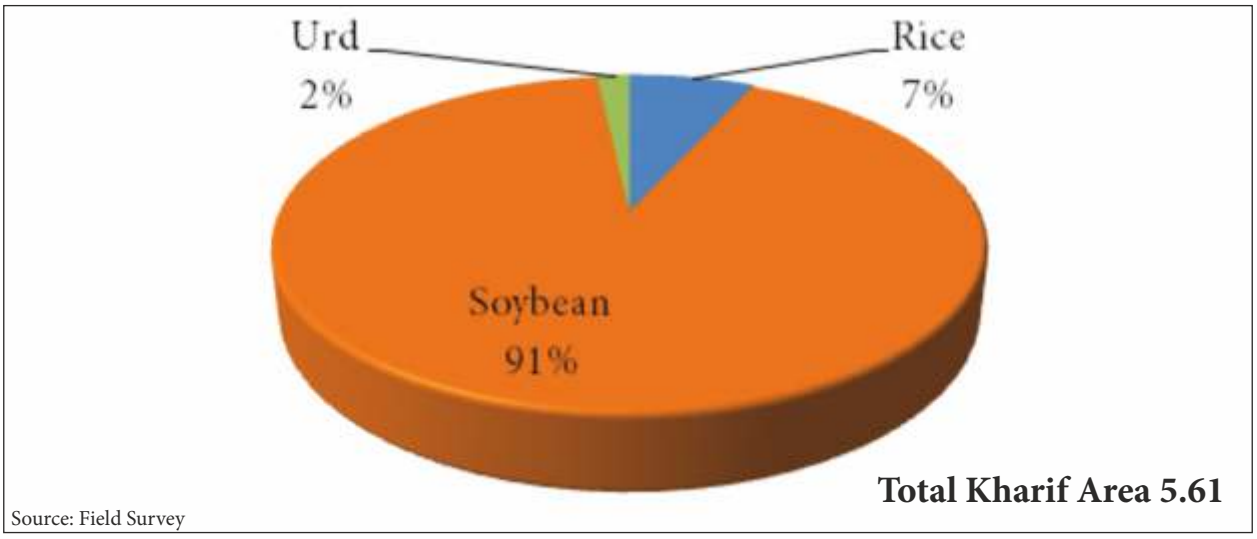
Kharif (50.31%) and Rabi (49.69%) were found to be major seasons in which an average HH used to allocate his maximum net operated area. Soybean (91%) followed by rice (7%) and Urd (2%) were found to be major farm products grown by sample HHs in *kharif* season, (Fig.3.1)

While in *Rabi* season wheat (70%), chickpea (26%) and garlic (2%) were found to be major farm products grown by the majority of sample HHs in the area under study (Fig.3.2). These findings were found to be similar across

Table 3.1 :Area under different crops across the size of farm (in ha)

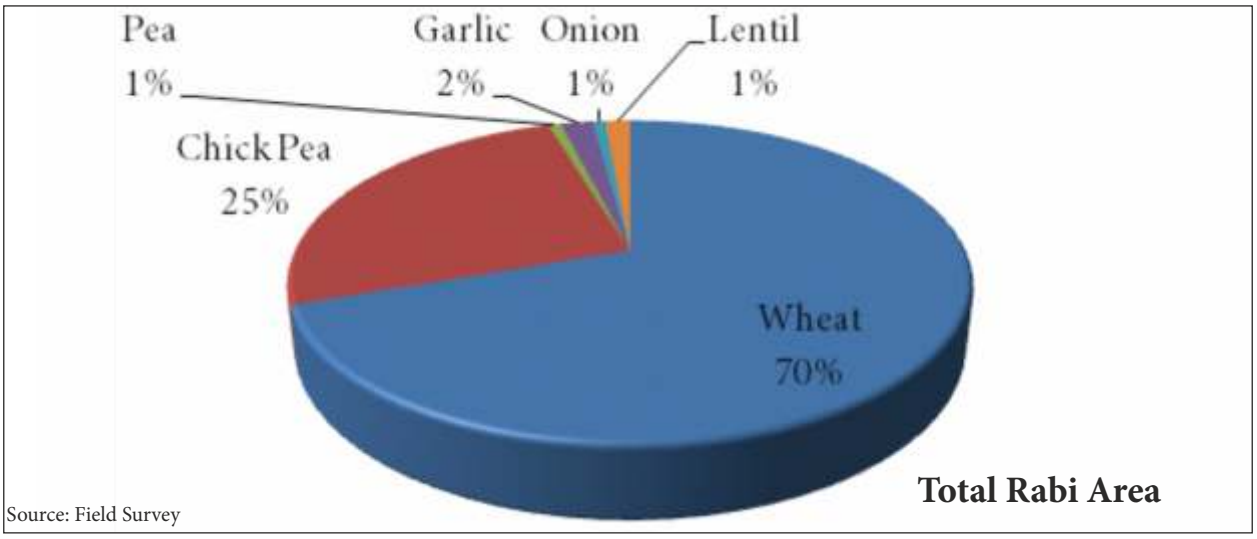
Particulars	Marginal	Small	Medium	Large	Very Large	Overall
			Kharif Season			
Rice	0.29 (40.28)	0.42 (28.77)	0.58 (20.49)	0.56 (9.79)	0.04 (0.23)	0.38 (6.77)
Soybean	0.42 (58.33)	0.96 (65.75)	2.13 (75.27)	5.05 (88.29)	17.1 (98.62)	5.13 (91.44)
Urd	0.01 (1.39)	0.07 (4.79)	0.12 (4.24)	0.11 (1.92)	0.2 (1.15)	0.1 (1.78)
Total	**0.72 (100) /50.7/**	**1.46 (100) /51.41/**	**2.83 (100) /50.18/**	**5.72 (100) /50.22/**	**17.34 (100) /50.29/**	**5.61 (100) /50.31/**
			Rabi Season			
Wheat	0.45 (63.38)	0.71 (51.45)	1.64 (58.36)	3.7 (65.37)	12.8 (74.68)	3.86 (69.68)
Chickpea	0.25 (35.21)	0.63 (45.65)	1.07 (38.08)	1.75 (30.92)	3.4 (19.84)	1.42 (25.63)
Pea	0 (0)	0 (0)	0.01 (0.36)	0.02 (0.35)	0.18 (1.05)	0.04 (0.72)
Garlic	0 (0)	0.02 (1.45)	0.06 (2.14)	0.1 (1.77)	0.31 (1.81)	0.1 (1.81)
Onion	0 (0)	0 (0)	0.01 (0.36)	0.03 (0.53)	0.14 (0.82)	0.04 (0.72)
Lentil	0 (0)	0.01 (0.72)	0.01 (0.36)	0.07 (1.24)	0.3 (1.75)	0.08 (1.44)
Total	**0.71 (100) /50/**	**1.38 (100) /48.59/**	**2.81 (100) /49.82/**	**5.66 (100) /49.69/**	**17.14 (100) /49.71/**	**5.54 (100) /49.69/**
GCA	**1.42 /100/**	**2.84 /100/**	**5.64 /100/**	**11.39 /100/**	**34.48 /100/**	**11.15 /100/**
CI (%)	**195**	**195**	**199**	**198**	**199**	**198**

Source: Field Survey
Figure in parenthesis shows percentage area covered during Kharif and Rabi Season. Figure in slash shows percentage area covered under GCA



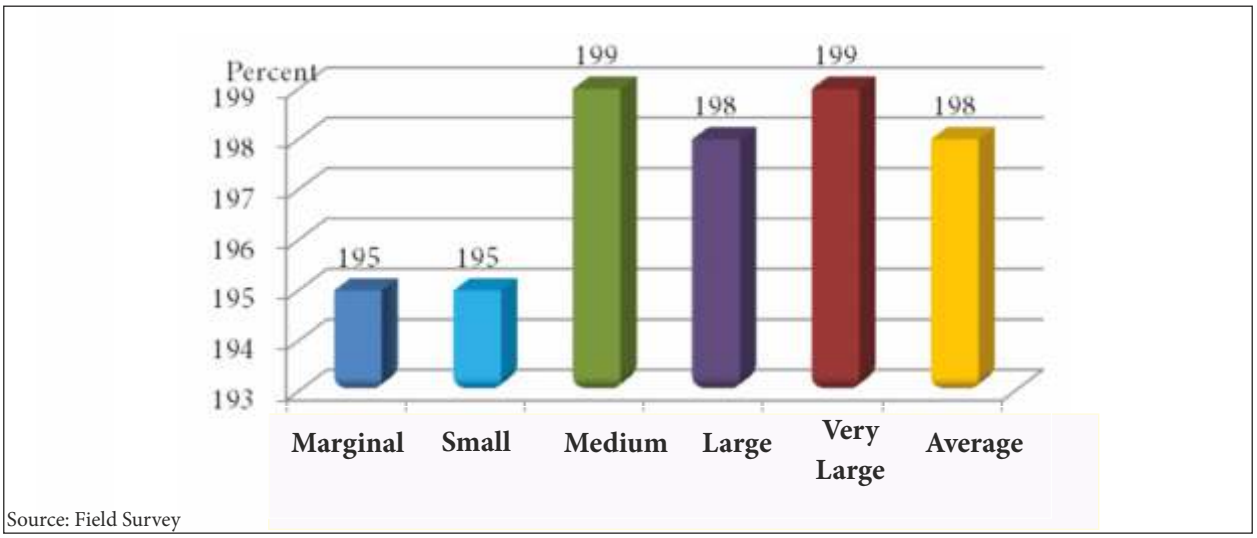
Source: Field Survey

Fig. 3.1 :Percentage share to total Kharif area cultivated by sample HHs in Kharif season



Source: Field Survey

Fig. 3.2 :Percentage share to total rabi area cultivated by sample HHs in rabi season



Source: Field Survey

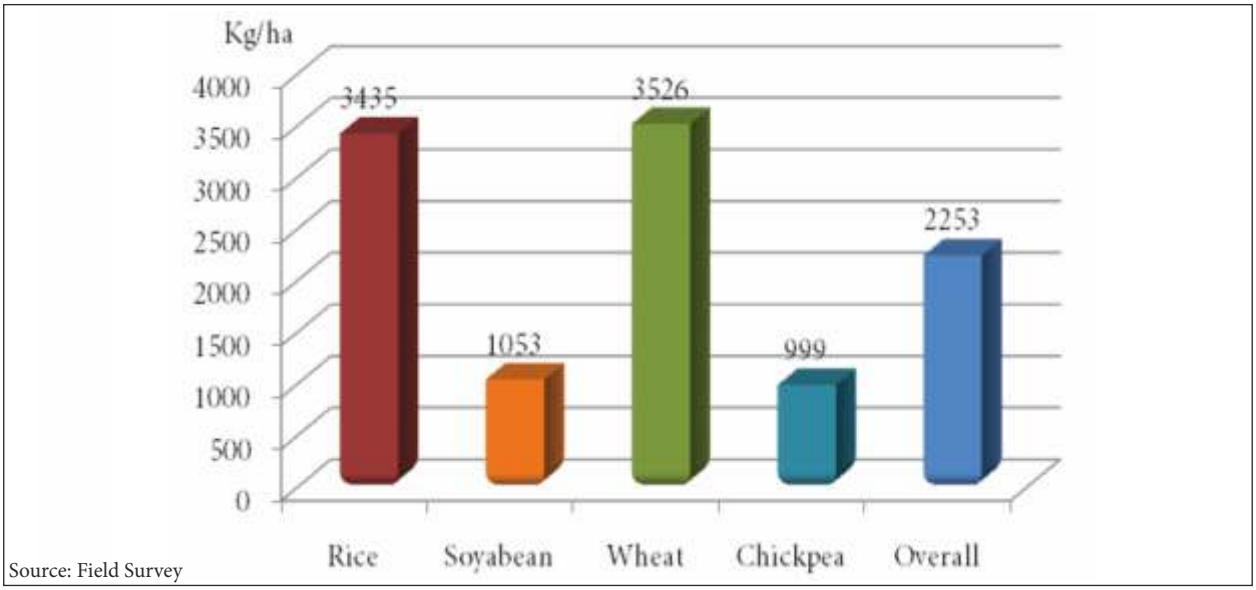
Fig. 3.3 :Cropping intensity of different size of farms

size of holdings. Although, as the size of holding increases the average area under rice to total cropped area of *Kharif* found to be decreased from 40.28 (marginal) to 0.23(very large) per cent, while area under soybean was found to be increased from 58.33(marginal) to 98.62 (very large) per cent (Table 3.1).

In the same way as the size of holding increases the area under chickpea to total cropped area of Rabi was found to be decreased from 35.21 (marginal) to 19.84 (very large) per cent, while area under wheat increased from 63.38(marginal) to 74.68(very large) per cent (Table 3.1). The cropping intensity at overall level was found to be 198 per cent, which was found to be increased with increase in size of farms from 195 (marginal) to 199 (very large) per cent (Fig.3.3).

3.2 Annual Household Income

An average HH of the study area was found to harvest 3526, 3435, 1053 and 999 kg/ha of rice, soybean, wheat and chickpea, respectively with the average yield of 2253 kg./ha of all these crops in the area under study (Fig.3.4). As the size of holding increases the average yield of all these corps was found to be increased from 2167 (marginal) to 2343 (very large) kg./ha. The yield of rice, soybean, wheat and chickpea was found to be varied from 3168 (marginal) to 3755 (very large), 960 (marginal) to 1108 (very large), 3349 (large) to 3482 (marginal) and 1024 (large) to 1088 (medium) kg./ha respectively in the area under study. An average HH was found to receive Rs. 49778 per ha from cultivation of crops. The highest sale value of main product was found to be received from wheat (Rs.64907/ha) followed by rice (Rs. 59031/ha), chickpea (Rs.41140/ha.) and soybean (Rs.34035/ha) (Fig.3.5).



Source: Field Survey

Fig. 3.4 :Average yield of major crops cultivated by sample HHs

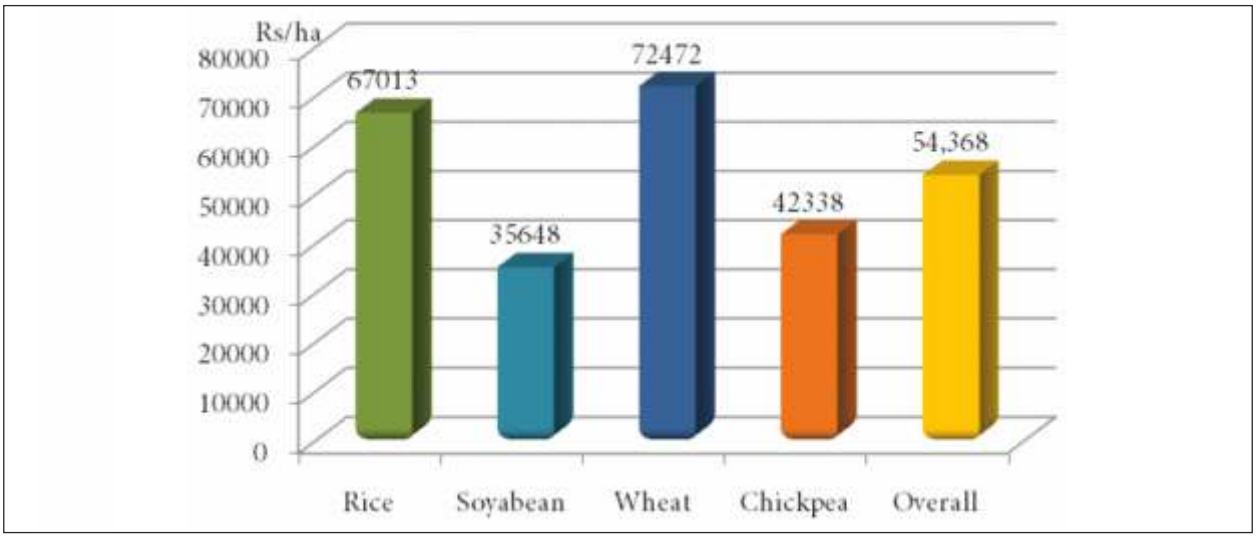
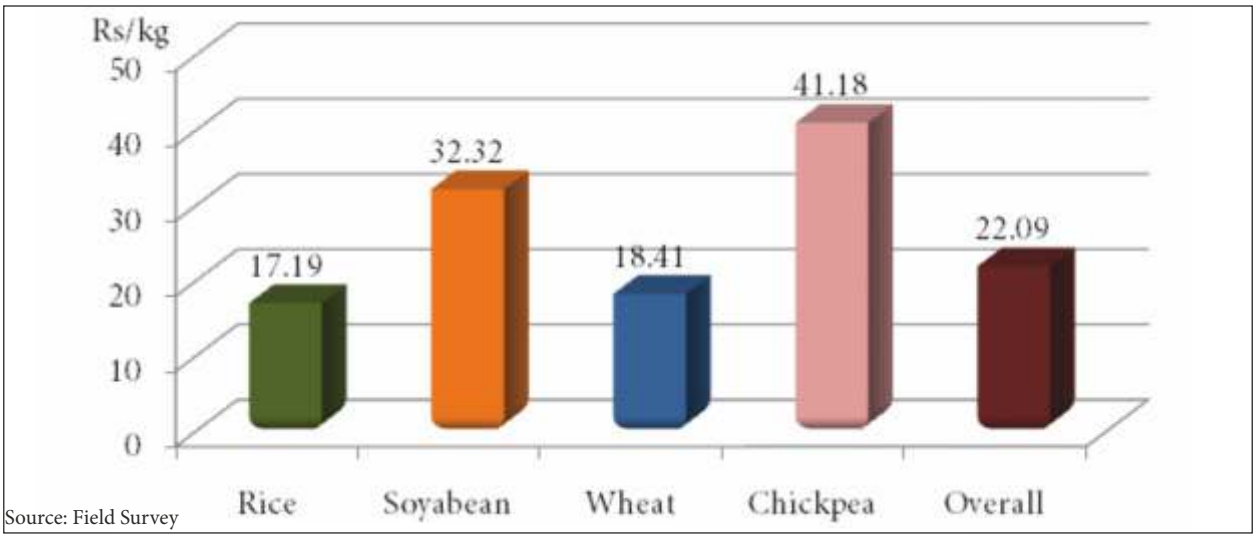


Fig. 3.5 :Average gross sale value received by an average HH of major crops production

As the size of holdings increases the average sale value of main product of all these crops was found to be increased from Rs. 47499 (marginal) to Rs.52720 (very large) per ha. The sale value of main product of wheat, rice, chickpea and soybean was found to be varied from Rs.58201 (marginal) to 72759 (large), Rs. 57039 (large) to 60515 (very large) Rs.38976(marginal) to 46226 (very large) and Rs. 33010 (large) to 35339 (medium) respectively in the area under study (Table 3.2).

The gross sale value of main as well as by-product was also found to be more in case of wheat (Rs.72427/ha) followed by rice (Rs.67013/ha), chickpea (Rs.42338/ha) and soybean (Rs.35648/ha). The price received per kg of grain was found to be highest in case of chickpea (Rs.41.18/kg) as compared to soybean



Source: Field Survey

Fig. 3.6 :Average price received by an average HH through sell of major crops production

Table 3.2 :Average major Yield of crops across the categories

Particulars	Yield (kg/ha)	Average sale value of main produced (Rs/ha)	Gross sale value of crops produced (Main+By) (in Rs/ha)	Received Price/kg
Rice				
Marginal	3482	59,183	66626	17.00
Small	3471	59,782	67868	17.22
Medium	3415	58,636	67065	17.17
Large	3349	57,039	64691	17.03
Very Large	3458	60,515	68814	17.50
Overall	**3435**	**59031**	**67013**	**17.19**
Soybean				
Marginal	1056	33,634	35301	31.85
Small	1050	33,287	34855	31.70
Medium	1088	35,339	37001	32.48
Large	1024	33,010	34569	32.24
Very Large	1047	34,904	36515	33.34
Overall	**1053**	**34035**	**35648**	**32.32**
Wheat				
Marginal	3168	58,201	64980	18.37
Small	3282	60,199	67216	18.34
Medium	3480	64,139	71735	18.43
Large	3944	72,759	81323	18.45
Very Large	3755	69,234	77107	18.44
Overall	**3526**	**64907**	**72472**	**18.41**
Chickpea				
Marginal	960	38,976	40098	40.60
Small	993	41,290	42449	41.58
Medium	964	39,354	40423	40.82
Large	970	39,851	40949	41.08
Very Large	1108	46,226	47769	41.72
Overall	**999**	**41140**	**42338**	**41.18**
Overall				
Marginal	2167	47,499	51,751	21.92
Small	2199	48,640	53,097	22.12
Medium	2237	49,367	54,056	22.07
Large	2322	50,665	55,383	21.82
Very Large	2342	52,720	57,551	22.51
Overall	**2253**	**49,778**	**54,368**	**22.09**

Source: Field Survey

(Rs. 32.33/kg), wheat (18.41/kg) and rice (Rs.17.19/kg). As the size of holding increases the price received per kg of grain was found to be increased in all the crops in the area under study (Fig.3.6).

The gross sale value of wheat, rice, chickpea and soybean was found to be varied from Rs.64980 (marginal) to 81323 (large), Rs. 64691 (large) to 68814 (very large), Rs. 40098 (marginal) to 47769 (very large) and Rs. 34569 (large) to 37001 (medium) per hectare, respectively, in the area under study.

3.3 Output Market

The disposal of produce of major crops viz. rice, soybean, wheat and chickpea to different agencies across size of farms has been worked out with reason of dissatisfaction in disposal of produce and unreasonable price of the produce.

3.3.1 Disposal of Produce

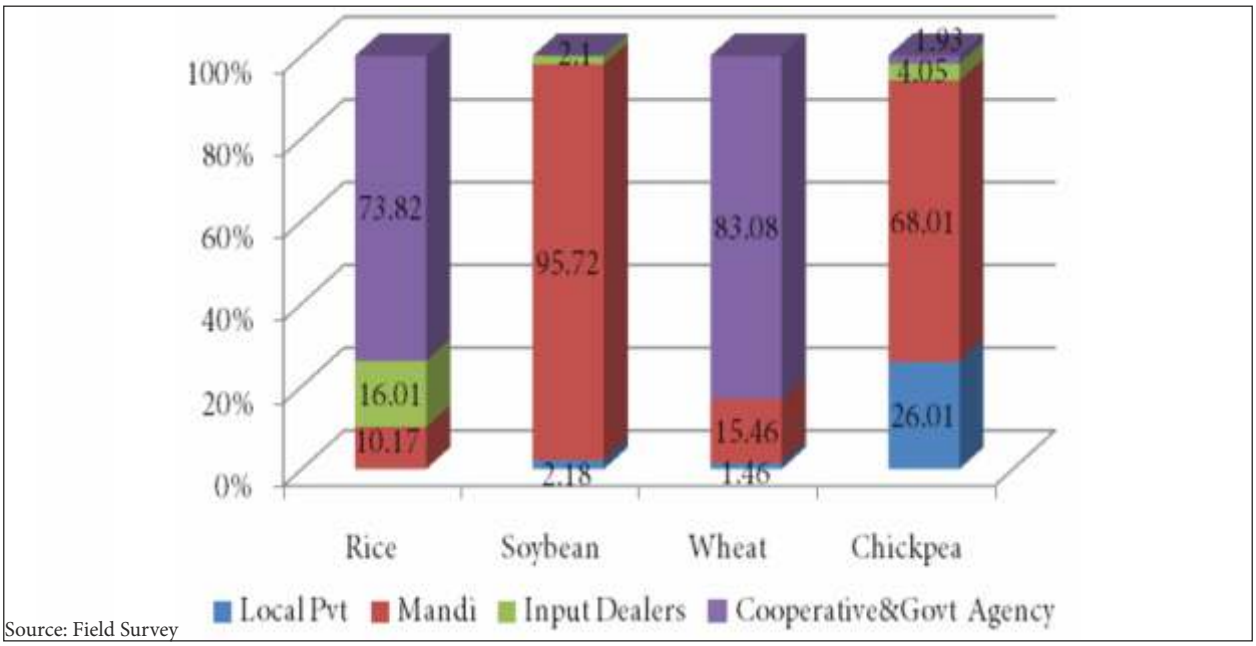
The majority of sample HHs were found to sell rice to cooperative/govt. agencies (73.82%) followed by input dealers (16.01%) and regulated market (10.17%) at over all level (Fig.3.7). None of the HH was found to sell produce to local village merchant. These finding were found to be similar across size of farms, although, none of the very large sample HH was found to sell the rice to local village merchant, regulated market and input dealers. All of them were found to sell rice to cooperative/ govt agencies and mandi (regulated market). The 62.50 and 37.50 per cent of large size of farmers were found to sell rice, to cooperative/govt. agencies and mandi respectively. None of the sample HH related to large size of farm was reported to sell produce to local village merchant and input dealers (Table 3.3).

Table 3.3 :Disposal of farm produce across size of farms (% of HHs)

Particulars	Local Pvt	Mandi	Input Dealers	Cooperative& Govt Agency	Total
Rice					
Marginal	0.00	6.45	22.58	70.97	100.00
Small	0.00	0.00	33.33	66.67	100.00
Medium	0.00	6.90	24.14	68.97	100.00
Large	0.00	37.50	0.00	62.50	100.00
Very Large	0.00	0.00	0.00	100.00	100.00
Overall	0.00	10.17	16.01	73.82	100.00
Soybean					
Marginal	10.91	87.27	1.82	0.00	100.00
Small	0.00	97.18	2.82	0.00	100.00
Medium	0.00	97.83	2.17	0.00	100.00
Large	0.00	100.00	0.00	0.00	100.00
Very Large	0.00	96.30	3.70	0.00	100.00
Overall	2.18	95.72	2.10	0.00	100.00
Wheat					
Marginal	3.85	7.69	0.00	88.46	100.00
Small	1.45	18.84	0.00	79.71	100.00
Medium	2.00	23.00	0.00	75.00	100.00
Large	0.00	16.67	0.00	83.33	100.00
Very Large	0.00	11.11	0.00	88.89	100.00
Overall	1.46	15.46	0.00	83.08	100.00
Chickpea					
Marginal	23.08	64.10	12.82	0.00	100.00
Small	29.33	66.67	2.67	1.33	100.00
Medium	21.43	65.48	4.76	8.33	100.00
Large	28.95	71.05	0.00	0.00	100.00
Very Large	27.27	72.73	0.00	0.00	100.00
Overall	26.01	68.01	4.05	1.93	100.00

Source: Field Survey

At overall level the majority of sample HHs were found to sell soybean to regulated market (95.72%) followed by local village merchant (2.18%) and input dealers (2.10%) (Fig.3.7). None of the HH was found to sell produce to cooperative / govt. agencies. These finding were found to be similar across size of farms, although, none of the HH related to small, medium, large and very large was found to sell soybean to local village merchant. All of them were found to sell soybean in regulated market and input dealers only. Only 10.91 percent of marginal farms were found to sell soybean to local village merchant. None of the sample HH reported to sell soybean to cooperative/govt. agencies (Table 3.3).



Source: Field Survey

Fig. 3.7 :Disposal of farm produces by Sample HHs

At overall level the majority of sample HHs were found to sell wheat to cooperative/govt. agencies (83.08%) followed by regulated market (15.46%) and local village merchant (1.46%) (Fig.3.7). None of the HH was found to sell wheat to input dealers. These finding were found to be similar across size of farms, although, none of the HH related to large and very large farm was found to sell wheat to local village merchant, and input dealers. All of them were found to sell wheat to regulated market (Table 3.3).

The majority of sample HHs were found to sell chickpea in regulated market (68.01%) followed by local village merchant (26.01%), input dealers (4.05%) and cooperative/govt. agencies (1.93%) (Fig.3.7). These finding were found to be similar across size of farms, although, none of the large and very large sample HH was found to sell chickpea to input

dealers and cooperative/ Govt agencies. All of them were found to sell chickpea to regulated market and local village merchant. None of the HH related to marginal farm was found to sell it in cooperative & govt agencies.

3.3.2 Reasons of Dissatisfaction

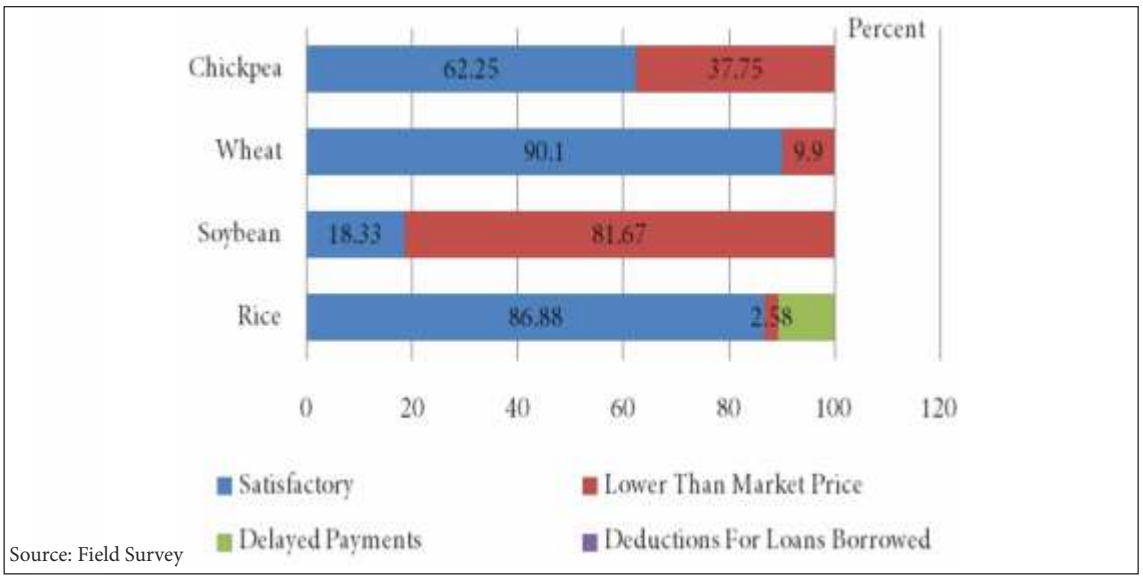
The reasons of dissatisfaction regarding disposal of produce of major crops viz. rice, soybean, wheat and chickpea across size of farms to different agencies has been worked out and presented in Table 3. 4

Out of total sample HHs the 86.88 per cent were found to be satisfied from the disposal of rice in the market at overall level in the area under study (Fig.3.8). At overall level the main reason of dissatisfaction was found to be delayed payment (10.54%) followed by lower market price (2.58%). Amongst different size of farms, 100 percent very large sample HHs were reported to be satisfied with the price of rice produce. None of the very large farmer reported his dissatisfaction due to delayed payment by the agencies to whom they sell rice.

Out of total sample HHs only 18.33 per cent were found to be satisfied with disposal of soybean (Fig.3.8). At overall level the main reason of dissatisfaction amongst smaple HHswas lower market price (81.6%). These findings were found to be similar across size of farms, with minor variation in the area under study.

3.3.3 Reasons for unreasonable Price of Produce

Out of total sample HHs the 90.10 per cent were found to be satisfied with the disposal of wheat in the market at overall level in the area under study (Fig.3.8). At overall level the main reason of dissatisfaction amongst rest of them was lower market price (9.90%).Amongst



Source: Field Survey

Fig. 3.8 :Reason for dissatisfaction regarding disposal of farm produce

Table 3.4 :Reasons of dissatisfaction regarding disposal of farm produce (% of HHs)

Particulars	Satisfactory	Lower Than Market Price	Delayed Payments	Deductions For Loans Borrowed	Total
Rice					
Marginal	77.42	12.90	9.68	0.00	100.00
Small	88.89	0.00	11.11	0.00	100.00
Medium	93.10	0.00	6.90	0.00	100.00
Large	75.00	0.00	25.00	0.00	100.00
Very Large	100.00	0.00	0.00	0.00	100.00
Overall	86.88	2.58	10.54	0.00	100.00
Soybean					
Marginal	16.36	83.64	0.00	0.00	100.00
Small	22.54	77.46	0.00	0.00	100.00
Medium	26.09	73.91	0.00	0.00	100.00
Large	15.56	84.44	0.00	0.00	100.00
Very Large	11.11	88.89	0.00	0.00	100.00
Overall	18.33	81.67	0.00	0.00	100.00
Wheat					
Marginal	84.62	15.38	0.00	0.00	100.00
Small	84.06	15.94	0.00	0.00	100.00
Medium	86.00	14.00	0.00	0.00	100.00
Large	95.83	4.17	0.00	0.00	100.00
Very Large	100.00	0.00	0.00	0.00	100.00
Overall	90.10	9.90	0.00	0.00	100.00
Chickpea					
Marginal	69.23	30.77	0.00	0.00	100.00
Small	60.00	40.00	0.00	0.00	100.00
Medium	55.95	44.05	0.00	0.00	100.00
Large	57.89	42.11	0.00	0.00	100.00
Very Large	68.18	31.82	0.00	0.00	100.00
Overall	62.25	37.75	0.00	0.00	100.00

Source: Field Survey

different size of farms cent per cent very large sample HHs were reported that they were satisfied with the disposal of wheat in the market. None of the very large farmer reported his dissatisfaction due to lower market price, delayed payment by the agencies to whom they have sold wheat and deduction for loans borrowed for cultivation of crops.

Out of total sample HHs the 62.25 per cent were found to be satisfied with the disposal of chickpea in the market at overall level in the area under study (Fig.3.8). At overall level the main reason of dissatisfaction amongst rest of them sample HHs was lower market price (37.75%). None of the sample HHs across size of farms reported their dissatisfaction due to delayed payment by the agencies to whom they have sold out wheat and deduction for loans borrowed for cultivation of crops.

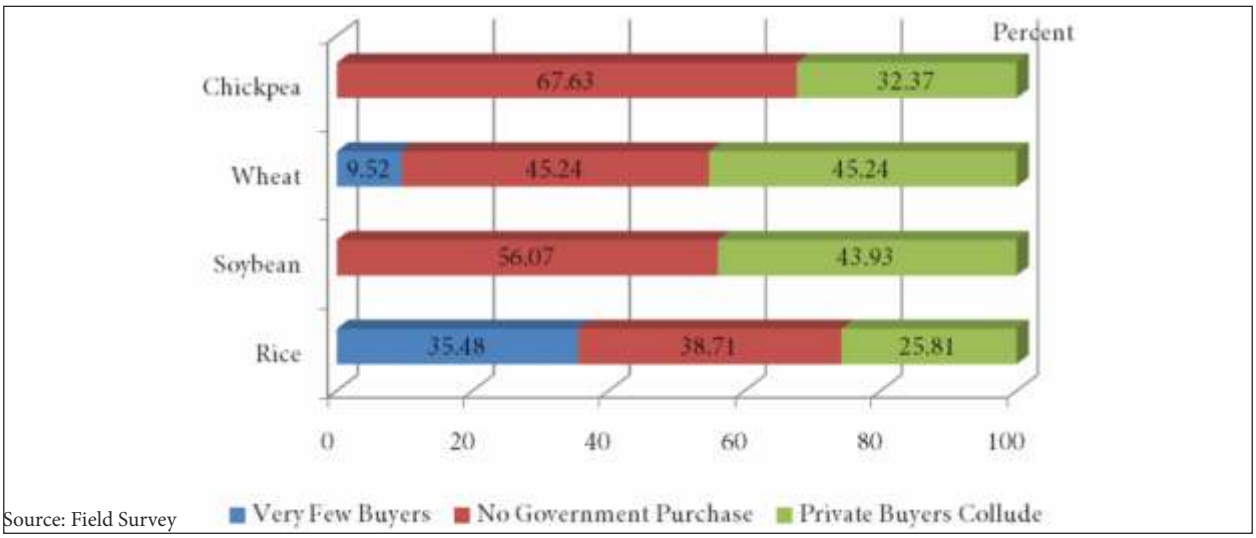
3.3.3 Reasons for unreasonable Price of Produce

As discussed earlier, majority of HHs (86.88%) were found to be satisfied with the price of rice. Although, at overall level rest of the HHs reported that the price of rice (Fig.3.9) was found to be unreasonable due to no govt. purchase (38.71%) followed by very few sellers (35.48%) and private sellers collude (25.81%). None of the sample HH related to very large size of farm reported unreasonable price of rice due to very few buyers and no govt. support involved in the control of price in the study area. (Table 3.5).

At overall level the majority of HHs related to soybean production reported that the price of the produce was found to be unreasonable due to private sellers collude (43.93%), no cooperative/ government agencies to purchase soybean (56.07%) involved in the control of price of soybean in the study area (Fig.3.9). At overall level the majority of HHs related to wheat production reported that the price of the produce was found to be unreasonable due to private sellers collude (45.24%), no cooperative/ government agencies purchase (45.24%) and very few buyers (9.52) involved in the control of price of wheat in the study area (Fig.3.9). At overall level the majority of HHs related to chickpea production reported that the price of the produce was found to be unreasonable due to no cooperative/ government agencies purchase (67.63 %) and private sellers collude (32.37%) involved in the control of price of chickpea in the study area (Table 3. 5). These findings were found to be similar across size of farms with the minor variation in the area under study.

3.3.4 Price received of Major Disposal

At overall level the majority of HHs related to rice (70.48%), soybean (71.72%) and wheat (92.23%) production were found that the



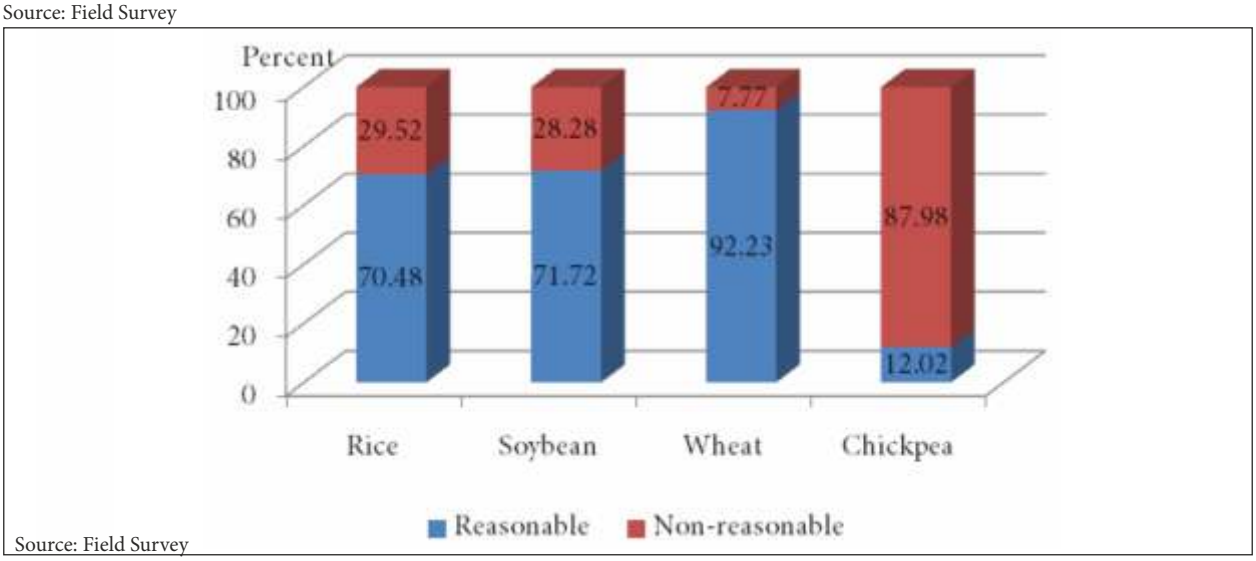
Source: Field Survey

Fig. 3.9 :Reasons for unreasonable price as perceived by sample HHs (%)

Table 3.5 :Reasons for unreasonable prices received by sample HHs (%)

Particulars	Very Few Buyers	No Government Purchase	Private Buyers Collude	Total
Rice				
Marginal	36.36	54.55	9.09	100.00
Small	44.44	11.11	44.44	100.00
Medium	25.00	50.00	25.00	100.00
Large	33.33	33.33	33.33	100.00
Very Large	0.00	0.00	0.00	100.00
Overall	35.48	38.71	25.81	100.00
Soybean				
Marginal	0.00	56.52	43.48	100.00
Small	0.00	57.14	42.86	100.00
Medium	0.00	66.67	33.33	100.00
Large	0.00	55.56	44.44	100.00
Very Large	0.00	44.44	55.56	100.00
Overall	0.00	56.07	43.93	100.00
Wheat				
Marginal	25.00	37.50	37.50	100.00
Small	12.50	43.75	43.75	100.00
Medium	0.00	50.00	50.00	100.00
Large	0.00	0.00	0.00	100.00
Very Large	0.00	0.00	0.00	100.00
Overall	9.52	45.24	45.24	100.00
Chickpea				
Marginal	0.00	65.79	34.21	100.00
Small	0.00	66.18	33.82	100.00
Medium	0.00	66.20	33.80	100.00
Large	0.00	70.00	30.00	100.00
Very Large	0.00	70.00	30.00	100.00
Overall	0.00	67.63	32.37	100.00

Source: Field Survey



Source: Field Survey

Fig. 3.10 :Producer preference regarding price for major disposal as perceived by sample HHs

price of the produce was reasonable, which they sold in the market but the majority of chickpea growers (87.98%) of the study area were reported that price of the produce in the market was non- reasonable (Fig.3.10). These findings were found to be similar across size of farms. Although cent per cent large and very large farm producers reported that price of wheat was found to be reasonable. The cent per cent very large farmers also reported that the price of rice was also reasonable in the area under study. (Table 3. 6).

3.4 Seed Input Market

The seed is the master key to success with the cultivation. Seed is crucial and basic input to increase crop yields per unit area. Quality seed is a vital input in crop production. It is estimated that good quality seeds of improved varieties can contribute about 20-25% increase in yield. At planting, information about the seed vigour is useful for management decisions, especially under adverse conditions. This knowledge may be key for selling the seed to a specific quality market, when the variety grown has the desired quality characteristics. This sub-head includes procurement, agencies involved, expenditure incurred, quantity and price of seed with reason of unreasonable price of seed of various selected crops.

3.4.1 Procurement of Seed

The procurement of seed for production of majThe procurement of seed for production of major crops viz. rice, soybean, wheat and chickpea cultivated by the sample HHs have been analysed and presented in Table 3. 7.

It is observed from the data that at over all level, the majority of selected rice growers (Fig.3.11) were used farm saved seed (53.44%),

Table 3.6 :Price received of major disposal for the major crops (%)

Particular	Rice	Soybean	Wheat	Chickpea
Reasonable				
Marginal	64.52	58.18	90.38	2.56
Small	75.00	80.28	86.96	9.33
Medium	72.41	70.65	91.00	15.48
Large	62.50	80.00	100.00	21.05
Very Large	100.00	66.67	100.00	9.09
Overall	70.48	71.72	92.23	12.02
Non-reasonable				
Marginal	35.48	41.82	9.62	97.44
Small	25.00	19.72	13.04	90.67
Medium	27.59	29.35	9.00	84.52
Large	37.50	20.00	0.00	78.95
Very Large	0.00	33.33	0.00	90.91
Overall	29.52	28.28	7.77	87.98
Grand Total	100.00	100.00	100.00	100.00

Source: Field Survey

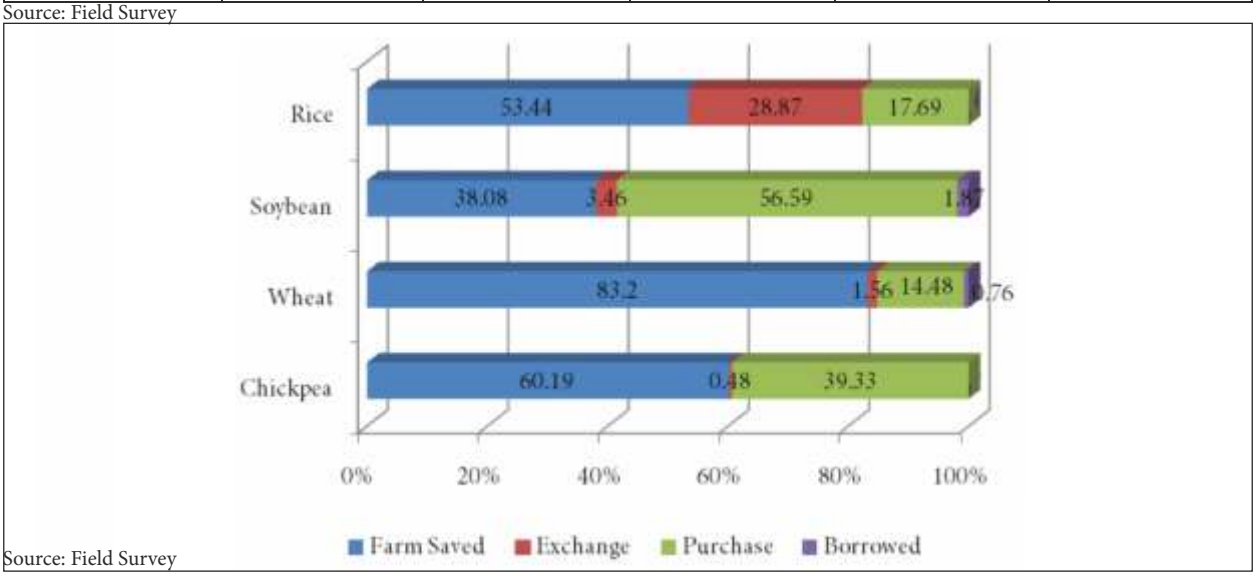
followed by exchanged seed (28.87%) and purchased from the others (17.69%).None of the farmer reported that he borrowed seed from others for production of rice.

The majority of selected soybean growers (Fig.3.11) reported that they used to purchase seed (56.59%), followed by farm saved seed (38.08%), exchanged from the others (3.46%), and borrowed from the others (1.87%) for cultivation of soybean. The majority of selected wheat growers (Fig.3.11) reported that they used farm saved seed (83.20%), followed by

Table 3.7 :Procurement of seed for crop production of major crops across size of farms (%HHs)

Particulars	Farm Saved	Exchange	Purchase	Borrowed	Total
Rice					
Marginal	77.42	0.00	22.58	0.00	100.00
Small	83.33	5.56	11.11	0.00	100.00
Medium	68.97	13.79	17.24	0.00	100.00
Large	37.50	25.00	37.50	0.00	100.00
Very Large	0.00	100.00	0.00	0.00	100.00
Overall	53.44	28.87	17.69	0.00	100.00
Soybean					
Marginal	49.09	7.27	43.64	0.00	100.00
Small	25.35	5.63	63.38	5.63	100.00
Medium	47.83	2.17	50.00	0.00	100.00
Large	42.22	2.22	55.56	0.00	100.00
Very Large	25.93	0.00	70.37	3.70	100.00
Overall	38.08	3.46	56.59	1.87	100.00
Wheat					
Marginal	82.81	0.00	15.63	1.56	100.00
Small	66.67	0.00	32.05	1.28	100.00
Medium	86.54	0.00	12.50	0.96	100.00
Large	83.67	4.08	12.24	0.00	100.00
Very Large	96.30	3.70	0.00	0.00	100.00
Overall	83.20	1.56	14.48	0.76	100.00
Chickpea					
Marginal	53.85	0.00	46.15	0.00	100.00
Small	56.00	0.00	44.00	0.00	100.00
Medium	58.33	2.38	39.29	0.00	100.00
Large	73.68	0.00	26.32	0.00	100.00
Very Large	59.09	0.00	40.91	0.00	100.00
Overall	60.19	0.48	39.33	0.00	100.00

Source: Field Survey



Source: Field Survey

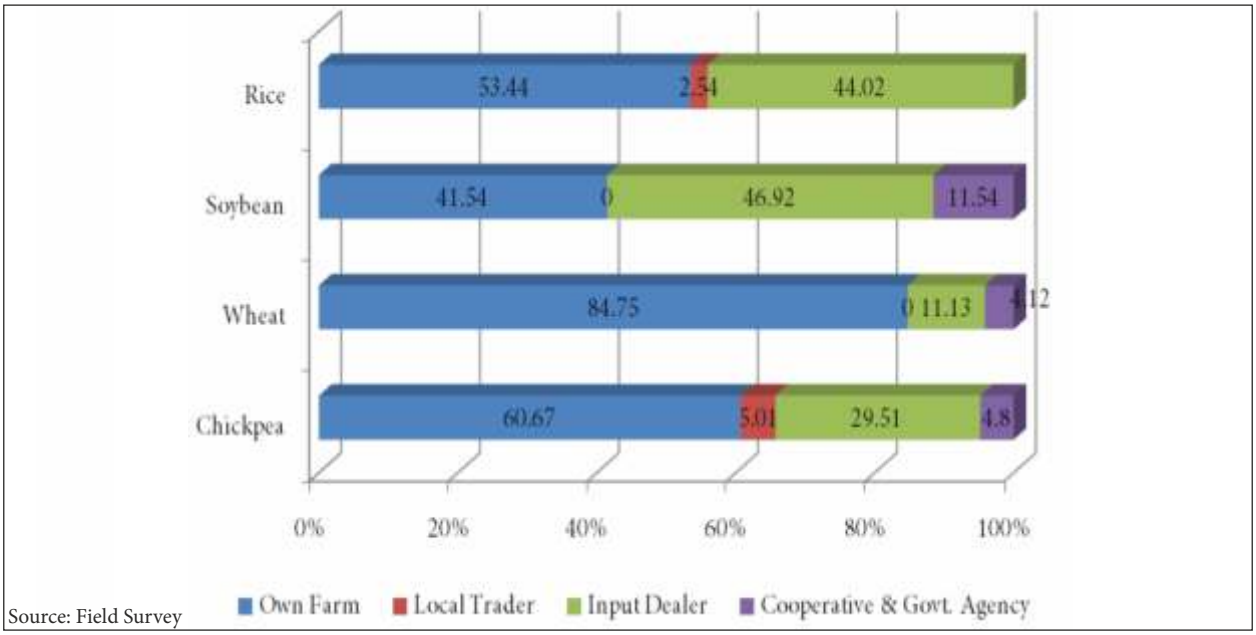
Fig. 3.11 :Procurement of seed for crop production (%HHs)

purchased seed (14.48%), exchanged with the others (1.56%), and borrowed from the others (0.76%) for cultivation of wheat in their farms. The majority of selected chickpea growers (Fig.3.11) also reported that they used farm saved seed (60.19%), followed by purchased seed (39.33%), exchanged with the others (0.48%).None of the farmer reported that he borrowed seed from the others for production of chickpea in the area under study. These finding were found to be similar with little variation across size of farms.

3.4.2 Agencies Involved in Seed

The various agencies involved in procurement of seed by the sample HHs in the area under study are presented in table 3.8. It is observed from the data that at overall level, the majority of selected rice (Fig.3.12) growers reported that they used own farm seed (53.44%), followed by purchased from input dealer (44.02%) and local traders (2.54%). None of the sample HH reported to procure seed from cooperative & government agencies for production of rice, while the majority of selected soybean growers (Fig.3.12) reported that they used to purchase seed from input dealer (46.92%) followed by their own farm seed (41.54%), purchased from cooperative & government agencies (11.54%). None of the farmer reported that he was involved in procuring seed from local traders for cultivation of soybean.

The majority of selected wheat growers (Fig.3.12) reported that they used own farm seed (84.75%) followed by purchased seed from input dealer (11.13%) and cooperative & government agencies (4.12%). None of the sample HHs reported to be involved in procuring seed from local traders.



Source: Field Survey

Fig. 3.12 :Agencies involved in procurement of seed (%HHs)

Table 3.8 :Agencies involved in procured of seed of major crops across size of farms (%HHs)

Particulars	Own Farm	Local Trader	Input Dealer	Cooperative & Govt. Agency	Total
Rice					
Marginal	77.42	6.45	16.13	0.00	100.00
Small	83.33	2.78	13.89	0.00	100.00
Medium	68.97	3.45	27.59	0.00	100.00
Large	37.50	0.00	62.50	0.00	100.00
Very Large	0.00	0.00	100.00	0.00	100.00
Overall	53.44	2.54	44.02	0.00	100.00
Soybean					
Marginal	56.36	0.00	34.55	9.09	100.00
Small	30.99	0.00	53.52	15.49	100.00
Medium	50.00	0.00	39.13	10.87	100.00
Large	44.44	0.00	44.44	11.11	100.00
Very Large	25.93	0.00	62.96	11.11	100.00
Overall	41.54	0.00	46.92	11.54	100.00
Wheat					
Marginal	82.81	0.00	10.94	6.25	100.00
Small	66.67	0.00	26.92	6.41	100.00
Medium	86.54	0.00	9.62	3.85	100.00
Large	87.76	0.00	8.16	4.08	100.00
Very Large	100.00	0.00	0.00	0.00	100.00
Overall	84.75	0.00	11.13	4.12	100.00
Chickpea					
Marginal	53.85	5.13	33.33	7.69	100.00
Small	56.00	8.00	30.67	5.33	100.00
Medium	60.71	4.76	33.33	1.19	100.00
Large	73.68	2.63	18.42	5.26	100.00
Very Large	59.09	4.55	31.82	4.55	100.00
Overall	60.67	5.01	29.51	4.80	100.00

Source: Field Survey

The majority of selected chickpea growers (Fig.3.12) also reported that they used own farm saved seed (60.67%) followed by purchased from input dealer (29.51%), from local traders(5.01%), from cooperative & government agency (4.80%). These finding were found to be similar across size of farms with little variation in the study area.

3.4.3 Expenses on Seed

At over all level an average rice grower (Fig.3.13) was found to spent Rs. 2624 on seed to cultivate rice in a hectare of land. The expense on seed was found to be vary from Rs, 2919 (medium) to 3934 (marginal) per ha. The cost of seed for production of a quintal of grain was found to be Rs.76/q on an average rice producer farm. The cost of seed to produce a quintal of rice was found to be decreased with the increase in size of farm from marginal to large from Rs. 113 to 99 in the area under study. The per HH expenses of seed was found to be Rs. 1187 /-, which was found to be increases with size of holdings from Rs.1144 (marginal)to 1860 (large) in cultivation of rice in the area under study (Table 3.9).

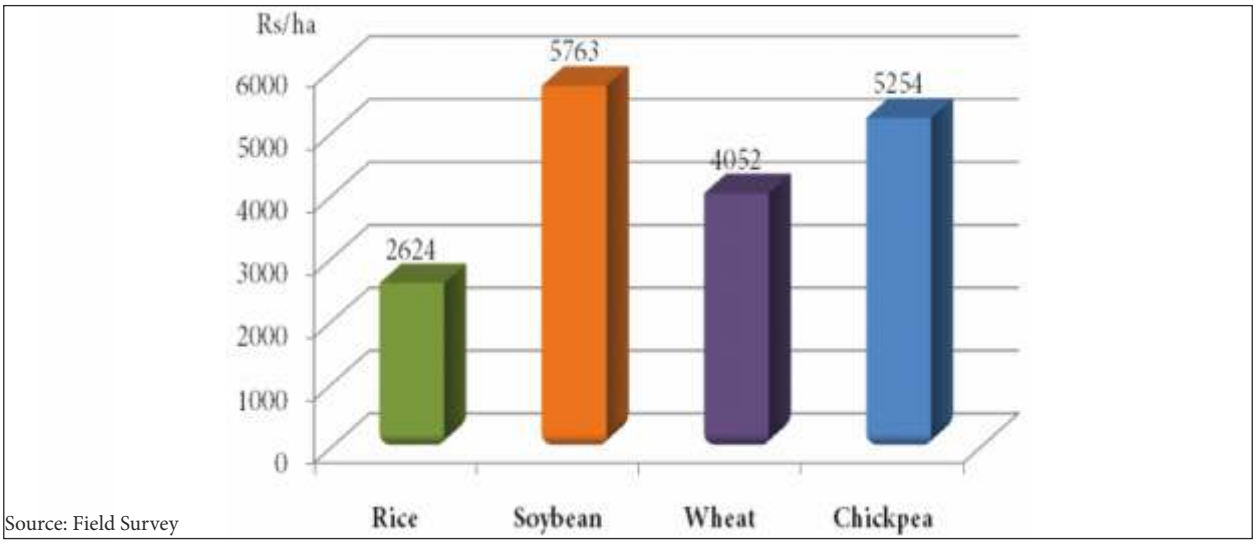
At overall level an average soybean grower (Fig.3.13) found to spend Rs.5763 on seed to cultivate soybean in a hectare of land. The expenses on seed was found to be varied from Rs. 5367 (marginal) to 6192 (very large) per ha. The cost of seed for production of a quintal of grain was found to be Rs.547/q on an average soybean producer farm. The cost of seed to produce a quintal of soybean was found to be decreased with increase in size of farm from Rs. 591 (large) to 508 (marginal) in the area under study. An average HH expenses Rs. 30917/- ha on seed, which was found to be increases with size of holdings from Rs.2246 (marginal) to 105889 (very large) in cultivation of soybean in the area under study.

At over all level an average wheat grower (Fig.3.13) found to spend Rs.4052/- on seed to cultivate wheat in a hectare of land. The expenses on seed was found to be varied from Rs. 3664 (marginal) to 4517(very large) per ha in different size of farms. The cost of seed for production of a quintal of grain was found to be Rs.115 /q on an average wheat producing farm.

Table 3.9 :Total expenses incurred for the purchase of Seed (in Rs)

Particulars	Per ha	Per HH	Per q of crop produce	Price /Kg
Rice				
Marginal	3934	1144	113	20
Small	2944	1250	85	17
Medium	2919	1681	85	18
Large	3323	1860	99	19
Very large	0	0	0	19
Overall	2624	1187	76	19
Soybean				
Marginal	5367	2246	508	20
Small	6004	5793	572	17
Medium	5541	11803	509	18
Large	5711	28855	558	19
Very large	6192	105889	591	19
Overall	5763	30917	547	19
Wheat				
Marginal	3664	1656	116	20
Small	3860	2760	118	17
Medium	4006	6568	115	18
Large	4213	15571	107	19
Very large	4517	57814	120	19
Overall	4052	16874	115	19
Chickpea				
Marginal	5315	1340	554	20
Small	5569	3518	561	17
Medium	5235	5619	543	18
Large	4851	8473	500	19
Very Large	5298	18019	478	19
Overall	5254	7394	526	19

Source: Field Survey



Source: Field Survey

Fig. 3.13 :Expenses incurred for the purchase of Seed by an average HH

The cost of seed to produce a quintal of wheat was found to be increased from Rs. 107 (large) to 120 (very large) in different size of farms in the area under study. The per HH expenses of seed was found to be Rs. 16874 /-, which was found to be increased with size of holdings from Rs.1656 (marginal) to 57814 (very large) in cultivation of wheat in the area under study.

An average chickpea grower (Fig.3.13) was found to spend Rs.5254 on seed to cultivate chickpea in a hectare of land. The expense on seed was found to be variy from Rs, 4851 (large) to 5569 (small) per ha. The cost of seed for production of a quintal of grain was found to be Rs.526/q on an average chickpea producer farm. The cost of seed to produce a quintal of chickpea was found to be variy from Rs. 478 (very large) to 561 (small) in different sizes of farms in the area under study. The per HH expenses on seed was found to be Rs. 7394/-, which was found to be increased with size of holdings from Rs.1340 (marginal) to 18019 (very large) in cultivation of chickpea in the area under study (Table 3.9).

3.4.4 Quantity of Seed

The quality of seed that HHs purchased from different agencies in cultivation of various crops was also observed in different size of farms and presented in table 3.10.

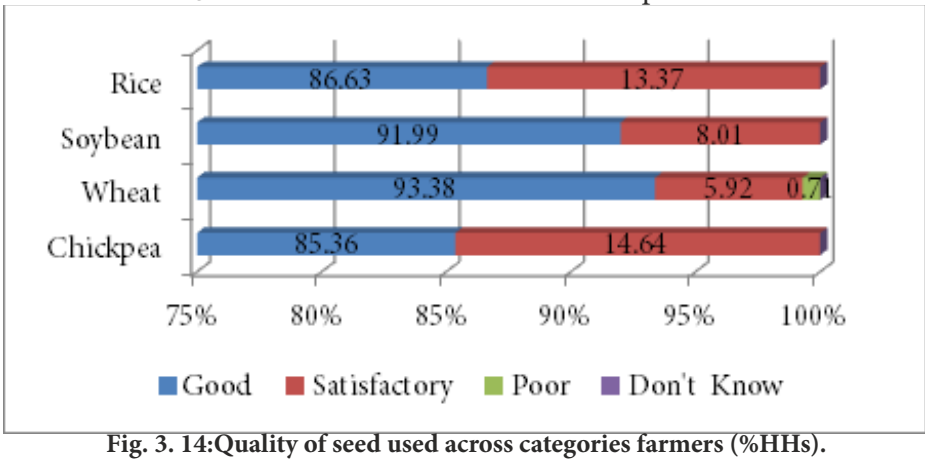


Fig. 3. 14:Quality of seed used across categories farmers (%HHs).

The majority of HHs werefound to reporte that the quality of seed purchased by them from different agenciesfor cultivation of rice, soybean, wheat and chickpea was of good (86.63, 91.99, 93.38 & 85.36%) followed by satisfactory (13.37, 8.01, 5.92 & 14.64%) quality. (Fig.3.14).

Table 3.10 :Quality of seed purchased from agencies (%)

Particulars	Good	Satisfactory	Poor	Don't Know	Total
Rice					
Marginal	93.55	6.45	0.00	0.00	100.00
Small	80.56	19.44	0.00	0.00	100.00
Medium	96.55	3.45	0.00	0.00	100.00
Large	62.50	37.50	0.00	0.00	100.00
Very Large	100.00	0.00	0.00	0.00	100.00
Overall	86.63	13.37	0.00	0.00	100.00
Soybean					
Marginal	92.73	7.27	0.00	0.00	100.00
Small	94.37	5.63	0.00	0.00	100.00
Medium	89.13	10.87	0.00	0.00	100.00
Large	91.11	8.89	0.00	0.00	100.00
Very Large	92.59	7.41	0.00	0.00	100.00
Overall	91.99	8.01	0.00	0.00	100.00
Wheat					
Marginal	93.75	6.25	0.00	0.00	100.00
Small	92.31	5.13	2.56	0.00	100.00
Medium	92.31	6.73	0.96	0.00	100.00
Large	95.92	4.08	0.00	0.00	100.00
Very Large	92.59	7.41	0.00	0.00	100.00
Overall	93.38	5.92	0.71	0.00	100.00
Chickpea					
Marginal	76.92	23.08	0.00	0.00	100.00
Small	86.67	13.33	0.00	0.00	100.00
Medium	88.10	11.90	0.00	0.00	100.00
Large	84.21	15.79	0.00	0.00	100.00
Very Large	90.91	9.09	0.00	0.00	100.00
Overall	85.36	14.64	0.00	0.00	100.00

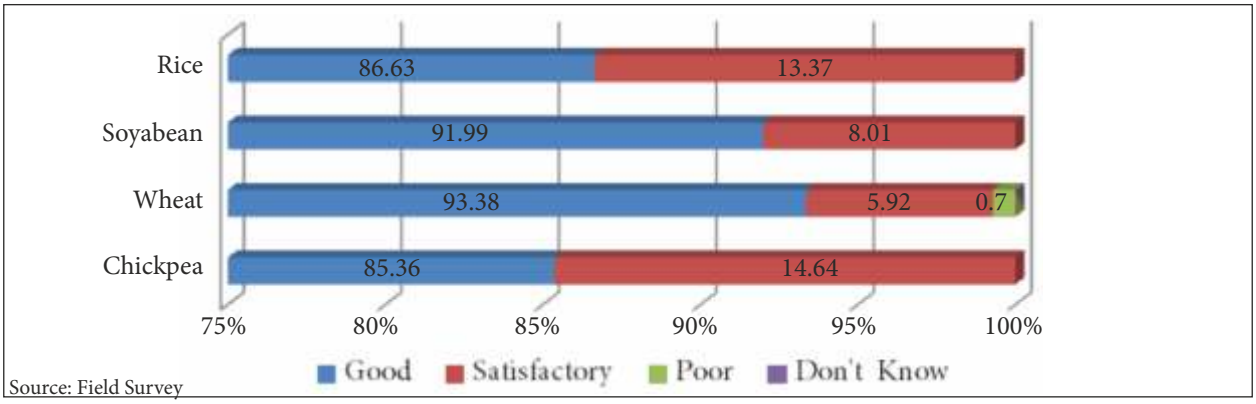
Source: Field Survey

The majority of soybean growers reported that the price paid to purchase seed for cultivation of soybean was reasonable (50.30%) followed by high (48.18%) and very high (1.52%). The majority of wheat growers

3.4.5 Price of Seed

The majority of rice growers (Fig.3.15) reported that the price, which they paid to purchase seed for cultivation of rice was reasonable (85.55%) followed by high (11.45%). None of the selected rice growers reported that the price of rice seed was very high and he was not able to pay for production of rice.

(Fig.3.15) also reported that the price paid to purchase of seed for cultivation of wheat was reasonable (92.77%) followed by high (4.51%) and very high (2.71%). The majority of HHs related to chickpea (Fig.3.15) were also reported



Source: Field Survey

Fig. 3.15 :Ranking of price paid for seed of major crop products (%HH)

Table 3.11 :Ranking of price paid for seed across different size of farmers

Particulars	Reasonable	High	Very High	Total
Rice				
Marginal	87.10	12.90	0.00	100.00
Small	94.44	5.56	0.00	100.00
Medium	86.21	13.79	0.00	100.00
Large	75.00	25.00	0.00	100.00
Very Large	100.00	0.00	0.00	100.00
Overall	88.55	11.45	0.00	100.00
Soybean				
Marginal	67.27	32.73	0.00	100.00
Small	45.07	52.11	2.82	100.00
Medium	55.43	43.48	1.09	100.00
Large	46.67	53.33	0.00	100.00
Very Large	37.04	59.26	3.70	100.00
Overall	50.30	48.18	1.52	100.00
Wheat				
Marginal	90.63	6.25	3.13	100.00
Small	88.46	7.69	3.85	100.00
Medium	94.23	2.88	2.88	100.00
Large	97.96	2.04	0.00	100.00
Very Large	92.59	3.70	3.70	100.00
Overall	92.77	4.51	2.71	100.00
Chickpea				
Marginal	76.92	17.95	5.13	100.00
Small	77.33	21.33	1.33	100.00
Medium	78.57	17.86	3.57	100.00
Large	92.11	7.89	0.00	100.00
Very Large	86.36	4.55	9.09	100.00
Overall	82.26	13.92	3.82	100.00

Source: Field Survey

that the price paid to purchase seed for cultivation of chickpea was reasonable (82.26%) followed by high (13.92%) and very high (3.82%). The majority of HHs was reported similar finding across size of farms as regards to price of seed in cultivation of rice, soybean, wheat and chickpea in the area under study. Thus, the price of seed for cultivation of major

crops grown in the State were found to be reasonable as reported by more than 50 per cent of sample HHs (Table 3.11).

3.4.6 Reasons for Unreasonable Price of Seed

As discussed earlier that majority of HHs were found to be satisfied with the quality and price of the seed. Although, at overall level the rest of HHs reported that the price of the seed was found to be unreasonable due to private sellers collude (83.33%), no price control on prices of seed (8.33%), very few sellers (8.83%) involved in the control of price of rice in the study area (Table 3.12).

At overall level some of the HHs reported that the price of the seed was found to be unreasonable due to private sellers collude (59.34%), no price control on prices of seed (32.00%), very few sellers (7.69%) prices not subsidized by the government (0.98%) and no cooperative/ government agencies involved in the control of price of soybean in the study area.

Table 3.12 :Reasons for unreasonable prices paid for seed inputs

Particulars	Not Subsidised	Very Few Sellers	No Govt. Salers	Pvt.Salers Collude	No Price Control	All of the Above
Rice						
Marginal	0.00	0.00	0.00	100.00	0.00	100.00
Small	0.00	0.00	0.00	100.00	0.00	100.00
Medium	0.00	25.00	0.00	50.00	25.00	100.00
Large	0.00	0.00	0.00	100.00	0.00	100.00
Very Large	0.00	0.00	0.00	0.00	0.00	0.00
Overall	0.00	8.33	0.00	83.33	8.33	100.00
Soybean						
Marginal	0.00	5.56	0.00	44.44	50.00	100.00
Small	0.00	17.95	0.00	69.23	12.82	100.00
Medium	4.88	4.88	0.00	63.41	26.83	100.00
Large	0.00	4.17	0.00	66.67	29.17	100.00
Very Large	0.00	5.88	0.00	52.94	41.18	100.00
Overall	0.98	7.69	0.00	59.34	32.00	100.00
Wheat						
Marginal	42.86	0.00	28.57	28.57	0.00	100.00
Small	8.33	33.33	41.67	16.67	0.00	100.00
Medium	16.67	50.00	0.00	33.33	0.00	100.00
Large	0.00	0.00	50.00	50.00	0.00	100.00
Very Large	0.00	0.00	50.00	50.00	0.00	100.00
Overall	13.57	16.67	34.05	35.71	0.00	100.00
Chickpea						
Marginal	0.00	0.00	0.00	77.78	22.22	100.00
Small	0.00	0.00	0.00	70.59	29.41	100.00
Medium	0.00	0.00	0.00	72.22	27.78	100.00
Large	0.00	0.00	0.00	33.33	66.67	100.00
Very Large	0.00	0.00	0.00	100.00	0.00	100.00
Overall	0.00	0.00	0.00	70.78	29.22	100.00

Source: Field Survey

The price of the seed of wheat was also found to be unreasonable due to private sellers collude (35.71%), no government salers (34.05%), very few sellers (16.67%), prices not subsidized by the government (13.57%) and no cooperative/ government agencies involved in the control of price of wheat in the area under study.

At overall level some of the HHs reported that the price of the seed was found to be unreasonable due to private sellers collude (70.78%) , no price control on prices of seed (29.22%), prices not subsidized by the government and no cooperative/ government agencies involved in the control of price of chickpea in the study area. The majority of HHs were reported similar finding with minor variation across size of farms as regards to reason of unreasonable price of seed in cultivation of rice, soybean, wheat and chickpea in the area under study.

3.5 Other Inputs Market

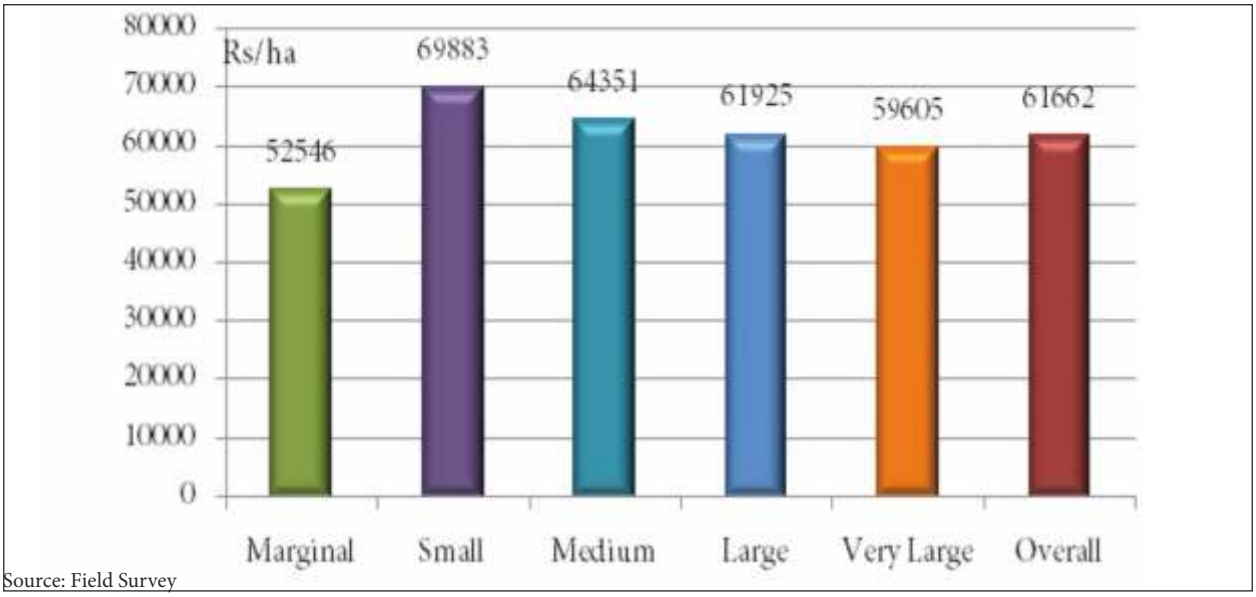
A part from seed the cultivators were found to use fertilizers, manures, plant protection chemicals viz. insecticides, pesticides, fungicides etc., diesel , electricity, human and animal labours, irrigation for production of crops in the area under study. Total expenses incurred in purchase of these inputs, their procurement, agencies involved, price paid by the cultivators, and reasons of unreasonable price their off are deal in this sub head.

3.5.1 Total Expenses Incurred in Purchase of other Inputs

The total expenses in purchase of inputs have been analysed for a hactere and on the basis of per farm of an average HH (Table 3.13).

3.5.1.1 Per Hectare

At over all level an average HH was found to invest Rs. 61662/ha on other inputs to



Source: Field Survey

Fig. 3.16 :Total expenses incurred for the purchase of other inputs across size of farmers

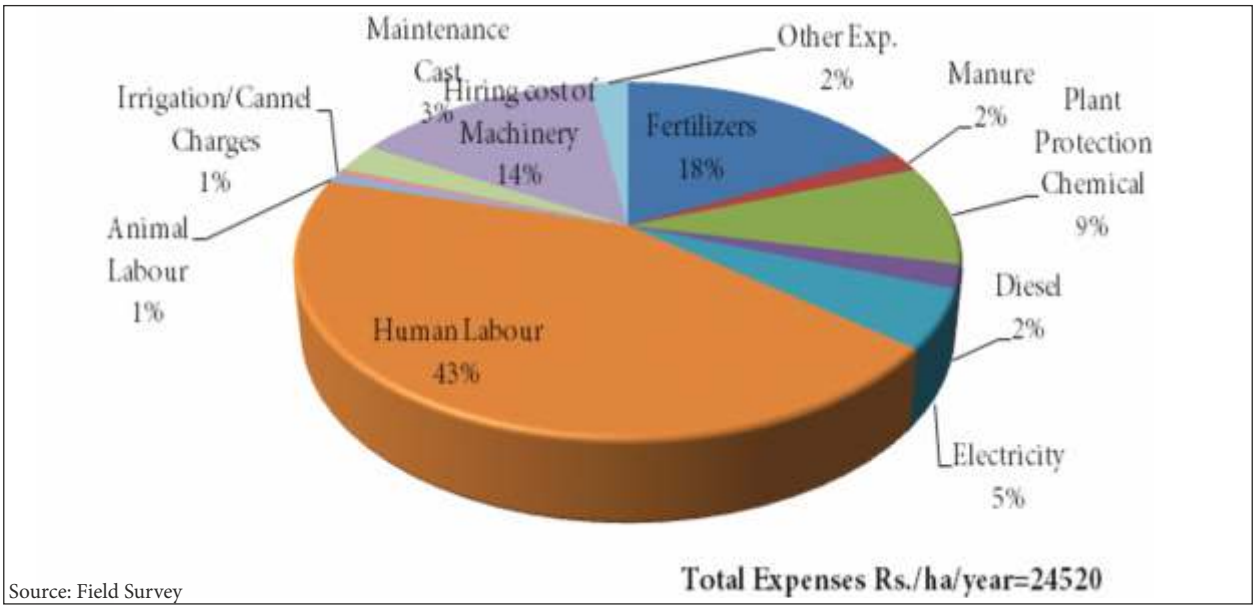
Out of total expenditure incurred (excluding leased in land) in cultivation of crops in a hectare was found to be maximum in human labour (43%) followed by fertilizer (18%), hiring of machinery (14%), plant protection chemicals (9%), electricity (5%), maintenance cost (3%), diesel (2%),animal labour (1%) and irrigation charges (1%) in the area under study (Fig.3.17).

These findings were found to be similar across size of farms although the expenditure incurred in leased in land was found to be more in small (65.43%) as compared to other size of farms viz. large (62.06%), very large (62.16%), medium (60.05%) and marginal (49.22%) in cultivation of crops. The percentage expenditure to total expenditure on all the expenses were found to be increased with increase in size of farms except expenditure on manure and animal labour, which was found to be decrease with increased in the size of farms in cultivation of crops. (Table 3.13)

Table 3.13 :Total expenses incurred for the purchase of other inputs (in Rs/ha/year)

Particulars	Marginal	Small	Medium	Large	Very Large	Overall
Expenses						
Fertilizers	4438	4112	4396	4215	4285	4289
Manure	558	470	461	397	383	454
Plant Protection Chemical	2050	2045	2732	2378	2016	2244
Diesel	462	344	439	581	816	528
Electricity	2433	1524	1102	796	587	1288
Human Labour	9735	9993	10573	11468	11463	10646
Animal Labour	574	258	185	0	0	203
Irrigation/Cannel Charges	172	150	136	114	146	144
Maintenance Cost	546	726	605	900	454	646
Hiring cost of Machinery	5211	4090	4150	2220	1929	3520
Other Exp.	505	443	928	427	476	556
Sun-Total	26684	24156	25707	23497	22555	24520
Leased in Land	25862	45727	38644	38429	37050	37142
Total	52546	69883	64351	61925	59605	61662
Expenses Percentage to Total						
Fertilizers	16.63	17.02	17.10	17.94	19.00	17.49
Manure	2.09	1.95	1.79	1.69	1.70	1.85
Plant Protection Chemical	7.68	8.47	10.63	10.12	8.94	9.15
Diesel	1.73	1.43	1.71	2.47	3.62	2.16
Electricity	9.12	6.31	4.29	3.39	2.60	5.25
Human Labour	36.48	41.37	41.13	48.81	50.82	43.42
Animal Labour	2.15	1.07	0.72	0.00	0.00	0.83
Irrigation/Cannel Charges	0.64	0.62	0.53	0.49	0.65	0.59
Maintenance Cost	2.05	3.00	2.35	3.83	2.01	2.64
Hiring cost of Machinery	19.53	16.93	16.14	9.45	8.55	14.36
Other Exp.	1.89	1.84	3.61	1.82	2.11	2.27
Sub-Total	**100 /50.78/**	**100 /34.57/**	**100 /39.95/**	**100 /37.94/**	**100 /37.84/**	**100 /39.76/**
Leased in Land	49.22	65.43	60.05	62.06	62.16	60.24
Total	**/100/**	**/100/**	**/100/**	**/100/**	**/100/**	**/100/**

Source: Field Survey



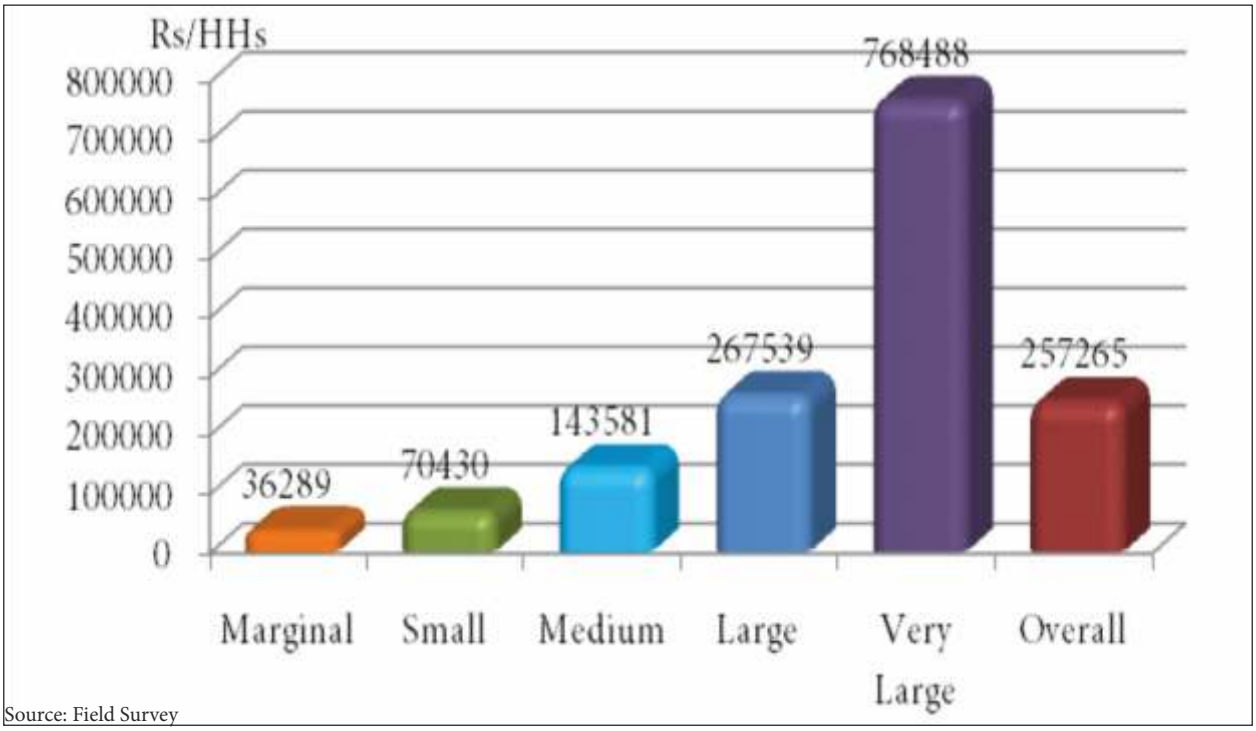
Source: Field Survey

Fig. 3.17 :Percentage contribution of other input to total expenses excluding leased-in land at overall level

cultivate crops for a year in which the share of leased in land was only 60.24 per cent. The total expenditure excluding land was found to be Rs. 24520 /ha /year in cultivation of crops in the area under study. The total expenditure on cultivation of crops in a hectare in a year was found to be vary from Rs. 52546 (marginal) to 69883 (small) per ha/year in the area under study (Fig.3.16).

3.5.1.2 Per Household

At overall level an average HH was found to invest Rs. 257265/- on other inputs to



Source: Field Survey

Fig. 3.18 :Total expenses incurred for the purchase of other inputs across size of farmers.

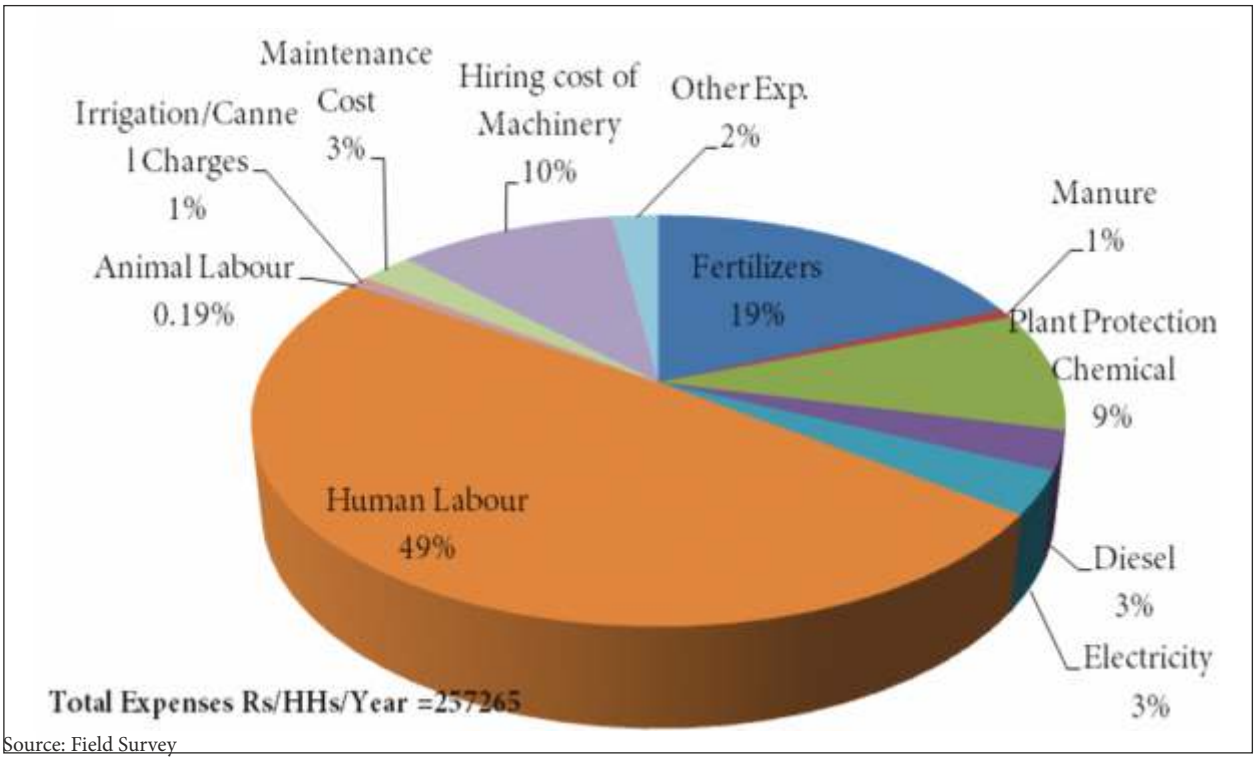
Table 3.14 :Total expenses incurred for the purchase of inputs (in Rs/HHs)

Particulars	Marginal	Small	Medium	Large	Very Large	Overall
Expenses						
Fertilizers	5696	11436	23550	45640	147581	46781
Manure	716	1308	2471	4298	383	1835
Plant Protection Chemical	2631	5688	14634	25751	69443	23629
Diesel	593	958	2352	6288	28107	7660
Electricity	3122	4238	5905	8620	20222	8421
Human Labour	12493	27790	56641	124178	394807	123182
Animal Labour	736	717	991	0	0	489
Irrigation/Cannel Charges	220	417	727	1234	5040	1528
Maintenance Cost	701	2018	3240	9745	15630	6267
Hiring cost of Machinery	6687	11375	22233	24043	66441	26156
Other Exp.	648	1233	4971	4624	16389	5573
Total	34243	67178	137714	254421	764043	251520
Leased in Land	2046	3252	5867	13118	4444	5745
Sub-Total	36289	70430	143581	267539	768488	257265
Expenses Percentage to Total						
Fertilizers	16.63	17.02	17.10	17.94	19.32	18.60
Manure	2.09	1.95	1.79	1.69	0.05	0.73
Plant Protection Chemical	7.68	8.47	10.63	10.12	9.09	9.39
Diesel	1.73	1.43	1.71	2.47	3.68	3.05
Electricity	9.12	6.31	4.29	3.39	2.65	3.35
Human Labour	36.48	41.37	41.13	48.81	51.67	48.98
Animal Labour	2.15	1.07	0.72	0.00	0.00	0.19
Irrigation/Cannel Charges	0.64	0.62	0.53	0.49	0.66	0.61
Maintenance Cost	2.05	3.00	2.35	3.83	2.05	2.49
Hiring cost of Machinery	19.53	16.93	16.14	9.45	8.70	10.40
Other Exp.	1.89	1.84	3.61	1.82	2.15	2.22
Total	**100 /94.36/**	**100 /95.38/**	**100 /95.91/**	**100 /95.1/**	**100 /99.42/**	**100 /97.77/**
Leased in Land	5.64	4.62	4.09	4.90	0.58	2.23
Sub-Total	**/100/**	**/100/**	**/100/**	**/100/**	**/100/**	**/100/**

Source: Field Survey

cultivate crops for a year in which the share of leased in land was found to be only 2.23 per cent. The per household total expenditure on cultivation of crops in a year was found to be increased with increase in size of farms from Rs. 36289 (marginal) to 768488 /ha/year in the area under study (Fig.3.18). The total expenditure excluding land was found to be Rs. 251520 /HH/year in cultivation of crops in the area under study (Table 3.14).

Out of total expenditure incurred (excluding leased in land) in cultivation of crops by every HH was found to be maximum in human labour (48.98%) followed by fertilizer (18.60%), hiring of machinery (10.40%), plant protection chemicals (9.36%), electricity



Source: Field Survey

Fig. 3.19 :Percentage contribution of others input to total expenses in an average HH farm

(3.35%), diesel (3.05%), maintenance cost (2.49%), manure (0.73%), irrigation charges (0.61%) animal labour (0.19%) and other charges (2.22%) in the area under study (Fig.3.19).

These findings were found to be similar across size of farms although, the expenditure incurred in leased in land to total expenditure incurred in cultivation of crops in a year was found to be more in marginal (5.64%) as compared to other size of farms viz. Small (4.62%), medium (4.09%), large (4.90%) and very large (0.58%) in cultivation of crops in a year. The percentage expenditure to total expenditures on all the expenses were found to be increased with increase in size of farm except expenses on electricity and hiring cost of machinery, which were found to be decreased with the increase in size of farms from 9.12 (marginal) to 2.65 (very large) and 19.53 (marginal) to 8.70 (very large) per cent respectively to total expenditure on cultivation of crops in a year in the area under study. (Table 3. 14)

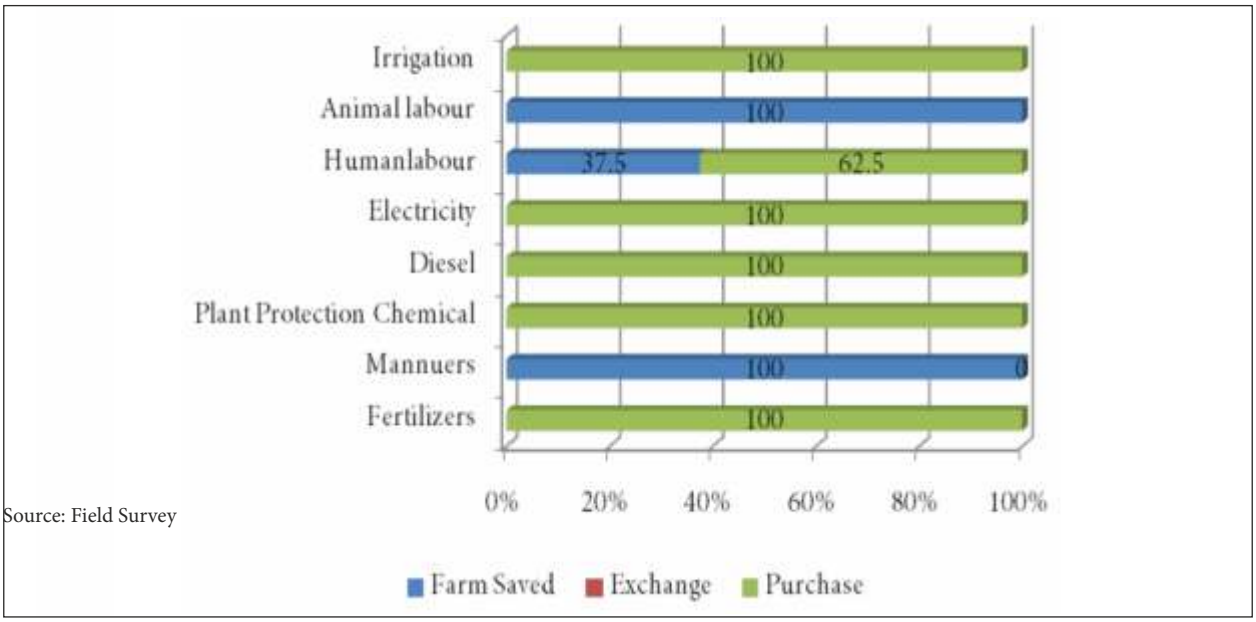
3.5.2Procurement of Inputs for Crop Production

Cent per cent sample HHs reported that they used to purchase fertilizer, plant protection chemicals, diesel, electricity and irrigation for production of major crops. Cent per cent sample HHs also reported that they use farm saved manures and animal labours for cultivation of crops (Fig.3.20). At overall level 37.50 and 62.50 per cent sample HHs were found to use farm saved and hired human labour, respectively in cultivation of crops. These findings found to be similar amongst different size of farms with minor variations, although sample HH related

Table 3.15 :Procurement of inputs for crop production (%)

Particulars	Farm Saved	Exchange	Purchase	Total
Fertilizers				
Marginal	0.00	0.00	100.00	100.00
Small	0.00	0.00	100.00	100.00
Medium	0.00	0.00	100.00	100.00
Large	0.00	0.00	100.00	100.00
Very Large	0.00	0.00	100.00	100.00
Overall	0.00	0.00	100.00	100.00
Mannure				
Marginal	100.00	0.00	0.00	100.00
Small	100.00	0.00	0.00	100.00
Medium	100.00	0.00	0.00	100.00
Large	100.00	0.00	0.00	100.00
Very Large	100.00	0.00	0.00	100.00
Overall	100.00	0.00	0.00	100.00
Plant Protection Chemical				
Marginal	0.00	0.00	100.00	100.00
Small	0.00	0.00	100.00	100.00
Medium	0.00	0.00	100.00	100.00
Large	0.00	0.00	100.00	100.00
Very Large	0.00	0.00	100.00	100.00
Overall	0.00	0.00	100.00	100.00
Diesel				
Marginal	0.00	0.00	100.00	100.00
Small	0.00	0.00	100.00	100.00
Medium	0.00	0.00	100.00	100.00
Large	0.00	0.00	100.00	100.00
Very Large	0.00	0.00	100.00	100.00
Overall	0.00	0.00	100.00	100.00
Electricity				
Marginal	0.00	0.00	100.00	100.00
Small	0.00	0.00	100.00	100.00
Medium	0.00	0.00	100.00	100.00
Large	0.00	0.00	100.00	100.00
Very Large	0.00	0.00	100.00	100.00
Overall	0.00	0.00	100.00	100.00
Human Labour				
Marginal	51.72	0.00	48.28	100.00
Small	43.24	0.00	56.76	100.00
Medium	27.42	0.00	72.58	100.00
Large	33.33	0.00	66.67	100.00
Very Large	22.22	0.00	77.78	100.00
Overall	37.50	0.00	62.50	100.00
Animal Labour				
Marginal	100.00	0.00	0.00	100.00
Small	100.00	0.00	0.00	100.00
Medium	100.00	0.00	0.00	100.00
Large	100.00	0.00	0.00	100.00
Very Large	0.00	0.00	0.00	100.00
Overall	100.00	0.00	0.00	100.00
Irrigation				
Marginal	0.00	0.00	100.00	100.00
Small	0.00	0.00	100.00	100.00
Medium	0.00	0.00	100.00	100.00
Large	0.00	0.00	100.00	100.00
Very Large	0.00	0.00	100.00	100.00
Overall	0.00	0.00	100.00	100.00

Source: Field Survey



Source: Field Survey

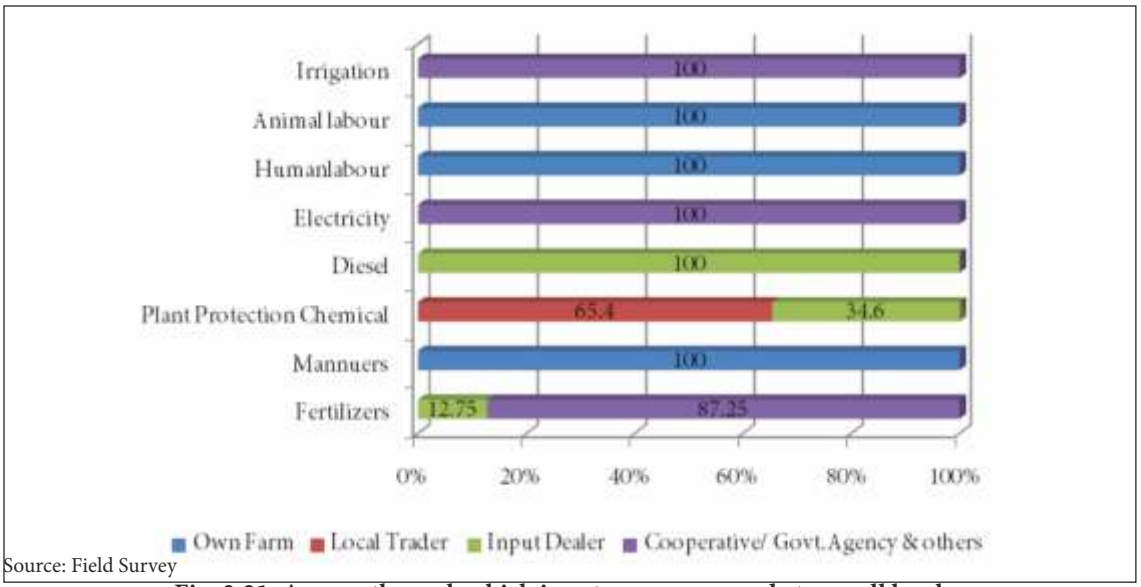
Fig. 3.20 :Procurement of inputs for crop production at overall level

to marginal holding were found to use more own farm saved human labour (51.72 %) as compared to other HHs viz. small (43.24%), medium (27.42%) large (33.33%) and very large (22.22%) for cultivation of crops in the area under study. (Table 3. 15)

3.5.3 Agency through input Procured

The cent per cent Sample HHs were found to use human labour, animal labour & manures from their own farm, while diesel and electricity & irrigation were found to procured from input dealers and govt. agencies, respectively for production of crops.

The majority of sample HHs were found to procure fertilizers from cooperative societies (87.25%) followed by input dealers (12.75%)(Fig.3.21). These findings are found to



Source: Field Survey

Fig. 3.21 :Agency through which inputs were procured at overall level

Table 3.16 :Agency through which inputs were procured (%)

Particulars	Own Farm	Local Trader	Input Dealer	Cooperative/ Govt.Agency& others	Total
Fertilizers					
Marginal	0.00	0.00	18.39	81.61	100.00
Small	0.00	0.00	13.51	86.49	100.00
Medium	0.00	0.00	10.48	89.52	100.00
Large	0.00	0.00	11.76	88.24	100.00
Very Large	0.00	0.00	3.70	96.30	100.00
Overall	0.00	0.00	12.75	87.25	100.00
Mannure					
Marginal	100.00	0.00	0.00	0.00	100.00
Small	100.00	0.00	0.00	0.00	100.00
Medium	100.00	0.00	0.00	0.00	100.00
Large	100.00	0.00	0.00	0.00	100.00
Very Large	100.00	0.00	0.00	0.00	100.00
Overall	100.00	0.00	0.00	0.00	100.00
Plant Protection Chemical					
Marginal	0.00	77.38	22.62	0.00	100.00
Small	0.00	66.36	33.64	0.00	100.00
Medium	0.00	60.48	39.52	0.00	100.00
Large	0.00	56.86	43.14	0.00	100.00
Very Large	0.00	62.96	37.04	0.00	100.00
Overall	0.00	65.40	34.60	0.00	100.00
Diesel					
Marginal	0.00	0.00	100.00	0.00	100.00
Small	0.00	0.00	100.00	0.00	100.00
Medium	0.00	0.00	100.00	0.00	100.00
Large	0.00	0.00	100.00	0.00	100.00
Very Large	0.00	0.00	100.00	0.00	100.00
Overall	0.00	0.00	100.00	0.00	100.00
Electricity					
Marginal	0.00	0.00	0.00	100.00	100.00
Small	0.00	0.00	0.00	100.00	100.00
Medium	0.00	0.00	0.00	100.00	100.00
Large	0.00	0.00	0.00	100.00	100.00
Very Large	0.00	0.00	0.00	100.00	100.00
Overall	0.00	0.00	0.00	100.00	100.00
Human Labour					
Marginal	100.00	0.00	0.00	0.00	100.00
Small	100.00	0.00	0.00	0.00	100.00
Medium	100.00	0.00	0.00	0.00	100.00
Large	100.00	0.00	0.00	0.00	100.00
Very Large	100.00	0.00	0.00	0.00	100.00
Overall	100.00	0.00	0.00	0.00	100.00
Animal Labour					
Marginal	100.00	0.00	0.00	0.00	100.00
Small	100.00	0.00	0.00	0.00	100.00
Medium	100.00	0.00	0.00	0.00	100.00
Large	100.00	0.00	0.00	0.00	100.00
Very Large	0.00	0.00	0.00	0.00	0.00
Overall	100.00	0.00	0.00	0.00	100.00
Irrigation					
Marginal	0.00	0.00	0.00	100.00	100.00
Small	0.00	0.00	0.00	100.00	100.00
Medium	0.00	0.00	0.00	100.00	100.00
Large	0.00	0.00	0.00	100.00	100.00
Very Large	0.00	0.00	0.00	100.00	100.00
Overall	0.00	0.00	0.00	100.00	100.00

Source: Field Survey

be similar amongst different size of farms with minor variations (Table 3.16).

3.5.4 Ranking ofQuality of Input Procured by the Farmers

The ranking of various inputs procured by the sample HHs were ranked into good, satisfactory and poor and presented in Table 3. 17. It is observed from the data that cent per cent sample HHs ranked good to diesel & plant protection chemical which were used by them for cultivation of crops. The majority of sample HHs reported good quality of fertilizer

Table 3.17 :Ranking of Quality of inputs procured by the respondents (%HHs)

Particulars	Good	Satisfactory	Poor	Total
Fertilizers				
Marginal	73.56	26.44	0.00	100.00
Small	68.47	31.53	0.00	100.00
Medium	63.71	36.29	0.00	100.00
Large	54.90	45.10	0.00	100.00
Very Large	44.44	55.56	0.00	100.00
Overall	64.75	35.25	0.00	100.00
Mannure				
Marginal	90.00	0.00	10.00	100.00
Small	93.75	2.08	4.17	100.00
Medium	95.56	0.00	4.44	100.00
Large	95.65	0.00	4.35	100.00
Very Large	75.00	0.00	25.00	100.00
Overall	91.57	0.60	7.83	100.00
Plant Protection Chemical				
Marginal	100.00	0.00	0.00	100.00
Small	100.00	0.00	0.00	100.00
Medium	100.00	0.00	0.00	100.00
Large	100.00	0.00	0.00	100.00
Very large	100.00	0.00	0.00	100.00
Overall	100.00	0.00	0.00	100.00
Diesel				
Marginal	100.00	0.00	0.00	100.00
Small	100.00	0.00	0.00	100.00
Medium	100.00	0.00	0.00	100.00
Large	100.00	0.00	0.00	100.00
Very large	100.00	0.00	0.00	100.00
Overall	100.00	0.00	0.00	100.00
Electricity				
Marginal	92.19	7.81	0.00	100.00
Small	87.06	12.94	0.00	100.00
Medium	94.85	5.15	0.00	100.00
Large	96.08	3.92	0.00	100.00
Very large	92.59	7.41	0.00	100.00
Overall	92.28	7.72	0.00	100.00
Human Labour				
Marginal	78.16	20.69	1.15	100.00
Small	81.08	12.61	6.31	100.00
Medium	78.23	19.35	2.42	100.00
Large	78.43	17.65	3.92	100.00
Very large	66.67	29.63	3.70	100.00
Overall	78.25	18.25	3.50	100.00
Animal Labour				
Marginal	92.31	7.69	0.00	100.00
Small	75.00	25.00	0.00	100.00
Medium	87.50	12.50	0.00	100.00
Large	100.00	0.00	0.00	100.00
Very large	0.00	0.00	0.00	0.00
Overall	70.69	12.07	0.00	82.76
Irrigation				
Marginal	89.36	10.64	0.00	100.00
Small	88.89	11.11	0.00	100.00
Medium	91.67	8.33	0.00	100.00
Large	95.00	5.00	0.00	100.00
Very large	100.00	0.00	0.00	100.00
Overall	91.00	9.00	0.00	100.00

Source: Field Survey

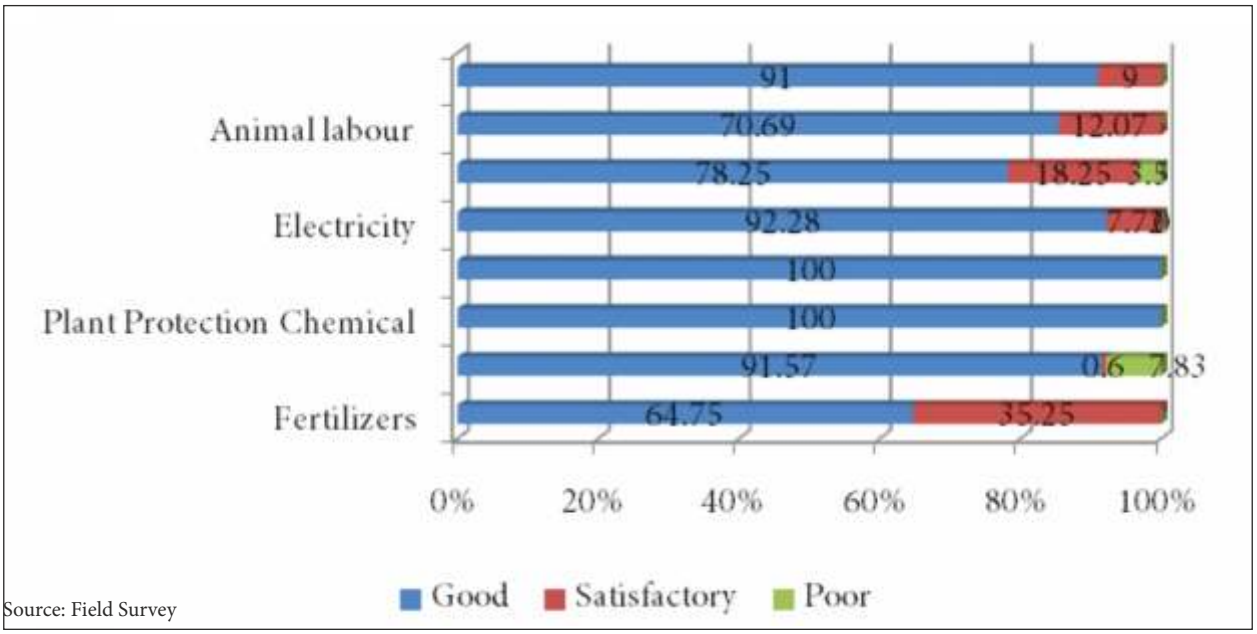


Fig. 3.22 :Ranking of inputs procured by the respondents at overall level

(64.75%), manures (91.57%), electricity (92.28%), human labour (78.25%), animal labour (70.69%) and irrigation (91.00%), which they procured for production of crops (Fig.3.22). These findings are found to be similar amongst different size of farms with minor variations.

3.5.5 Price Paid for Inputs

The price paid for purchase of various inputs by the sample HHs were ranked into good, satisfactory and poor and presented in Table 3.18.

It is observed from the data that at overall level the majority of sample HHs were reported good rank to the price of fertilizer

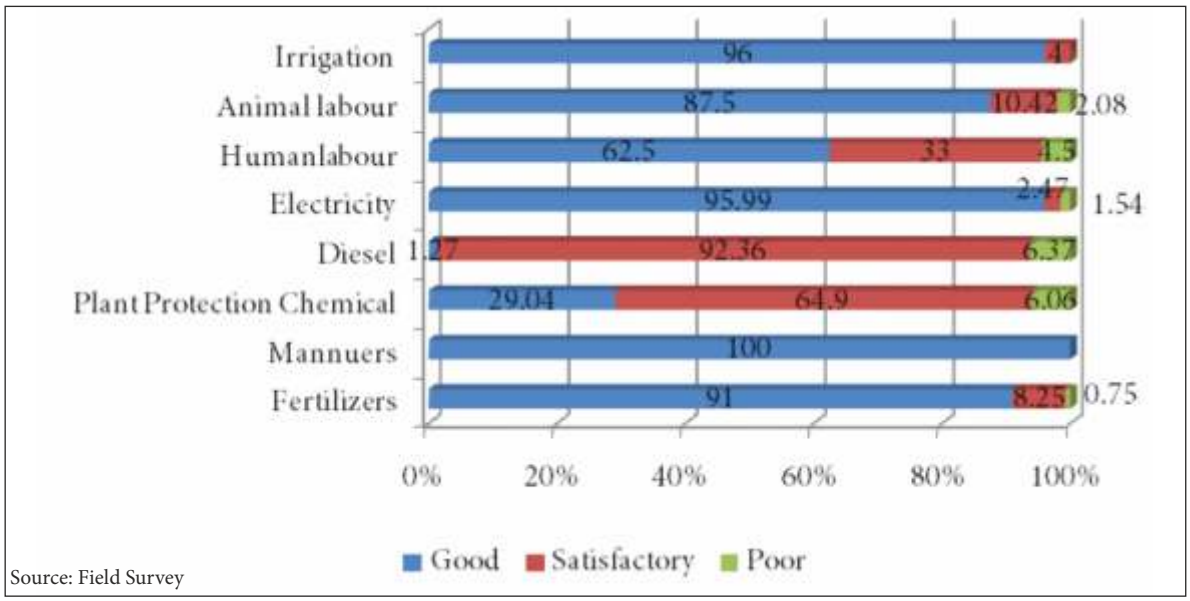


Fig. 3.23 :Ranking of price paid for inputs at overall level

Table 3.18 :Ranking of price paid for inputs (%HHs)

Particulars	Good	Satisfactory	Poor	Total
Fertilizers				
Marginal	89.66	9.20	1.15	100.00
Small	90.99	8.11	0.90	100.00
Medium	91.13	8.06	0.81	100.00
Large	90.20	9.80	0.00	100.00
Very Large	96.30	3.70	0.00	100.00
Overall	91.00	8.25	0.75	100.00
Mannure				
Marginal	100.00	0.00	0.00	100.00
Small	100.00	0.00	0.00	100.00
Medium	100.00	0.00	0.00	100.00
Large	100.00	0.00	0.00	100.00
Very Large	100.00	0.00	0.00	100.00
Overall	100.00	0.00	0.00	100.00
Plant Protection Chemical				
Marginal	30.95	61.90	7.14	100.00
Small	39.09	56.36	4.55	100.00
Medium	25.00	68.55	6.45	100.00
Large	15.69	76.47	7.84	100.00
Very large	25.93	70.37	3.70	100.00
Overall	29.04	64.90	6.06	100.00
Diesel				
Marginal	0.00	97.22	2.78	100.00
Small	2.86	97.14	0.00	100.00
Medium	2.08	95.83	2.08	100.00
Large	0.00	75.00	25.00	100.00
Very large	0.00	85.71	14.29	100.00
Overall	1.27	92.36	6.37	100.00
Electricity				
Marginal	98.44	1.56	0.00	100.00
Small	100.00	0.00	0.00	100.00
Medium	96.91	1.03	2.06	100.00
Large	92.16	7.84	0.00	100.00
Very large	81.48	7.41	11.11	100.00
Overall	95.99	2.47	1.54	100.00
Human Labour				
Marginal	73.56	21.84	4.60	100.00
Small	72.97	20.72	6.31	100.00
Medium	58.87	38.71	2.42	100.00
Large	35.29	58.82	5.88	100.00
Very large	51.85	44.44	3.70	100.00
Overall	62.50	33.00	4.50	100.00
Animal Labour				
Marginal	92.31	7.69	0.00	100.00
Small	87.50	12.50	0.00	100.00
Medium	81.25	12.50	6.25	100.00
Large	100.00	0.00	0.00	100.00
Very large	0.00	0.00	0.00	0.00
Overall	87.50	10.42	2.08	100.00
Irrigation				
Marginal	100.00	0.00	0.00	100.00
Small	96.83	3.17	0.00	100.00
Medium	100.00	0.00	0.00	100.00
Large	100.00	0.00	0.00	100.00
Very large	40.00	60.00	0.00	100.00
Overall	96.00	4.00	0.00	100.00

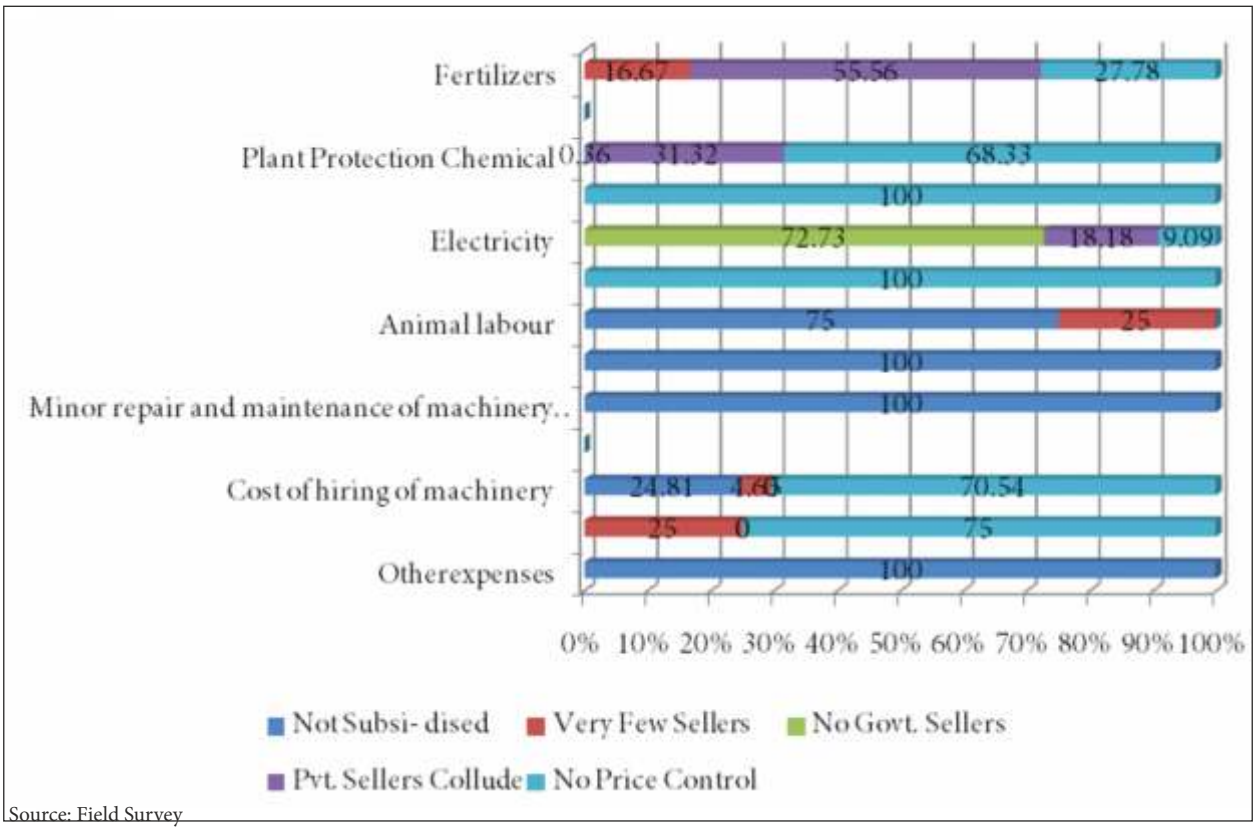
Source: Field Survey

(91.00%), manures (100.00%), electricity (95.99%), animal labour (87.50%), irrigation (96.00%) and human labour (62.50%), while only 64.90 and 92.36 per cent sample HHs reported the price of plant protection chemical and diesel were satisfactory (Fig.3.23). These findings are found to be similar amongst different size of farms with minor variations.

3.5.6 Reasons of Unreasonable Price of Inputs

The various reasons of unreasonable price of different inputs used by the sample HHs in cultivation of crops are observed and presented in Table 3. 19. It is observed from the data that at over all level the majority of sample HHs reported that the main reasons of unreasonable rate of fertilizer as reported by majority of sample HHs were private sellers collude (55.56), no price control (27.78%) and very few sellers (16.67%). The majority of sample HHs reported that the main reasons of unreasonable price of plant protection chemicals were no price control, private sellers collude and no subsidy available to purchase inputs as reported by 68.33, 31.32 and 0.36 per cent of sample HHs respectively.

The majority of sample HHs reported that the main reasons of unreasonable rate of human labour and diesel was no price control (100.00%). The cent per cent sample HHs reported that the main reason of unreasonable price of minor repair and irrigation was no



Source: Field Survey

Fig. 3.24 :Reasons for unreasonable prices paid for the inputs at overall level

Table 3.19 :Reasons for unreasonable prices paid for the inputs (%)

Particulars	Not Subsi-dised	Very Few Salers	No Govt. Salers	Pvt.Salers Collude	No Price Control	Total
Fertilizers						
Marginal	0.00	22.22	0.00	44.44	33.33	100.00
Small	0.00	10.00	0.00	50.00	40.00	100.00
Medium	0.00	18.18	0.00	54.55	27.27	100.00
Large	0.00	20.00	0.00	80.00	0.00	100.00
Very Large	0.00	0.00	0.00	100.00	0.00	100.00
Total	0.00	16.67	0.00	55.56	27.78	100.00
Manure						
Marginal	0.00	0.00	0.00	0.00	0.00	0.00
Small	0.00	0.00	0.00	0.00	0.00	0.00
Medium	0.00	0.00	0.00	0.00	0.00	0.00
Large	0.00	0.00	0.00	0.00	0.00	0.00
Very Large	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00
Plant Protection Chemical						
Marginal	0.00	0.00	0.00	27.59	72.41	100.00
Small	0.00	0.00	0.00	41.79	58.21	100.00
Medium	1.08	0.00	0.00	27.96	70.97	100.00
Large	0.00	0.00	0.00	30.23	69.77	100.00
Very Large	0.00	0.00	0.00	25.00	75.00	100.00
Total	0.36	0.00	0.00	31.32	68.33	100.00
Diesel						
Marginal	0.00	0.00	0.00	0.00	100.00	100.00
Small	0.00	0.00	0.00	0.00	100.00	100.00
Medium	0.00	0.00	0.00	0.00	100.00	100.00
Large	0.00	0.00	0.00	0.00	100.00	100.00
Very Large	0.00	0.00	0.00	0.00	100.00	100.00
Total	0.00	0.00	0.00	0.00	100.00	100.00
Electricity						
Marginal	0.00	0.00	0.00	100.00	0.00	100.00
Small	0.00	0.00	0.00	0.00	0.00	100.00
Medium	0.00	0.00	50.00	0.00	50.00	100.00
Large	0.00	0.00	100.00	0.00	0.00	100.00
Very Large	0.00	0.00	80.00	20.00	0.00	100.00
Total	0.00	0.00	72.73	18.18	9.09	100.00
Human Labour						
Marginal	0.00	0.00	0.00	0.00	100.00	100.00
Small	3.33	0.00	0.00	0.00	96.67	100.00
Medium	0.00	0.00	0.00	0.00	100.00	100.00
Large	0.00	0.00	0.00	0.00	100.00	100.00
Very Large	7.69	0.00	0.00	0.00	92.31	100.00
Total	0.00	0.00	0.00	0.00	100.00	100.00
Animal Labour						
Marginal	100.00	0.00	0.00	0.00	0.00	100.00
Small	50.00	50.00	0.00	0.00	0.00	100.00
Medium	100.00	0.00	0.00	0.00	0.00	100.00
Large	0.00	0.00	0.00	0.00	0.00	100.00
Very Large	0.00	0.00	0.00	0.00	0.00	100.00
Total	75.00	25.00	0.00	0.00	0.00	100.00
Irrigation						
Marginal	0.00	0.00	0.00	0.00	0.00	100.00
Small	100.00	0.00	0.00	0.00	0.00	100.00
Medium	0.00	0.00	0.00	0.00	0.00	100.00
Large	0.00	0.00	0.00	0.00	0.00	100.00
Very Large	100.00	0.00	0.00	0.00	0.00	100.00
Total	100.00	0.00	0.00	0.00	0.00	100.00

Cont....

Minor Repair and Maintenance of Machinery and Equipment						
Marginal	0.00	0.00	0.00	0.00	0.00	100.00
Small	100.00	0.00	0.00	0.00	0.00	100.00
Medium	0.00	0.00	0.00	0.00	0.00	100.00
Large	0.00	0.00	0.00	0.00	0.00	100.00
Very Large	100.00	0.00	0.00	0.00	0.00	100.00
Total	100.00	0.00	0.00	0.00	0.00	100.00
Interest						
Marginal	0.00	0.00	0.00	0.00	0.00	100.00
Small	0.00	0.00	0.00	0.00	0.00	100.00
Medium	0.00	0.00	0.00	0.00	0.00	100.00
Large	0.00	0.00	0.00	0.00	0.00	100.00
Very Large	0.00	0.00	0.00	0.00	0.00	100.00
Total	0.00	0.00	0.00	0.00	0.00	100.00
Cost of Hiring of Machinery						
Marginal	0.00	0.00	0.00	0.00	100.00	100.00
Small	12.90	6.45	0.00	0.00	80.65	100.00
Medium	11.36	2.27	0.00	0.00	86.36	100.00
Large	43.75	18.75	0.00	0.00	37.50	100.00
Very Large	94.12	0.00	0.00	0.00	5.88	100.00
Total	24.81	4.65	0.00	0.00	70.54	100.00
Lease Rent for Land						
Marginal	0.00	0.00	0.00	0.00	0.00	100.00
Small	0.00	0.00	0.00	0.00	0.00	100.00
Medium	0.00	50.00	0.00	0.00	50.00	100.00
Large	0.00	0.00	0.00	0.00	100.00	100.00
Very Large	0.00	0.00	0.00	0.00	0.00	100.00
Total	0.00	25.00	0.00	0.00	75.00	100.00
Other Expenses						
Marginal	100.00	0.00	0.00	0.00	0.00	100.00
Small	100.00	0.00	0.00	0.00	0.00	100.00
Medium	100.00	0.00	0.00	0.00	0.00	100.00
Large	0.00	0.00	0.00	0.00	0.00	100.00
Very Large	0.00	0.00	0.00	0.00	0.00	100.00
Total	100.00	0.00	0.00	0.00	0.00	100.00

Source: Field Survey

3.6 Summary of the Chapter

This chapter deals with cropping pattern, annual income, output & input market structure of major crops viz. rice, soybean, wheat and chickpea of sample HHs in the area under study.

The study reveals that Kharif (50.31%) and Rabi (49.69%) were found to be major seasons in which an average HH used to allocate his maximum net operated area. Soybean(91%), rice (7%) & Urd (2%) and wheat (70%), chickpea (26%) & garlic (2%) were found to be major farm products grown in kharif and rabi season, respectively by the majority of sample HHs. The cropping intensity of an average HH was found to be used his operated area 198 per cent, which was found to be increased with increase in size of farms from 195 (marginal) to 199 (very large) per cent per year. He was found to harvested of 3526, 3435, 1053 and 999 kg/ha

of wheat, rice, soybean and chickpea, respectively with the average yield of 2253 kg./ha of all these crops and the average yield of all these corps was found to be increased with the increases in size of farms from 2167 (marginal) to 2343 (very large) kg./ha.

He was found to receive Rs. 49778 per ha in a year from cultivation crops. He was used to receive highest sale value of main product from wheat (Rs.64907/ha) followed by rice (Rs. 59031/ha), chickpea (Rs.41140/ha.) and soybean (Rs.34035/ha). He was also found to receive more gross sale value of main as well as by-product from wheat (Rs.72427/ha) followed by rice (Rs.67013/ha), chickpea (Rs.42338/ha) and soybean (Rs.35648/ha). Although the price received by him from a kg of grain was found to be highest in case of chickpea (Rs.41.18/kg) as compared to soybean (Rs. 32.33/kg), wheat (18.41/kg) and rice (Rs.17.19/kg). As the size of holding increases the price received per kg of grain was found to be increased in all the crops in the area under study.

It is also observed from the study that the majority of sample HHs were found to sell rice and wheat to cooperative/govt. agencies followed by input dealers and regulated market & local village. However, none of the HH was found to sell produce of rice and wheat to local village merchant and input dealers respectively, while the majority of sample HHs related to soybean and chick pea were found to dispose of the produce through regulated market followed by local village merchant and input dealers & cooperative / govt. agencies and none the HH was found to sell soybean produce to cooperative / govt. agencies.

The majority of sample HH were found to be satisfied from the disposal of crop produces in the market. The others were found to dissatisfy due to delayed payment followed by lower market price. The main reason of dissatisfaction was lower market price, unreasonable price due to no govt. purchase,very few sellers (35.48%) and private sellers collude. The majority of HHs growing rice (70.48%), soybean (71.72%) and wheat (92.23%) production, respectively found that the price of the produce was reasonable, while majority of chickpea growers (87.98%) reported was non- reasonable price.

The majority of HHs were found use to farm saved seed (53.44%), followed by exchanged seed (28.87%) and purchased from the others (17.69%). None of the sample HHs reported that he borrowed seed from the others for cultivation of major crops expect soybean. The majority of selected soybean growers reported that they used to purchase seed (56.59%), followed by farm saved seed (38.08%), exchanged from the others (3.46%), and borrowed from the others (1.87%).

An average rice, soybean, wheat and chickpea growers were found to spend Rs. 2624, Rs. 5763, Rs.4052 and Rs. 5254/- respectively on seed to cultivate crops in a hectare of land. The majority (> 60%) of HHs reported that the quality of seed purchased by them at reasonable price from different agencies for cultivation of crops was of good followed by satisfactory quality.. The others who reported price of the seed was unreasonable due to private sellers collude, no price control on prices of seed , prices not subsidized by the government and no cooperative/ government agencies involved in the control of price of crop produce in the area under study.

An average HH was found to invest Rs. 61662/ha/year on other inputs to cultivate crops share of leased in land was 60.24 per cent. The total expenditure excluding land was found to be Rs. 24520 /ha /year in cultivation of crops in the area under study. The total expenditure on cultivation of crops in a hectare in a year was found to vary across size of farms from Rs. 52546 (marginal) to 69883 (small) per ha/year in the area under study. Out of total expenditure incurred (excluding leased in land) in cultivation of crops per hectare was found to be maximum in human labour (43%) followed by fertilizer (18%), hiring of machinery (14%), plant protection chemicals (9%), electricity (5%), maintenance cost (3%), diesel (2%),animal labour (1%) and irrigation charges (1%) in the area under study The percentage expenditure to total expenditure on all the expenses were found to increase with increased size of farms except expenditure on manure and animal labour, which was found to be decreased with increased in the size of farms in cultivation of crops.

Cent per cent sample HHs reported that they used to purchase fertilizer, plant protection

chemicals, diesel, electricity and irrigation for production of major crops. Cent per cent sample farmers also reported that they used farm saved manures and animal labours for cultivation of crops. At overall level 37.50 and 62.50 per cent sample HHs were found to use farm saved and hired human labour, respectively in cultivation of crops.

The majority of sample HHs were found to procure fertilizers from cooperative societies (87.25%) followed by input dealers cent per cent sample HHs were found to ranke good to diesel & plant protection chemical which were used by them for cultivation of crops. The majority of sample HHs reported that the quality of fertilizer (64.75%), manures (91.57%), electricity (92.28%), plant protection chemical (100%), human labour (78.25%), animal labour (70.69%) and irrigation (91.00%) were good, which they procured for production of crops.

The cent percent sample HHs reported good ranking to the price of manure followed by fertilizer (91.00%), manures cent per cent, electricity (95.99%), animal labour (87.50%), irrigation (96.00%) and human labour (62.50%), while only 64.90 and 92.36 per cent sample HHs reported the price of plant protection chemical and diesel were satisfactory The HHs reported the reasons of unreasonable price of plant protection chemicals were no price control, at overall level the majority of sample HHs reported that the main reasons of unreasonable rate of fertilizer as reported by majority of sample HHs were private sellers collude (55.56), no price control (27.78%) and very few sellers (16.67%). The majority of sample HHs reported that the main reasons of unreasonable price of plant protection chemicals were no price control, private sellers collude and no subsidy available to purchase inputs as reported by 68.33, 31.32 and 0.36 per cent of sample HHs, respectively

The majority of sample HHs reported that the main reasons of unreasonable rate of human labour and diesel was no price control (100.00%). The cent per cent sample HHs reported that the main reason of unreasonable price of minor repair and irrigation was no subsidy available in the market. The majority of sample HHs reported that the main reasons of

unreasonable rate of cost of hiring of machinery were no price control, no subsidy available and very few sellers as reported by 70.54, 24.81 and 4.65 per cent of sample HHs respectively (Fig.3.24). The majority of sample HHs (75%) reported that the main reasons of unreasonable rate of leased in land were no price control and very few sellers (25%).

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CHAPTER - IV

ANIMAL PRODUCTS AND INPUTS MARKET

This chapter deals with the marketing of animal products and inputs related to animal husbandry in the area under study. It includes agencies involved in disposal of animal products, expenditure incurred in sell of animal products & purchase of inputs related to animal husbandry with producers preferences regarding quality and price paid of dairy products and reasons of unreasonable price paid for the inputs related to animal husbandry.

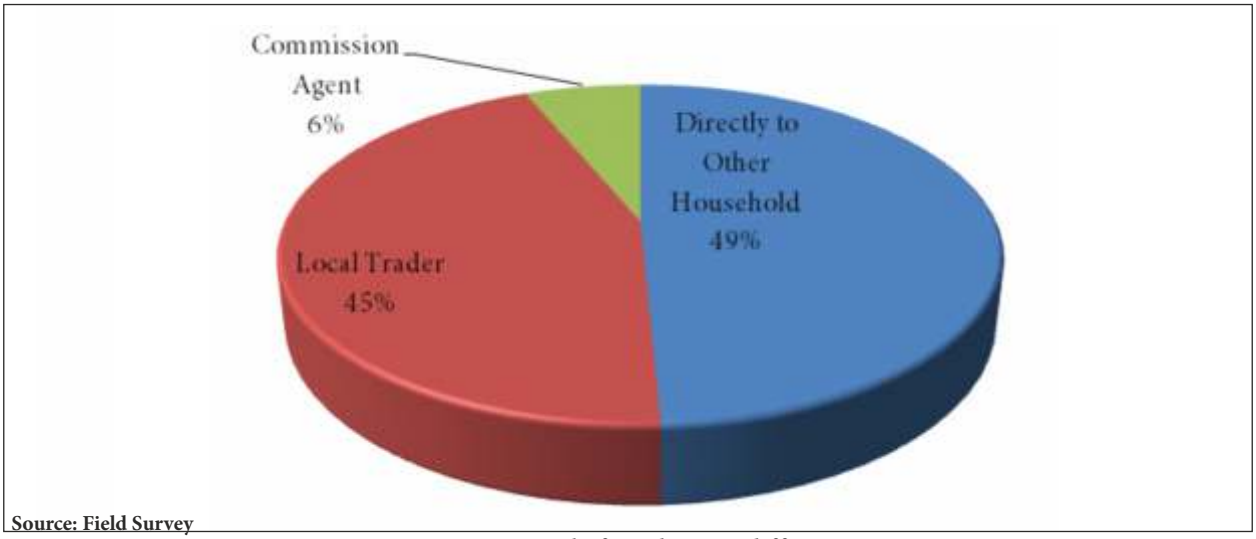
4.1 Agencies involved in Disposal of Animal Products

The agencies which are involved in disposal of products related to animal husbandry are identified and presented in table 4.1.

Table 4.1:Disposal of products related to animal husbandry (%)

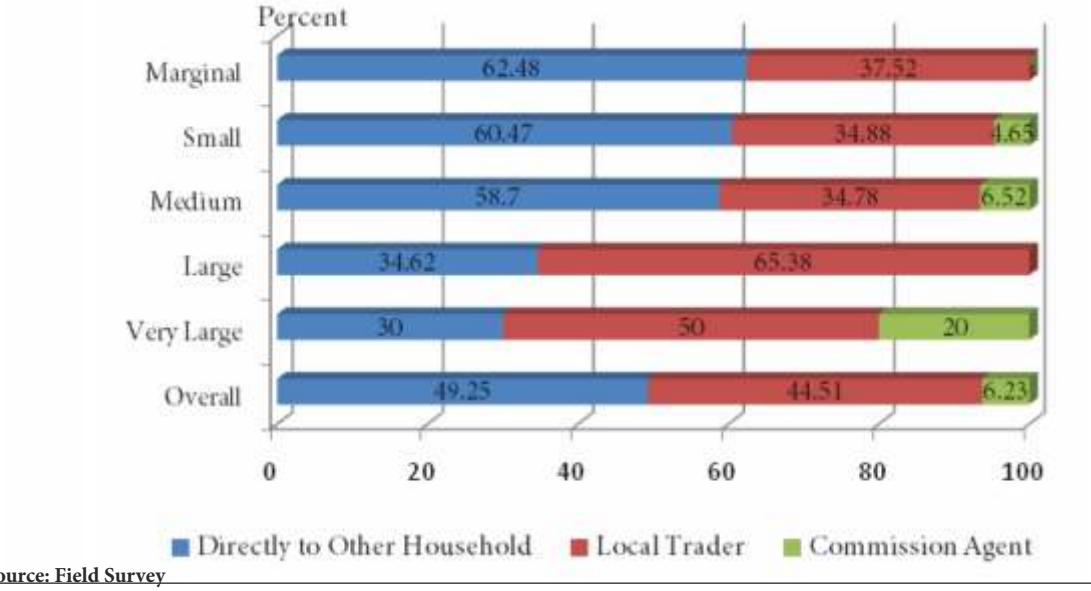
Particulars	Marginal	Small	Medium	Large	Very Large	Overall
Agencies						
Directly to Other Household	62.48	60.47	58.70	34.62	30.00	49.25
Local Trader	37.52	34.88	34.78	65.38	50.00	44.51
Commission Agent	0.00	4.65	6.52	0.00	20.00	6.23
Total	100.00	100.00	100.00	100.00	100.00	100.00
Reasons for Dissatisfaction						
Lower than Market Price	0.00	0.00	0.00	0.00	0.00	0.00
Delayed Payments	100.00	100.00	100.00	100.00	100.00	100.00
Deductions for Loans Borrowed	0.00	0.00	0.00	0.00	0.00	0.00
Faulty Weighing and Grading	0.00	0.00	0.00	0.00	0.00	0.00
Total	100.00	100.00	100.00	100.00	100.00	100.00

Source: Field Survey



Source: Field Survey

Fig.4.1 :Disposal of products to different agencies



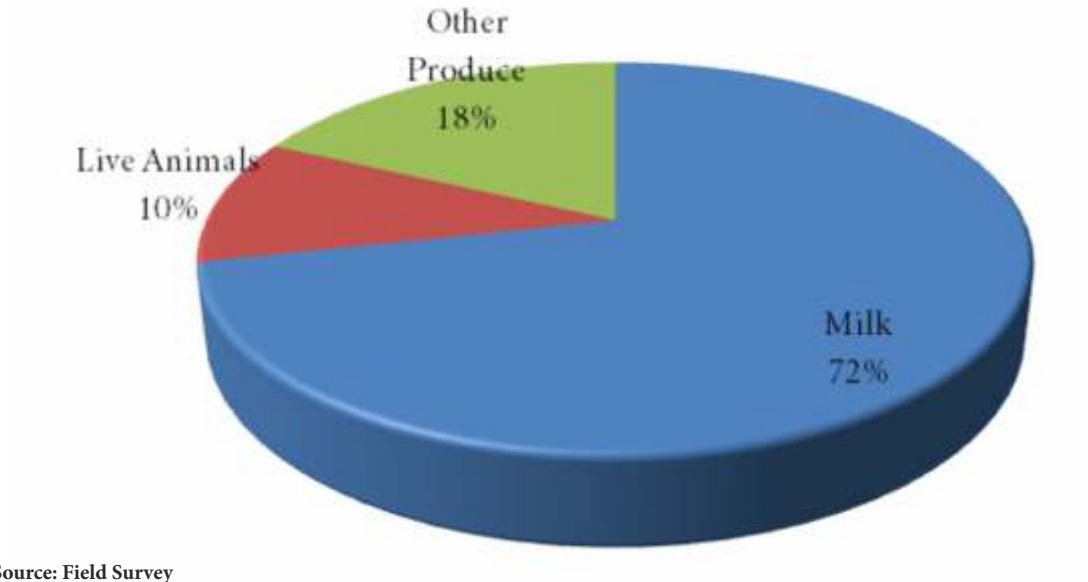
Source: Field Survey

Fig.4.2 :Disposal of animal products to different agencies across size of farms

It is observed from the data that the majority of HHs at overall level were found to be dispose the animal products directly to other HHs (49%) followed by local traders (45%) and commission agent (6%) (Fig. 4.1). The majority of marginal and small sample HHs were found to sell animal products directly to the other HHs while, majority of large and very large HHs dispose animal products to local traders in the area under study. Only 20, 6.52 and 4.65 per cent very large, medium and small HHs, respectively found to be sold their animal products to commission agent (Fig. 4.2). The cent percent sample HHs across size of farms reported that they were dissatisfied with the disposal of animal products due to delayed payment.

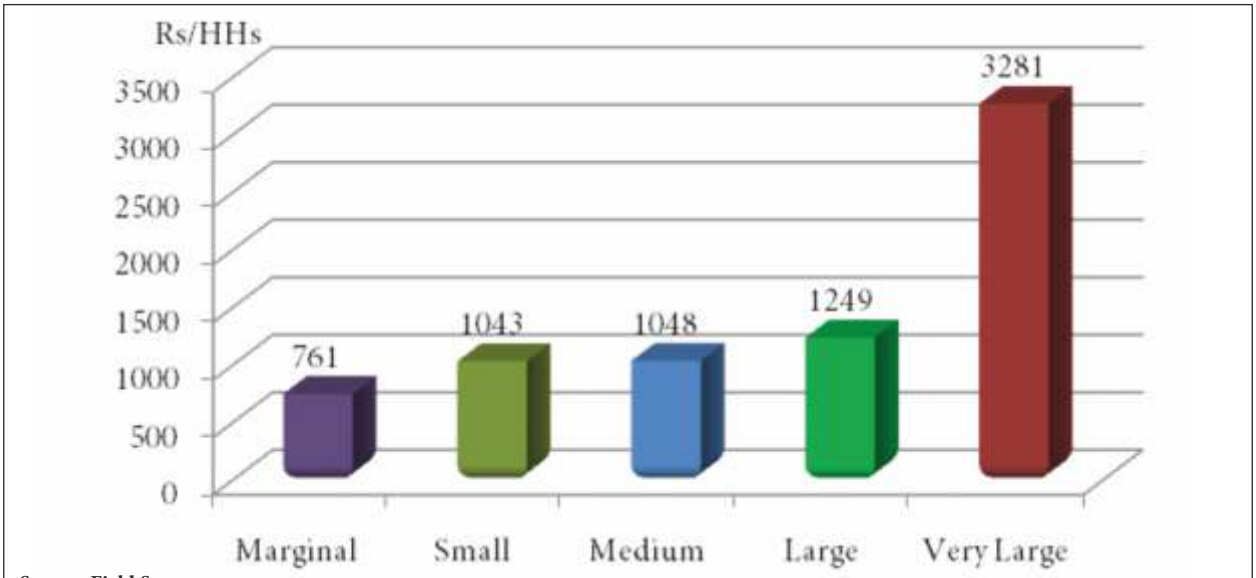
4.2 Product wise Sell of Animal Products

The product wise sell of various animal products viz. milk, live animal and others products across size of farms were identified and presented in table 4.2.



Source: Field Survey

Fig.4.3 :Produce wise sale of animal products



Source: Field Survey

Fig.4.4 :Total sale value of animal products across size of farms

It is observed from the data that at overall level an average HHs was found to sell animal products of Rs. 7381 per year, out of which, the sell of milk was found to be maximum (72%) followed by sell of other products (18%) and live animal (10%) (Fig. 4.3). These finding were found to be similar across size of farms with minor variation. Although, as the size of farm increases, the total sale of milk, live animal and other produce was found to be increased in the area under study (Fig. 4.4).

Table 4.2 :Produce wise sell of animal products (in Rs/year)

Particulars	Milk	Live Animals	Other Produce	Total
Value (in Rs/HHs)				
Marginal	545	51	165	761
Small	706	132	204	1042
Medium	736	90	221	1047
Large	965	75	210	1250
Very Large	2333	419	529	3281
Overall	5285	767	1329	7381
Percentage				
Marginal	71.62	6.70	21.68	100
Small	67.75	12.67	19.58	100
Medium	70.30	8.60	21.11	100
Large	77.20	6.00	16.80	100
Very Large	71.11	12.77	16.12	100
Overall	71.60	10.39	18.01	100

Source: Field Survey

4.3 Expenditure Incurred for Purchase of Inputs

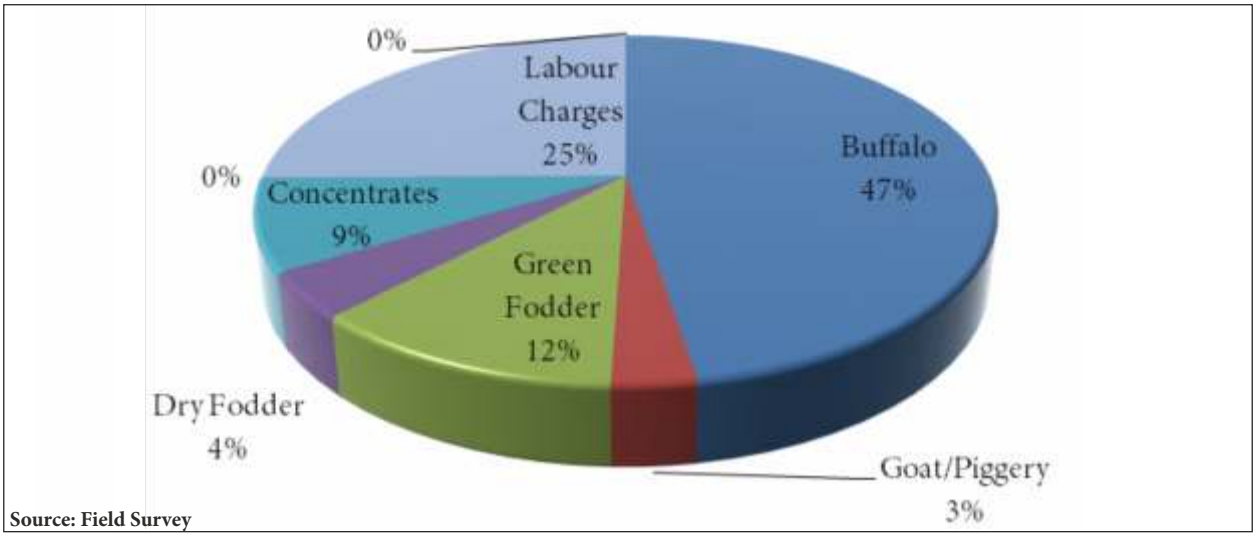
The expenditure incurred in purchase of inputs related to animal husbandry across size of farms is analysed and presented in table 4.3.

It is observed from the data that at overall level an average HH was found to invested Rs. 16053 per year for purchase of inputs related to animal husbandry in his farm out of which, expenses incurred in cost of cattle and buffalo (47%)was found to be more as compared to labour charges (25%), green fodder (12%), concentrate (9%), dry fodder (4%) and cost of seed/goat or pig (3%) in the area under study (Fig. 4.5). These finding were found to be similar across size of farms with minor variation in the area under study, although, none of the large and very large HHs were found to spend any on cost of animal seeds related to sheep/goat/pig.

Table 4.3 :Expenses incurred in purchase of inputs (Rs/HHs)

Particulars	Cost of Animal Seeds		Animal Feed			Veterinary Charges	Labour Charges	Other	Total Expenses (Rs)
	Cattle/ Buffalo	Sheep/ Goat/Piggery	Green Fodder	Dry Fodder	Concentrates				
Marginal	6098	402	1268	632	923	26	2660	15	12024
Small	6347	1604	1404	736	1098	28	3367	15	14599
Medium	6694	452	1369	521	1048	27	2915	13	13039
Large	8172	0	2008	690	1374	36	3871	25	16176
Very Large	10622	0	3230	776	2350	56	7311	70	24415
Overall	7587	492	1856	671	1359	35	4025	28	16053
Percentage to Total									
Marginal	50.72	3.34	10.55	5.26	7.68	0.22	22.12	0.12	100.00
Small	43.48	10.99	9.62	5.04	7.52	0.19	23.06	0.10	100.00
Medium	51.34	3.47	10.50	4.00	8.04	0.21	22.36	0.10	100.00
Large	50.52	0.00	12.41	4.27	8.49	0.22	23.93	0.15	100.00
Very Large	43.51	0.00	13.23	3.18	9.63	0.23	29.94	0.29	100.00
Overall	47.26	3.06	11.56	4.18	8.47	0.22	25.07	0.17	100.00

Source: Field Survey



Source: Field Survey

Fig.4.5 :Percent Expenses incurred to purchase inputs for animal husbandry

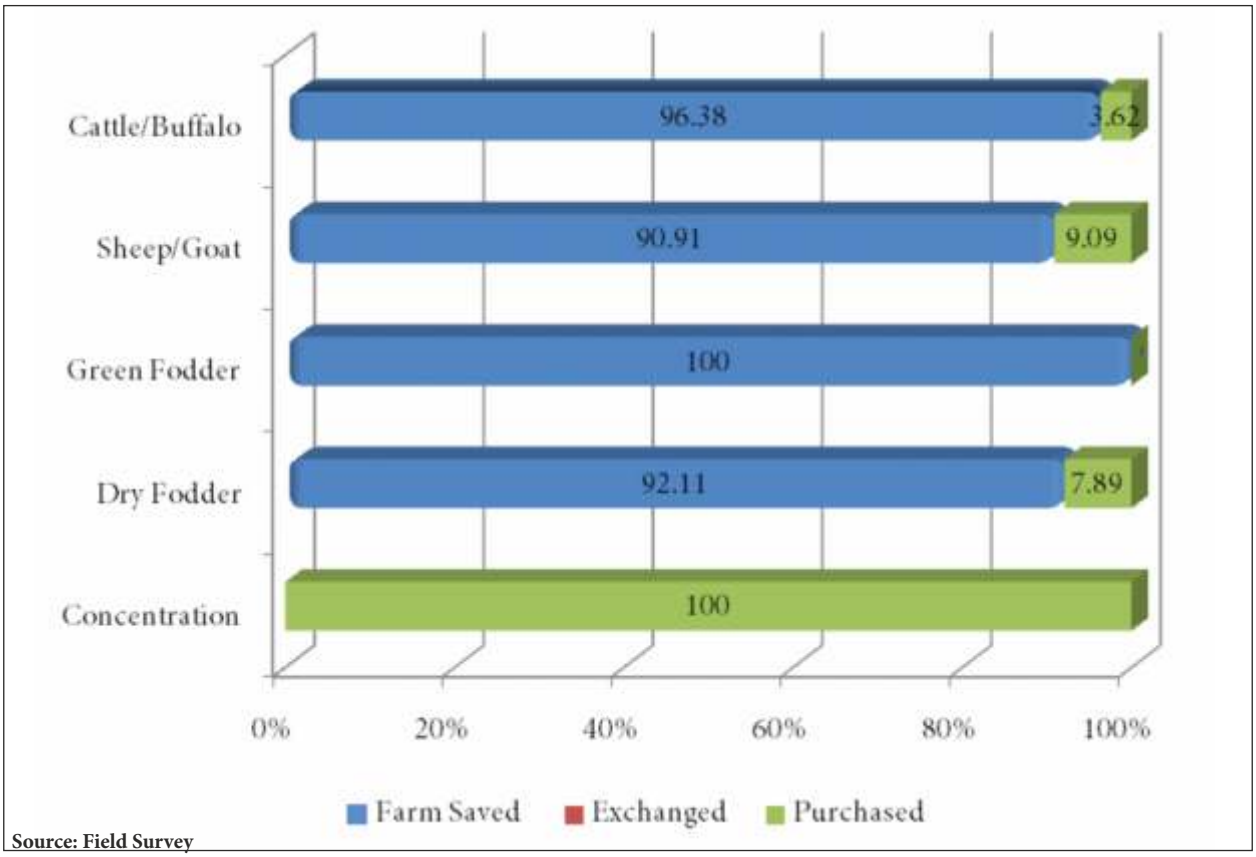
4.4 Agencies Involved in Procurement of Inputs

The various agencies which were found to be involved in procurement of inputs related to animal husbandry across size of farms were identified and presented in table 4.4. It is observed from the data that the cent per cent HHs were found to use farm saved green fodder and purchase concentrates for their cattle. The majority of HHs were found to procure cattle/buffalo (96.38%), sheep/goat (90.91%) and dry fodder (92.11%) from their own farm. Very few respondents were found to purchase cattle/buffalo (3.62%), sheep/goat (9.09%) and dry fodder (7.89%) from the market in the area under study (Fig. 4.6).

Table 4.4 :Procurement of inputs related to animal husbandry (%HH)

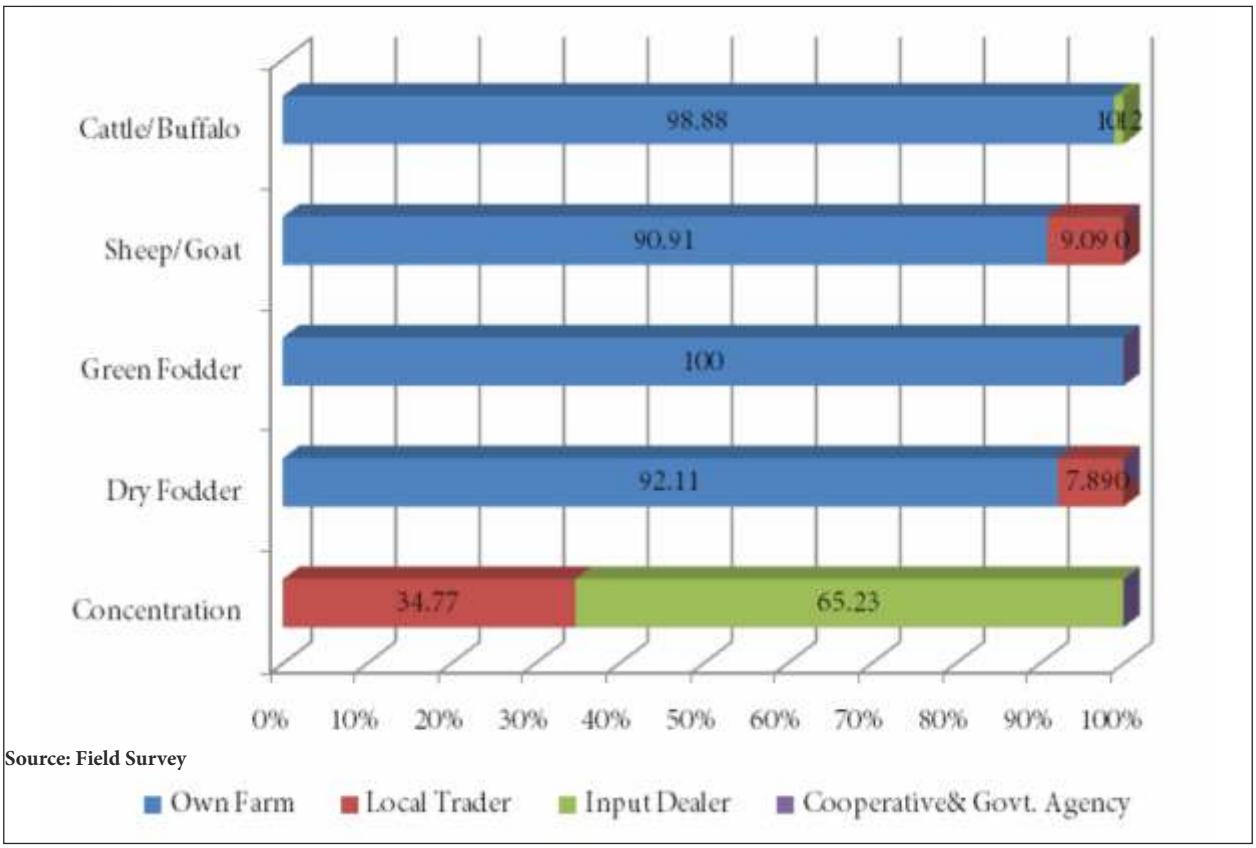
Particulars	Farm Saved	Exchanged	Purchased	Total
Cattle/Buffalo				
Marginal	92.31	0.00	7.69	100.00
Small	98.77	0.00	1.23	100.00
Medium	94.94	0.00	5.06	100.00
Large	97.44	0.00	2.56	100.00
Very large	100.00	0.00	0.00	100.00
Overall	96.38	0.00	3.62	100.00
Sheep/Goat				
Marginal	100.00	0.00	0.00	100.00
Small	88.89	0.00	11.11	100.00
Medium	85.71	0.00	14.29	100.00
Large	0.00	0.00	0.00	0.00
Very large	0.00	0.00	0.00	0.00
Overall	90.91	0.00	9.09	100.00
Green Fodder				
Marginal	100.00	0.00	0.00	100.00
Small	100.00	0.00	0.00	100.00
Medium	100.00	0.00	0.00	100.00
Large	100.00	0.00	0.00	100.00
Very large	100.00	0.00	0.00	100.00
Overall	100.00	0.00	0.00	100.00
Dry Fodder				
Marginal	86.54	0.00	13.46	100.00
Small	96.43	0.00	3.57	100.00
Medium	88.61	0.00	11.39	100.00
Large	92.31	0.00	7.69	100.00
Very large	100.00	0.00	0.00	100.00
Overall	92.11	0.00	7.89	100.00
Concentration				
Marginal	0.00	0.00	100.00	100.00
Small	0.00	0.00	100.00	100.00
Medium	0.00	0.00	100.00	100.00
Large	0.00	0.00	100.00	100.00
Very large	0.00	0.00	100.00	100.00
Overall	0.00	0.00	100.00	100.00

Source: Field Survey



Source: Field Survey

Fig.4.6 :Procurement of inputs related to animal husbandry



Source: Field Survey

Fig.4.7 :Sources of agencies involve for Procurement of inputs for animal husbandry (HHs)

The agencies involved in procurement of reported inputs related to animal husbandry were also identified and found that majority of HHs were dependent on their own farm for purchase of cattle/buffalo (98.88%), sheep/goat (90.91%), green fodder (100.00%) and dry fodder (92.11), while for purchase of concentrate they were found to depend on input dealers (65.23%) followed by local traders (34.77%) in the area under study (Fig. 4.7). These findings were found to be similar across size of farms with minor variation in the area under study (Table 4.5)

Table 4.5 : Sources of Agency involved for procurement of inputs (% HHs)

Particulars	Own Farm	Local Trader	Input Dealer	Cooperative & Govt. Agency	Others
Cattle/Buffalo					
Marginal	96.00	0.00	4.00	0.00	100.0
Small	100.00	0.00	0.00	0.00	100.0
Medium	98.68	0.00	1.32	0.00	100.0
Large	100.00	0.00	0.00	0.00	100.0
Very large	100.00	0.00	0.00	0.00	100.0
Overall	98.88	0.00	1.12	0.00	100.0
Sheep/Goat					
Marginal	100.00	0.00	0.00	0.00	100.0
Small	88.89	11.11	0.00	0.00	100.0
Medium	85.71	14.29	0.00	0.00	100.0
Large	0.00	0.00	0.00	0.00	0.00
Very large	0.00	0.00	0.00	0.00	0.00
Overall	90.91	9.09	0.00	0.00	100.0
Green Fodder					
Marginal	100.00	0.00	0.00	0.00	100.0
Small	100.00	0.00	0.00	0.00	100.0
Medium	100.00	0.00	0.00	0.00	100.0
Large	100.00	0.00	0.00	0.00	100.0
Very large	100.00	0.00	0.00	0.00	100.0
Overall	100.00	0.00	0.00	0.00	100.0
Dry Fodder					
Marginal	86.54	13.46	0.00	0.00	100.0
Small	96.43	3.57	0.00	0.00	100.0
Medium	88.61	11.39	0.00	0.00	100.0
Large	92.31	7.69	0.00	0.00	100.0
Very large	100.00	0.00	0.00	0.00	100.0
Overall	92.11	7.89	0.00	0.00	100.0
Concentration					
Marginal	0.00	28.85	71.15	0.00	100.0
Small	0.00	28.57	71.43	0.00	100.0
Medium	0.00	43.04	56.96	0.00	100.0
Large	0.00	38.46	61.54	0.00	100.0
Very large	0.00	36.00	64.00	0.00	100.0
Overall	0.00	34.77	65.23	0.00	100.0

Source: Field Survey

4.5 Producer Preferences

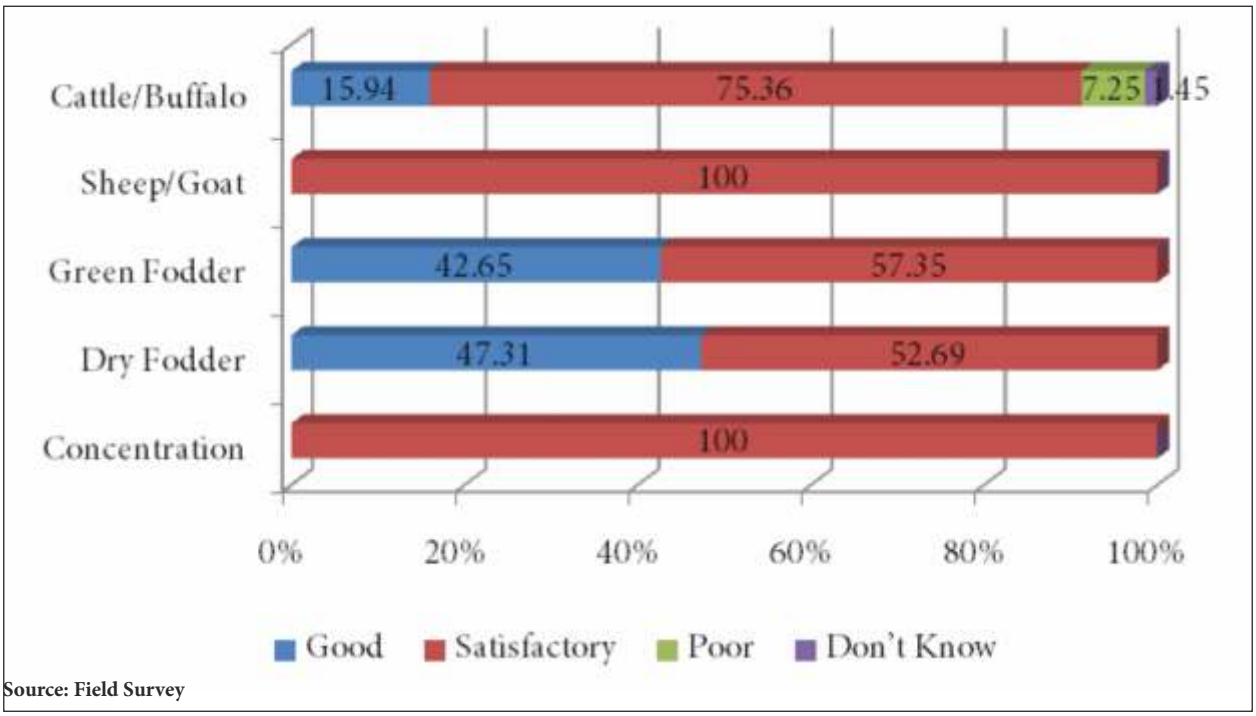
The producer preferences regarding quality of animal inputs was categorised into good, satisfactory and poor and presented in table 4.6.

The majority of HHs, at overall level were found to be satisfied with the quality of animal seed of cattle/buffalo (75.36%), sheep/goat (100.00%), green fodder (57.35%), dry fodder (52.69%) and concentrate (100.00%) in the area under study (Fig. 4.8). The only 42.65, 47.31 and 15.94 per cent of HHs were reported that the quality of green fodder, dry fodder and animal feed related to cattle/buffalo,

Table 4.6 : Quality of inputs related to animal husbandry (%HH)

Particulars	Good	Satisfactory	Poor	Don't Know	Total
Cattle/Buffalo					
Marginal	17.31	78.85	3.85	0.00	100.00
Small	20.99	66.67	12.35	0.00	100.00
Medium	15.19	78.48	5.06	1.27	100.00
Large	12.82	76.92	2.56	7.69	100.00
Very Large	4.00	84.00	12.00	0.00	100.00
Overall	15.94	75.36	7.25	1.45	100.00
Sheep/Goat					
Marginal	0.00	100.00	0.00	0.00	100.00
Small	0.00	100.00	0.00	0.00	100.00
Medium	0.00	100.00	0.00	0.00	100.00
Large	0.00	0.00	0.00	0.00	0.00
Very Large	0.00	0.00	0.00	0.00	0.00
Overall	0.00	100.00	0.00	0.00	100.00
Green Fodder					
Marginal	46.15	53.85	0.00	0.00	100.00
Small	48.81	51.19	0.00	0.00	100.00
Medium	37.97	62.03	0.00	0.00	100.00
Large	35.90	64.10	0.00	0.00	100.00
Very Large	40.00	60.00	0.00	0.00	100.00
Overall	42.65	57.35	0.00	0.00	100.00
Dry Fodder					
Marginal	52.92	48.08	0.00	0.00	100.00
Small	54.76	45.24	0.00	0.00	100.00
Medium	40.51	59.49	0.00	0.00	100.00
Large	41.03	58.97	0.00	0.00	100.00
Very Large	44.00	56.00	0.00	0.00	100.00
Overall	47.31	52.69	0.00	0.00	100.00
Concentration					
Marginal	0.00	100.00	0.00	0.00	100.00
Small	0.00	100.00	0.00	0.00	100.00
Medium	0.00	100.00	0.00	0.00	100.00
Large	0.00	100.00	0.00	0.00	100.00
Very Large	0.00	100.00	0.00	0.00	100.00
Overall	0.00	100.00	0.00	0.00	100.00

Source: Field Survey



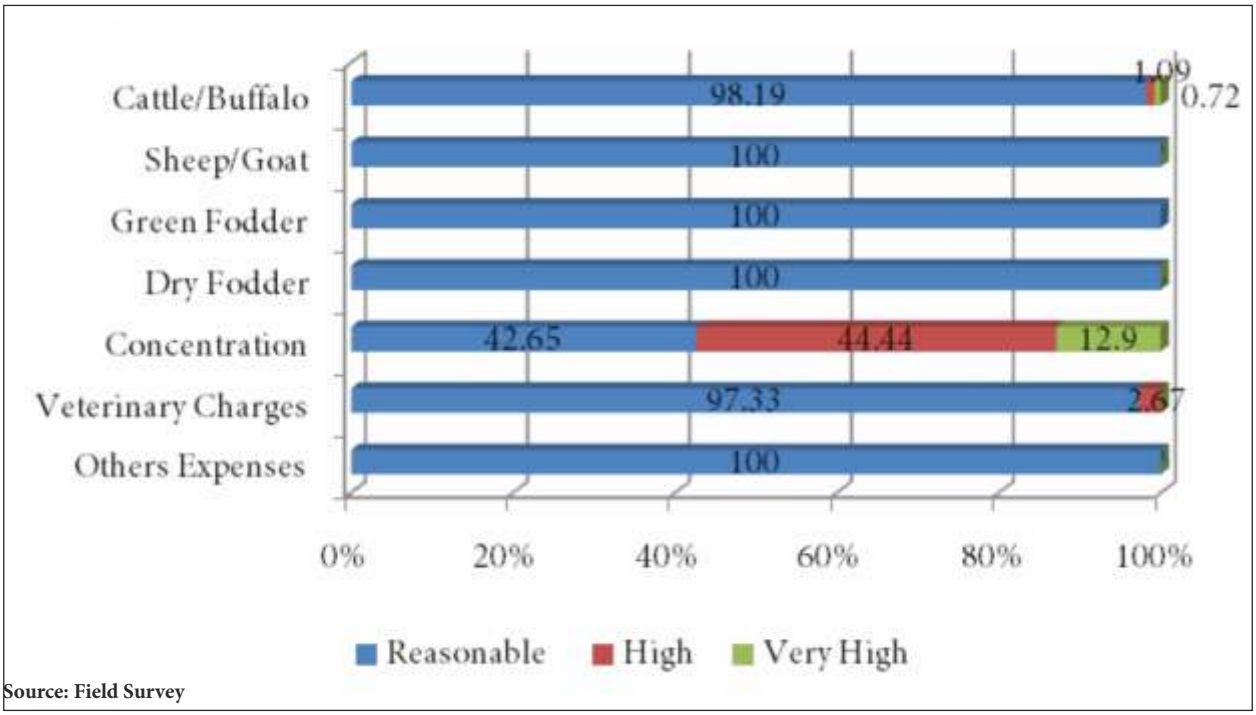
Source: Field Survey

Fig.4.8 :Quality of dairy inputs for animal husbandry (HHs)

respectively were found to be good. These findings were found to be similar across size of farms with minor variations in the area under study.

4.6 Price Paid

The price paid for the inputs related to animal husbandry were also analysed and ranked into reasonable, high and very high categories across size of farms and presented in table 4.7. It is observed from the data that cent



Source: Field Survey

Fig.4.9 :Ranking of price paid for inputs related to animal husbandry (HHs)

Table 4.7 :Ranking of price paid for inputs related to animal husbandry (%)

Particulars	Reasonable	High	Very High	Total
Cattle/Buffalo				
Marginal	98.08	0.00	1.92	100.00
Small	100.00	0.00	0.00	100.00
Medium	96.20	2.53	1.27	100.00
Large	97.44	2.56	0.00	100.00
Very large	100.00	0.00	0.00	100.00
Overall	98.19	1.09	0.72	100.00
Sheep/Goat				
Marginal	100.00	0.00	0.00	100.00
Small	100.00	0.00	0.00	100.00
Medium	100.00	0.00	0.00	100.00
Large	0.00	0.00	0.00	0.00
Very large	0.00	0.00	0.00	0.00
Overall	100.00	0.00	0.00	100.00
Green Fodder				
Marginal	100.00	0.00	0.00	100.00
Small	100.00	0.00	0.00	100.00
Medium	100.00	0.00	0.00	100.00
Large	100.00	0.00	0.00	100.00
Very large	100.00	0.00	0.00	100.00
Overall	100.00	0.00	0.00	100.00
Dry Fodder				
Marginal	100.00	0.00	0.00	100.00
Small	100.00	0.00	0.00	100.00
Medium	100.00	0.00	0.00	100.00
Large	100.00	0.00	0.00	100.00
Very large	100.00	0.00	0.00	100.00
Overall	100.00	0.00	0.00	100.00
Concentration				
Marginal	51.92	38.46	9.62	100.00
Small	48.81	46.43	4.76	100.00
Medium	45.57	36.71	17.72	100.00
Large	25.64	58.97	15.38	100.00
Very large	20.00	52.00	28.00	100.00
Overall	42.65	44.44	12.90	100.00
Veterinary Charges				
Marginal	100.00	0.00	0.00	100.00
Small	100.00	0.00	0.00	100.00
Medium	100.00	0.00	0.00	100.00
Large	92.31	7.69	0.00	100.00
Very large	87.50	12.50	0.00	100.00
Overall	97.33	2.67	0.00	100.00
Others Expenses				
Marginal	100.00	0.00	0.00	100.00
Small	100.00	0.00	0.00	100.00
Medium	100.00	0.00	0.00	100.00
Large	100.00	0.00	0.00	100.00
Very large	100.00	0.00	0.00	100.00
Overall	100.00	0.00	0.00	100.00

Source: Field Survey

Table 4.8 : Reasons for unreasonable prices paid for the inputs related to animal husbandry

Particulars	Not Subsidized	Very Few Sellers	No Govt. Sellers	Pvt. Sellers Collude	Total
Cattle/Buffalo					
Marginal	0.00	0.00	0.00	100.00	100.00
Small	0.00	0.00	0.00	0.00	0.00
Medium	0.00	0.00	0.00	100.00	100.00
Large	0.00	0.00	0.00	100.00	100.00
Very Large	0.00	0.00	0.00	0.00	0.00
Overall	0.00	0.00	0.00	100.00	100.00
Concentration					
Marginal	0.00	0.00	85.71	14.29	100.00
Small	8.33	0.00	100.00	0.00	100.00
Medium	11.76	5.88	94.12	0.00	100.00
Large	0.00	0.00	100.00	0.00	100.00
Very Large	0.00	0.00	87.50	12.50	100.00
Overall	5.66	1.89	94.34	3.77	100.00

Source: Field Survey

per cent sample HHs at overall level reported that the price of animal seed related to sheep and goat, green dodder, dry fodder and other expenses were reasonable in the study area. The majority of HHs also reported that the cost of animal feeds related to cattle/buffalo (98.19%), sheep/goat (100.00%) and veterinary charges (97.33%) were also reasonable (Fig. 4.9).

The price of concentrate was found to be high (44.44%) followed by reasonable (42.65%) and very high (12.90%) as reported by majority of sample HHs at overall level in the area under study. The only 1.09 and 0.72 per cent of HHs reported that price of animal seed of cattle/buffalo were unreasonable due to private seller collude, while 94.34 per cent HHs reported that the price of concentration was unreasonable due to there is no govt. seller related to the concentration (Table 4.8).

4.7 Summary of the Chapter

The chapter highlighted marketing of animal products and inputs related to animal husbandry in the area under study. The major findings of the study are as follows:

The majority of HHs were found to dispose animal products directly to other HHs (49%) followed by local traders (45%) and commission agent (6%). The majority of small and marginal sample HHs found to dispose products directly to the other HHs while, majority of large and very large sample HHs disposed animal products to local traders. The cent per cent of sample HHs across size of farms reported dissatisfaction with the disposal of animal products due to delayed payment. An average HHs was found to sell animal products of Rs. 7381 per year out of which, the sale of milk

was found to be maximum (72%) followed by other products (18%) and live animal (10%). He was found to invest Rs. 16053 per year for purchase of inputs related to animal husbandry in his farm out of which, cost of cattle and buffalo (47%) was found to be more as compared to labour charges (25%), green fodder (12%), concentrate (9%), dry fodder (4%) and cost of seed/goat or pig (3%).

The various agencies were found to involve in procurement of inputs related to animal husbandry across size of farms. All the HHs reported that they used farm saved green fodder and purchase concentrate for their cattle from input dealers (65.23%) followed by local traders (34.77%). The majority of them were also found to procure cattle/buffalo (96.38%), sheep/goat (90.91%) and dry fodder (92.11%) from their owned farm and found to be satisfied with the quality of animal seed of cattle/buffalo (75.36%), sheep/goat (100.00%), green fodder (57.35%), dry fodder (52.69%) and concentrate (100.00%) in the area under study. They also reported that the price of animal seed related to sheep and goat, green dodder, dry fodder and other expenses are reasonable rest of them reported that the price of concentrates was unreasonable due to there is no govt. seller related to the concentrates. They also reported that the cost of animal seeds related to cattle/buffalo (98.19%), sheep/goat (90.91) and veterinary charges (97.33%) were also reasonable. The price of concentrate was found to be high (44.44%) followed by reasonable (42.65%) and very high (12.90%) in the area under study.

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CHAPTER - V

LABOUR MARKET

This chapter deals with the status of labour used in crop and animal husbandry, farmers opinion related to wage rates, reasons of non reasonable wage rate and engagement of labour in MANREGA and other farms.

5.1 Status of Labour used in Crop Production

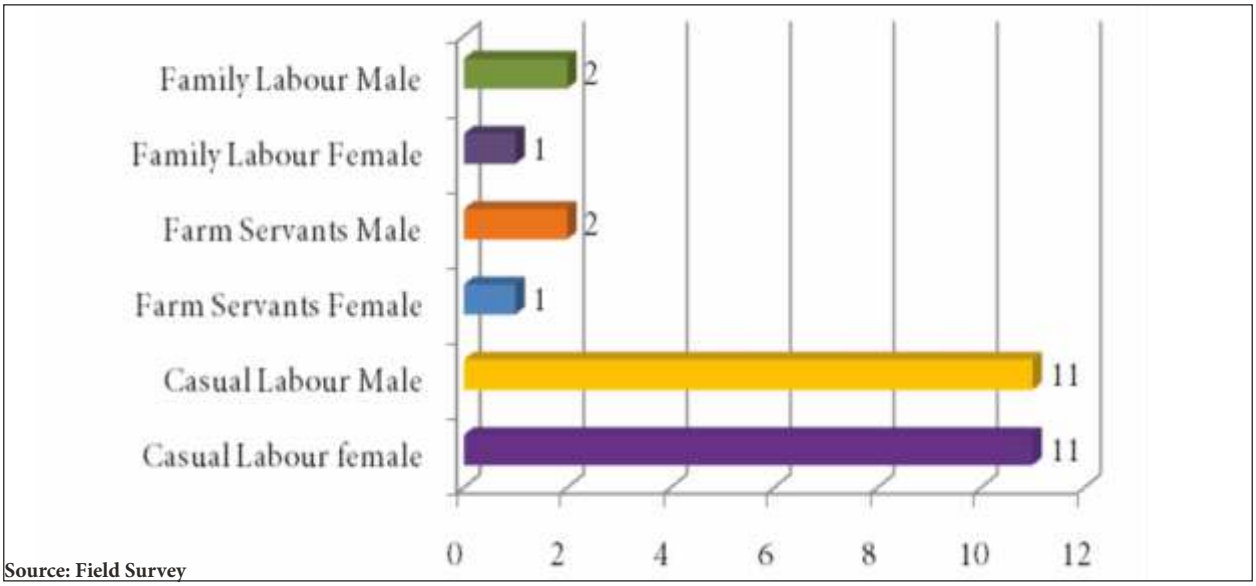
There were found to be noticed that 3 types of labours viz. family labour, farm servant and causal labours were used in various farm operations and live stock activities related to crop and animal husbandry across size of farms (Table 5.1).

Table 5.1 : Status of labour employed for farming and livestock operations

Particulars	Family Labour		Farm Servants		Casual Labour	
	Male	Female	Male	Female	Male	Female
Number of Labour						
Marginal	2	1	0	0	6	5
Small	2	1	0	0	5	6
Medium	2	1	0	0	8	9
Large	2	1	2	1	13	13
Very large	2	2	2	2	22	24
Overall	2	1	2	1	11	11
Hours per Day						
Marginal	8	8	0	0	8	8
Small	8	8	0	0	8	8
Medium	8	8	0	0	8	8
Large	8	8	10	10	8	8
Very large	8	8	10	10	8	8
Overall	8	8	10	10	8	8
Number of Days						
Marginal	166	171	0	0	107	115
Small	165	165	0	0	108	112
Medium	157	152	0	0	163	143
Large	160	148	365	365	180	157
Very large	157	145	365	365	184	168
Overall	161	156	146	146	148	139
Wage Rate Paid						
Marginal	0	0	0	0	245	245
Small	0	0	0	0	246	246
Medium	0	0	0	0	247	247
Large	0	0	300	200	244	244
Very large	0	0	274	223	248	248
Overall	0	0	287	212	246	246

Source: Field Survey

The numbers of labour employed their average working hrs, numbers of days working in a year and wage rate paid (Rs./day) have been observed and presented in table 5.1. It is observed from the data that at overall average level 2, 2 & 11 male and 1, 1 & 11 female family labour, farm servants, and casual hired labour respectively were found to be engaged in various crop and livestock activities (Fig. 5.1). The male and female farm servants were found be observed only in large and very large size of farms. The casual male and female were found to be increased with the increase in size of farms from 6 male & 5 female (marginal) to 22 male& 24 female (very large) per HH in the area under study.



Source: Field Survey

Fig.5.1 :Average number of labour employed for crop and livestock husbandry

On an overall level an average male and female family as well as casual labour was found to worke 8 hrs. /day, while an average farm servant was found to work 10 hrs. /day in various operations of farm and live stock activities. At overall level an average HH farm was found to provide employment to family labour, farm servants and hired casual labours of 161(male) & 156 (female) , 146 (male) & 146 (female) and 148(male) & 136 (female), days respectively in a year. Amongst different size of farms none of the marginal, small and medium size of sample HHs was found to employ farm servant in their farms. As the size of farms increases from marginal to very large the number of family labour days decreases from 166 (male) & 171 (female) to 157 (male) & 145 (female) , while number of hired casual labour

days increases with increase in size of farms from 107 (male) & 115 (female) to 184 (male) & 168 (female) from marginal to very large farms. The wage rate per labour per day was found to vary from Rs. 244 to 248 for male and female casual labour with an average of Rs.246 /- per day, while average wage rate of farm servant was found to vary between Rs. 223 to 300/- per day for male and female servant, respectively with average of Rs. 287 and Rs.212 in the area under study.

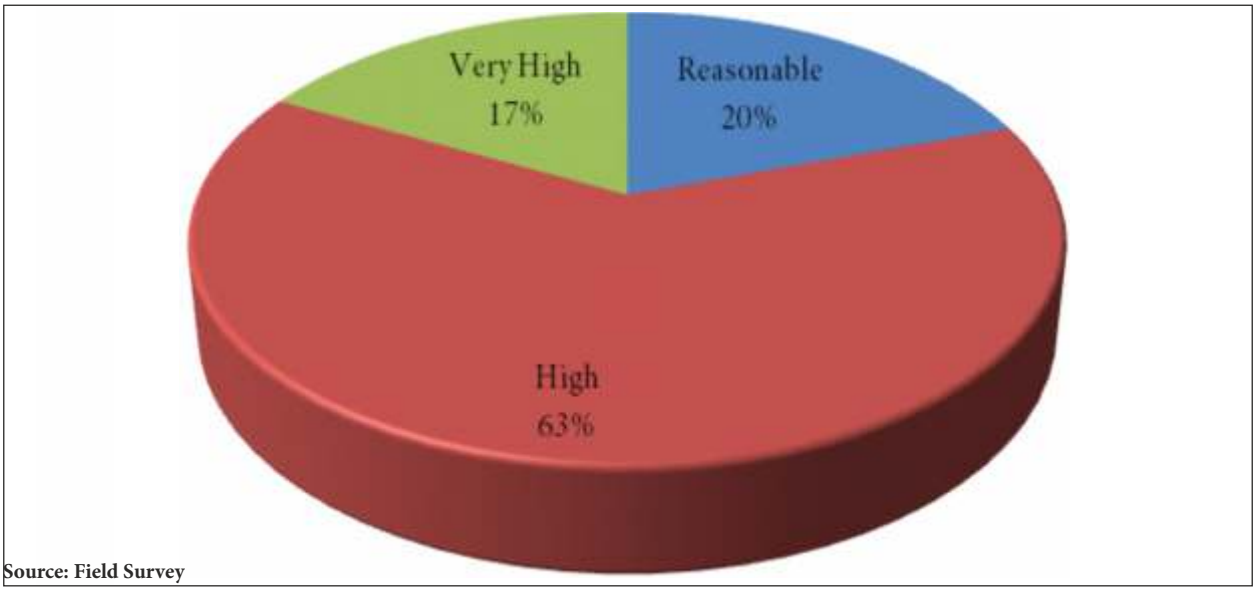
5.2 Farmers' Opinion regarding Wage Rate

The farmers' Opinion regarding wage rate was also worked out and presented in table 5.2. It is observed from the data that on an overall level, the majority of sample HHs reported the wage rate are high (63%) followed by reasonable (20%) and very high (17%) (Fig. 5.2). These findings are found to be similar across size of farms with no difference in the area under study.

Table 5.2 : Ranking of wage rate paid to labour for farming and livestock operations (%HHs)

Particulars	Reasonable	High	Very High	Total
Marginal	17.24	62.07	20.69	100
Small	23.42	64.86	11.71	100
Medium	16.94	64.52	18.55	100
Large	23.53	62.75	13.73	100
Very large	18.52	51.85	29.63	100
Overall	19.75	63.00	17.25	100

Source: Field Survey



Source: Field Survey

Fig.5.2 :Farmers Opinion regarding wage rate (%HHs)

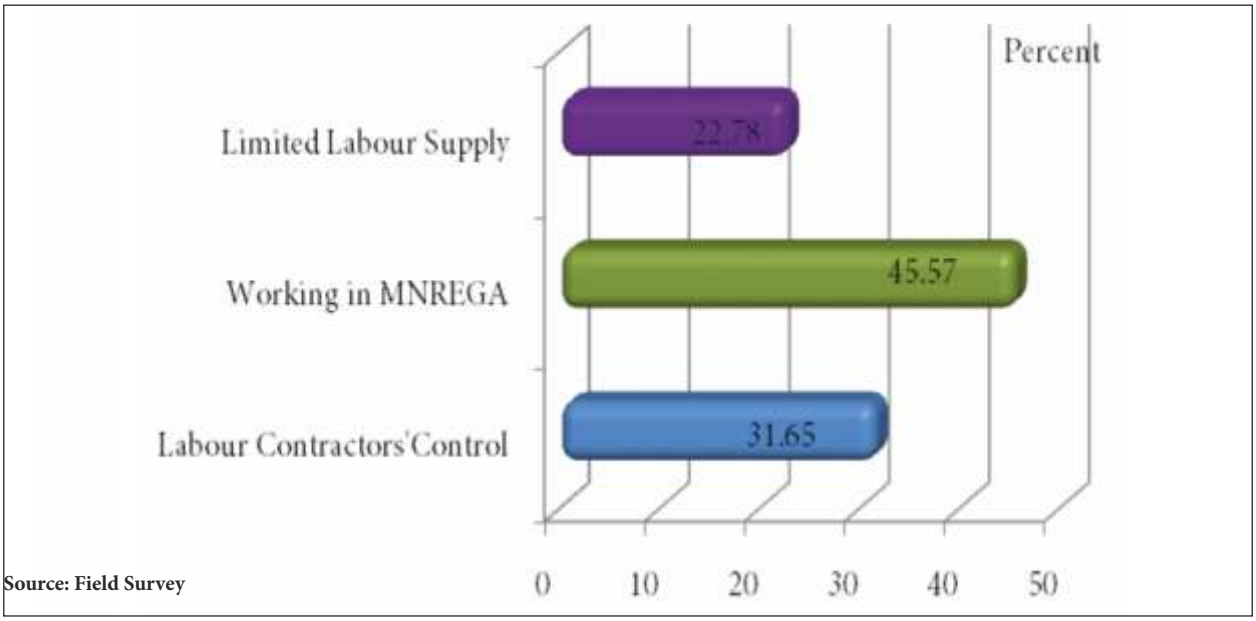
5.3 Reasons for Non reasonable Wage Rate

Working in MNERGA, limited labour supply and control of contractor on labour supply were found to be main reasons for non reasonable wage rate of labour for farming and live stock operations as reported by 45.57, 31.65 and 22.78 per cent of sample HHs at overall level (Fig. 5.3). These findings were found to be similar across size of farms with minor variation in the area under study (Table 5.3).

Table 5.3: Reasons for wage rate paid to labour for farming and livestock operations not being reasonable (%)

Particulars	Limited Labour Supply	Working in MNREGA	Labour Contractors' Control	Total
Marginal	46.67	26.67	26.67	100
Small	15.38	53.85	30.77	100
Medium	9.52	52.38	38.10	100
Large	25.00	41.67	33.33	100
Very large	40.00	40.00	20.00	100
Overall	22.78	45.57	31.65	100

Source: Field Survey



Source: Field Survey

Fig.5.3 :Reasons for not reasonable (HHs)wage rate paid to labour for farming and livestock operation

5.4 Engagement of Wage Labour in MGNREGA

The labours engaged as wages labour in MGNREGA for 1 to 3 months in a year also worked out across size of farms and presented in table 5.4. It is observed from the data that only 16 numbers of labours were found to be engaged in MGNREGA in different months of a year in

Table 5.4 :Engaged as wages labour in MNREGA for 1 to 3 Months

Particulars	Numbers		Worked in MGNREGS (in months)									
		Wage you received (Rs. per day)	Jan.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.
Months												
Marginal	10.00	180.00	1.00	0.00	0.00	2.00	0.00	0.00	2.00	3.00	1.00	1.00
Small	5.00	180.00	0.00	1.00	0.00	0.00	2.00	1.00	0.00	1.00	0.00	0.00
Medium	1.00	180.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Large	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Very large	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Overall	16.00	108.00	1.00	1.00	1.00	2.00	2.00	1.00	2.00	4.00	1.00	1.00
%age to MNREGA Wages Respond												
Marginal	100.00	0.00	10.00	0.00	0.00	20.00	0.00	0.00	20.00	30.00	10.00	10.00
Small	100.00	0.00	0.00	20.00	0.00	0.00	40.00	20.00	0.00	20.00	0.00	0.00
Medium	100.00	0.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Large	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Very large	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Overall	100.00	0.00	6.25	6.25	6.25	12.50	12.50	6.25	12.50	25.00	6.25	6.25

Source: Field Survey

the study area. The number of labours engaged in MGNREGA were found to be more in marginal (10) as compared to small (5) and medium (1) size of farms. The percentage of wage respond to MGNREGA wages was found to be more in the month of September (25.00%) as compared to May (12.50%), June (12.50%), August (12.5%), Jan (6.50%), March (6.50%), July (6.25%), October (6.25%), and November (6.25%). The average per day wage rate received in MGNREGA was found to be only Rs.180/day.

5.5 Engagement of Wage Labours on others' Farm

At overall level 45 per cent of sample HHs reported that they were engaged as wage labours on others' farm during the last year and received an average wage rate of Rs. 237.45 per day. The wage labours engaged on others' farm were found to be more from marginal (23.00%) as compared to small (13.00%), medium (5.00%), large (3.00%) and very large(1.00%) size of farms. (Table 5.5)

Table 5.5 :Engagementof wage labour on others' farm during the last one year

Particulars	Engaged for Wage	period (1 to 3 Months)	Wage rate (Rs per day)
Marginal	23.00	23.00	240.22
Small	13.00	13.00	240.38
Medium	5.00	5.00	240.00
Large	3.00	3.00	241.67
Very large	1.00	1.00	225.00
Overall	45.00	45.00	237.45

Source: Field Survey

5.6 Constraints related to Wage Labours

The constraints related to wage labours were also observed and presented in table 5.6. At over all level 68.75 and 31.25 per cent of sample HHs reported very low wage rate and availability of work for a very limited period of time were found to be major constraints to wage labour in the area under study (Table 5.6). These constraints were only reported by marginal and small size of sample HHs. Although 100 per cent sample medium HHs only reported constraint of very low wage rate to wage labour in the area under study. None of the HHs reported about poor heath, few able members in the family, very hard work of crop and livestock operations, critical procedure of payment into bank account etc

Table 5.6 : Constraints related to wage labour (%)

Particulars	Work available for a very limited period of time	Wage is very low	Poor health	Only few able bodied members in the family	Very hard work	Wage not paid on time	Frequent problems with payment into bank account	Total
Marginal	30.00	70.00	0.00	0.00	0.00	0.00	0.00	100.00
Small	40.00	60.00	0.00	0.00	0.00	0.00	0.00	100.00
Medium	0.00	100.00	0.00	0.00	0.00	0.00	0.00	100.00
Large	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Very large	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Overall	31.25	68.75	0.00	0.00	0.00	0.00	0.00	100.00

Source: Field Survey

5.7 Summary of the Chapter

This chapter deals with the status of labour used in crop and animal husbandry, farmers opinion related to wage rates, reasons of non-reasonable wage rate and engagement of labour in MANREGA and other farms. The major finding related to the labour market are as follows :

There were found to be noticed that 3 types of labours viz. family labour, farm servant and causal labours used in various farm operations and livestock activities across size of farms. Only 2, 2 & 11 male and 1, 1 & 11 female family labour, farm servants, and casual hired labour respectively found to be used in various activities of crop and livestock husbandry. The male and female farm servants were found be observed only in large and very large size of farms. The casual male and female were found to be increased with the increase in size of farms

from 6 male & 5 female (marginal) to 22 male& 24 female (very large) per HH.

An average male and female family & casual labour and farm servant was found to be worked for 8 and 10 hrs. /day respectively in various operations of farm and livestock activities. An average HHs was found to provide employment to family labour, farm servants and hired casual labours for 161(male) & 156 (female), 146 (male) & 146 (female) and 148(male) & 136 (female) days, respectively in a year. Amongst different size of farm none of the marginal, small and medium size of sample HHs were found to employ farm servant in their farms. As the size of farms increases from marginal to very large the number of family labour days decreases from 166 (male) & 171 (female) to 157 (male) & 145 (female), while number of hired casual labour days increases with increase in size of farms from 107 (male) & 115 (female) to 184 (male) & 168 (female). The average wage rate per labour per day (Rs.246/day) was found to vary from Rs. 244 to 248 for male and female casual labour. The majority of sample HHs reported the wage rate are high (63%) followed by reasonable (20%) and very high (17%). They were reported that working in MNERGA, limited labour supply and control of contractor on labour supply were found to be main reasons for non-reasonable wage rate of labour for farming and livestock operations. The numbers of labours engaged in MGNREGA were found to be more in marginal (10) as compared to small (5) and medium (1) size of farms in a year. The percentage of wage respond to MGNREGA wages was found to be more in the month of September (25%) as compared other months of a year. The average per day wage rate received in MGNREGA was found to be only Rs.180/day.

The 45 per cent of HHs reported that they were engaged as wage labours on others' farm during the last year and received an average wage rate of Rs. 237.45 per day. As the size of farms increases the wage labours engaged on others' farm were found to be decreases from marginal (23.00%) and very large(1.00%) size of farm. A very low wage rate and availability of work for a very limited period of time were found to be major constraints to engage wage labour in farm husbandry. None of the HHs reported about poor heath, few able members in

the family, very hard work of crop and livestock operations and critical procedure of payment into bank account etc as constraints regarding engaged wage labours in various farm operations.

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CHAPTER - VI

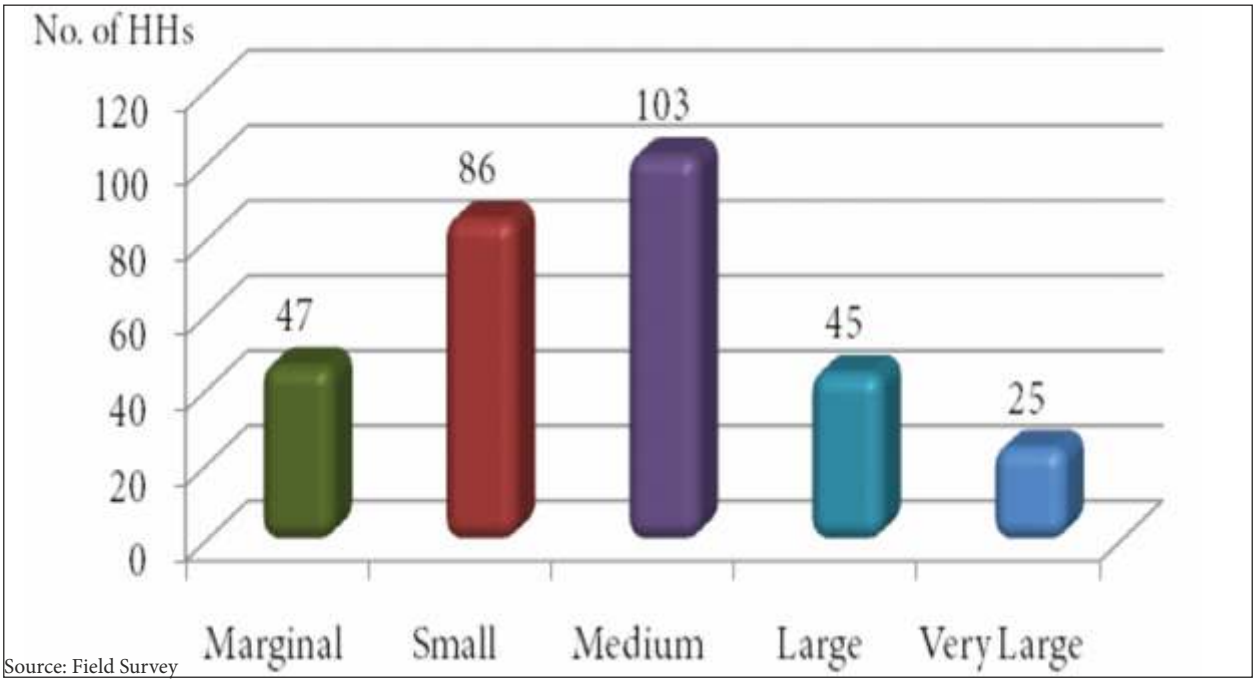
CREDIT MARKET

This chapter deals with the credit market and includes sources, amount and purpose of borrowed amount and repayment of borrowed capital in the area under study.

6.1 Source of Borrowed Capital

The farmers were found to borrow capital from different institutional and non-institutional sources of borrowing; in institutional the main sources were found to be commercial bank, cooperative societies, non-govt./common group and Self Help Groups (SHGs), where as in non-institutional sources the major sources from where farmers borrowed money were fallow farmers and money lenders. Out of 400 samples HHs the 76.05 per cent were found to borrow money from these institutional and non-institutional sources. As the size of farms increases the dependency on borrowed money was found to be increases from 54.02 (marginal) to 92.59 (very large) per cent in the area under study (Table 6. 1).

Amongst all the sources the majority of farmers were found to borrow money from commercial bank (54.58%) and cooperative bank (40.85%). Very few HHs were found to borrow money from micro finance/common group (0.33%), SHGs (0.33%), fellow



Source: Field Survey

Fig.6.1 :Numbers of household borrowed money across size of farms

farmers/neighbours (1.63%) and agricultural money lenders (2.29%). These findings were found to be similar across size of farms.

Although none of the medium and large sample HHs was found to borrow money from micro finance/common group, SHGs, and fellow/ neighbours and none of very large farmers was found to borrow money from micro finance/common group and SHGs. As the size of farm increases the number of HHs who borrowed money from commercial bank were found to be increased from 25.53 (marginal) to 80 (very large) per cent, while HHs who borrowed money from cooperative society were found to be decreases with size of farms from 68.09 (marginal) to 8.0 (very large) per cent (Table 6. 2).

Table 6.1 : Number of households borrowed money during the last two years

Particulars	No of HHs	%age to respective respondent
Marginal (87)	47.00	54.02
Small (111)	86.00	77.48
Medium (124)	103.00	83.06
Large (51)	45.00	88.24
Very Large (27)	25.00	92.59
Total (400)	306.00	76.50

Source: Field Survey

Table 6.2 :Source of money borrowed across size of farms

Particulars	Commercial Bank	Cooperative Bank	Micro Finance /Common group	SHGs	Fellow Farmer/ Neighbours	Money Lenders	Total
Marginal	12 (25.53)	32 (68.09)	0 (0)	1 (2.13)	1 (2.13)	1 (2.13)	47 (100)
Small	35 (40.7)	46 (53.49)	1 (1.16)	0 (0)	3 (3.49)	1 (1.16)	86 (100)
Medium	64 (62.14)	39 (37.86)	0 (0)	0 (0)	0 (0)	0 (0)	103 (100)
Large	36 (80)	6 (13.33)	0 (0)	0 (0)	0 (0)	3 (6.67)	45 (100)
Very Large	20 (80)	2 (8)	0 (0)	0 (0)	1 (4)	2 (8)	25 (100)
Total	167 (54.58)	125 (40.85)	1 (0.33)	1 (0.33)	5 (1.63)	7 (2.29)	306 (100)

Source: Field Survey

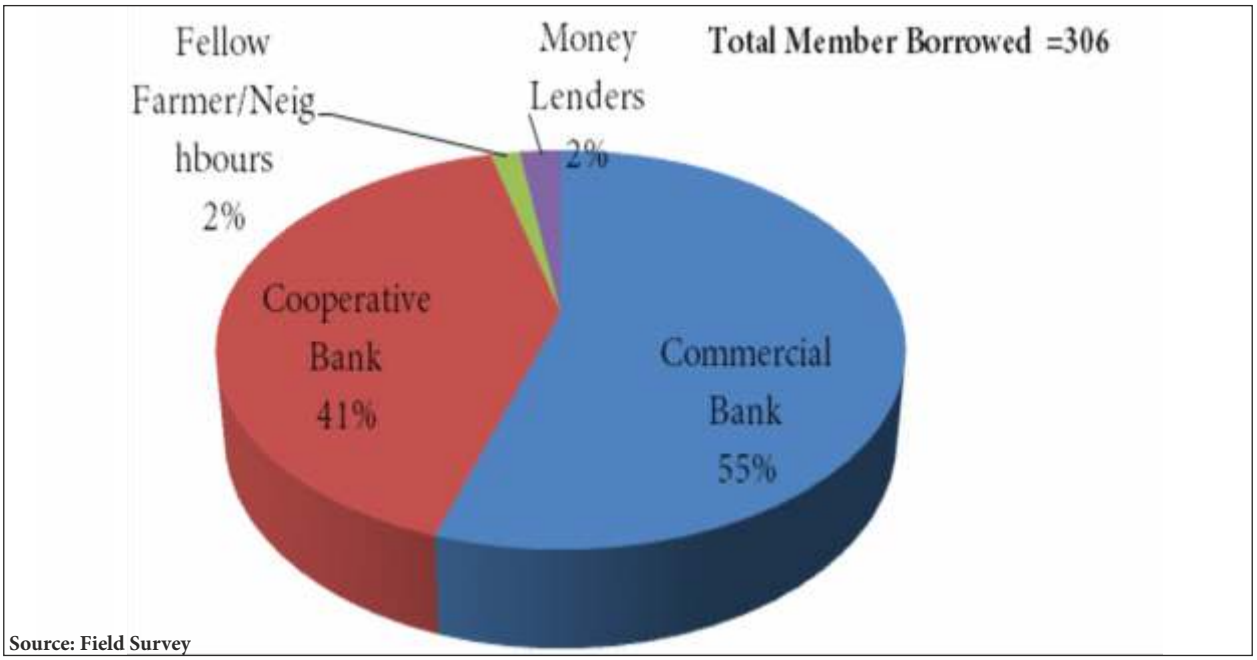


Fig.6.2 :Source of Money borrowed across size of farms

6.2 Amount Borrowed from Different Sources

At overall level an average HH was found to borrow money of Rs. 638615 per annum from the different sources of credit, which were found to be increased from Rs. 601385 (marginal) to 1119000 (very large) with size of farms. An average borrower was found to borrow the maximum amount of money from commercial bank (38%) followed by money lender (26%), cooperative bank (16%), micro finance/common group (3%) and SHGs (3%) (Fig. 5.3).

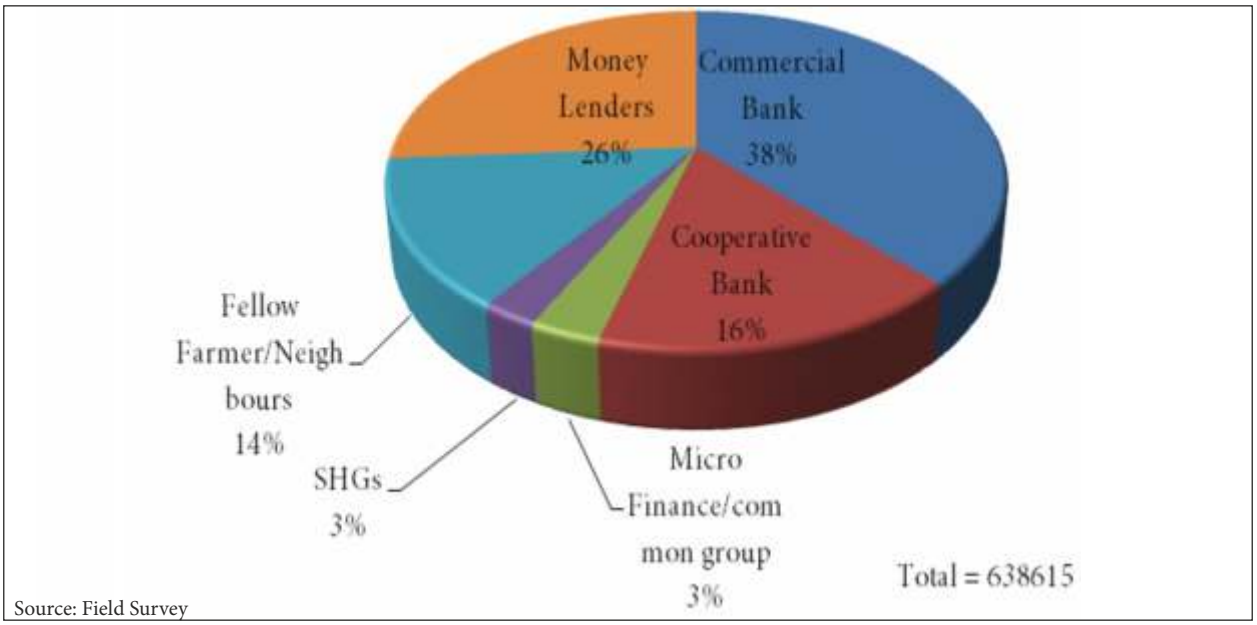


Fig.6.3 :Average amount borrowed from different sources (Per HHs)

As the size of farm increases the money borrowed by an average HH from commercial bank was found to be increased from Rs. 89167 (marginal) to 544000 (very large) per annum. The money borrowed by an average HH from cooperative bank was also found to be increased with size of farms from Rs. 32219 (marginal) to 200000 (very large) in the area under study (Table 6. 3). An average HHs was found taken 0.70 numbers of loan in a year in the area under study, which was found to be more from cooperative bank (1.15) followed by commercial bank (1.11), money lenders (0.93), fellow farmer/neighbours(0.60), micro finance/common group (0.20) and SHGs (0.20). The rate of interest was found to be maximum when an average HH take loan from money lender & fellow farmer/neighbours (24% per annum) and minimum when he borrowed money from commercial bank, cooperative bank, micro finance/common group and SHGS (7% per annum) in the area under study (Table 6. 4).

Table 6.3 : Average amount borrowed from each source (Rs)

Particulars	Commercial Bank	Cooperative Bank	Micro Finance /common group	SHGs	Fellow Farmer /Neighbours	Money Lenders	Total
Marginal	89167 (14.83)	32219 (5.36)	0 (0)	80000 (13.3)	200000 (33.26)	200000 (33.26)	601385 (100)
Small	99086 (19.54)	58076 (11.45)	100000 (19.72)	0 (0)	150000 (29.58)	100000 (19.72)	507162 (100)
Medium	165797 (59.85)	111231 (40.15)	0 (0)	0 (0)	0 (0)	0 (0)	277028 (100)
Large	312500 (45.39)	119333 (17.33)	0 (0)	0 (0)	0 (0)	256667 (37.28)	688500 (100)
Very Large	544000 (48.61)	200000 (17.87)	0 (0)	0 (0)	100000 (8.94)	275000 (24.58)	1119000 (100)
Overall	242110 (37.91)	104172 (16.31)	20000 (3.13)	16000 (2.51)	90000 (14.09)	166333 (26.05)	638615 (100)

Source: Field Survey

Table 6.4 :Average Number of loans taken and rate of interest by the reported source during the last one year

Particulars	Commercial Bank	Cooperative Bank	Micro Finance/ Common group	SH Gs	Fellow Farmer/Neighbours	Money Lenders	Over all
Rate of Interest	7	7	7	7	24	24	-
Number of loans taken	1.11	1.15	0.20	0.20	0.60	0.93	0.70

Source: Field Survey

6.3 Purpose of Borrowing Capital

The borrower was found to borrow money for capital expenditure in farm business, current expenditure in farm business, consumption expenditure and for marriage & ceremony. They were found to borrow money for capital and current expenditure in farm business from commercial bank, cooperative bank, microfinance common group and SHGs, while borrowed money for capital expenditure in farm business, consumption expenditure in marriage and other ceremony from fellow farmers. The borrower was found to borrow from money lender for the purpose of capital and current expenditure in farm business. None of the sample HHs borrower was found to take loan for the purpose of consumption for marriage ceremony from commercial bank, cooperative bank, micro finance common group and SHGs. None of the farmer was take any loan for current expenditure in farm business from fellow farmer/neighbours and for consumption purpose from money lenders (Table 6.5).

Table 6.5 : Purpose of borrowing money from sample HHs

Purpose	Commercial Bank	Cooperative Bank	Micro Finance/ Common group	SHGs	Fellow Farmer/ Neighbours	Money Lenders
Capital Exp In Farm Business	6 (3.59)	0 (0)	0 (0)	0 (0)	1 (20)	2 (28.57)
Current Exp In Farm Business	161 (96.41)	125 (100)	1 (100)	1 (100)	0 (0)	4 (57.14)
Consume Exp	0 (0)	0 (0)	0 (0)	0 (0)	3 (60)	0 (0)
Marriages & Ceremonies	0 (0)	0 (0)	0 (0)	0 (0)	1 (20)	1 (14.29)

Source: Field Survey

Table 6.6 :Percentage of households repaid loan

Particulars	Commercial Bank	Cooperative Bank	Micro Finance /Common group	SHGs	Fellow Farmer/ Neighbours	Money Lenders	Overall
Marginal	8.33	21.88		100.00	100.00	100.00	23.40
Small	14.29	21.74	100.00		100.00	100.00	23.26
Medium	14.06	15.38					14.56
Large	0.00	0.00				100.00	6.67
Very Large	0.00	50.00			100.00	100.00	16.00
Overall	8.98	19.20	100.00	100.00	100.00	100.00	17.32

Source: Field Survey

6.4 Complete Repaid of Loan by Number of Hhs

Out of total borrower only 17.32 per cent were found to repay their loan. Amongst different categories of sample HHs the percentage of HHs repaid their loan were found to be more in marginal and small categories as compared to large, medium and very large categories. Amongst different sources of borrowing cent per cent borrower were found to repay the amount in micro finance/common group, SHGS, fellow farmer/neighbours and money lenders, while in commercial bank and cooperative bank only 8.98 and 19.20 per cent of borrower were found to repay their loan (Table 6. 7).

Table 6.7 : Total amount repaid to each source and number of households repaying loan (Rs)

Particulars	Commercial Bank	Cooperative Bank	Micro Finance /Common group	SHGs	Fellow Farmer/ Neighbours	Money Lenders	Total
Average Repaid Money							
Marginal	49167	6375		80000	200000	200000	535542
Small	9571	12761	100000		150000	100000	372332
Medium	19313	15769					35082
Large						256667	256667
Very Large		150000			100000	275000	525000
Overall	15610	36981	20000	16000	90000	166333	344924
Percentage to Total Borrowed Money							
Marginal	55.14	19.79		100.00	100.00	100.00	89.05
Small	9.66	21.97	100.00		100.00	100.00	73.41
Medium	11.65	14.18					12.66
Large						100.00	37.28
Very Large		75.00			100.00	100.00	52.16
Overall	7.11	35.50	100.00	100.00	100.00	100.00	55.98

Source: Field Survey

6.5 Amount Repaidby Numbers of Hhs

An average HHs was found to repay his 55.98 per cent of borrowed money to the source of credit. The percentage of repaid money to total borrowed money was found to be more in marginal and small HHs as compared to very large, large and medium HHs at overall level.

An average HH who borrowed money from micro finance/common group, SHGS, fellow farmer/neighbours and money lenders repaid their total borrowed money, while borrower of commercial bank and cooperative bank repaid only 7.11 and 35.50 per cent of total borrowed money, respectively in the area under study (Table 6. 8).

The main reason of non repayment of borrowed money from commercial bank was expecting debt waiver (65.79%) and income

Table 6.8 :Reasons for non-repayment of the borrowed money

Particulars	Income always Less than Exp	Expecting Debt Waiver	Payment will be Made after Harvesting	Total
Commercial Bank				
Marginal	72.73	27.27	0	100.00
Small	66.67	33.33	0	100.00
Medium	43.64	56.36	0	100.00
Large	0	100	0	100.00
Very Large	0	100	0	100.00
Overall	34.21	65.79	0	100.00
Cooperative Bank				
Marginal	64	32	4	100.00
Small	58.33	41.67	0	100.00
Medium	54.55	45.45	0	100.00
Large	0	100	0	100.00
Very Large	0	100	0	100.00
Overall	54.46	44.55	0.99	100.00

Source: Field Survey

always less than the expectation (34.21%), while the main reason of non payment of borrowed money to cooperative banks were income always less than the expectation (54.46%), expecting debt waiver (44.55%) and payment will be made after harvesting (0.99%). None of the large and very large sample HH found unable to repay the borrowed money from commercial and cooperative bank due to income always less than the expectation.

6.6 Summary of the Chapter

This part of the study deals with the credit market and includes sources, amount, purpose of borrowed amount and repayment of borrowed capital in the area under study. The major finding related to credit market are as follows:

The samples HHs were found to borrow capital from different institutional (Commercial bank, cooperative societies, non-govt/ common group and Self Help Groups, and non-institutional sources (fallow farmers and money lenders). The majority of HHs was found to borrow capital from commercial bank (54.58%) and cooperative bank (40.85%). Very few HHs were found to borrow money from micro finance/common group (0.33%), SHGs (0.33%), fellow farmers/neighbours (1.63%) and agricultural money lenders (2.29%). As the size of farm increases the number of HHs who borrowed money from commercial bank were found to increases, while HHs who borrowed money from cooperative society were found to decreased in the area under study.

An average HH was found to borrow Rs. 638615 per annum from the different sources of credit, which was found to be increases with size of farms from Rs. 601385 (marginal) to 1119000

(very large). They were found to borrow money for capital and current expenditure in farm business from commercial bank, cooperative bank, microfinance common group and SHGs, while borrowed money was used in farm business, consumption expenditure marriage and ceremony from fellow farmers. The borrower was found to borrow from money lender for the purpose of capital and current expenditure in farm business and marriage & ceremony. None of the borrower was found to take loan for the purpose of consumption for marriage ceremony from commercial bank, cooperative bank, micro finance common group and SHGs. None of the farmer was also takne any loan for current expenditure in farm business from fellow farmer/neighbours and for consumption purpose from money lenders.

Out of total borrowers only 17.32 per cent were found to repay their loan to sources of credit from they borrowed money. Amongst different categories of sample HHs the percentage of HHs repaid their loan were found to be more in marginal and small categories as compared to large, medium and very large categories. Amongst different sources of borrowing cent per cent borrower were found to repay the amount in micro finance/common group, SHGS, fellow farmer/neighbours and money lenders.

An average HH was found to repay his 55.98 per cent of borrowed money to the source of credit. The percentage of repaid money to total borrowed money was found to be more in marginal and small size of holdings as compared to very large, large and medium size of holdings. An average farmer who borrowed money from micro finance/common group, SHGS, fellow farmer/neighbours and money lenders repaid their total borrowed money, while borrower of commercial bank and cooperative bank repaid only 7.11 and 35.50 per cent of total borrowed money, respectively in the area under study.

The main reason of non repayment of borrowed money from commercial bank were expecting debt waiver and income always less than the expectation, while the main reason of non payment of borrowed money to cooperative banks were income always less than the expectation expecting debt waiver and payment will be made after harvesting as reported by majority of HHs.

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CHAPTER - VII

ASSETS ENDOMENTS

This chapter deals with the information regarding asset expenditure income & net worth technical advice, minimum support price and crop insurance across size of farms in Madhya Pradesh.

7.1 Assets, Expenditure, Total Income and Net Worth

Assets, expenditure, total income and net worth related to different size of farms were analysed and presented in this subhead.

7.1.1 Assets

Out of total sample HHs (400) 86.25 per cent (345) assets, out of which were involved in livestock husbandry. Only 1 HH related to small farm has poultry unit at his farm (Table 7.1).

Out of 400 sample HHs only 24, 11, 86 and 2 have tractors, threshers, diesel/electric pumps and other machines at their farms. Only 1 large sample HH purchased land for cultivation of crops during last year. At overall

Table 7.1 : Assets purchased for farm business across size of farm

Particulars	Land	Livestock	Poultry/ Duckery	Power Tiller /Tractor	Thresher	Pump	Machinery /equipment	Total
Expenses (Rs/HHs)								
Marginal	0	5540	0	0	2011	1437	0	8989
Small	0	6414	32	23604	2793	1658	450	34950
Medium	0	5226	0	22016	1452	1637	0	30331
Large	0	8157	0	79412	6275	3216	1275	98333
Very large	25926	11852	0	74444	28148	3630	0	144000
Overall	5185	7438	06	39895	8136	2315	345	63314
Number of Respondents (% of HHs)								
Marginal	0 (0)	44 (75.86)	0 (0)	0 (0)	1 (1.72)	13 (22.41)	0 (0)	58 (100)
Small	0 (0)	69 (68.32)	1 (0.99)	7 (6.93)	2 (1.98)	21 (20.79)	1 (0.99)	101 (100)
Medium	0 (0)	60 (63.16)	0 (0)	6 (6.32)	1 (1.05)	28 (29.47)	0 (0)	95 (100)
Large	0 (0)	29 (54.72)	0 (0)	8 (15.09)	2 (3.77)	13 (24.53)	1 (1.89)	53 (100)
Very large	1 (2.63)	18 (47.37)	0 (0)	3 (7.89)	5 (13.16)	11 (28.95)	0 (0)	38 (100)
Overall	1 (0.29)	220 (63.77)	1 (0.29)	24 (6.96)	11 (3.19)	86 (24.93)	2 (0.58)	345 (100)

Source: Field Survey

level an average HH had a assets of Rs.63314 only, which was found to be increases with size of farms from Rs. 8989 (marginal) to 144000 (very large) during last year in the area under study. The expenses (Rs./HH) were found to be more in case of power tiller & thresars as compared to livestock, land, pumps, and other misc, items in total assets at overall level in the study area. Which out of 345 HHs, 63.77 per cent (220) used to spend on livestock followed by Pump (24.93), Power Tiller/Tractor (6.96), Thresher (3.19), Land (0.29), Poultry/Duckery (0.29) and Machinery/equipment (0.58).

7.1.2 Expenditure

Out of 400 HHs, the maximum HHs were found to spend on their diesel/electric pumps (315) followed by thresher (68), tractor (23) and buildings for farm business (12). At overall level an average HH was found to spend Rs.13864 per year for repairing and maintenance of their farm assets, which was found to be more on large (Rs.30165/year) as compared to very large(Rs.24581/year), medium (Rs.8392/year), small (Rs.4352/year), and marginal (Rs.1832/year) farms. None of the HH related to marginal size of farm was found to spend for repair of tractor (Table 7.2).

Out of total expenditure on repairing and maintenance of their farm assets an average HH was found to spend maximum for repair and maintenance of building for farm business (Rs. 9390/year), followed by tractors(Rs.

Table 7.2 : Expenses on minor repairing in productive assets across size of farm (Rs/HHs/year)

Particulars	Building for Farm Business	Power Tiller/Tractor	Thresher	Pumps	Total/ No of HHs
Expenses (Rs/HHs)					
Marginal	575	0	207	1051	1832
Small	5991	635	518	1248	8392
Medium	1169	1331	734	1118	4352
Large	22549	4147	2108	1361	30165
Very large	16667	2389	4167	1359	24581
Overall	9390	1700	1547	1227	13864
Number of Respondents (%)					
Marginal	2 (2.3)	0 (0)	3 (3.45)	64 (73.56)	87 (100)
Small	3 (2.7)	3 (2.7)	9 (8.11)	86 (77.48)	111 (100)
Medium	3 (2.42)	6 (4.84)	17 (13.71)	93 (75)	124 (100)
Large	3 (5.88)	10 (19.61)	19 (37.25)	45 (88.24)	51 (100)
Very large	1 (3.7)	4 (14.81)	20 (74.07)	27 (100)	27 (100)
Overall	12 (3)	23 (5.75)	68 (17)	315 (78.75)	400 (100)

Source: Field Survey

1700/year), thresher (Rs. 1547/year), and diesel/electric pump (Rs. 1227/year). These finding were found to be similar across size of farms with minor variation in the area under study.

7.1.3 Total Income

Out of 345 HHs only 15.07 per cent HHs (52) received income from their productive resources during last year, which were found to be more in small (19) followed by medium (14), marginal (7), large (6) and very large (6)size of farms. At overall level an average HH was found to receive an income of Rs. 16301 /year from their productive resources. An average HH of very large (Rs. 42339/year) size of farm received maximum income as compared to large (11820), small (10283), medium (9131), and marginal (7934) farms during last year. Amongst different productive resources livestock resource (10699) was found to be more productive as compared to thresher (388), poultry (14) and diesel/electric pumps (14). The livestock resource not only provides more income to total HHs but it provides more employment as compared to other resources (Table 7.3).

Table 7.3 : Income received from productive assets across size of farm (Rs/HHs)

Particulars	Livestock	Poultry/Duckery	Thresher	Pump	Total
Total Income (Rs/HHs/year)					
Marginal	7934	0	0	0	7934
Small	9391	72	748	72	10283
Medium	8292	0	839	0	9131
Large	11467	0	353	0	11820
Very large	16413	0	0	0	42339
Overall	10699	14	388	14	16301
Number of Respondents					
Marginal	7	0	0	0	7
Small	15	1	2	1	19
Medium	12	0	2	0	14
Large	5	0	1	0	6
Very large	5	0	0	0	6
Overall	44	1	5	1	52

Source: Field Survey

7.1.4 Net Worth:

None of the HHs was found to receive net income from their productive resources. At over all level an average HH was found to incurred loss of Rs. 60877 per year from their productive resources. As the size of farms increases the net loss per HH was found to be increased from Rs. 2887 (marginal) to 126242 (very large) per year from the productive resources. (Table 7.4)

Table 7.4 :Total Expenditure and income received on productive assets across size of farm (in Rs/HHs)

Particulars	Productive Assets	Minor Repairing	Total Expenses	Total receipt	Net Received
Marginal	8989	1832	10821	7934	-2887
Small	34950	8392	43342	10283	-33059
Medium	30331	4352	34683	9131	-25552
Large	98333	30165	128498	11820	-116678
Very large	144000	24581	168581	42339	-126242
Overall	63314	13864	77178	16301	-60877

Source: Field Survey

7.2 Technical Advise

Thesources of technical advice, reasons for not accessing of technical advice, frequency of contact with the resources of technical advice, adoption of technical advice from the related sources, ranking of technical advice and impact of technical advice were analysed for the study.

7.2.1 Sources of Technical Advise

The sources of technical advice accessed by the sample HHs were observed and presented in Table 7.5. It is observed from the data that at overall level extension agents (89.5) followed by private commercial agents (87%), progressive farmers(66.75%) were found to be main sources of technical advice accessed by the majority of sample HHs for production of crop and livestock products in the area under study. Officers of the Veterinary Dept., scientists of Krishi Vigyan Kendra, Radio/Tv/ Newspaper and scientist of Agri. University/College were also found to be other sources of technical advice accessed by the sample HHs for crop and livestock management. These finding were found to be similar across size of farms, although more of the marginal HHs (8.05%) were found to accessed advice from Agriculture University/College & KVKs as compared to

Table 7.5 : Sources of technical advice accessed for crop grown (No of HHs)

Particulars	Extension Agents	Krishi Vigyan Kendra	Agri. University /College	Pvt. Commercial Agents	Progressive farmer	Radio/Tv/ Newspaper/	Veterinary Dept.
Marginal (87)	79 (90.8)	17 (19.54)	7 (8.05)	78 (89.66)	63 (72.41)	15 (17.24)	25 (28.74)
Small(111)	95 (85.59)	19 (17.12)	7 (6.31)	93 (83.78)	65 (58.56)	18 (16.22)	28 (25.23)
Medium(124)	110 (88.71)	17 (13.71)	8 (6.45)	108 (87.1)	84 (67.74)	14 (11.29)	29 (23.39)
Large(51)	48 (94.12)	3 (5.88)	2 (3.92)	45 (88.24)	31 (60.78)	6 (11.76)	11 (21.57)
Very Large(27)	26 (96.3)	1 (3.7)	0 (0)	24 (88.89)	24 (88.89)	3 (11.11)	12 (44.44)
Total (400)	358 (89.5)	57 (14.25)	24 (6)	348 (87)	267 (66.75)	56 (14)	105 (26.25)

Figures in parenthesis show percentage to total

Source: Field Survey

remaining size of holdings due to the reason that they were a part of Kisan Mela arranged by the Agril. University /College level in the area under study.

7.2.2 Reasons for not Accessing of Technical Advice

The reasons for not accessing the sources of technical advice were found to be different for different sources of technical advice.

The majority of sample HHs reported that they could not accessed Veterinary Department (100.0%) as a sources of technical advice due to the reason that information was not available, while in case of Krishi Vigyan Kendra, they were found to be not aware. As far as source of technical advice from Agricultural University/College is concerned formation HHs was not accessed technical advice from Agriculture University/College 44.15 were found to be not aware of the existence of the Agriculture University/College, while 48.4 per cent were reported that the Agriculture University/College doesn't in their vicinity and Radio/TV/Internet due to the reason that they were not aware and technical advice not available. In case of extension agent 85.71 per cent were found to be not aware, while 14.29 per cent did not require the technical advice from extension agent. (Table 7.6).

Table 7.6 : Reasons for not accessing the sources of technical advice (No of HHs)

Particulars	Not Aware	Not Available	Not Required	Unavailable need based technical information	Total /N=400/
Extension Agent	36 (85.71)	0 (0)	6 (14.29)	0 (0)	42 (100)/10.5/
KrishiVigyan Kendra	343 (100)	0 (0)	0 (0)	0 (0)	343 (100)/85.75/
Agricultural University /College	166 (44.15)	182 (48.4)	0 (0)	28 (7.45)	376 (100)/94.00/
Private Commercial Agents (including drilling contractor)	0 (0)	0 (0)	52 (100)	0 (0)	52 (100)/13/
Progressive Farmer	0 (0)	0 (0)	133 (100)	0 (0)	133 (100)/33.25/
Radio/TV/Newspaper/Internet	0 (0)	0 (0)	0 (0)	344 (100)	344 (100)/86/
Veterinary Department	0 (0)	295 (100)	0 (0)	0 (0)	295 (100)/73.75/
NGO	0 (0)	397 (99.25)	3 (0.75)	0 (0)	400 (100)/100/

Figures in parenthesis show percentage to total

Source: Field Survey

7.2.3 Frequency of Contact with the Sources

The frequency of contact with the sources of technical advice were also observed and presented in Table 7.7. It is observed from

Table 7.7 : Frequency of contact with the technical sources (No of HHs)

S. No.	Particulars	Daily	Weekly	Monthly	Seasonally	Need Based	Casual Contact	Total /N=400/
1	Extension Agent	0 (0)	41 (11.45)	230 (64.25)	67 (18.72)	12 (3.35)	8 (2.23)	358 (100) /89.5/
2	KrishiVigyan Kendra	0 (0)	0 (0)	19 (33.33)	20 (35.09)	9 (15.79)	9 (15.79)	57 (100) /14.25/
3	Agricultural University /College	0 (0)	0 (0)	0 (0)	0 (0)	11 (45.83)	13 (54.17)	24 (100) /6/
4	Private Commercial Agents (including drilling contractor)	63 (18.1)	51 (14.66)	67 (19.25)	57 (16.38)	62 (17.82)	48 (13.79)	348 (100) /87/
5	Progressive Farmer	267 (100)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	267 (100) /66.75/
6	Radio/TV/Newspaper/Internet	56 (100)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	56 (100) /14/
7	Veterinary Department	0 (0)	0 (0)	0 (0)	105 (100)	0 (0)	0 (0)	105 (100) /26.25/

Figures in parenthesis show percentage to total

Source: Field Survey

the data that frequency of contact with progressive farmers and radio/TV/newspaper/ internet was found to be daily as reported by the cent percent of sample HHs, who accessed the technical advice from these sources. The frequency of contact with extension agents was found to be monthly as reported by the 64.25 per cent of sample HHs who accessed the technical advice from this source, while the frequency of contact with agricultural university/college was found to be need based and casual contact as reported by the 45.83 and 54.17 per cent of sample HHs, respectively.

The frequency of contact with officers of the Veterinary Department was found to be seasonal as reported by the cent percent of sample HHs, who accessed the technical advice from this source. The frequency of contact with private commercial agents (including dealer contractor) was found to be daily as well as weekly, monthly, seasonal, need based and casual as reported by 18.10, 14.66, 19.25, 16.38, 17.82 and 13.79 per cent of sample HHs, respectively who access the technical advice from this source.

7.2.4 Adoption of Technical Advice from the Reported Sources

The majority of sample HHs reported that they adopted the technical advice from private commercial agents including dealer contractor (87.0%), extension agent (80.25%) and progressive farmer (66.75%) more as compared to officers of Veterinary Department (26.25%), Krishi Vigyan Kendra (12.5%),

Table 7.8 : Number of technical advice adopt from different source (%HHs)

Particulars	Extension Agents	Krishi Vigyan Kendra	Agri. University /College	Pvt. Commercial Agents	Progressive farmer	Radio/Tv/ Newspaper/	Veterinary Dept.
Marginal (87)	71 (81.61)	14 (16.09)	6 (6.9)	78 (89.66)	63 (72.41)	12 (13.79)	25 (28.74)
Small(111)	86 (77.48)	16 (14.41)	7 (6.31)	93 (83.78)	65 (58.56)	12 (10.81)	28 (25.23)
Medium(124)	101 (81.45)	16 (12.9)	7 (5.65)	108 (87.1)	84 (67.74)	8 (6.45)	29 (23.39)
Large(51)	38 (74.51)	3 (5.88)	2 (3.92)	45 (88.24)	31 (60.78)	4 (7.84)	11 (21.57)
Very Large(27)	25 (92.59)	1 (3.7)	0 (0)	24 (88.89)	24 (88.89)	1 (3.7)	12 (44.44)
Total (400)	321 (80.25)	50 (12.5)	22 (5.5)	348 (87)	267 (66.75)	37 (9.25)	105 (26.25)

Figures in parenthesis show percentage to total no. of HHs in respective categories. Source: Field Survey

Radio/TV/ Newspaper/Internet (9.25%) and Agricultural University/College (5.5%) at overall level in the area under study.

The advice given by all these sources viz. extension agent (97.15%), Krishi Vigyan Kendra (88.0%), Agricultural University/ College (100.0%), private commercial agents including dealer contractor (100.0%), progressive farmer (100.0%), radio/ TV/newspaper/internet (100.0%) and officers of Veterinary Department (100.0%) were found to be useful as reported by majority of sample

Table 7.9 : Ranking of technical advice (% HHs)

S. No.	Particulars	Useful	Not Useful	Don'T Know	Total /N=400/
1	Extension Agent	313 (97.51)	0 (0)	8 (2.49)	321 (100)/80.25/
2	KrishiVigyan Kendra	44 (88)	2 (4)	4 (8)	50 (100)/12.5/
3	Agricultural University /College	22 (100)	0 (0)	0 (0)	22 (100)/5.5/
4	Private Commercial Agents (Including Drilling Contractor)	348 (100)	0 (0)	0 (0)	348 (100)/87/
5	Progressive Farmer	267 (100)	0 (0)	0 (0)	267 (100)/66.75/
6	Radio/Tv/Newspaper/Internet	37 (100)	0 (0)	0 (0)	37 (100)/9.25/
7	Veterinary Department	105 (100)	0 (0)	0 (0)	105 (100)/26.25/

Figures in parenthesis show percentage to total Source: Field Survey

HHs in the area under study (Table 7.9). These findings were found to be similar with minor variation across size of farms. The rest of the sample HHs who were not adopted the recommended advice from the extension agent and scientist of Krishi Vigyan Kendra due to non-availability of input and physical resources as reported by 67.57 and 100.0 per cent of sample HHs in the area under study (Table 7.10). The 18.92 and 13.51 percent of HHs who assessed the technical advice from extension agents were reported that they could not adopt recommended advice from the source due to difficulty in storage, processing and marketing of product and lack of technical advice for follow up, respectively. (Table 7.10)

Table 7.10 : Reasons for not adopting the recommended advice from the reported source

S. No.	Particulars	Lack of Financial Resources	Non-Availability of Input & Physical Resources	Lack of Technical Advice For Follow-Up	Difficulty in Storage, Processing &Mkting of Products	Total /N=400/
1	Extension AGENT	0 (0)	25 (67.57)	5 (13.51)	7 (18.92)	37 (100)/9.25/
2	KrishiVigyan Kendra	0 (0)	7 (100)	0 (0)	0 (0)	7 (100)/1.75/
3	Agricultural University /College	2 (100)	0 (0)	0 (0)	0 (0)	2 (100)/0.5/

Figures in parenthesis show percentage to total

Source: Field Survey

7.2.5 Impact of the Adoption of Advice

At overall level, the majority of sample HHs reported that the adoption of technical advice given by all the sources i.e. Extension Agent (64.49%), Krishi Vigyan Kendra (52.0%), Agricultural University/College (68.18%), Private Commercial Agents including dealer contractor (75.29%), Progressive Farmer (82.4%), Radio/TV/Newspaper /Internet (70.27%) and Veterinary Department (80.95%) were found to be beneficial for crop and livestock management (Table 7.11), while 29.91, 40.0, 31.82, 24.71, 17.60, 29.73 and 19.05 per cent of sample HHs reported that adoption of

Table 7.11 : Impact of the adoption of advice from the reported source

S. No.	Particulars	Beneficial	Moderately Beneficial	No Effect	Total /N=400/
1	Extension Agent	207 (64.49)	96 (29.91)	18 (5.61)	321 (100)/80.25/
2	KrishiVigyan Kendra	26 (52)	20 (40)	4 (8)	50 (100)/12.5/
3	Agricultural University /College	15 (68.18)	7 (31.82)	0 (0)	22 (100)/5.5/
4	Private Commercial Agents (Including Drilling Contractor)	262 (75.29)	86 (24.71)	0 (0)	348 (100)/87/
5	Progressive Farmer	220 (82.4)	47 (17.6)	0 (0)	267 (100)/66.75/
6	Radio/Tv/Newspaper/Internet	26 (70.27)	11 (29.73)	0 (0)	37 (100)/9.25/
7	Veterinary Department	85 (80.95)	20 (19.05)	0 (0)	105 (100)/26.25/

Source: Field Survey

technical advice given by Extension Agent, Krishi Vigyan Kendra, Agricultural University/College, Private Commercial Agents including dealer contractor, Progressive Farmer, Radio/TV/Newspaper/Internet and Veterinary Department was found to be moderately beneficial for crop and livestock management.

7.3 Minimum Support Price

Awareness among sample HHs regarding MSP, agencies advisable for procuring crop produce, crop produce sold at MSP to different agencies and reasons for not selling produce at MSP are dealt in this sub head.

7.3.1 Awareness among Sample HHs

The Cent per cent sample HHs across different size of farms related to rice and wheat production were found to be aware to Minimum Support Price (MSP) of rice and wheat. At overall level the 92.41 and 91.86 per cent of soybean and chickpea growers respectively, were found to be aware about MSP of soybean and chickpea in the area under study. As the size of farms increases the awareness of MSP among chickpea growers was found to increased (Table 7.12).

Table 7.12 : Whether aware of MSP related to the reported crops

Particulars	Soybean	Rice	Wheat	Chickpea
Marginal	92.73	100.00	100.00	79.49
Small	91.55	100.00	100.00	89.33
Medium	94.57	100.00	100.00	94.05
Large	91.11	100.00	100.00	100.00
Very large	88.89	100.00	100.00	100.00
Overall	92.41	100.00	100.00	91.86

Source: Field Survey

7.3.2 Agencies available for Procuring Crop Produce

The Cent percent HHs across size of farms related to rice and wheat reported that NAFED (through their cooperative societies) was the only agency for procurement of their produce of rice and wheat. While, cent per cent HHs related to soybean and chickpea across size of farms reported that they don't know about the procurement agencies related to produce of soybean and chickpea in the area under study. (Table 7.13)

7.3.3 Crop Produce Sold to Agencies at MSP

The value of crop produce sold to agenciest MSP by sample HHs across size of farms also observed and presented in Table 7.14.

It is observed from the data that an average HH sold 5231 and 14008 kg of rice and wheat respectively at average MSP of Rs. 17.5 and 18.4 per kg and eared Rs. 91540 and 257756,

Table 7.13 : Agencies available for procuring the crops and its sell reported at MSP

Particulars	NAFED	Don't Know	Total
Soybean			
Marginal	0.00	100.00	100.00
Small	0.00	100.00	100.00
Medium	0.00	100.00	100.00
Large	0.00	100.00	100.00
Very Large	0.00	100.00	100.00
Overall	0.00	100.00	100.00
Rice			
Marginal	100.00	0.00	100.00
Small	100.00	0.00	100.00
Medium	100.00	0.00	100.00
Large	100.00	0.00	100.00
Very Large	100.00	0.00	100.00
Overall	100.00	0.00	100.00
Wheat			
Marginal	100.00	0.00	100.00
Small	100.00	0.00	100.00
Medium	100.00	0.00	100.00
Large	100.00	0.00	100.00
Very Large	100.00	0.00	100.00
Overall	100.00	0.00	100.00
Chickpea			
Marginal	0.00	100.00	100.00
Small	0.00	100.00	100.00
Medium	0.00	100.00	100.00
Large	0.00	100.00	100.00
Very Large	0.00	100.00	100.00
Overall	0.00	100.00	100.00

Source: Field Survey

respectively as value of produce in the area under study. As the size of farm increases the quantity sold and value of produce was found to be increased in the study area (Table 7.14).

Table 7.14 : Total Value of crops sold to agencies at MSP (in Rs)

Particulars	Quantity sold (kg)	sale price (Rs/kg)	value of the crop (Rs/HHs)
Rice			
Marginal	1845	17.5	32293
Small	3149	17.5	55103
Medium	6573	17.5	115023
Large	11188	17.5	195781
Very large	3400	17.5	59500
Overall	5231	17.5	91540
Wheat			
Marginal	994	18.4	18282
Small	2149	18.4	39539
Medium	5698	18.4	104836
Large	14421	18.4	265343
Very large	46781	18.4	860779
Overall	14008	18.4	257756

Source: Field Survey

7.3.4 Reasons for not Selling Crop Produce at MSP

Reasons for not selling crop produce at MSP to different agencies were also observed and presented in Table 7.15. The cent per cent HHs related to soybean reported that they were not able to sell crop produce at MSP due to the fact that procurement agencies were not available in the area under study. The 79.53 and 20.47 per cent of sample chickpea growers also reported that they were not able to sell produce at MSP in the absence of procurement agencies and received better price over MSP, respectively at overall level in the area under study. The 44.00 and 56.00 per cent of sample rice growing reported that they were unable to sell produce at MSP due to poor quality of crop and there is a limit to sell rice produce at MSP in the govt. purchase through co-operative societies. The 63.16 and 36.84 per cent of sample wheat growers also reported the same facts of not selling the crop produce at MSP. These findings

Table 7.15 :Reasons for not selling to agencies procuring crops at MSP

Particulars	Procurement agency not available	Poor quality of crop	Received better price over MSP	Govt. Limit of Purchasing	Total
Soybean					
Marginal	100.00	0.00	0.00	0.00	100.00
Small	100.00	0.00	0.00	0.00	100.00
Medium	100.00	0.00	0.00	0.00	100.00
Large	100.00	0.00	0.00	0.00	100.00
Very large	100.00	0.00	0.00	0.00	100.00
Overall	100.00	0.00	0.00	0.00	100.00
Rice					
Marginal	0.00	28.57	0.00	71.43	100.00
Small	0.00	66.67	0.00	33.33	100.00
Medium	0.00	42.86	0.00	57.14	100.00
Large	0.00	25.00	0.00	75.00	100.00
Very large	0.00	0.00	0.00	100.00	100.00
Overall	0.00	44.00	0.00	56.00	100.00
Wheat					
Marginal	0.00	94.44	0.00	5.56	100.00
Small	0.00	81.82	0.00	18.18	100.00
Medium	0.00	50.00	0.00	50.00	100.00
Large	0.00	0.00	0.00	100.00	100.00
Very large	0.00	0.00	0.00	100.00	100.00
Overall	0.00	63.16	0.00	36.84	100.00
Chickpea					
Marginal	90.00	0.00	10.00	0.00	100.00
Small	74.42	0.00	25.58	0.00	100.00
Medium	81.48	0.00	18.52	0.00	100.00
Large	71.88	0.00	28.13	0.00	100.00
Very large	86.36	0.00	13.64	0.00	100.00
Overall	79.53	0.00	20.47	0.00	100.00

Source: Field Survey

were found to be similar across size of farms, although, 100 per cent sample wheat growers of large 100 per cent sample rice & wheat growers of very large size of farms reported that they were not able to sell produce at MSP due to the Govt. fixed a limit of purchasing in cooperative societies in the area under study. Hence they bound to sell wheat and rice produce to the agencies other than MSP.

7.4 Government Initiatives to Crop Producers

The various govt. schemes viz PM-KISAN and PMSNY are running in the area under study but HHs were found to be benefited through Pradhan Mantri Samman Nidihi Youjana (PMSNY).

7.4.1 Total Payment which Sample HHs Received under PMSNY

The total payment received by sample HHs under PMSNY and their numbers have also been observed and presented in Table 7.16. It is observed from the data that at over all level, sample HH received Rs. 2323 in last year under PMSNY 84.71 per cent in 1st instalment, 14.71 per cent in 2nd instalment and remain 0.59 per cent in 3rd instalment in the area under study.

Out of total 400 sample HHs only 170 HHs received payment under the Scheme. In total 170 who received payment the majority of them were found to be small (30.00%) followed by medium (29.41%), marginal (25.29%), large (10.59%) and very large (4.71%).

Table 7.16 : Total payment received (Rs) under PM-KISAN/PMSNY and number of HHs

Particulars	Payment Received (Rs/HHs)	Number of HHs	Time Taken (Instalments in %)		
			1st	2nd	3rd
Marginal	2372	43 (25.29)	81.40	18.60	0.00
Small	2353	51 (30.00)	82.35	17.65	0.00
Medium	2280	50 (29.41)	88.00	10.00	2.00
Large	2111	18 (10.59)	94.44	5.56	0.00
Very Large	2500	8 (4.71)	75.00	25.00	0.00
Overall	2323	170 (100.00)	84.71	14.71	0.59

Source: Field Survey

7.5 Crop Insurance

Number of HHS benefited under crop insurance the crop incurred losses, causes of crop losses and reason of insuring are identified from sample household.

7.5.1 Number of HHs Insured and Crop Losses

Number of HHs insured and losses of major crops across size of farms were analyzed and presented in Table 7.17. It is observed from the data that none of the sample HHs insured crop additionally apart from taking crop loan. The majority of sample HHs were found to insure their crop when they obtained crop loan for cultivation of major crops across size of farms from cooperative/commercial bank. The 14.14, 68.57, 72.05 and 78.68 per cent of soybean, rice, wheat and chickpea growers,

respectively insured the crop when they obtained crop loan. The number of HHs faced losses in soybean, rice, wheat and chickpea were found to be 57.24, 70.48, 63.66 and 77.13 per cent with average losses of Rs. 28274, 3752,30478 and 12098 per HHs at overall level in the area under study.

Table 7.17 :Number of HHs insured and incurred losses in major crops across size of farms

Particulars	Insured Only When Received Loan (%)	Insured Additionally (%)	Not Insured (%)	Number of HHs Facing Crop Loss (%)	Total Amount of Loss (Rs)	Average Loss (Rs./HH)
Soybean						
Marginal	9.09	0.00	90.91	56.36	316200	3634
Small	11.27	0.00	88.73	60.56	761100	6857
Medium	18.48	0.00	81.52	57.61	1857200	14977
Large	20.00	0.00	80.00	64.44	2403600	47129
Very Large	7.41	0.00	92.59	37.04	1856900	68774
Overall	14.14	0.00	85.86	57.24	7195000	28274
Rice						
Marginal	54.84	0.00	45.16	70.97	183700	2111
Small	75.00	0.00	25.00	66.67	349500	3149
Medium	72.41	0.00	27.59	72.41	613600	4948
Large	75.00	0.00	25.00	75.00	211600	4149
Very Large	100.00	0.00	0.00	100.00	8800	4400
Overall	68.57	0.00	31.43	70.48	1367200	3752
Wheat						
Marginal	45.31	0.00	54.69	64.06	511900	5884
Small	73.08	0.00	26.92	69.23	1245000	11216
Medium	79.81	0.00	20.19	73.08	3545700	28594
Large	83.67	0.00	16.33	51.02	2147700	42112
Very Large	81.48	0.00	18.52	33.33	1743800	64585
Overall	72.05	0.00	27.95	63.66	9194100	30478
Chickpea						
Marginal	71.79	0.00	28.21	79.49	203200	2336
Small	74.67	0.00	25.33	65.33	661600	5960
Medium	85.71	0.00	14.29	77.38	1391500	11222
Large	78.95	0.00	21.05	94.74	926100	18159
Very Large	77.27	0.00	22.73	81.82	615900	22811
Overall	78.68	0.00	21.32	77.13	3798300	12098

Source: Field Survey

7.5.2 Causes of Crop Losses

Inadequate rainfall/drought followed by disease/insect pest/animal attack were found to be major causes of crop losses as reported by majority of sample HHs growing major crops across size of farms (Table 7.18). The wheat growers reported that the cent per cent loss incurred due to inadequate rainfall/drought, while 98.84 and 64.76 per cent of soybean and rice growers were also reported the loss due to inadequate rainfall/drought condition. Loses due to disease/insect/animal was reported by

Table 7.18 : Causes of the crop loss in major crops across size of farms (% HHs)

Landholding Categories	Inadequate Rainfall/Drought	Disease/Insect /Animal	%age to reported crop losses	No. of HHs
Soybean				
Marginal	100.00	0.00	100.00	55
Small	95.35	4.65	100.00	71
Medium	100.00	0.00	100.00	92
Large	100.00	0.00	100.00	45
Very Large	100.00	0.00	100.00	27
Overall	98.84	1.16	100.00	290
Rice				
Marginal	54.84	45.16	100.00	31
Small	66.67	33.33	100.00	36
Medium	68.97	31.03	100.00	29
Large	75.00	25.00	100.00	8
Very Large	100.00	0.00	100.00	1
Overall	64.76	35.24	100.00	105
Wheat				
Marginal	100.00	0.00	100.00	64
Small	100.00	0.00	100.00	78
Medium	100.00	0.00	100.00	104
Large	100.00	0.00	100.00	49
Very Large	100.00	0.00	100.00	27
Overall	100.00	0.00	100.00	322
Chickpea				
Marginal	35.48	64.52	100.00	39
Small	38.78	61.22	100.00	75
Medium	50.77	49.23	100.00	84
Large	33.33	66.67	100.00	38
Very Large	50.00	50.00	100.00	22
Overall	42.21	57.79	100.00	258

Source: Field Survey

1.16 and 35.24 per cent soybean and rice growers, respectively. In case of chickpea losses due to disease/insect (57.79%) was found to be more as compared to inadequate rainfall/drought (42.21%) (Table 7.18).

7.5.3 Reason for not Insuring Crops

To know the reasons for not insuring crops by the respondents across size of farms were analysed and presented in Table 7.19. It is observed from the data that cent per cent of sample soybean HHs reported that they were not insured their soybean crop due to negligence of govt. to take responsibility regarding crop losses. This was also reported as major reason by 85, 90 and 35 per cent of rice, wheat and chickpea growers, respectively.

Table 7.19 : Reasons for not insuring the major crop across size of farms (% HHs)

Particulars	Lack of Awareness	Delay in claim Payment	Complex procedures	Negligence of Govt.	Total
Soybean					
Marginal	0.00	0.00	0.00	100	100.00
Small	0.00	0.00	0.00	100	100.00
Medium	0.00	0.00	0.00	100	100.00
Large	0.00	0.00	0.00	100	100.00
Very Large	0.00	0.00	0.00	100	100.00
Overall	0.00	0.00	0.00	100	100.00
Rice					
Marginal	7.14	0.00	0.00	92.86	100.00
Small	22.22	0.00	0.00	77.78	100.00
Medium	12.50	0.00	0.00	87.50	100.00
Large	50.00	0.00	0.00	50.00	100.00
Very Large	0.00	0.00	0.00	0.00	0.00
Overall	15.15	0.00	0.00	84.85	100.00
Wheat					
Marginal	17.14	0.00	0.00	82.86	100.00
Small	14.29	0.00	0.00	85.71	100.00
Medium	0.00	0.00	0.00	100.00	100.00
Large	0.00	0.00	0.00	100.00	100.00
Very Large	0.00	0.00	0.00	100.00	100.00
Overall	10.00	0.00	0.00	90.00	100.00
Chickpea					
Marginal	36.36	18.18	36.36	9.09	100.00
Small	10.53	5.26	42.11	42.11	100.00
Medium	41.67	8.33	25.00	25.00	100.00
Large	25.00	12.50	12.50	50.00	100.00
Very Large	0.00	20.00	20.00	60.00	100.00
Overall	23.64	10.91	30.91	34.55	100.00

Source: Field Survey

While 31 per cent of chickpea growers reported that the processor of insuring crop is complex, while 11 per cent reported that there is a delay in payment of claims.

7.6 Summary of the Chapter

This section of the study deals with the asset, expenditure & net worth of the HHs, information regarding technical advice, minimum support price and crop insurance with government initiatives to crop producers across size of farms.

The study reveals that out of total sample HHs (400) 86.25 per cent (345) assets were found to be involved in allied activities viz. live stock husbandry and only 6.96, 3.19, 24.93 and 0.58 per cent have tractors, threshers, diesel/electric pumps and other machine at their farms. An average HH had an assets of Rs. 63314/- only, which showed increasing trend with size of farms. It is also observed that amongst different expenditure involved in minor repairing maximum numbers of HHs

found to spend their capital on repairs of diesel /electric pumps (78.75%) followed by thresher(17.00%), tractors (5.75%) and farm buildings (3%). An average HH was found to b spend Rs. 13864/year for repairing and maintenance of their farm assets. None of the HH related to marginal size of farm was found to spend capital for repair of tractor. Out of 345 HHs only 15.07 per cent HHs (52) received income from their productive resources during the last year, which were found to be more in small (19) followed by medium (14), marginal (7), large (6) and very large (6) size of farms. An average HH was found to receive an annual income of Rs. 16301/year from their productive resources. An average HH of very large (Rs. 42339/year) size of farm received more income as compared to large (11820), small (10283), medium (9131), and marginal (7934) farms. Amongst different productive resources livestock resource (10699) was found to be more productive as compared to hiring of thresher (388), diesel/electric pumps (14) and poultry production (14). It is also observed during the investigation that livestock activities not only provide income to HHs but it provide employment as compared to other resources. However, none of the HH was found to receive net income from their productive resources due to more expenditure as compared to be income and an average HH was found to in loss of Rs. 60884 per year from their productive resources.

The extension agents (89.5) followed by private commercial agents (87%), progressive farmers(66.75%) were found to be main sources of technical advice accessed by the majority of sample HHs for production of crop and livestock products. Officers of the Veterinary Dept., scientists of KrishiVigyan Kendra, Radio/Tv/ Newspaper and scientist of Agri. University/College were also found to be other sources of technical advice accessed by the sample HHs for crop and livestock management. The frequency of contact with progressive farmers & radio/TV/ newspaper/internet, extension agents, agricultural university/college, officers of the Veterinary Department daily, monthly, need based and seasonal as reported by majority of sample HHs, while the frequency of contact with private commercial agents (including dealer contractor) was found to be daily as well

as weekly, monthly, seasonal, need based and casual as reported by 18.10, 14.66, 19.25, 16.38, 17.82 and 13.79 per cent HHs, respectively of sample HHs who access the technical advice from this source. It is also observed that the technical advice from private commercial agents including dealer contractor (87%), extension agent (80%) and progressive farmer (67%) more as compared to officers of Veterinary Department (26%), KrishiVigyan Kendra (12%), Radio/TV/ Newspaper/Internet (9%) and Agricultural University/College (6%) and the advice given by all these sources were found to be useful as reported by majority of sample HHs in the area under study.

The more than 90 percent sample HHs across different size of farms related to rice and wheat production were found to be aware to Minimum Support Price (MSP) of rice, wheat, soybean and chickpea in the area under study. The Cent per cent rice and wheat HHs across size of farms and reported that NAFED (through their cooperative societies) was the only agency for procurement of their produce, while the Cent per cent HHs related to soybean and chickpea across size of farms reported that they don't know about the procurement agencies related to produce of soybean and chickpea in absence of procurement agency. An average HH sold 5231 and 14008 kg of rice and wheat respectively at an average MSP of Rs. 17.50 and 18.40 per kg and earned Rs. 91540 and 257756 respectively as value of produce in the area under study. As the size of farm increases the quantity sold and value of produce was also found to be increased in the study area.

The various govt. schemes viz PM-KISAN and PMSNY are running in the area under study but HHs were found to be benefited through Pradhan Mantri Samman Nidihi Youjana (PMSNY).

An average sample HH received Rs. 2323/- in last year under PMSNY in which he found to be receive 84.71 per cent in 1st instalment and rest in 2nd instalment in the area under study. None of the HHs was found to be insure crop additionally apart from taking crop loan. The negligence of govt to take responsibility of crop losses (34.55%), complicated process of crop insurance scheme

(30.91%), lack of awareness about crop insurance scheme (23.46%) and delay in claim settlement (10.91%) were the major reason of not insuring their crop by the majority of HHs under crop insurance at overall level.

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CHAPTER - VIII

PROBLEMS IN FARMING, ECONOMIC RISK, COPING STRATEGIES AND SOCIAL NETWORK

This chapter deals with the problems faced by respondents in farming, economic risk faced by them with coping strategies and social network in the study area under study.

8.1 Farm Income

Status of farm income, reasons of inadequate farm income and problems faced in farming by the sample HHs were analysed for the study.

8.1.1 Status of Farm Income

It is observed in the study whether income from farming is adequate or not, only 12.8 per cent of sample HHs were reported that income from farming was adequate at overall level. Amongst different categories of farms more numbers of marginal (26.4%) followed by small (14.4%), medium (8.1%) and large (3.9%) HHs reported that income from farming is adequate. None of the very large HHs reported that the income from farming is adequate in the area under study (Table 8.1).

Table 8.1 :Whether income from farming is adequate (HHs)

Particular	Number of HHs		Percentage of HHs	
	Yes	No	Yes	No
Marginal (87)	23	64	26.4	73.6
Small (111)	16	95	14.4	85.6
Medium (124	10	114	8.1	91.9
Large (51)	2	49	3.9	96.1
Very Large (27)	0	27	0.0	100.0
Total (400)	51	349	12.8	87.3

Source: Field Survey

8.1.2 Reasons for Inadequate Income from farming

The main reasons of inadequate income from farming as reported by majority of sample HHs at overall level were too high rainfall (87.25%), yield fluctuating a lot (69.75%), pest attack/crop diseases (68.75%), destroy of crop by animals (67.50%), absence of storage facility (65.75%), high interest rate of money lenders (61.50%), temperature fluctuate (60.0%), shortage of labour during peak operation periods (58.0%), small size of holdings (57.25%), rainfall fluctuate (53.50%), rodent attack (52.50%) and lack of marketing facilities (50.50%).

The other major reasons for inadequate

Table 8.2 : Reasons for inadequate income from farming (%)

S.No.	Particulars	Marginal	Small	Medium	Large	Very Large	Total
	N	87	111	124	51	27	400
1	Rainfall too high	73.56	85.59	91.94	96.08	100.00	87.25
2	Yield fluctuating a lot	60.92	76.58	75.00	64.71	55.56	69.75
3	Pest problem/crop diseases	64.37	66.67	72.58	72.55	66.67	68.75
4	Other animal problem	68.97	73.87	67.74	56.86	55.56	67.50
5	Absence of storage facility	48.28	59.46	70.97	86.27	85.19	65.75
6	High interest rate of money lenders	57.47	59.46	62.90	70.59	59.26	61.50
7	Temp fluctuating a lot	42.53	48.65	67.74	82.35	85.19	60.00
8	Labour shortage	37.93	58.56	65.32	72.55	59.26	58.00
9	Small land size	73.56	81.08	58.87	3.92	0.00	57.25
10	Rainfall fluctuating a lot	48.28	58.56	54.84	43.14	62.96	53.50
11	Rodent problem	51.72	58.56	54.84	41.18	40.74	52.50
12	Poor market facilities	33.33	45.95	54.84	64.71	77.78	50.50
13	Inadequate bank credit	35.63	46.85	53.23	60.78	74.07	50.00
14	Price not remunerative	47.13	40.54	48.39	56.86	37.04	46.25
15	Uncertain govt support	29.89	43.24	43.55	64.71	70.37	45.00
16	Govt. support not available	43.68	42.34	48.39	31.37	29.63	42.25
17	Yield going down	5.75	18.92	55.65	78.43	96.30	40.25
18	Unavailability/inadequate supply of pesticides	26.44	41.44	40.32	41.18	40.74	37.75
19	Limited sources of credit	20.69	21.62	29.03	33.33	37.04	26.25
20	Temp is too high	24.14	31.53	25.81	25.49	11.11	26.00
21	Temp is too low	20.69	20.72	20.16	29.41	29.63	22.25
22	Insufficient irrigation	17.24	27.03	18.55	17.65	22.22	20.75
23	Unavailability/inadequate supply of fertilisers	18.39	21.62	16.94	15.69	18.52	18.50
24	Price fluctuating a lot	13.79	16.22	20.16	19.61	11.11	17.00
25	Absence of mkt facilities	1.15	4.50	20.16	39.22	44.44	15.75
26	Poor road connectivity	6.90	10.81	14.52	23.53	22.22	13.50
27	Rainfall too low	17.24	9.91	6.45	9.80	11.11	10.50
28	Absence of irrigation	1.15	5.41	0.81	3.92	11.11	3.25

Source: Field Survey

income from farming were inadequate bank credit (50.00%), price not remunerative (46.25%), uncertain government support (45.00%), government support not available (42.25%), yield going down (40.25%), unavailability/inadequate supply of pesticides (37.75%), limited sources of credit (26.25%), temperature is too high (26.00%), temperature is too low (22.25%), insufficient irrigation facilities (20.75%), unavailability/inadequate supply of fertilisers (18.50%), price fluctuating a lot (17.00%), absence of marketing facilities (15.75%), poor road connectivity (13.50%), rainfall too low (10.50%) and absence of irrigation (3.25%) (Table 8.2)

These findings were found to be similar across size of farms although HHs of very large category sample reported that main reasons of inadequate income from farming were too high rainfall (100%) followed by yield going down (96.3%), absence of storage facility (85.19%), temp fluctuating a lot (85.19%), poor market facilities (77.78%), inadequate bank credit (74.07%), uncertain govt support (70.37%), pest problem/crop diseases (66.67%), rainfall fluctuating a lot (62.96%), high interest rate of money lenders (59.26%), labour shortage (59.26%), yield fluctuating a lot (55.56%) and

other animal problem (55.56%), while in the large category the majority of them reported that main reasons of inadequate income from farming were too high rainfall (96.08%) followed by absence of storage facility (86.27%), temp fluctuating a lot (82.35%), yield going down (78.43%), pest problem/crop diseases (72.55%), labour shortage (72.55%), high interest rate of money lenders (70.59%), yield fluctuating a lot (64.71%), poor market facilities (64.71%), uncertain govt support (64.71%), inadequate bank credit (60.78%), other animal problem (56.86%) and price not remunerative (56.86%).

The majority of HHs of medium category reported that main reasons of inadequate income from farming were too high rainfall (91.94%) followed by yield fluctuating a lot (75%), pest problem/crop diseases (72.58%), absence of storage facility (70.97%), other animal problem (67.74%), temp fluctuating a lot (67.74%), labour shortage (65.32%), high interest rate of money lenders (62.9%), small land size (58.87%), yield going down (55.65%), rainfall fluctuating a lot (54.84%), rodent problem (54.84%), poor market facilities (54.84%) and inadequate bank credit (53.23%), while the majority of HHs of small category reported that main reasons of inadequate income from farming were too high rainfall (85.59%) followed by small land size (81.08%), yield fluctuating a lot (76.58%), other animal problem (73.87%), pest problem/crop diseases (66.67%), absence of storage facility (59.46%), high interest rate of money lenders (59.46%), labour shortage (58.56%), rainfall fluctuating a lot (58.56%) and rodent problem (58.56%).

The majority of HHs of marginal category reported that main reasons of inadequate income from farming were too high rainfall (73.56%) followed by small land size (73.56%), other animal problem (68.97%), pest problem/crop diseases (64.37%), yield fluctuating a lot (60.92%), high interest rate of money lenders (57.47%) and rodent problem (51.72%).

8.1.3 Severity of the problems faced in Farming

The severity of problem faced by the sample HHs in farming has been observed at low, moderate and high level and presented in Table 8.3. Small land size (76.42%), shortage of labour at peak operational period (41.81%), absence of marketing facilities (38.10%), unremunarative price of the products (35.08%), absence of storage facilities (32.32%), yield go dawn (49.81%) and rain fall fluctuating a lot (29.91%), yield going down (29.81%) and more

Table 8.3 : Severity of the reported problem faced in farming (%)

Particulars	Low	Moderate	Very High	Total	%age to HHs
Yield going down	55 (34.16)	58 (36.02)	48 (29.81)	161 (100)	161 (40.25)
Yield fluctuating a lot	101 (36.2)	120 (43.01)	58 (20.79)	279 (100)	**279 (69.75)**
Small land size	22 (9.61)	32 (13.97)	175 (76.42)	229 (100)	229 (57.25)
Absence of irrigation	6 (46.15)	4 (30.77)	3 (23.08)	13 (100)	13 (3.25)
Insufficient irrigation	32 (38.55)	38 (45.78)	13 (15.66)	83 (100)	83 (20.75)
Price not remunerative	72 (38.92)	47 (25.41)	66 (35.68)	185 (100)	185 (46.25)
Price fluctuating a lot	24 (35.29)	26 (38.24)	18 (26.47)	68 (100)	68 (17)
Temp is too high	68 (65.38)	27 (25.96)	9 (8.65)	104 (100)	104 (26)
Temp is too low	51 (57.3)	24 (26.97)	14 (15.73)	89 (100)	89 (22.25)
Temp fluctuating a lot	100 (41.67)	118 (49.17)	22 (9.17)	240 (100)	240 (60)
Rainfall too high	83 (23.78)	192 (55.01)	74 (21.2)	349 (100)	**349 (87.25)**
Rainfall too low	14 (33.33)	22 (52.38)	6 (14.29)	42 (100)	42 (10.5)
Rainfall fluctuating a lot	59 (27.57)	91 (42.52)	64 (29.91)	214 (100)	214 (53.5)
Pest problem/crop diseases	131 (47.64)	92 (33.45)	52 (18.91)	275 (100)	**275 (68.75)**
Unavailability/inadequate Supply of pesticides	91 (60.26)	44 (29.14)	16 (10.6)	151 (100)	151 (37.75)
Unavailability/inadequateSupply of fertilisers	33 (44.59)	39 (52.7)	2 (2.7)	74 (100)	74 (18.5)
Absence of storage facility	91 (34.6)	87 (33.08)	85 (32.32)	263 (100)	**263 (65.75)**
Absence of market facilities	14 (22.22)	25 (39.68)	24 (38.1)	63 (100)	63 (15.75)
Poor market facilities	96 (47.52)	75 (37.13)	31 (15.35)	202 (100)	202 (50.5)
Poor road connectivity	30 (55.56)	24 (44.44)	0 (0)	54 (100)	54 (13.5)
Govt. support not available	106 (62.72)	37 (21.89)	26 (15.38)	169 (100)	169 (42.25)
Uncertain govt support	102 (56.67)	48 (26.67)	30 (16.67)	180 (100)	180 (45)
Limited sources of credit	66 (62.86)	39 (37.14)	0 (0)	105 (100)	105 (26.25)
Inadequate bank credit	95 (47.5)	73 (36.5)	32 (16)	200 (100)	200 (50)
High interest rate of money lenders	98 (39.84)	118 (47.97)	30 (12.2)	246 (100)	246 (61.5)
Rodent problem	75 (35.71)	94 (44.76)	41 (19.52)	210 (100)	210 (52.5)
Other animal problem	79 (29.26)	88 (32.59)	103 (38.15)	270 (100)	**270 (67.5)**
Labour shortage	46 (19.83)	89 (38.36)	97 (41.81)	232 (100)	232 (58)

Source: Field Survey

price fluctuations (26.47%) were found to be very high sevier problems in cultivation of crops as reported by majority of sample HHs in the area under study.

Too high Rainfall (55.01%), unavailability/inadequate supply of fertilizers (52.71%), loo low rainfall (52.38%), temperature fluctuating alot (49.17%), insufficient irrigation facilities (45.78%), rainfall fluctuating alot (42.52%) yield fluctuating alot (43.01%), high interest rate of money lender (47.97%) and rodent attack (44.76%) were found to be moderate sevier problems in cultivation of crops as reported by majority of sample HHs in the area under study.

Limited sources of credit (62.86%), poor road connectivity (55.56%), government support not available (62.72%), temperature too high (65.38%) and unavailability /inadequate supply of pesticide (60.26%) were found to be low in sevierily problems in cultivation of crops as reported by majority of sample HHs in the area under study.

8.2 Economic Risk faced in Farming

Economic risks faced by the sample HHs along with coping strategies with respect to economic risks are identified for the study. The sample HHs were found to face economic risk of lack of finance/capital, lack of access to inputs, sharp fluctuations in input prices, sharp fluctuations in output prices, lack of demand or inability to sell agricultural products and lack of demand or inability to sell non-agricultural products in the area under study.

8.2.1 Economic Risk faced by the HHs

The economic risk faced by the HHs were assessed from rank 1 to rank 7 and presented in Table 8.4. It is observed from the data that 8.75, 18.25. 22.25, 15.0, 15.0, 14.75 and 6 per cent of sample HHs rank lack of finance economic risk at rank-1, rank-2, rank-3, rank-4, rank-5, rank-6, and rank-7 respectively in last two years. The 9.75, 24.0. 14.25, 14.5, 13.5, 12.0 and 12.0 per cent of sample HHs rank lack of access to input economic risk at rank-1, rank-2, rank-3, rank-4, rank-5, rank-6, and rank-7 respectively in last two years. The 16, 10.5, 11.75, 26.75, 11, 19.5 and 4.5 per cent of sample HHs rank Sharp fluctuations in input prices economic risk at rank-1, rank-2, rank-3, rank-4, rank-5, rank-6, and rank-7 respectively in last two years. The 15.25, 14.5, 25.75, 5.25, 21.75, 10.5 and 7 per cent of sample HHs rank Sharp fluctuations in output prices economic risk at rank-1, rank-2, rank-3, rank-4, rank-5, rank-6, and rank-7 respectively in last two years.

The 5, 5.25, 6.75, 23.5, 15.25, 24.75 and 19.5 per cent of sample HHs rank lack of demand or inability to sell agricultural products economic risk at rank-1, rank-2, rank-3, rank-4, rank-5, rank-6,

Table 8.4:Economic risks faced by the households in the last 2 years (%)

Particular	Rank-1	Rank-2	Rank-3	Rank-4	Rank-5	Rank-6	Rank-7	Total
Lack of finance/capital	35 (8.75)	73 (18.25)	89 (22.25)	60 (15)	60 (15)	59 (14.75)	24 (6)	400 (100)
Lack of access to inputs	39 (9.75)	96 (24)	57 (14.25)	58 (14.5)	54 (13.5)	48 (12)	48 (12)	400 (100)
Sharp fluctuations in input prices	64 (16)	42 (10.5)	47 (11.75)	107 (26.75)	44 (11)	78 (19.5)	18 (4.5)	400 (100)
Sharp fluctuations in output prices	61 (15.25)	58 (14.5)	103 (25.75)	21 (5.25)	87 (21.75)	42 (10.5)	28 (7)	400 (100)
Lack of demand or inability to sell agricultural products	20 (5)	21 (5.25)	27 (6.75)	94 (23.5)	61 (15.25)	99 (24.75)	78 (19.5)	400 (100)
Lack of demand or inability to sell non-agricultural products	60 (15)	53 (13.25)	23 (5.75)	28 (7)	47 (11.75)	44 (11)	145 (36.25)	400 (100)

Source: Field Survey

and rank-7 respectively in last two years. The 15, 13.25, 5.75, 7, 11.75, 11 and 36.25 per cent of sample HHs rank lack of demand or inability to sell non-agricultural products economic risk at rank-1, rank-2, rank-3, rank-4, rank-5, rank-6, and rank-7 respectively in last two years.

8.2.2 Coping Strategies with respect to Economic Risks Faced by the HHs

The coping strategies under taken by the sample HHs with respect to the economic risk faced by them across size of farms were evaluated and presented in Table 8.5. It is

Table 8.5: Coping strategies undertaken by the households with respect to the economic risks faced (%)

S.No.	Particulars	Marginal	Small	Medium	Large	Very Large	Total
n		87	111	124	51	27	400
1	Stored crops for better price	16.09	25.23	21.77	25.49	14.81	21.50
2	Carried out primary processing	3.45	4.50	5.65	9.80	18.52	6.25
3	Reduced household consumption expenditure	9.20	7.21	4.84	0.00	0.00	4.21
4	Reduced health expenditure	50.57	73.87	83.06	84.31	81.48	73.50
5	Took Children out of school	36.78	28.83	33.87	31.37	22.22	32.00
6	Deferred social & family functions	35.63	26.13	30.65	15.69	29.63	28.50
7	Sold land	43.68	44.14	36.29	43.14	40.74	41.25
8	Sold livestock (specify)	60.92	54.95	54.84	60.78	70.37	58.00
9	Mortgaged/leased out land	0.00	0.90	2.42	0.00	0.00	1.00
10	Borrowed money from bank	4.60	7.21	9.68	19.61	14.81	9.50
11	Borrowed money from moneylenders	1.15	3.60	0.00	1.96	3.70	1.75
12	Borrowed from friends and relatives	31.03	30.63	16.13	0.00	0.00	20.25
13	Worked for wage labour in the village	11.49	7.21	5.65	19.61	14.81	9.75

Source: Field Survey

observed from the data that the majority of sample HHs reported that they reduced health expenditure (73.50%), sold livestock (58.0%), sold land (41.25%), took children out of school (32.0%), deferred social and family function (28.50%), store crop for better price (21.58%) and borrowed from friend & relatives (20.25%) with respect to reduce their economic risks which they faced in farming. These findings were found to be similar with minor variation across different size of farms.

8.3 Engagement with any Organization

Gram Panchayat, Agricultural cooperative societies, *mahila mandal*, Self-Help Group, political party, caste association and credit cooperative society are the major organizations from which sample HHs were found to be benefitted in the area under study. The membership of these organizations, benefit obtained by them through these organizations and reasons for not being a member of these organizations are identified in the area under study.

8.3.1 Membership of the Organisation

The majority of HHs were found to be member of agricultural cooperative society (43.25 %) and cooperative credit society (43.25 %). Some of the HHs were also found to be member of gram *panchyat* (5.75 %), self-help group (3.25 %), *mahila mandal* (2.50 %), caste association (1.75 %) at overall level in the area under study. These findings were found to be

Table 8.6 :Membership of households in the organizations

Particulars (n)	Gram Panchayat	Agricultural cooperative societies	Mahilamandal	Self-Help Group	Political party	Caste association	Credit cooperative society	No of HHs
Marginal (87)	5	34	3	8	3	1	34	87
Small (111)	8	53	2	3	0	5	53	111
Medium (124)	9	57	3	2	1	1	57	124
Large (51)	1	21	1	0	2	0	21	51
Very Large (27)	0	8	1	0	0	0	8	27
Total (400)	23	173	10	13	6	7	173	400
Percentage to No of HHs								
Marginal	5.75	39.08	3.45	9.20	3.45	1.15	39.08	100.00
Small	7.21	47.75	1.80	2.70	0.00	4.50	47.75	100.00
Medium	7.26	45.97	2.42	1.61	0.81	0.81	45.97	100.00
Large	1.96	41.18	1.96	0.00	3.92	0.00	41.18	100.00
Very Large	0.00	29.63	3.70	0.00	0.00	0.00	29.63	100.00
Total	5.75	43.25	2.50	3.25	1.50	1.75	43.25	100.00

Source: Field Survey

similar across size of farms, although HHs belongs to very large size of farms were not found to be member of self-help group, gram *panchayat*, political party and caste association. The size group HHs were also not found to bemember of self help group and caste association (Table 8.6).

8.3.2 Benefits Obtain from the Organisation

As regards to post held in these organisation, all the members of the organisations related to agricultural cooperative society, *mahila mandal* and cooperative credit society were found to act as an active member of the organisation. The majority of the members of the gram panchayat (60.87 %) and self help group (62.50 %) were found to act as an ordinary member of the organisation, while 30.43 and 37.50 percent of members of the gram panchayat and self help group respectively were also found to act as on active member of the organisation (Table 8.7).

The 8.7 and 28.57 percent of members of gram panchayat and caste association respectively were found to be office bearer of the organisation. The majority of members were found to be active members (57.14 %) followed by office bearer (28.57 %) and ordinary members (14.29 %) belongs to caste association. In case of political party 66.67, & 33.33 per cent were found to be ordinary and active member in the area under study.

Benefits obtained as a member of the organisation were also observed and presented

Table 8.7 :Post held as a member of the organizations

S.No.	Particulars	Ordinary Member	Active Member	Office Bearer	Total
1	Gram Panchayat	14 (60.87)	7 (30.43)	2 (8.7)	23 (100)
2	Agricultural cooperative societies	0 (0)	173 (100)	0 (0)	173 (100)
3	Mahilamandal	0 (0)	10 (100)	0 (0)	10 (100)
4	Self-Help Group	5 (62.5)	3 (37.5)	0 (0)	8 (100)
5	Political party	2 (33.33)	4 (66.67)	0 (0)	6 (100)
6	Caste association	1 (14.29)	4 (57.14)	2 (28.57)	7 (100)
7	Credit cooperative society	0 (0)	173 (100)	0 (0)	173 (100)

Source: Field Survey

in Table 8.7. It is observed that members of the organisation obtained different type of benefits of different organisations.

8.3.3 Benefits of Being a Member from the Organization

The majority of members HHs reported that they obtained information regarding government schemes (43.48 %), improved agriculture practices of crop and livestock management (34.78 %), input uses (13.04%) and sources of credit (8.70 %) from the gram panchayat.

The information regarding govt. schemes (17.92%), sources of credit (27.75 %) price & market (10.98 %) and input uses (43.35%) from the agricultural cooperative society.

The information regarding sources of credit (70.00 %) and agriculture practices and livestock management (30.00 %) from the *mahila mandal*. Information on agriculture practices and livestock management (62.50 %) and sources of credit (37.50 %) from the Self Help group. The information on agriculture practices and livestock management (42.86 %), input uses (28.57%) and sources of credit (28.57 %) from the caste association. The cent per cent members HHs obtained information of sources of credit and Government scheme from the credit cooperative society and political party respectively in the area under study (Table 8.8).

Table 8.8 :Benefits of being a member from the organization

S.No.	Particulars	Agricultural Practices & Livestock Management	Input Usages	Credit Sources	Price & Markets	Govt. Schemes	Total
1	Gram Panchayat	8 (34.78)	3 (13.04)	2 (8.7)	0 (0)	10 (43.48)	23 (100)
2	Agricultural cooperative societies	0 (0)	75 (43.35)	48 (27.75)	19 (10.98)	31 (17.92)	173 (100)
3	Mahilamandal	3 (30)	0 (0)	7 (70)	0 (0)	0 (0)	10 (100)
4	Self-Help Group	5 (62.5)	0 (0)	3 (37.5)	0 (0)	0 (0)	8 (100)
5	Political party	0 (0)	0 (0)	0 (0)	0 (0)	6 (100)	6 (100)
6	Caste association	3 (42.86)	2 (28.57)	2 (28.57)	0 (0)	0 (0)	7 (100)
7	Credit cooperative society	0 (0)	0 (0)	173 (100)	0 (0)	0 (0)	173 (100)

Source: Field Survey

8.3.4 Reasons for not being a member of organization

Reasons for not being a member of organization were also identified from the sample HHs and presented in Table 8.9. It is observed from the data that the cent per cent HHs were found to be reported that they are not member of employee union/ business/ professional group, dairy/milk cooperative society due to their non availability in the area. The majority of non members of the organization reported that they were not a member of gram panchayat (61.01%), *mahila mandal* (41.79%), political party (62.94%) and caste association (35.88%) as they were not got any opportunity from these organizations.

The 22.28, 24.94, and 34.80 per cent of non-members of gram panchayat, caste association and agriculture cooperative society reported that they were not a member of these

Table 8.9 : Reasons for not being a member of the organizations

S.No.	Particulars	Not Available	Available But No Opportunity	No Benefit	Time Consuming	Total
1	Gram Panchayat	0 (0)	230 (61.01)	63 (16.71)	84 (22.28)	377 (100)
2	Agricultural cooperative societies	0 (0)	0 (0)	148 (65.2)	79 (34.8)	227 (100)
3	Dairy/milk cooperative societies	400 (100)	0 (0)	0 (0)	0 (0)	400 (100)
4	Employee union/business or professional group	400 (100)	0 (0)	0 (0)	0 (0)	400 (100)
5	Mahilamandal	220 (56.41)	163 (41.79)	7 (1.79)	0 (0)	390 (100)
6	Self-Help Group	162 (41.86)	63 (16.28)	153 (39.53)	9 (2.33)	387 (100)
7	Farmers association/farmer producer organisation	393 (98.25)	0 (0)	5 (1.25)	2 (0.5)	400 (100)
8	Farmers activists group	360 (90)	16 (4)	14 (3.5)	10 (2.5)	400 (100)
9	Political party	32 (8.12)	248 (62.94)	100 (25.38)	14 (3.55)	394 (100)
10	Caste association	91 (23.16)	141 (35.88)	63 (16.03)	98 (24.94)	393 (100)
11	Development group or NGO	400 (100)	0 (0)	0 (0)	0 (0)	400 (100)
12	Credit cooperative society	0 (0)	0 (0)	148 (65.2)	79 (34.8)	227 (100)
13	Any other (please specify)	6 (100)	0 (0)	0 (0)	0 (0)	6 (100)

Source: Field Survey

organizations as it is time consuming practice The 39.53, 25.38, and 65.20 per cent of non-members of Self Help Groups, political party and credit cooperative society reported that they were not a member of these organizations as these were not at all beneficial to them.

8.4 Summary of the Chapter

This part of the study deals with the problems faced by respondents in farming, economic risk faced by them with coping strategies and social network in the area under study. The major finding of the study are as follows:

Only few (12.8%) sample HHs reported that income from farming is adequate. Amongst different categories of farms, more numbers of marginal (26.4%) followed by small (14.4%), medium (8.1%) and large (3.9%) HHs reported that income from farming is adequate. None of the very large HHs reported that the income from farming is adequate in the area under study. The main reasons of inadequate income from farming were found to be too high rainfall (87.25%), yield fluctuating a lot (69.75%), pest attack of diseases, (68.75%), destroy of crop by animals (67.50%), absence of storage facility (65.75%), high interest rate of money lenders (61.50%), temperature fluctuating a lot (60.0%), shortage of labour during peak operation period (58.0%), small size of holding (57.25%), rainfall fluctuating a lot (53.50%), rodent attack (52.50%) and lack of marketing facilities (50.50%) as reported by majority of sample HHs.

They were also reported that small land size (76.42%), shortage of labour at peak operational period (41.81%), non-remunerative price of the products (35.08%), absence of storage facilities (32.32%), yield go down (49.81%)and rain fall fluctuating a lot (29.91%) and more price fluctuations (26.47%) were found to be very high sevier problems in cultivation of crops in the area under study.

Reduced health expenditure (73.50%), sold livestock (58.0%), sold land (41.25%), took children out of school (32.0%), deferred social and family function (28.50%), store crop for better price (21.58%) and borrowed from friend & relatives (20.25%) measures were followed by HHs to reduce their economic risks in farming. Gram Panchayat, Agricultural cooperative societies, *mahila mandal*, Self-Help Group, political party, caste association and credit cooperative societies were found to be the major organizations benefitting HHs in the area under study.

The majority of members HHs reported that they obtained information regarding government schemes, improved agriculture of practices of crop and livestock management, input uses and sources of credit from the gram panchayat. The majority of non members of the organization reported that they were not a member of gram panchayat (61.01%), *mahila mandal* (41.79%), political party (62.94%) and caste association (35.88%) as they were not got any opportunity from these organizations.

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CHAPTER - IX

SUMMARY, CONCLUSION AND POLICY IMPLICATIONS

Market imperfections are common in input as well as output marketing in developing countries. Hence, a useful analysis of these two market are required to judge the functioning of input and output market and their effect on the erosion of farm profitability in Madhya Pradesh with following specific objectives.

1) To analyze the product markets (output) including price received marketing channels, market structure, and bottlenecks.
2) To analyze the input markets, including seeds, fertilizer, and labour market structure, and problems in accessing the same.
3) To analyze the government support structure, including access to credit and
4) To analyze the coping strategies of farmers during economic hardships and their social networks.

The study confined to four major crops (wheat, rice, soybean and chickpea) of Madhya Pradesh. One major district having maximum production in the state related to selected crop has been selected for the study. Therefore, Hoshagabad district for Wheat, Ujjain for soybean, Vidisha for Chickpea and Balaghat for Rice have been selected for the study. A list of the blocks in these selected districts has been prepared and a block having maximum production of respective selected crops was selected for the study. Therefore, Seonimalwa, Badnagar, Gulabganj, Balaghat blocks have been selected from Hoshangabad, Ujjain, Vidisha and Balaghat districts, respectively in Madhya Pradesh. A list of all the villages in the selected blocks has been prepared and a village near to headquarters and a village far away to headquarters have been selected randomly for the study. Therefore, Rampura & Gadaria, Paldhuna & Badganwa, Badkhera Gambhir & Badkhera Kachwa and Bhuttehazari & Merigaon villages have been selected respectively from Hoshangabad, Ujjain, Vidisha and Balaghat districts of Madhya Pradesh. A list of cultivators from each selected village was prepared and 50 households have been selected randomly from each selected villages for in-depth study. Thus 100 HHs were selected from each selected district of Madhya Pradesh.

These households were further classified in different land size categories i.e. marginal (<1 hectare), small (1-2 hectares), medium (2.1-4

hectares), large (4.1-10 hectares) and very large (>10 hectares). Therefore, 87, 117, 124,51 and 27 HHs were selected respectively in marginal, small, medium, large and very large land size categories

9.1 Major Findings

The major finding related to Crop Production and Input Market, Animal Products and Input Market, Labour Market, Credit Market, Assets Endoments and Problems in Farming, Economic Risk, Copping Strategies and Social Network are presented in this sub-head.

9.1.1 Crop Production and Input Market

- The study reveals that Kharif (50.31%) and Rabi (49.69%) were found to be major seasons. Soybean(91%), rice (7%) & Urd (2%) and wheat (70%), chickpea (26%) & garlic (2%) were found to be major farm products grown in kharif and rabi season, respectively. The cropping intensity of an average HH was found to be used his operated area 198 per cent, which was found to be increased with increase in size of farms from 195 (marginal) to 199 (very large) per cent per year. He was found to harvested of 3526, 3435, 1053 and 999 kg/ha of wheat, rice, soybean and chickpea, respectively with the average yield of 2253 kg./ha of all these crops. He was found to receive Rs. 49778 per ha in a year from cultivation crops. He was used to receive highest sale value of main product from wheat (Rs.64907/ha) followed by rice (Rs. 59031/ha), chickpea (Rs.41140/ha.) and soybean (Rs.34035/ha). Although, the price received by him from a kg of grain was found to be highest in case of chickpea (Rs.41.18/kg) as compared to soybean (Rs. 32.33/kg), wheat (18.41/kg) and rice (Rs.17.19/kg).
- The majority of sample HHs were found to sale rice and wheat to cooperative/govt. agencies followed by input dealers and regulated market & local village. However, none of the HH was found to sell produce of rice and wheat to local village merchant and input dealers respectively, while the majority of sample HHs related to soybean and chick pea were found to dispose of the produce through regulated market followed by local village merchant and input dealers & cooperative / govt. agencies and none the HH was found to sell soybean produce to cooperative / govt. agencies.
- The majority of them were found to be satisfied from the disposal of crop produces in the market. The others were found to dissatisfy due to delayed payment followed by lower market price. The main reason of dissatisfaction was lower market price, unreasonable price due to no govt. purchase,very few sellers (35.48%) and private sellers collude.

- The majority of HHs growing rice (70.48%), soybean (71.72%) and wheat (92.23%) production, respectively found that the price of the produce was reasonable, while majority of chickpea growers (87.98%) reported was non- reasonable price.
- The majority of HHs were found use to farm saved seed (53.44%), followed by exchanged seed (28.87%) and purchased from the others (17.69%). None of the sample HHs reported that he borrowed seed from the others for cultivation of major crops expect soybean. The majority of selected soybean growers reported that they used to purchase seed (56.59%), followed by farm saved seed (38.08%), exchanged from the others (3.46%), and borrowed from the others (1.87%).
- An average rice, soybean, wheat and chickpea growers were found to spend Rs. 2624, Rs. 5763, Rs.4052 and Rs. 5254/- respectively on seed to cultivate crops in a hectare of land. The majority (> 60%) of HHs reported that the quality of seed purchased by them at reasonable price from different agencies for cultivation of crops was of good followed by satisfactory quality. The others reported price of the seed was unreasonable due to private sellers collude, no price control on prices of seed , prices not subsidized by the government and no cooperative/ government agencies involved in the control of price of crop produce in the area under study.
- An average HH was found to invest Rs. 61662/ha/year on other inputs to cultivate crops share of leased in land was 60.24 per cent. The total expenditure excluding land was found to be Rs. 24520 /ha /year in cultivation of crops in the area under study. The total expenditure on cultivation of crops in a hectare in a year was found to vary across size of farms from Rs. 52546 (marginal) to 69883 (small) per ha/year in the area under study. Out of total expenditure incurred (excluding leased in land) in cultivation of crops per hectare was found to be maximum in human labour (43%) followed by fertilizer (18%), hiring of machinery (14%), plant protection chemicals (9%), electricity (5%), maintenance cost (3%), diesel (2%),animal labour (1%) and irrigation charges (1%) in the area under study.
- The percentage expenditure to total expenditure on all the expenses were found to increase with increased size of farms except expenditure on manure and animal labour, which was found to be decreased with increased in the size of farms in cultivation of crops.
- Cent per cent sample HHs reported that they used to purchase fertilizer, plant protection chemicals, diesel, electricity and irrigation for production of major crops. Cent per cent

sample farmers also reported that they used farm saved manures and animal labours for cultivation of crops. At overall level 37.50 and 62.50 per cent sample HHs were found to use farm saved and hired human labour, respectively in cultivation of crops. The majority of them were found to procure fertilizers from cooperative societies (87.25%) followed by input dealers. Cent per cent sample HHs were found to ranked good to diesel & plant protection chemical which were used by them for cultivation of crops. The majority of them that the quality of fertilizer (64.75%), manures (91.57%), electricity (92.28%), plant protection chemical (100%), human labour (78.25%), animal labour (70.69%) and irrigation (91.00%) were good, which they procured for production of crops.

- The cent percent sample HHs reported good ranking to the price of manures (100%) followed by fertilizer (91.00%), electricity (95.99%), animal labour (87.50%), irrigation (96.00%) and human labour (62.50%), while only 64.90 and 92.36 per cent sample HHs reported the price of plant protection chemical and diesel were satisfactory. The HHs reported the reasons of unreasonable price of plant protection chemicals were no price control. At overall level the majority of sample HHs reported that the main reasons of unreasonable rate of fertilizer were private sellers collude (55.56), no price control (27.78%) and very few sellers (16.67%). The majority of them also reported that the main reasons of unreasonable price of plant protection chemicals were no price control, private sellers collude and no subsidy available to purchase inputs. The majority of sample HHs reported that the main reasons of unreasonable rate of human labour and diesel was no price control (100.00%). The cent per cent sample HHs reported that the main reason of unreasonable price of minor repair and irrigation was no subsidy available in the market. The majority of them reported that the main reasons of unreasonable rate of cost of hiring of machinery were no price control, no subsidy available and very few sellers. The main reasons of unreasonable rate of leased in land were no price control and very few sellers (25%) as reported by the majority of Hhs.

9.1.2 Animal Products and Input Market

- The majority of HHs were found to dispose animal products directly to other HHs (49%) followed by local traders (45%) and commission agent (6%). The majority of small and marginal sample HHs found to dispose products directly to the other HHs while, majority of large and very large sample HHs disposed animal products to local traders. The cent per cent of sample HHs across size of farms reported dissatisfaction with the

disposal of animal products due to delayed payment.

- An average HHs was found to sell animal products of Rs. 7381 per year out of which, the sale of milk was found to be maximum (72%) followed by other products (18%) and live animal (10%). He was found to invest Rs. 16053 per year for purchase of inputs related to animal husbandry in his farm out of which, cost of cattle and buffalo (47%) was found to be more as compared to labour charges (25%), green fodder (12%), concentrate (9%), dry fodder (4%) and cost of seed/goat or pig (3%).
- The various agencies were found to involve in procurement of inputs related to animal husbandry across size of farms. All the HHs reported that they used farm saved green fodder and purchase concentrate from input dealers (65.23%) followed by local traders (34.77%). They were also found to procure cattle/buffalo (96.38%), sheep/goat (90.91%) and dry fodder (92.11%) from their owned farms and found to be satisfied with the quality of animal seed of cattle/buffalo (75.36%), sheep/goat (100.00%), green fodder (57.35%), dry fodder (52.69%) and concentrate (100.00%). They also reported that the price of animal seed related to sheep and goat, green dodder & dry fodder and other expenses are reasonable. Rest of them reported that the price of concentrates was unreasonable due to there is no govt. seller related to the concentrates. They also reported that the cost of animal seeds related to cattle/buffalo (98.19%), sheep/goat (90.91) and veterinary charges (97.33%) were also reasonable. The price of concentrate was found to be high (44.44%) followed by reasonable (42.65%) and very high (12.90%).

9.1.3 Labour Market

- There were found to be noticed that 3 types of labours viz. family labour, farm servant and causal labours used in various farm operations and live stock activities across size of farms. The male and female farm servants were found be observed only in large and very large size of farms. The casual male and female were found to be increased with the increase in size of farms from 6 male & 5 female (marginal) to 22 male& 24 female (very large) per HH.
- An average male and female family & casual labour and farm servant was found to be worked for 8 and 10 hrs. /day respectively in various operations of farm and live stock activities. An average HHs was found to provide employment to family labour, farm servants and hired casual labours for 161(male) & 156 (female), 146 (male) & 146 (female) and 148(male) & 136 (female) days, respectively in a year. Amongst different size of farm none of the marginal, small and

medium size of sample HHs were found to employ farm servant in their farms. As the size of farms increases from marginal to very large the number of family labour days decreases from 166 (male) & 171 (female) to 157 (male) & 145 (female), while number of hired casual labour days increases with increase in size of farms from 107 (male) & 115 (female) to 184 (male) & 168 (female). The average wage rate per labour per day (Rs.246/day) was found to vary from Rs. 244 to 248 for male and female casual labour. The majority of sample HHs reported the wage rate are high (63%) followed by reasonable (20%) and very high (17%). They were reported that working in MNERGA, limited labour supply and control of contractor on labour supply were found to be main reasons for non reasonable wage rate of labour for farming and live stock operations. The numbers of labours engaged in MGNREGA were found to be more in marginal (10) as compared to small (5) and medium (1) size of farms in a year . The percentage of wage respond to MGNREGA wages was found to be more in the month of September (25%) as compared other months of a year. The average per day wage rate received in MGNREGA was found to be only Rs.180/day.

- The 45 per cent of HHs reported that they were engaged as wage labours on others' farm during the last year and received an average wage rate of Rs. 237.45 per day. As the size of farms increases the wage labours engaged on others' farm were found to be decreases from marginal (23.00%) and very large(1.00%) size of farm.

9.1.4 Credit Market

- The samples HHs were found to borrow capital from different institutional (Commercial bank, cooperative societies, non-govt/ common group and Self Help Groups, and non-institutional sources (fallow farmers and money lenders). The majority of HHs was found to borrow capital from commercial bank (54.58%) and cooperative bank (40.85%). Very few HHs were found to borrow money from micro finance/common group (0.33%), SHGs (0.33%), fellow farmers/neighbours (1.63%) and agricultural money lenders (2.29%). As the size of farm increases the number of HHs who borrowed money from commercial bank were found to increases, while HHs who borrowed money from cooperative society were found to decreased in the area under study.
- An average HH was found to borrow Rs. 638615 per annum from the different sources of credit, which was found to be increases with size of farms from Rs. 601385 (marginal) to 1119000 (very large). They were found to

borrow money for capital and current expenditure in farm business from commercial bank, cooperative bank, microfinance common group and SHGs, while borrowed money was used in farm business, consumption expenditure marriage and ceremony from fellow farmers. None of the farmer was also taken any loan for current expenditure in farm business from fellow farmer/neighbours and for consumption purpose from money lenders.

- Out of total borrowers only 17.32 per cent were found to repay their loan to sources of credit from they borrowed money. The percentage of HHs repaid their loan were found to be more in marginal and small categories as compared to large, medium and very large categories. Amongst different sources of borrowing cent per cent borrower were found to repay the amount in micro finance/common group, SHGS, fellow farmer/neighbours and money lenders.
- The main reason of non repayment of borrowed money were expecting debt waiver and income always less than the expectation, while the main reason of non payment of borrowed money to cooperative banks were income always less than the expectation expecting debt waiver and payment will be made after harvesting as reported by majority of Hhs.

9.1.5 Assets Endowments

- Out of total sample HHs (400) 86.25 per cent (345) assets were found to be involved in allied activities viz. live stock husbandry and only 6.96, 3.19, 24.93 and 0.58 per cent have tractors, threshers, diesel/electric pumps and other machine at their farms. An average HH had an assets of Rs. 63314/- only, which showed increasing trend with size of farms. An average HH was found to b spend Rs. 13864/year for repairing and maintenance of their farm assets. Out of 345 HHs only 15.07 per cent HHs (52) received income from their productive resources during the last year, which were found to be more in small (19) followed by medium (14), marginal (7), large (6) and very large (6) size of farms. An average HH was found to receive an annual income of Rs. 16301/year from their productive resources. Amongst different productive resources livestock resource (Rs.10699/year) was found to be more productive as compared to hiring of thresher (Rs.388/year), diesel/electric pumps (Rs.14/year) and poultry production (Rs.14/year). An average HH was found to in loss of Rs. 60884 per year from their productive resources.
- The extension agents (89.5%) followed by private commercial agents (87%), progressive farmers (66.75%) were found to

be main sources of technical advice accessed for production of crop and livestock products. Officers of the Veterinary Dept., scientists of KrishiVigyan Kendra, Radio/TV/ Newspaper and scientist of Agri. University/College were also found to be other sources of technical advice accessed by the sample HHs for crop and livestock management. The frequency of contact with progressive farmers & radio/TV/newspaper/internet, extension agents, agricultural university/college, officers of the Veterinary Department daily, monthly, need based and seasonal as reported by majority of sample HHs, while the frequency of contact with private commercial agents (including dealer contractor) was found to be daily as well as weekly, monthly, seasonal, need based and casual. The technical advice from private commercial agents including dealer contractor (87%), extension agent (80%) and progressive farmer (67%) more as compared to other sources.

- The more than 90 percent sample HHs across different size of farms related to rice and wheat production were found to be awared to Minimum Support Price (MSP) of rice, wheat, soybean and chickpea in the area under study. The Cent per cent rice and wheat HHs across size of farms and reported that NAFED (through their cooperative societies) was the only agency for procurement of their produce, while the Cent per cent HHs related to soybean and chickpea across size of farms reported that they don't know about the procurement agencies related to produce of soybean and chickpea. As the size of farm increases the quantity sold and value of produce was also found to be increased in the study area.
- The various govt. schemes viz PM-KISAN and PMSNY are running in the area under study but HHs were found to be benefited through Pradhan Mantri Samman Nidihi Youjana (PMSNY). An average sample HH received Rs. 2323/- in last year under PMSNY in which he found to be receive 84.71 per cent in 1st instalment and rest in 2nd instalment in the area under study. None of the HHs was found to be insuring crop additionally apart from taking crop loan. The negligence of govt to take responsibility of crop losses (34.55%), complicated process of crop insurance scheme (30.91%), lack of awareness about crop insurance scheme (23.46%) and delay in claim settlement (10.91%) was the major reason of not insuring their crop by the majority of HHs under crop insurance at overall level

9.1.6 Problems in Farming, Economic Risk, Copping Strategies and Social Network

- Only few (12.8%) sample HHs reported that income from farming is adequate. Amongst different categories of farms, more numbers of marginal (26.4%) followed by small (14.4%), medium (8.1%) and large (3.9%) HHs reported that income from farming is adequate. None of the very large HHs reported that the income from farming is adequate in the area under study. The main reasons of inadequate income from farming were found to be too high rainfall (87.25%), yield fluctuating a lot (69.75%), pest attack of diseases, (68.75%), destroy of crop by animals (67.50%), absence of storage facility (65.75%), high interest rate of money lenders (61.50%), temperature fluctuating a lot (60.0%), shortage labour during peak operation period (58.0%), small size of holding (57.25%), rainfall fluctuating a lot (53.50%), rodent attack (52.50%) and lack of marketing facilities (50.50%) as reported by majority of sample Hhs.
- Reduced health expenditure (73.50%), sold livestock (58.0%), sold land (41.25%), took children out of school (32.0%), deferred social and family function (28.50%), store crop for better price (21.58%) and borrowed from friend & relatives (20.25%) measures were followed by HHs to reduce their economic risks in farming.
- Gram Panchayat, Agricultural cooperative societies, *mahila mandal*, Self-Help Group, political party, caste association and credit cooperative societies were found to be the major organizations benefitting HHs in the area under study.
- The majority of members HHs reported that they obtained information regarding government schemes, improved agriculture of practices of crop and livestock management, input uses and sources of credit from the gram panchayat.

9.2 Conclusion and Policy Implications

The following conclusions and policy implications are drawn from the above findings.

- The problem was observed in marketing of soybean and chickpea as government of Madhya Pradesh not procuring these commodities on Minimum Support Price (MSP). Although, State Government is providing bonus over and above the MSP in-spite of that chickpea/soybean growers were not satisfied with the price, which they were getting from the market. Since, agriculture is a State subject under the constitution, therefore it has become imperative to establish a Commission for Agriculture Cost and Prices (CACP) in the State on the line of Centre's CACP. With the development of

agriculture marketing from primary to secondary and tertiary in the State, MSP is required to be declared for all the crops/vegetables grown in the State. Kerala State has already started declaring MSP for all the agricultural commodities grown in their State. The similar model may be adopted by the Government of Madhya Pradesh to motivate and encourage the farmers.

- The majority of HHs opined that income from farming is not sufficient due to low yield, insect and pest attack, shortage of labour and lack of marketing facilities etc. It was also observed during the course of investigation that they were not adopting full package and practices of crops grown. Therefore, lot of emphasis is required to be given to strengthen the extension machineries for development of skill of the farming community and encourage them for adoption of full package and practices of crops grown by them to harvest higher yield.
- The availability and accessibility of green fodder at affordable prices is required to be ensured round the year in the State. Hence, silage and hay making technology should be transferred among farmers. Concentrates are also found to be main ingredients for improving the quality and quantity of milk, but these were not found to available to HHs at reasonable price. Therefore, necessary regulatory framework is required to be developed for making quality concentrates available and accessible at affordable prices.
- It was observed that an average HHs was employed only for about 160 days in agriculture and allied activities during the year. Therefore, efforts should be made to generate non-farm employment avenues to ensure full time employment round the year. This could become possible as the agricultural marketing is transforming from primary to secondary and lot of infrastructural development are taking place around the villages, which requires need based capacity building among the rural HHs. The farmers should also be motivated to adopt Integrated Farming System (IFS) for generating additional employment and income throughout the year.
- The timely repayment of loan disbursing to Commercial and Cooperative Bank is a major issue as majority of the HHs could not repay loan due to price realised of different agricultural commodities was less than their expectation and loan waiver policy adopted by the Government. Therefore, Government should avoid to adopt loan waiver policy and required to introduced other mechanism for timely repayment of loan viz. providing easy loan for next season, discount on timely

repayment of loan etc. The App based digitalized process for sanctioning and disbursing of agricultural loan is required to be introduced for generating transparency and efficiency by saving various costs/leakages.

- The assets possessed by the sample HHs were found to be less productive. Therefore, priority should be given on capacity building for generating income through these assets. Some App based solution are coming up for custom hiring, therefore farmers should be made aware to register themselves in such activities to generate income from their assets.
- It was observed during the investigation that farmers were not getting need getting solution for their need based problems. They were unaware about Kisan Call Centre Toll free No. 1800-180-1551. Thus, to solve their need based problems they are motivated to be aware through extensive campaigning.
- The majority of HHs reported that they were not got any benefit from Kisan Mitra, Gram Panchayat, SHGs, and Cooperative societies. This calls for strengthening of these bodies for empowerment farming community.
- The government should take initiative for capacity building of FPOs on various aspects such as awareness about various schemes of agricultural inputs and outputs and other schemes related to agriculture and allied sectors, marketing of inputs and outputs, processing and value addition, entrepreneurship skills, accounts, business laws, export and import, marketing strategies, market intelligence, trade literacy etc. and providing hand holding support at various levels to make them confident enough and self-reliance in performing various business and various day to day activities their by ensuring profitability to member farmers on continuous basis for the long term and helping them in building international brand of their products.
- It has become imperative to take immediate steps for making markets efficient not only by incentivizing the farming community for producing crops but by increasing the farmers' share in consumer rupee. It is required to establish valuable and viable long term value chain not only to provide livelihood security to the deprived farmers of the State but at the same time ensure nutritional food security at national level thereby reducing the burden of imports and saving foreign exchange reserves.
- The input as well as output market of farm products was found towards perfection in the State as more than 60 per cent of sample HHs of the study area were found to be satisfied with the disposal of their crop and

livestock products. All of them reported that price of various inputs was found to be reasonable and its quality was also found to be fair enough. It became possible due to introduction of various schemes and their effective implementation for increasing production and procurement of farm products by the Government of Madhya Pradesh (Appendix -1). Along with this Government of Madhya Pradesh also provided handsome bonus over and above the MSP to the farmers for procurement of food grains. Kisan Samriddhi Yojana (Rs. 4,000/farmer/year) was also introduced by the State Government over and above the Kisan Samman Nidhi (Rs. 6000/ farmer/year) to support the farmers for enhancing production. With the result of timely interventions of all the above schemes State could win prestigious Krishi Karman Award under various categories consecutively for the last 6 years (Appendix-2). The Government of Madhya Pradesh also performed well in harvesting and procurement of farm produce under pandemic COVID-19 situation.

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ANNEXURE-I

COMMENTS AND ACTION TAKEN

(I) Title of the Draft Report Examined: ***Market Imperfections and Farm Profitability in Madhya Pradesh***

(II) Date of Receipt of the DRAFT Report: 12 November 2020

(III) Date of Dispatch of the Comments: 30 January 2021

(IV) Comments on report submitted by AERC, Jabalpur, Madhya Pradesh

1. Refer to the sentence in the content page of the report: "The study reveals that as per producers' point of view, the input as well as output market of farm products was found towards perfection as the Government of Madhya Pradesh introduces various schemes time to time for increasing the production and procurement of farm products." It is not clear as to what the sentence is trying to convey so please rephrase it.

Action: Corrected As Suggested

2. Just a minor correction in the content page: please note that instead of 'product wise sell of animal products', it should be 'product wise **sale** of animal products'. There are several grammatical and spelling mistakes in other chapters too. Kindly do the necessary editing.

Action: Corrected As Suggested

3. In the introduction chapter, the background is entirely focused on general trends related to input and output markets at an all India level. Insights related to input and output markets in the context of Madhya Pradesh could also have been discussed to provide justification for conducting the study on market imperfections and farm profitability in Madhya Pradesh.

Action: Corrected As Suggested

Although, the same has been presented in detail in chapter-II under the sub-heading 2.1 description of Madhya Pradesh

4. The report provides a very uncritical review of existing literature. This section merely states what the study is about, how the study was conducted and what

were its finding? It does not mention what insights are coming out of the literature review that would be relevant for our study.

Action: Corrected As Suggested

5. In the methodology section, sampling technique used for selection of villages and households is not discussed in detail. It is only mentioned in the report that 'villages are selected randomly'; 'households are selected randomly'.

Action: Corrected As Suggested

6. In the section on 'organization of the study', it has been wrongly mentioned that 'the study comprises five chapters' instead of nine chapters.

Action: Corrected As Suggested

7. It is mentioned in chapter 2 that 'The total working population, cultivators and agricultural labours to total population were found to be 43.47, 31.18 and 38.61 percent to total population in the state" (pp 15). Please check whether it is total population or total work force/working population).

Also in table 2.3, in the column corresponding to cultivators, the percentage of cultivators in the total working population is wrongly written as 38.61 % instead of 31.17%. Please correct the figure.

Action: Corrected As Suggested

8. In table 2.9 on 'Number of mandis and sub-mandies in Madhya Pradesh' in chapter 2, what does 'A', 'B', 'C', 'D' signify. Please mention it in a note underneath the table.

Action: Corrected As Suggested

9. Please note that the distribution of sample households across the landholding categories as provided in the report is quite different from the data in the excel sheet provided to us by AERC, Jabalpur.

Landholding Categories	Excel sheet data on MP		As per the Report	
	No of Households	Percent	No of Households	Percent
Marginal	81	20	87	21
Small	113	28	111	28
Medium	121	30	124	31
Large	57	14	51	13
Very large	28	7	27	7
Total	400	100	400	100

The same was the case for 'table 2.16: Distribution of animals across size of landholding' and 'table 2.17: Distribution of households by farm machinery possession across the size of the farms'. It is important to note that several such instances were observed in other chapters as well. Why figures are not matching between tables provided in the report and the tables we have prepared based on the data provided to us?

Action: The mish matching may be due to the classification of sample household was done according to size of holding rather operational holding

further, it appears from table 2.16 that the households do not possess multiple types of livestock, which is quite surprising. Similar case was noticed for table 2.17. Are these tables correct?

Action: It is correct as in table 2.16 and table 2.17 the number of livestock and machinery possess by the HHs across size of farm and at overall level were found to be more than number of sample HHs in the respective categories.

10. Please refer to table 2.15 on 'average size of landholding'. The interpretation of the figures on average net operated area for marginal, small, medium, large and very large holdings as provided in the text is not matching with the column on net operated area in the table.

Action: Corrected As Suggested

11. A brief section summarising the important findings at the end of each chapter would have been better to give the reader an idea about what actually came out of the analysis in each of the chapter.

Action: Corrected As Suggested

12. Please refer to table 7.17 in chapter 7. Does the figures provided in the column 'no of hhs facing crop loss' relate to 'number' or 'percentage'? Kindly correct it.

Action: Corrected As Suggested

13. In chapter 8, interpretation of table 8.2 on 'reasons for inadequate income from farming' and table 8.3 on 'severity of problems faced in farming' is restricted to the overall sample households. If possible, please try to provide the

interpretation not just for the overall samples but for the different landholding categories as well. Same is the case with table 8.4 on Economic risks faced by the households in the last two years, table 8.7, table 8.8, table 8.9.

Action: Corrected As Suggested

Interpretation of table 8.2 the correction has been made as per comments. However since there was not much variation was observed across land holding categories therefore, table 8.3, 8.4, 8.7, 8.8 and 8.9 were interpreted for overall sample HHs basis.

14. Please note that in table 8.6, no of households with membership in different organisations across the landholding categories is not adding up to the 'no of households' as provided in the last column of the table. Kindly check the corresponding percentages as well and do the necessary corrections.

The land holding categories not adding up the number of HHs because a HH found to be have membership of more than 1 organization.

15. Please note that the conclusion chapter needs a thorough revision. The chapter abruptly starts with the findings of the study. Instead the chapter could have been started with few lines on the background of the study and research questions followed by findings of the study.

Further, given the way conclusion chapter has been drafted, it is very difficult for the reader to understand as to what exactly are the findings of the study. Keeping the overall framework of the study in mind, the findings could be presented in a concise manner under relevant headings such as say 'crops production and input markets', 'animal products and input markets' and so on.

The sections on 'policy implications' also needs to be aligned with the findings of the study.

Action: Corrected As Suggested

16. There are several spelling mistakes and grammatical errors in the text.

Kindly do the necessary editing.

Action: Corrected As Suggested

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Appendix -1	
Centrally Sponsored Schemes	
1	National Food Security Mission
2	National Mission for Sustainable Agriculture
3	National Oil Seed and Oilpom Mission (NMOOP) Amendment / Correction
4	National Mission on Agriculture Extension and Technology (NMAET)
5	National Agricultural Development Scheme (RKVY)
6	Prime Minister KrishiSinchayeeYojna (PMKSY)
7	ParamparagatKrishiVikasYojana (PKVY)
8	National E-Governance Plan (NeGPA)
9	Soil Health Card Scheme (Central)
10	Prime Minister Crop Insurance Scheme (PMFBY)
11	Submission on Agro Forestry (SMAF) under NMSA
State Funded Schemes	
1	Annapurna Yojana and SurajDharaYojana
2	Annapurna Yojana and SurajDharaYojana
3	National Biogas Scheme
4	Tube well Mining Scheme
5	Madhya Pradesh Women's Participation in Agriculture (Mapwa) Scheme
6	ATMA Yojana
7	Soil Testing and Soil Health Card Scheme
8	Agricultural Extension through Information and Communication Technology
9	Chief Minister KhetTirthaYojana
	Quality control and testing laboratories in the state

Appendix-2 :Krishi Karman Awards	
Category	**Year**
Total Food Grain (Category -1)	2011-12
Total Food Grain (Category -1)	2012-13
Wheat Production	2013-14
Total Food Grain (Category -1)	2014-15
Wheat Production	2015-16
Pulses Production	2016-17

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