Study No. 50

EXTENT OF EROSION INTO FARM PROFITABILITY DUE TO MARKET IMPERFECTIONS IN BIHAR

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Preface

This study was assigned by the Directorate of Economics & Statistics, Ministry of Agriculture & Farmers Welfare, Government of India and Co-ordinated by Prof. C S C Sekhar, Head, AERU, Institute of Economic Growth, Delhi; with a sample of 300 farm households, distributed across three different districts of Bihar. Today, although policy focus has once again shifted back to agricultural marketing, it is largely devoted to a very particular component of economic markets--- unregulated rural/village markets, input markets and land markets. The market for information and knowledge etc., deserve equal attention. So, a study on the functioning of the output and input markets and their effects on erosion of farm profitability are of high relevance.

The study finds that a significant part of the marketable surplus is being traded outside the market yards in free market regime. Seed and other inputs' markets are largely managed by private agencies. Labour market is unorganized and witnessed farm labour scarcity in recent past. Per household net income was about Rs. 50544 at overall level, constituting around 51 per cent from cultivation, 24 per cent from animal husbandry and 25 per cent from wage labour. As regard the market for information and knowledge, only 24 per cent of the Hhs accessed technical advice. Cent per cent surveyed Hhs found income from farming to be inadequate. So, rising prices of inputs, negative and inelastic demand for farm inputs, lesser substitution between human labour and machine, lack of custom hiring services, sliding down of institutional mechanism etc., are urgently required issues to be addressed for enhancing farm profitability in the state.

Since this study is the outcome of a team work and co-operation from various sources at different levels, so we deem it our duty to appreciate and acknowledge them. First of all, we are grateful to the RAC (Research Advisory Council) of MoA & FW, GoI headed by the Secretary, DAC & FW for assigning this study in the work plan year 2019-20. We express our deep gratitude to Sri P C Bodh, Former Adviser and Sri Anil Kumar Sharma, Adviser (AER Division) for their kind guidance in completion of the study. We are extremely grateful to the Directorate of Agriculture, Government of Bihar and their colleagues at respective districts and block levels, for their whole hearted support.

We are particularly indebted to our two former Hon'ble Vice-Chancellors, Prof. A K Roy and Prof. Ajoy Kumar Singh and the present Hon'ble Vice-Chancellor, Prof. Sanjay Kumar Choudhary, for providing all necessary support in completion of the study. We also express our sincere thanks to the members of the Project Team. We will be failing in our duty, if we do not thank the respondents for sparing their valuable time, and providing required information and data.

We do hope that findings of the study will be highly useful for the policy makers, professionals and researchers in understanding various components of agricultural market imperfections in the state and will be equally desirable for policy actions thereon.

26th December, 2020

Ranjan Kumar Sinha
Rajiv Kumar Sinha

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EXECUTIVE SUMMARY

Agriculture is the mainstay of economies in Bihar. Its continued importance lies in the fact that more than 70 per cent of the population is engaged in agricultural operations. Therefore, a vibrant agricultural system forms a crucial part of the development strategy of the overall economic growth of Bihar. Achieving high and sustained growth in agricultural sector is crucial for improving farm income. However, on the basis of NSSO data for 2012-13, after applying CAGR of 8.2 per cent in the nominal GVA component of agriculture and allied sector, the nominal average income of a farmer in 2018-19 increased to Rs. 10329 per month, while the average weighted income of the beneficiary group increased to Rs. 8422 per month. The effects of input prices and input-use on increase in cost of cultivation turned exponential after mid-2000, which declined cost of saving for the farmers and thereby erosion of farm profitability.

As regards the **product market** in the state, it is to note here that cereals dominate the cropping pattern, occupying more than 86 per cent of the GCA followed by pulses (6.94%), oilseeds (1.46%), fibre crops (1.24%) and cash crops (3.6%). The marketed surplus of food grains ranged between 20-30 per cent and around 35-40 per cent in case of pulses. As per our earlier studies, the marketed surplus of paddy and wheat were 42.2 per cent and 68.8 per cent and the producer's share in consumer's rupee for paddy and wheat were about 80.15 per cent and 78.40 per cent respectively. In case of maize produce, the marketed surplus was 90.2 per cent. Besides, **prices** received by the producers for the major cereals particularly, trail behind the MSPs of the respective produces, as revealed in our recent studies. The quantities of procurement of paddy during last five years were about 23.06 per cent in 2014-15, 26.94 per cent in 2015-16, 22.35 per cent in 2016-17, 14.63 per cent in 2017-18 and 23 per cent in 2018-19 against the total production of paddy in respective years. In case of wheat, less than one per cent i.e., 0.81 per cent was procured in the state by the Central and State government agencies in the rabi marketing season of 2020-21, against the estimated production of wheat for 61 lakh metric tons. The Government has repealed its APMC Act (1960), w.e.f., 2006 as the functioning of the markets during the APMC regime was not very efficient and therefore trade in number of markets could not fully shifted till date. As of now a significant part of the marketable surplus is being traded outside the market yards in free market regime.

The **seed market** in the state is concerned, it is hardly met by the government agency i.e., Bihar State Seed Corporation. During last four years, i.e., 2015-16 to 2018-19, there was wide gap between the demand and supply of seeds in the state. Among major kharif crops, the demand and supply gap stood between 25 to 33 per cent for paddy, about 80 per cent plus for maize. However, in case of rabi crops, the demand and supply gap for wheat crop has improved significantly and it was surplus of 1.28 per cent in 2018-19. Similarly, the surplus was noticed in case of gram pulse. Besides, huge gap was noticed in case of lentil pulse (-75.97%) during 2018-19, which is the most important pulse crop in the state. These gaps are fulfilled either from the

farmer's last year's retained stock for seeds or from local seeds market, which are exploitative in terms of prices and quality both. Per hectare consumption of fertilizer (NPK) in the state during 2018-19 was 227.30 kg (the second highest in the country after Telangana) as compared to 133.12 kg/ha for the All-India figure. The sale of fertilizers has been made mandatory for the whole country through POS machine since March, 2018 in Go-live mode, which is monitored under iFMS. More than 90 per cent fertilizers are sold by licensee fertilizer retailers who charge 10 to 20 per cent higher prices over the MRPs of respective grade of fertilizers. Besides, 56 per cent fertilizers are sold without Aadhar or other Ids and 46 per cent transactions are made on false/dummy identifications, State Government enquiry report revealed. Recently, to check the menace of black marketing of fertilizers, the government raided 1300 licensee retailers of fertilizers and of them, 318 licenses have been cancelled and 217 dealers were served with show cause notices. A study conducted in Bihar on 60 retailers and 250 fertilizer buyer farmers in two sample districts of Bihar reveals that, on the day of visit, the opening stock of total fertilizers was 2459 MTs and out of it, the receipt of the stock in the PoS was just 0.03 per cent and sale (3.9%). The closing stock, as per PoS was (-) 3 per cent, physical stock 10.8 per cent and stock as per manual records (-) 16.17 per cent. So, the selling of fertilizers was being made without following the mandated norms of fertilizers' sale in the state, despite sufficient supply of all the grades of fertilizers.

The advent of technology has led to increased demand for modern inputs, which requires **credit support** particularly when nearly 42.5 per cent farm households in the state are indebted as compared to 51.9 per cent in the country. In fact, the indebted farmers borrowed 28.9 per cent from institutional sources and 71.1 per cent from non-institutional sources.

During the past 25 years, the average annual inflation in cost A_1+FL was about 10 per cent per annum. The decomposition of cost inflation among various factors revealed that labour alone contributed 53 per cent to the increase in cost of cultivation during 2007-08 to 2014-15. Labour cost contributed 16 per cent to the cost inflation during the same period. Thus, the labour cost is the predominant contributor of cost inflation, particularly in recent years and managing this factor of production alone can substantially reduce the cost of cultivation and increase the farm profitability. **Agriculture labour market** in the state like; other state is in unorganized form. No institutions, be it formal or informal sector are in active mode for ensuring the supply of agricultural labour and monitor the cause of farm labour, despite many welfare programmes and existence of Minimum Wages Act. In fact, there is farm labour scarcity in the state. The percentage of people employed in agriculture has reduced by 17 per cent during 1999-2000 to 2019-20. Major factors responsible for disappearance of farm labourers in search of new livelihood options are low labour productivity and low real wages, increase in wages in non-farm sector (65%) compared to farm sector (15%), seasonality in agriculture, presumption of having low esteemed work, distress migration, threat of lives and livelihood due to recurring floods and frequent droughts, highly subsidized distribution of food grains through PDS in recent past and subsidy of farm machineries to some extent. It is also to be noted here that despite about 25 lakh reverse migrants in the state

during Covid – 19 lockdowns; they have started to return their respective places, leaving the farm economy of the state in pre-Covid-19 situations, which witnessed farm labour scarcity in the state.

Agricultural land constitutes a substantial part of Bihar in total geographical area (9360 thousand hectares), as nearly 56 per cent is under net sown area in 2018-19, which declined from 60.5 per cent in 2001-02 (after bifurcation of the state in November, 2000). As per 2011 census, more than 85 per cent of the population lived in rural areas and their most important source of livelihood is their own landholdings. There is growing evidences indicating very small size of land holdings in India, and Bihar is no exception. Small and marginal landholdings, which are less than two hectares, account for nearly 97 per cent of the landholdings in the state. The average size of land holdings in Bihar during 2015-16 was just 0.39 hectare, while it was 1.08 hectares at All-India level. The average agricultural density in the state was 238 per square hectare in 2011, against the all-India figure of 110 per square hectare.

With this background in view, the **following objectives** were addressed in this study:

i. To analyze the product markets (output) including price(s) received (market as well as MSP if any), marketing channels, market structure and bottlenecks;
ii. Analyze the input markets including seeds, fertilizer, labour, etc. with particular attention to costs (of the inputs), market structure and problems in accessing the same;
iii. Analyze the government support structure including access to credit, and;
iv. Analyze the coping strategies of farmers during economic hardships and their social networks.

A multi-stage sampling has been adopted for the study. Three districts one each from the three agro-climatic regions, i.e.; Zone I, II and III have been chosen with sufficient consideration of the cropping pattern. The three selected districts are: Begusarai, Katihar and Bhagalpur from Zone – I, II and III respectively. A sample of 100 farmers from each selected district has been taken with representation from each land size category (LSC), totaling to 300 farm households.

Major Findings

Overview of the Study Region

- Out of the total 300 farm Hhs surveyed, 130 (43.33%) belonged to marginal followed by 91 small (30.34%), 49 medium (16.33%), 25 large (8.33%) and 5, very large (1.67%) respectively. No surveyed farm Hhs belonged to landless category. Average size of total land holding of the surveyed farm Hhs was 4.55 acres and for marginal, small, medium, large and very large farmers were calculated as; 1.57, 3.80, 6.74, 13.94 and 27.44 acres respectively.
- Per household total net income at overall farms was Rs. 50544 constituting 50.88 per cent from cultivation (Rs. 25719), 23.89 per cent from animal husbandry activities (Rs. 12077) and 25.23 per cent from wage labour (Rs.

12750). Across the farms, the total net income varied between Rs. 36723 to Rs. 173562. In fact it increased with the increase of farm sizes. Analysis reveals that marginal farmers' net income from agriculture was just 19.3 per cent as compared to 71 to 75 per cent of medium, large and very large farmers.

- Of the total livestocks possessed by the sample households, milch cows accounted for 83.92 per cent followed by milch buffaloes (11.89%) and goats (4.19%). Of the total milch cows possessed by the sample Hhs, 32.89 per cent belonged to marginal farmers followed by small (25.17%), medium (13.99%) large (8.39%) and very large (3.50%).
- On overall level, 100 per cent of the surveyed Hhs possessed tube wells. Bore well and diesel pumps were equally owned and shared by 57.67 per cent of the respondents.
- Tractors and threshers were possessed by only 10 per cent of the farm Hhs. It is interesting to note that all sample households of very large farms and 84 per cent of large farm Hhs possessed tractors and threshers respectively while 8.16 per cent of the medium farm Hhs were found to have possessed tractors and threshers.

Crop and Input Markets

- The survey information/data in regard to 08 crops, coded as: (i) crop – I (Paddy) – 0101, (ii) crop – 2 (Maize, Kharif) – 0104, (iii) crop – 3 (Maize Rabi) – 0104, (iv) crop – 4 (Wheat) – 0106, (v) crop – 5 (Gram) – 0201, (vi) crop – 6 (Masur) – 0205, (vii) Crop -7 (Potato) – 0701 and (viii) crop – 8 (Onion) – 0708. All of the surveyed farm Hhs belonging to all the five LHCs did undertake growing four major crops, viz., crop – I to crop – 4, namely; paddy, maize (Kharif), maize (Rabi), and wheat respectively. On overall level, besides the four cereal crops, crops 5, 6, 7 and 8 namely gram, masur, potato and onion were grown by 78.33, 65.33, 13.33 and 8.33 per cent respectively. Maximum areas undertaken for growing different crops were found to have been covered by crop-2 (552.88 acres) followed by crops – 4, 1, 3, 5, 6, 7, 8 (531.38, 379.18, 361.78, 222.22, 98.44, 28.04 and 12.46 acres) respectively.
- The productivities of crops 1, 2, 3, 4, 5, 6, 7 & 8 on overall level were 17, 15.73, 18.02, 19.56, 6.54, 6.04, 49.33 and 51.09 qtls/acre respectively. Conspectus on overall data did help to ascertain that highest average value was obtained by producing crop-5 (Rs. 3493/qtl) followed by crops - 6, 3, 8, 2, 4, 1 & 7 (Rs. 2899, Rs. 1559, Rs. 1512, Rs. 1335, Rs. 1335, Rs. 1300 and Rs. 901/qtl) respectively.
- All the surveyed farmers across LHCs reported to have sold paddy to 'local private traders/middlemen,' except 4 (1.33%) and 1 (0.33%) Hhs (belonging to medium and large farmers) respectively. Cent per cent of the surveyed farm Hhs sold crops, namely: maize (kharif), wheat and maize (rabi) through local private traders Potato and onion were sold by only 40 (13.33%) and 25 (8.33%) farm Hhs taken together from all LHCs.
- Out of the total 300 farm Hhs, 282 (94%) belonging to all LHCs reported lower than market price and faulty weighing and grading as reasons for dissatisfaction in case of disposal of paddy.

- Reasons for unreasonable prices received have been considered for analysis are: (i) very few buyers, (ii) no government purchase, (iii) private buyers collude, (iv) no minimum fixed price. On overall level, 298 farm Hhs (76%) and 300 Hhs (100%) ascertained no government purchase, and private buyers collude, are prominent reasons for price received from paddy to be unreasonable. Cent per cent of the surveyed farm Hhs reported the same reasons as most prominent factors for the price of maize (kharif) being unreasonable. An equal number of 130 farm Hhs (43.33%) including all LHCs viewed the same reasons are responsible for price of wheat not being reasonable. Same two reasons were quoted by cent per cent of the farmers to be valid reasons for price of maize (rabi) being unreasonable. An equal of 235 farm Hhs (78.33%) each felt reasons (ii) and; (iii) responsible for lentil (masur) price not being reasonable. Reasons (ii) and; (iii) were again held responsible for price of gram being unreasonable as felt by an equal number of 196 farm Hhs (65.33%) for each respectively. At aggregate level, number of farm Hhs, who mentioned these reasons (ii), (iii) and; (iv) for potato and onion were: 40, 40, 19 and 25, 25, 17 i.e., 13.33, 13.33, 6.33, and 8.33, 8.33, 5.67 per cent respectively.
- Responses in regard to (i) own farm, (ii) local trader, (iii) input dealer, and; (iv) co-operative and government agency were obtained for analysis. Seed, fertilizers, and plant protection chemicals (PPCs) were found to have been procured through agencies namely local trader and input dealer. On overall level, the number of farm Hhs, who procured seeds from agencies namely local trader and input dealer were 64 (21.33%) and 236 (78.67%) respectively. Fertilizer was procured through agencies, namely; local trader and input dealer by 64 (21.33%) and 236 (78.67%) farm Hhs respectively. Manure was found to have been procured through agencies namely own farm and local trader by 85 (28.33%) and 13 (4.33%) Hhs respectively. In case of PPCs, agencies through which procured were local trader and input dealer availed by 92 (30.67%) and 208 (69.33%) farm Hhs out of total 300 surveyed. Manure was indicated to have been procured through agencies coded as (i) and (ii) by 173 (57.67%) and 127 (42.33%) farm Hhs respectively. In case of repairing and maintenance and interest, local trader was the only agency as reported by 17 (5.67%) and 19 (6.33%) Hhs respectively for the two. 50 (16.67%) farm Hhs, out of the total 300 surveyed, procured amount for leased-in land from out of their own farm source.

- Expenses on human labour ranged with little differences between marginal, small, medium, large and very large Hhs in Rs./acre terms (calculated at Rs. 4307, Rs. 4308, Rs. 4179, Rs. 4203 and Rs. 4220) respectively. Medium farm Hhs were at top in expenses made for irrigation, whereas large Hhs were ahead in ROMs (Rs. 5713/acre and Rs. 60/acre) respectively. Small farmers, evidently being the most resource-poor ones, made highest expense on interest payment (Rs. 89/acre). On overall level, out of the total expense of Rs. 29791/acre, highest share of expenses made for purchase of inputs was found on lease-in rent for land (30.95%). It was followed by expenses on

irrigation (17.22%), fertilizers (16.25%), human labour (14.24%), seeds (13.50%), PPCs (5.14%), manures (2.45%), interest (0.15%) and repairing and maintenance of machines (0.10%).

- The entire 300 farm Hhs surveyed asserted the quality of seeds to be satisfactory. In regard to quality of fertilizers, 50 (16.67%) and 250 (83.33%) farm Hhs told these to be good and satisfactory respectively. Responses in case of quality of manure were cited as good and satisfactory by 47 (15.67%) and 51 (17%) Hhs respectively on aggregate level. Quality of inputs, namely; plant protection chemicals (PPCs) and irrigation were pronounced to be good and satisfactory by 73 (24.33%), 215 (71.67%) and 173 (57.67%), 127 (42.33%) respectively. Quality of inputs, namely; plant protection chemicals (PPCs) and irrigation were pronounced to be good and satisfactory by 73 (24.33%), 215 (71.67%) and 173 (57.67%), 127 (42.33%) Hhs respectively. Input like interest, qualities were expatiated to be good and satisfactory by 14 (4.67%) and 5 (1.67%) Hhs. In case of repairing & maintenance, qualities were perceived as satisfactory and poor and for leased-in rent payment like input; only satisfactory was told by 11 (3.67%), 6 (2%) and 50 Hhs (16.67%) respectively.
- 261 (87% of the total) and 39 (13%) farm Hhs termed seed prices to be reasonable and high respectively. Similar responses were observed in regard to prices paid for inputs, like fertilizers and PPCs (87% and 13%) telling it to be reasonable and high respectively. On aggregate level, 98 farms HHs (32.67%) accepted the price of manure to be reasonable. Out of the total 300 farm Hhs surveyed, 173 (57.67%) and 127 (44.33%) expressed view of price for irrigation paid to be reasonable and high respectively. In regard to prices paid for repairing of farm machineries and interests paid, these, were perceived to be reasonable and high by 11 (3.67%), 6 (2%) and 14 (4.67%), 5 (1.67%) Hhs respectively. On overall level, 50 (16.67%) farms Hhs, told amount of leased-in rent to be reasonable.
- Reasons for prices being unreasonable consist of: (i) not subsidized, (ii) very few sellers, (iii) no government sellers, (iv) private sellers collude, and; no price control. In case of seed, 155 (51.67%) and 300 (100%) of farm Hhs held reasons (iii) and, (iv) responsible for price being unreasonable.
- In case of fertilizers, on overall level, 155 (51.67%), 187 (62.33%) and 213 (71%) farm Hhs informed reasons; (iii), (iv) and (v) responsible for prices being unreasonable. Reasons (iii) & (iv) were confirmed by 85 (28.33%) and 13 (4.33%) Hhs respectively responsible for manure price not being reasonable. On overall level, 92 (30.67%) and 208 (69.33%) farm Hhs accepted absence of government sellers (iii) and, collusion of private sellers (iv) to be significant factors for price of PPCs being unreasonable. Non-availability of government sellers was the only factor quoted responsible for price of repairing & maintenance to be unreasonable (17 farm Hhs i.e., 5.67 %).

Animal Products and Input Markets

- As far average per capita sale value of milk is concerned, on overall level, it was Rs. 6372 showing very large and large Hhs at top (Rs. 37986 and Rs. 8521)

respectively. On overall level, 98 (32.67%) farm households reported to have sold AH product (milk) through Primary Dairy Co-operative Societies (PDCSs).

- Green and dry fodders were procured from out of the farm saved stocks (29.67% and 40.33% of Hhs) respectively. Number of surveyed farm Hhs, who ascertained (i) and (iii) means regarding procurement of dry fodder were: 15.67, 12, 6.67, 4.33, 1.67 per cent and 6, 4, 2.67, 3, zero per cent respectively. Procurement of concentrates was reported through purchasing only (15.67, 12, 6.67, 4.33 and 1.67%) respectively. Same number of farm Hhs, like concentrates confirmed to have availed veterinary services on purchasing basis.
- Own farm and local traders were informed to be agencies thorough which good number of farm Hhs procured green fodder and dry fodder (29.67, 10.67 and 40.33%, 15.67%) respectively. Local trader and input dealers were accessed to procure concentrates for animal husbandry (9% and 31.33% of households) respectively. As far procurement of veterinary services is concerned, agencies (iii) and (iv) were used (as told by 7.33 and 33 per cent of households) respectively.
- Aggregate per household expense incurred in purchasing inputs related to animal husbandry was calculated as Rs. 3365/-.
- Prices of animal seed were felt to be reasonable by quite a large number of surveyed households (33%), while nearly 1/4th of the farm households, who owned animal husbandry, reported it to be high (7.33%). In regard to reasonability of prices paid for reported inputs related to animal husbandry, viz., green fodder (29.67%), dry fodder (24.67%), concentrates (24.67%), veterinary charges (33%) and labour charges (7%) were told as reasonable.
- The reasons for prices of inputs being unreasonable, five factors were considered: (i) not subsidized, (ii) very few sellers, (iii) no government sellers, (iv) private sellers collude, and; (v) no price control. In regard to price of animal seed, 22 households (7.33%) told (v) to be cause for it being unreasonable. Very few sellers was the only reason described by 32 (10.67%) and 47 (15.67%) farm households responsible for prices of green fodder and dry fodder respectively being unreasonable. While no government sellers (iii) ad no price control (v) were stated to be reasons for unreasonable prices of concentrates (9.67%) and 6% of households) respectively, only reason SN. – V was told as the reason for veterinary charges and labour charges (7.33% and 3%) respectively.

Labour Market

- On overall level, average number of casual labour per household employed meant for male and female were 22.07 per cent and 25.39 per cent respectively. Average number of days employed for farming and livestock operations were higher in case of male family labour and farm servants and female causal labour (1, 0.06 and 25.39) respectively. Aggregated picture of higher average hours/day of labour devoted by male family, farm and casual labourers (9.8, 9.6 and 8) respectively was revealed.

- On overall level, average wage rates paid to male farm servants and casual labour were much higher than female causal labour (Rs. 216, Rs. 262 and Rs. 155) respectively.
- Aggregate data reveals that 91.67 per cent of the total respondents did not have any point to ascertain that wage rates paid were unreasonable. Giving apriori, it is genuinely evident that marginal and small farm Hhs being more resourceless and having obligation of meeting various expenditures of family, remained engaged as wage labour on others' farm and MGNREGA related works for 5.07, 4 and 1.20 and 1 months respectively. Out of the surveyed Hhs, who worked as wage labour (23.67%), confirmed work available for a very limited period and very low wage to be prominent constraints during their engagement as wage labour.

Credit Market

- It is revealed that out of the total 19 Hhs (100%), who took loan during July, 2016 to June, 2018, 14 (73.69%) borrowed from government banks followed by SHGs 2 (10.53%). Only marginal Hhs did borrow money from informal sources.
- On overall level, out of the total amount borrowed by all the loanee households (Rs.13,05,000/-), highest amount i.e., Rs.12,00,000/- (91.95%) was given by government banks. Small and medium households did enjoy equally highest share of the total amount borrowed (30.65%). Government banks were prominently accessed for borrowing by farmers.
- On overall level, highest rate of interest was found to have been charged by MF/GC/NGOs (16%per annum) equally followed by co-operative societies and SHGs (14% per annum) and government banks (7% per annum).
- About 90 per cent (Rs. 872102) of the total borrowed amount by all loanee of different LHCs (Rs. 968802) had been repaid in regard to government banks. Across LHCs, maximum repayment of borrowed amounts were recorded by small and large farm Hhs equally comprising 29.32 per cent.

Asset Endowments of Households, Government Support Programmes and Insurance

- The surveyed farmers of the three districts were not covered/had taken advantages of any of the two programmes/schemes, namely; PM-AASHA and Bhavantar Bhugtan Yojana (BBY) during the reference period, i.e., July 2018 to June, 2019. But advantages/coverages of PM-Kisan were witnessed in the study area.
- On overall level, 73 farms Hhs (24.33%) accessed different sources of technical advice. Extension agents were the most instrumental, who were accessed by 40 Hhs (13.33%). In regard to extension agents, 26 (8.67%) and 14 (4.67%) Hhs (including all LHCs) got technical advice on seasonal and need based basis respectively. Only 12 (4%) and 5 (1.67%) farm Hhs reported to have accessed to KVK for technical advice on need based and casual contact basis respectively. Radio/TV/Newspaper/Internet like sources of technical advice

was accessed on need-based by 16 Hhs (5.33%), among whom medium farmers (2.67%) were more eager.

- Out of the total 73 (24.33%) farm Hhs, who accessed for technical advice, highest number of Hhs adopted advices given by extension agents 40 (54.79%) followed by KVK and RTVNI - 17 and 16 (23.29% and 21.92%) respectively. Out of the total 300 Hhs, majority of the farmers, i.e., 156 (52%) told they couldn't access sources of technical advice due to non-availability, whereas 144 (48%) were not aware. On overall level, all the 73 (24.33%) farm Hhs, who had accessed technical advice through EA, KVK and RTVNI, found it useful.
- Out of the total 73 farm Hhs (24.33%), who confirmed to have accessed some sources of technical advices, 11, 5.67 and 5.33 per cent of Hhs felt the advices to be beneficial provided by EA, KVK and RTVNI respectively. Only 7 (2.33%) of Hhs experienced the advices provided by EA to be moderately beneficial. On overall level, 5 (1.67%) farmers reported PACSs as the agency to procure paddy at MSP. The same 5 farm Hhs (1.67%) ascertained PACS as the agency, to whom paddy was sold. On overall level, largest quantums of crops sold at lower than MSPs, were found in case of maize (rabi 9188.20 qtls). It was followed by maize (kharif), wheat and paddy (7431.24 qtls., 5105.72 qtls and 4703 qtls.) respectively.
- All the surveyed Hhs belonging to marginal and small LHCs, did receive two installments of their payment under PM-KISAN totaling Rs 10,38,000/- in 9 months.
- On overall level only 14 Hhs (4.90%) out of 300 surveyed, reported to have been insured when they received loan showing 286 Hhs (95.33%) to have not been insured. On overall level, not aware about availability of facility was told as most prominent reason for not insuring the crops 169 Hhs (59.09%). It was followed by not satisfied with terms and conditions, not aware, and not interested (15.73%, 13.99% and 11.19%) respectively.
- On overall level, average premium per Hh (having considered 14 i.e., 4.67% Hhs) only, paid for paddy and wheat were calculated as Rs. 1714.29 and Rs. 1285.71 respectively.

Problems in Farming, Economic Risks Faced, Coping Strategies and Social Networks

- Data imparts knowledge to the interesting fact that 100 per cent of the surveyed Hhs found income from farming to be inadequate. It is expatiated that declining yield, small landholdings, high temperature and non-availability of desired government support were equally prominent reasons (97.67%), responsible for income from farming being inadequate.
- Lowest severity of problems was faced by maximum Hhs 242 (80.67%) followed by moderate and high. Moderate and high severity of the reported problems were told to have been experienced in farming by 53 and 5 Hhs (17.67% and 1.66%) respectively.
- Analysis has been made in ranking terms (1-8) based on economic risks faced. Rank-1 shows the risk to be most intense, whereas 8 indicate least important risk. Across LHCs, lack of finance/capital, and sharp fluctuations in output prices were the most intense risks, majority of marginal farm Hhs, i.e., 84 (28%)

experienced with ranks 1 and 3 respectively. Same risks were found to have been reported by majority of small Hhs 59 (64%) each ranks 1 and 4 respectively. Similar responses about the two above mentioned economic risks with ranking of 1 and 4 witnessed by an equal of 32 medium Hhs (65.31%). Cent per cent of the surveyed farm Hhs belonging to all LHCs (except medium ones) reported to have faced other economic shocks with least rank rating of 8.

- On overall level, 158 farms Hhs, i.e., 52.67 per cent of the total 300 households told one or other type of coping strategies undertaken by the Hhs with respect to economic risks. Most strong coping strategy cited was reduction in Hhs consumption expenditure calculated at 76 (48.11%). Some other coping strategies undertaken by Hhs in regard to economic risks faced were storage of crops for better price 60 Hhs (37.97%), deferred social and family functions and worked as wage labour in the village counted as 11, i.e., each 6.96 per cent.
- On overall level, out of the total farm Hhs (300) surveyed, highest number of Hhs, i.e., 97 (32.33%) were found to be the member of Dairy Co-operative Societies (DCSs) followed by political parties and SHGs (8.67% & 6%) respectively. Very large farm Hhs were not found to be the members of GPs, SHGs and Caste-based Associations.

Suggested Action Points

i. Rising prices of inputs is attributed to a large share of increase in the cost of cultivation of crops, so there is need to check input prices, which usually increase during the peak seasons of respective crops.
ii. More than half of the cost inflation is contributed by the rising labour cost, besides its scarcity; so managing agricultural labour, from out of MGNREGA job card holders, would alone bring substantial reduction in the crop budget of farmers.'
iii. Negative and inelastic demand for farm inputs leads to sharp increase in the cost of cultivation, so there is need for proper use of agricultural inputs, besides following suitable agro-economic practices for cultivation of the respective crops.
iv. Substitution between human labour and machine is quite important in influencing the cost of cultivation, so mechanization of agricultural activities in mission mode is of utmost importance across the farms to enhancing the farm profitability.
v. Motivation for institutionalization of custom hiring services (CHSs) at the farm levels by building Farmers Groups (FGs), Farmer Production Organizations (FPOs), Farmer Clubs (FCs) etc., may be initiated for fair profit margins in crop cultivation.
vi. To ensure ultimate benefits of the agricultural development programmes, like; demonstration, distribution of minikits, extension backstopping, transferring of technology, relief under natural disasters, providing credit, insurance and many others, factors like; timelines, transparency and mandated provisions should be strictly followed by the programme implementing agencies.

vii. Agricultural marketing infrastructure in the state is overwhelmed despite repealment of BAPMC Act (1960) in 2006, so it needs to be developed in time bound manner for better price realization, as acclaimed, while repealing the referred Act.

viii. Free agricultural markets, as such did not really break up local trader monopolies, reduce the control of intermediaries or improve market access, and alternatives for farmers in the state, so to fetch the benefits of free agricultural markets, investment, particularly private, needs to be allowed along with sound institutional mechanism for greater participation of farmers.

ix. Procurement exercise in the state has miserably failed in terms of volume (against the marketable surplus), prices (delayed payment) and procedures. So, the procurement canvas needs to be increased following equity, accessibility and transparency issues in the system for realization of MSPs by the farmers.

CHAPTER – I

INTRODUCTION

With the view to re-comfort the base for establishing a sound and encouraging agricultural marketing system in the country or in any region, it is desired to foil the factors responsible for market imperfections. Before understanding and giving zest to knowledge about different mode of agricultural marketing, imperfections prevailing in the system and their effects on farm profitability, it will be desirable to know what agricultural marketing is.

Agricultural Marketing can be defined as the commercial functions involved in transferring agricultural products consisting of farm, horticultural, dairy and other allied products from producer to consumer. Agricultural marketing includes all activities involved in moving agricultural produces from producers to consumers through time (storage), space (transport), form (processing) and; transferring ownership at various level of marketing channels.

1.1 Brief on Market Imperfections

In a predominantly agricultural country like India, policies regarding agricultural production and marketing cannot be taken up in isolation, as both have significant bearing on each other. It is beyond doubt that increased agricultural production, as evidenced after the advent of new technology in agriculture, needs efficient disposal of its market surpluses for providing further incentives to farmers to produce more, thus, achieving the objectives of sustainable agricultural growth. As such, an efficient network of agricultural marketing system is a prerequisite for creating an enabling environment for the farmers. The role of an efficient agricultural marketing system in accelerating agricultural production is now widely recognized as an essential strategy of agricultural development policy in India. Economic efficiency of the agricultural marketing system depends on its perfections, which implies:

i. Reduction in the seasonal fluctuation of prices;
ii. Reduction in the gap between maximum and minimum purchase prices of wholesalers;
iii. Reduction in trade margins;
iv. Increase in the degree of market integration;
v. Increase in number of buyers and sellers, and;
vi. The familiarity of market condition by the buyers and sellers.

The research efforts, particularly since 70s were made towards examining the notion that in India, the agricultural markets were highly imperfect due to oligopolistic tendencies, outmoded, inadequate and devoid of infrastructural facilities. The vicious circle of socio-economic constraints further made working of agricultural marketing highly imperfect, particularly for the poor peasants, who produce under 'investment constraint' and sell under conditions of 'distress sale.' On the other hand, implementation of the Regulated Markets Act is allegedly loose. The vested interests cash in on some loopholes in the Act, and contrive devices to circumvent the regulations. Planning for completion in the regulated markets is replete with inadequacies and imperfections. Most of the primary markets are devoid of supportive marketing services. Less than half of them have the facility of market yard. Around 83 per cent of them are out of the purview of market regulation management. Bulk of India's agricultural produce still passes through these markets.

It is indeed, farmers are interested more in net income from the cultivation of a crop than in price of the product they receive. As per NSSO report, the annual income of farmers in India between July 2012 and June 2013, an average household earned Rs. 6426 per month or Rs. 77112 per year in India. Since we do not have NSSO data for farmers' income after 2012-13, one way to extrapolate farmers' income in 2018-19 would be to apply CAGR of 8.2 per cent in the nominal gross value added component of agriculture and allied activities between 2012-13 and 2018-19 on the farmers' income figure given in the NSSO report. Basically, this increases farm incomes by the same proportion as the agriculture component of the economy. Once this growth rate is applied, the nominal average income of a farmer in 2018-19

increased to Rs. 10329 per month, while the average weighted income of the beneficiary group increased to Rs. 8422 per month. As is to be expected, there were significant differences in this amount from Rs. 6674 per month for the farmers owning between 0.01-0.4 hectare of land to Rs. 66524 per month, those in case of owning 10 hectares or more during 2018-19. This reflects that the annual income of Rs. 1,23,948 that the average Indian farmer currently earns, calculated on the basis of Rs. 10329 per month during 2018-19, is hardly appreciable mainly due to indebtedness of nearly 52 per cent of agricultural households during 2012-13, as per the situation Assessment Survey of Agricultural Household's in India (NSSO – 70th Round). The survey shows that rural India had an estimated 90.2 million agricultural households - about 57.8 per cent of the total estimated rural households in the country. Interestingly, the survey shows that 56 per cent of the marginal farmers' wage and salary employment, not agriculture, was their principal source of income. Another 23 per cent reported livestock as their principal source of income. Moreover, about 45 per cent of farm households belonged to other backward classes, while 13 per cent belonged to scheduled tribes.

Besides, the aggregate cost of production and output of 10 major crops grown in India showed three distinct patterns during 1990-91 to 2014-15. The period 1990-91 to 2002-03 witnessed a steady rise in the real cost of cultivation accompanied by a relatively slower increase in the crop output. This mismatch resulted into a decline in profitability and net returns in real terms from crop production during this sub-period. The subsequent period till the year 2007-08, witnessed a significant acceleration in growth of output and real cost of production reached a historically low level. The crop profitability registered high growth during this period. However, this could not sustain and growth in the crop output remained inadequate to absorb the rising cost of cultivation after 2007-08 till 2014-15. Over the 25 years period since 1990-91, the aggregate cost of cultivation of the selected crops increased at a faster rate than the increase in output during 1990-91 to 2014-15 *(Srivastava et. al, 2017).*

The effects of input prices and input-use on increase in cost of cultivation from the trend in cost expressed at current and at 2004-05 prices, show that at aggregate level, physical use of inputs has marginally changed, whereas cost of cultivation at current prices witnessed sharp increase, which turned exponential after mid-2000. These changes imply that a large share of increase in cost is attributed to the rising prices of the inputs, which in turn, will result in declined cost saving for the farmers.

It is, in this context, the present work is an inevitable attempt to study the functioning of some of these important outputs and input markets and their effects on erosion of farm profitability.

1.2 Possible Market Imperfections in the Study Region

This section of the chapter enfolds brief analytical discussions related to market imperfection in the study region, i.e., in Bihar. Attempt has been made to understand market imperfections related to product, input, labour, credit, and; land, etc. Before dwelling on possible market imperfections in the region, it will be desirable to understand what perfect markets are. A perfect market is one, in which the conditions hold good (a) large number of buyers and sellers (b) all the buyers and sellers in the market have perfect knowledge of demand, supply and prices, (c) prices at any one time are uniform over a geographical area, (d) the prices are uniform at any one place over periods of time, plus or minus the cost of storage from one place to another, and (e); the prices of different forms of a product are uniform, plus or minus the cost of converting the product from one to another. The markets, in which the conditions of perfect competition are lacking, are characterized as Imperfect Markets. The situations of monopoly market, duopoly market, oligopoly market and Monopolistic competition might be identified in such markets.

In view of the above noted scenario, now efforts can be made to dig out status of possible market imperfections in regard to different agricultural inputs prevailing in the study region, i.e., in Bihar.

1.2.1 Product

As regards the **product market** in the state, it is to noted here that cereals dominate the cropping pattern, occupying more than 86 per cent of the gross cropped area (GCA) followed by pulses (6.94%), oilseeds (1.46%), fibre crops (1.24%) and cash crops (3.6%). Within the cereals; rice (48.8%), wheat (33.3%) and maize (10.3%) contribute 79.5 per cent of the GCA. Moreover, the state has a traditional food grain economy of the total food grains production (16.31 million tons), cereals constitute 97.2 per cent and pulses 2.8 per cent. The marketed surplus of food grains ranged between 20-30 per cent and around 35-40 per cent in case of pulses. The inadequate post-harvest infrastructure in the state results 3-6 per cent losses in food grains *(Intodia, 2012).* As per our study *(Sinha, 2004),* the marketed surplus of paddy and wheat were 42.2 per cent and 68.8 per cent and the producer's share in consumer's rupee for paddy and wheat were about 80.15 per cent and 78.40 per cent respectively. However, in case of maize produce, the marketed surplus was 90.2 per cent and the most important marketing channel was 'Farmer --- Village Trader --- Commission Agent --- Wholesaler --- Maize Stocker (mainly from corporate houses or big industrialists), accounted for 44.04 per cent of total disposal. Further the index of marketing efficiencies for maize produce were 1.53 (conventional method) for the same channel, whereas it was 6.75 (Shephered Method) also for the same channel and 3.60 (Acharya Method) for another channel i.e., Farmer --- JEEViKA *(Bihar State Rural Livelihood Mission, known as JEEViKA)* --- AAPCL Ltd. *(Aranyak Agri Producer Company Limited)* ---- NeML *(NCDEX e-Markets Limited)* Accredited Warehouse --- Institutional Buyers/Stock & Sell at premium prices. The producer's selling prices were 77.2 per cent in earlier channel and 78.28 per cent in later channel of the wholesaler's sale price to processors/exporters/stockers *(Sinha, 2018).*

Moreover, the marketed surplus ratio (MSR) of the major cereals and pulses in Bihar for 2014-15, as depicted in table 1.1 reveals that in major cereal crops, the same are higher as compared to all-India figures, while in case of two prominent pulses of the state, these were lower to all-India figures.

Table 1.1: Marketed Surplus Ratio (MSR) for Major Cereals and Pulses in Bihar vis-à-vis All India for 2014-15

SN	Crops/Produce	Bihar	India
1.	Paddy	86.16	84.35
2.	Wheat	82.26	73.78
3.	Maize	91.04	88.06
4.	Gram	80.42	91.10
5.	Lentil	87.58	94.38

Source: Agricultural Statistics at a Glance, 2019

Besides, **prices** received by the producers for the major cereals particularly, trail behind the MSPs of the respective produces, as revealed in our recent studies. It generally ranged between 20 to 30 per cent lower than MSP of the respective produces. During 2019-20, the state government fixed a rate of Rs. 1815/quintal as MSP of paddy, but farmers were compelled to sell paddy to local traders at lower rate of around Rs. 1350/quintal i.e., 25.62 per cent lower to MSP till February, 2020. As regards the procurement of cereals is concerned only paddy and to some extent wheat were also procured. The quantities of procurement of paddy during last five years were about 23.06 per cent in 2014-15, 26.94 per cent in 2015-16, 22.35 per cent in 2016-17, 14.63 per cent in 2017-18 and 23 per cent in 2018-19 against the total production of paddy in respective years *(Khan, 2020).* Apart, government agencies have procured hardly 11 per cent of targeted procurement of paddy since November 15, 2019 to February, 2020. In case of wheat, less than one per cent i.e., 0.81 per cent was procured in the state by the Central and State government agencies in the rabi marketing season of 2020-21, against the estimated production of wheat for 61 lakh metric tons. In 2019-20, 2815 tons, 17504 tons and in 2017-18, 20000 tons were procured in the state. These quantities too are less than 1.00 per cent of the total wheat produced in the state in respective years. Besides, as a result of the lower number of procurement centres, only a small fraction of total farmers in the state are able to sell their crop at MSP *(Mishra & Agrawal, 2020).*

The agricultural produce markets in the state are not maintained properly and lack proper infrastructural facilities for smooth functioning of the markets. The Government has repealed its APMC Act (1960), w.e.f., 2006 as the functioning of the markets during the APMC regime was not very efficient and therefore trade in number of markets could not fully shifted till date. As of now a significant part of the marketable surplus is being traded outside the market yards in free market regime. Though, the state had 95 regulated APMC markets, out of which 54 markets, where basic infrastructure existed are under comprehensive review for its revival under different State Agriculture Road Maps (I, II & III) but still devoid of basic infrastructural facilities.

1.2.2 Input

The effects of input prices and input use on increase of cost of cultivation were seen from the trend in cost expressed at current and 2004-05 prices. In fact the physical use of inputs has changed only marginally, whereas cost of cultivation at current prices witnessed a sharp increase which turned exponential after mid-2000. These changes imply that a large share of the increase in cost is attributed to the rising prices of inputs. The estimated price elasticity for inputs such as seeds, labour, irrigation, fertilizer and machine varied across the inputs and the crops. The elasticity values are negative and less than one, which imply that the increase in prices of inputs would lead to less proportionate decline in their use. Therefore, in a situation of rising input prices, cost of cultivation will increase, which in turn will result in declined cost of saving for the farmers.

As regards the **seed market** in the state is concerned, it is hardly met by the government agency i.e., Bihar State Seed Corporation. During last four years, i.e., 2015-16 to 2018-19, there was wide gap between the demand and supply of seeds in the state (table 1.2). Among major kharif crops, the demand and supply gap stood between 25 to 33 per cent for paddy, about 80 per cent plus for maize. However, in case of rabi crops, the demand and supply gap for wheat crop has improved significantly and it was surplus of 1.28 per cent in 2018-19. Similarly, the surplus was noticed in case of gram pulse. Besides, huge gap was noticed in case of lentil

pulse (-75.97%) during 2018-19, which is the most important pulse crop in the state. These gaps are fulfilled either from the farmer's last year's retained stock for seeds or from local seeds market, which are exploitative in terms of prices and quality both.

Table 1.2 Demand and Supply Gap of Certified Seeds in Bihar

(In '000 qntl)

Crop	2015-16			2016-17			2017-8			2018-19		
	Demand	Supply	% Gap	Demand	Supply	% Gap	Demand	Supply	% Gap	Demand	Supply	% Gap
				Kharif Crops								
Paddy	409.38	273.96	-33.08	431.25	317.54	-26.37	428.40	319.08	-25.52	448.80	320.99	-28.48
Maize	90.00	9.05	-89.94	90.00	11.96	-86.71	81.70	13.05	-84.03	82.65	13.42	-83.76
Urad	1.73	1.46	-15.60	1.78	---	---	---	---	---	---	---	---
Arhar	7.84	1.50	-80.86	6.02	1.05	-82.56	3.24	1.56	-51.85	3.60	2.73	-24.17
Moong	1.60	0.45	-71.87	1.65	0.32	-80.61	0.90	---	---	---	---	---
				Rabi Crops								
Wheat	912.00	616.39	-32.41	930.00	465.16	-49.98	720.75	674.10	-6.47	744.00	753.52	1.28
Maize	90.00	70.65	-21.50	112.50	108.78	-3.31	73.10	72.68	-0.57	87.00	82.70	-4.94
Gram	29.44	6.58	-77.65	30.36	2.99	-90.15	16.56	5.83	-64.79	18.40	30.81	67.40
Pea	8.96	1.18	-86.83	9.24	0.20	-97.84	5.04	0.95	-81.15	5.60	0.13	-97.70
Masoor	27.52	1.07	-96.11	28.38	6.24	-78.01	15.48	5.14	-66.80	17.60	4.23	-75.97
Rapeseed/ Mustard	3.59	2.28	36.49	8.21	4.44	-45.92	2.57	1.67	-35.02	4.38	4.38	0.00

Source: Compiled by Author on the basis of Economic Survey of Bihar, 2019-20 & 2018-19.

Fertilizers have become an integral input in augmenting crop productivity since the era of Green Revolution. Per hectare consumption of fertilizer (NPK) in the state during 2018-19 was 227.30 kg (the second highest in the country after Telangana) as compared to 133.12 kg/ha for the All-India figure. About 58 per cent of the total annual consumption of fertilizers is made during rabi season and 42 per cent in kharif season. Urea (N) accounts for 69 per cent of the overall fertilizer consumption followed by Phosphate (P) (23%) and Potassium (K) (8%). The sale of fertilizers has been made mandatory for the whole country through POS machine since March, 2018 in Go-live mode, which is monitored under iFMS. The entire sale is made either through the fertilizer companies' outlets or BISCOMAUN *(Bihar State Co-operative Marketing Union)* or PACSs *(Primary Agricultural Co-operative Societies)* or licensee fertilizer retailers. More than 90 per cent fertilizers are sold by licensee fertilizer retailers who charge 10 to 20 per cent higher prices over the MRPs of

respective grade of fertilizers. Besides, 56 per cent fertilizers are sold without Aadhar or other Ids and 46 per cent transactions are made on false/dummy identifications, State Government enquiry report revealed. Recently, to check the menace of black marketing of fertilizers, the government raided 1300 licensee retailers of fertilizers and of them, 318 licenses have been cancelled and 217 dealers were served with show cause notices. A study *(Sinha, 2020)* conducted on 60 retailers and 250 fertilizer buyer farmers in two sample districts of Bihar reveals that, on the day of visit, the opening stock of total fertilizers was 2459 MTs and out of it, the receipt of the stock in the PoS was just 0.03 per cent and sale (3.9%). The closing stock, as per PoS was (-) 3 per cent, physical stock 10.8 per cent and stock as per manual records (-) 16.17 per cent. So, the selling of fertilizers was being made without following the mandated norms of fertilizers' sale in the state, despite sufficient supply of all the grades of fertilizers. Thus, the available stocks across the different instruments mis-match during the survey time. Further, it was also reported that there is nexus between the fertilizer dealers and smugglers of fertilizers, who used to send the stock to Nepal for fetching higher prices. It distorts the local markets, which in turn, results in suffering of farmers in the state in purchasing fertilizers over and above the MRPs.

The advent of technology has led to increased demand for modern inputs, which requires **credit support** particularly when nearly 42.5 per cent farm households in the state are indebted as compared to 51.9 per cent in the country. In fact, the indebted farmers borrowed 28.9 per cent from institutional sources and 71.1 per cent from non-institutional sources. Among the non-institutional sources, money lenders occupied large share, which accounted for 72 per cent, as revealed from NSSO's survey (70^{th} round) conducted during the year 2013. Further, credit flows to agriculture sector in the state are accounted to 97.3 per cent in 2015-16, 85.6 per cent in 2016-17, 86 per cent in 2017-18, 70.7 per cent in 2018-19 and 69.08 per cent in 2019-20 against the targets of Rs. 42500 crores, Rs. 48000 crores, Rs. 49000 crores, Rs. 60000 crores and Rs. 60000 crores for the respective years. The achievements of targets under the Annual Credit Plan (ACP) have shown significant decline for the

agriculture sector, besides the decline in achievement percentage of targets set for the agriculture sector from 97.3 per cent in 2015-16 to 69.08 per cent in 2019-20. The outstanding advances to agriculture sector were 20.08 per cent in 2014-15. Though, it has slashed to 0.24 per cent in 2018-19. In these circumstances, there is need to increase the targets for agricultural credit under the ACP so that dependence of the farmers on non-institutional credit could be minimized. It will further check the decline in farm profitability in real terms.

Labour is a critical input for crop production, the evidences showed that during the past 25 years (1990-91 to 2014-15), share of human labour in cost A_1 + FL witnessed a fluctuating trend during the successive periods and attained the highest level of 47 per cent by TE 2014-15. Besides, during the past 25 years, the average annual inflation in cost A_1+FL was about 10 per cent per annum. The decomposition of cost inflation among various factors revealed that labour alone contributed 53 per cent to the increase in cost of cultivation during 2007-08 to 2014-15. Labour cost contributed 16 per cent to the cost inflation during the same period. Thus, the labour cost is the predominant contributor of cost inflation, particularly in recent years and managing this factor of production alone can substantially reduce the cost of cultivation and increase the farm profitability *(Srivastava et.al, 2017).* It is in this context, the state of farm labour market in the state played an important role in crop production and thereby fetching the net returns. Agriculture labour market in the state like; other state is in unorganized form. No institutions, be it formal or informal sector are in active mode for ensuring the supply of agricultural labour and monitor the cause of farm labour, despite many welfare programmes and existence of Minimum Wages Act. In fact, there is farm labour scarcity in the state. The percentage of people employed in agriculture has reduced by 17 per cent during 1999-2000 to 2019-20. Major factors responsible for disappearance of farm labourers in search of new livelihood options are low labour productivity and low real wages *(Jha, 2006),* increase in wages in non-farm sector (65%) compared to farm sector (15%), seasonality in agriculture, presumption of having low esteemed work, distress migration, threat of lives and livelihood due to recurring floods and frequent

droughts, highly subsidized distribution of food grains through PDS in recent past and subsidy of farm machineries to some extent. Moreover, in course of field visits it was reported that the farm labourers do not wish to work on daily wage basis (for 8 hours), they rather prefer to work on contract basis, as frequently found in the schemes under MGNREGA. They largely expressed their willingness for their deployment on tender basis (lump-sum monthly/yearly), as is being practiced in Punjab, Haryana and Telangana through contracts meant for activities such as farming, farm businesses and in up-keeping of livestocks. It is also to be noted here that despite about 25 lakh reverse migrants in the state during Covid – 19 lockdowns; they have started to return their respective places, leaving the farm economy of the state in pre-Covid-19 situations, which witnessed farm labour scarcity in the state.

Agricultural land constitutes a substantial part of Bihar in total geographical area (9360 thousand hectares), as nearly 56 per cent is under net sown area in 2018-19, which declined from 60.5 per cent in 2001-02 (after bifurcation of the state in November, 2000). The gross cropped area (GCA), which was 7897 thousand hectare in 2001-02 slashed to 7525 thousand hectare in 2018-19, registering a decline of nearly 4.7 per cent. However, the cropping intensity has increased from 1.39 in 2001-02 to 1.44 in 2018-19. The area under forest remained almost same during the period of 2001-02 to 2018-19. During the same period the area under fallow land increased by 48.8 per cent. The land put to non-agricultural uses has also increased from 1641 thousand hectare in 2001-02 to 1718 thousand hectare in 2018-19, registering an increase of 4.7 per cent during the period. This could be largely attributed to increasing urbanization, industrialization, infrastructure development and increasing settlements leading to conversion of land to non-agricultural uses. Moreover, as per 2011 census, more than 85 per cent of the population lived in rural areas and their most important source of livelihood is their own landholdings. There is growing evidences indicating very small size of land holdings in India, and Bihar is no exception. Small and marginal landholdings, which are less than two hectares, account for nearly 97 per cent of the landholdings in the state. The average size of

land holdings in Bihar during 2015-16 was just 0.39 hectare, while it was 1.08 hectares at All-India level. The average agricultural density in the state was 238 per square hectare in 2011, against the all-India figure of 110 per square hectare. It is obvious that the pressure on land in the state is more than double than the all-India situation. So, the dependence of agricultural population on cultivable land needs to be reduced for enhanced farm profitability.

1.3 Relevant Literature Review

A considerable number of research studies have been undertaken on "Market Imperfections and Farm Profitability" and related issues in India and other nations of the world by some academicians and researchers. Some such relevant literatures have been briefly reviewed in this part of the study.

In developing countries, rural households are exposed to market imperfections and constraints referred to as market failures. In some cases, markets do not exist. High transaction cost in accessing markets and constraints in exchange can be considered as the characteristic features of peasant households *(Ellis, 1993).*

Presence of market imperfections leads to alteration in household behavior in such a way that it seems to be sub-optimal at first glance. Household behavior in the context of market failure implies non-separability between production and consumption *(Thorbecke, 1993).* Household decision regarding production i.e., use of inputs, choice of activities, desired production level are affected by its consumers' characteristics i.e., consumption, preference, demographic composition etc. *(Singh & Strauss, 1986).* A study *(Rudra, 1983)* revealed that farmers cultivate a whole range of crops to attain self-sufficiency in production, instead of selecting the profit maximizing crop or crops with higher profitability under resource constraint.

In fact, farmers were treated as mere agents of agricultural production over the years. Their economic well-being did not receive due attention until late 90s, when farmer suicides and indebtedness became a widespread phenomenon. Scholars and policy makers began to take a serious note of this agrarian catastrophe, only when the distress resurfaced again in recent years in the farm heartlands of the country

(Sainath, 2010). Serious deliberations on the issue of farm profitability occupied the centre stage in the recent policy debates on agricultural sector, especially from early 2000s.

Besides, the issues of proximate barriers to profitable and efficient agriculture, such as small size of owned land holdings, lack of mechanization, high labour cost due to technical scale economics, credit market imperfections, lack of insurance etc. *(Foster & Rosenzweig, 2010);* validity of the estimates made based on CSS data *(Chand et. al, 2015);* low awareness of MSP *(NITI Aayog, 2016)* etc; the 16th Report of Committee on Agriculture on 'Pricing of Agricultural Produce,' the *APMC Act of 2003 (Rules in 2007)* advocates, inter alia provision of private markets and e-markets, contract farming, direct purchase of agricultural produce from farmers by processors/bulk retailers/wholesalers/exporters nearer to the production centre, direct sale of produce by farmers to consumers etc., do also prevail. Such multiple options will enable the farmers to sell the produce for optimum returns without being compelled to make distress sale in local mandis *(GoI, 2014).* Following studies also endorse factors responsible for market imperfections across the states and countries:

Chatterjee et. al (2020); in their study, found that the market system, with many intermediaries at multiple levels, is less a sign of market inefficiency and more a rational response to the dominant structure and condition of Indian farming (especially in eastern India), which is characterized by tiny farm sizes.

Phenomenal potential of contract farming can be seriously thought for removing factors responsible for market imperfections with a view to achieve higher/better farm profitability. *Birthal et. al (2008)* found that probability of dairy producers participating in contract farming in India was significantly higher for the large farmers. Similarly, *Pandit et. al (2014)* for potato in West Bengal *(Swain, 2012)* for gherkin and seed rice in Andhra Pradesh, *Cai, Ung, Setboonsarng, & Leung (2008) in case of rice in Cambodia; Maertens and Swinen (2009); Miyata et al (2009),* for green Onion in China; *Awotide, Fashogbon, & Awoyemi (2015),* for rice in Nigeria found large farmers had higher probability to grow crop under contract. *Stringer et. al (2009),* in

their study of vegetable processors in China observed that processors preferred to have large producers and also those villages that were nearer to the processing plant. The reason is being to economize the transaction costs, dealing with farmers to keep unit costs low.

There are many concepts of agricultural marketing. Providing range of sight containing observed need of marketing process to be customer-oriented *(Dixie, 2005)* ascertained that as a commercial process, marketing needed to provide farmers, transporters, traders, processors, etc; with profits otherwise they will be unable to stay in business. This epilogizes the researcher's findings on the desirability and significance of farm profitability. *Foster & Rosenzweig (2010)* in their paper, while examining theoretically and empirically, whether farm scale and lack of mechanization are important proximate and causal barriers to farm productivity and profitability, with particular attention to both the problems of eliciting labour effort and the role of credit markets in an environment with stochastic output found that lack of mechanization was a barrier to greater farm productivity in India, and that as a consequence of credit market constraints and scale economies, most farm in India are too small to exploit the productivity and cost savings from mechanization. While there was a significant evidence of positive scale economics in terms of profitability, particularly among small landholding households, the researchers saw a negative significant effect of lagged farm profits.

During the course of exemplifying well known inverse relationship between farm size and output per acre, returns to scale and imperfections in the labour market *Bardhan (1973)* found that while predominantly wheat areas showed constant returns to scale, diminishing returns seemed to prevail in predominantly paddy areas. But, both in regard to paddy and wheat agriculture, negative relation between output per acre and farm size was observed. It could be likely the result more of an inverse relation between size and other inputs than of scale diseconomies. Factors that could have contributed to this inverse relation could involve production uncertainty in agriculture and some others involving the interlinked phenomenon of land and labour market imperfections.

Having undertaken exercise in regard to small farmers' decision making and market imperfections, *Holden & Binswanger (1998)* noted that small farmers were rural households that were both production and consumption units, complicated the analysis, particularly when market imperfections cause their production and consumption decisions to be non-separable *(Singh, Squire & Strauses 1986 & de Janvry, Fafchamps & Sadoulet 1991).* Non-separability implies that consumption needs and asset distribution may have significant impacts on production related decisions and thus, management of natural resources. *Holden & Binswanger (1998)* providing perspicuity to research fraternity, noted that farmers were usually only partly integrated into markets. Typical market imperfections include missing markets, partly missing markets (rationing, seasonality), thin markets (imperfect competition) and interlinked markets. In a world with such market imperfections, incorrect or missing price signals may accrue from society's perspective and possibly result in inefficiencies. Possible outcomes include too rapid extraction and too low investment in natural resources; they expressed possibility in this regard.

Hoff et. al (1993) in their research paper documented that in response to the de-institutionalization of rural areas that followed state compression, the reconstruction of new agrarian institutions complementary to the market and the state, is thus, a fundamental element of rural development. This has taken the form of either private or cooperative organizations. *Grosh (1994)* believed that since the turn of the millennium, attention has shifted toward more micro level and institutional policies. In particular, contractual arrangements with downstream processors, agro-exporters and retailers, often orchestrated through farmer groups, are increasingly seen as a means of overcoming the market imperfections that led to the failure of macroeconomic and sectoral adjustment policies.

Reardon & Barret (2000) in their study suggest that when market reforms raise the commodity prices, stimulating an increase in production, especially of the export crops. The rise in price facilitates the establishment of super market chains, cooperatives, export oriented schemes, processing zones and general stimulation of agro industrialization in developing countries.

Hota et. al (2002) in their study viewed that cooperatives occupy important part in India's economy in terms of their coverage of rural producers, business turnover and contribution to economic welfare of their members as well as to rural economy of India. *Reardon et. al (2003)* in their study documented that private firms then played a dominant role in countries such as China, India, South Africa in developing improved seed varieties; producing and distributing inputs, post-harvest operations and retailing through super markets. *Royce (2004)* reported, even though state agencies continued to be the main buyers of output and suppliers of input limiting cooperatives management authority within. There is much greater member participation and on-farm decision making.

Godara (2006) in his study described that the positive trend of economic liberalization and associated opening up of Indian economy have significantly reduced the structural rigidities in the system. This trend should be premise of India's future agricultural reform. Agricultural business has come under strong and direct influence of international market. Indian farmers had to produce quality goods to meet the international standards. *Kashyap & Raut (2006)* in their paper suggested that marketers need to design creative solutions like e-marketing to overcome challenges typical of the rural environment such as physical distribution, channel management promotion and communication. The 'anytime anywhere' advantage of e-marketing leads to efficient price discovery, offers economy of transaction for trading more transparent and competitive setting.

Brithal et. al (2007) in their study suggested that by building efficient and effective supply chain using state of the art techniques it is possible to serve the population with value added food, while simultaneously ensuring remunerative prices to farmers.

Pathak (2009) in his research paper stated that the contribution of agriculture in growth of a nation is determined by the growth of the products within the sector itself as well as agricultural development permits other sectors to develop by their goods produced in the domestic and international markets.

Heltberg (1998), in his paper entitled "Rural Market Imperfections and the Farm Size Productivity Relationship: Evidence from Pakistan" enunciated a strong inverse relationship between farm size and yield that was present in the sample studied by him. The recent controversies over the inverse size output relationship were reviewed, and a framework was provided that explained the inverse relationship based on plausible assumptions about imperfections in the markets for labour, land, credit and risk. Udry (June, 1996), while examining efficiency and market structure in regard to profit maximization in African agriculture found that there was a positive correlation between plot yield and household size and area, cultivated by the household on other plots, and short term resource inflows conditional on all observable plot characteristics. The researcher further, shed light on the finding that a negative correlation between yield and the area cultivated on other plots and a positive correlation between yield and short-term inflows of non-farm resources and (possibly) between yield and household size have strong implications for the structure of rural markets.

World production of fruit and vegetable crops has grown faster than that of cereal crops, albeit from a much lower base. During 40 year periods 1960 to 2000, the area under horticultural crops worldwide reached more than double. Having portrayed profitability of horticultural production *(Lumpkin, et. al 2005)* found that farmers involved in horticultural production usually earned much higher farm incomes compared to cereal producers, and per capita farm income has been reported up to five times higher.

On the basis of reviewed literatures undertaken above, this study is highly needed in understanding the extent of erosion into farm profitability due to various distortions present as 'the components of market imperfections' in regard to agricultural commodities. Moreover, it endorses the desirability of the three recent Farm Laws, pronounced by the Government of India, brought out for reforms in agricultural sector.

1.4 Objectives of the Study

The study seeks to examine following objectives:

i. To analyze the product markets (output) including price(s) received (market as well as MSP if any), marketing channels, market structure and bottlenecks;

ii. Analyze the input markets including seeds, fertilizer, labour, etc. with particular attention to costs (of the inputs), market structure and problems in accessing the same;

iii. Analyze the government support structure including access to credit, and;

iv. Analyze the coping strategies of farmers during economic hardships and their social networks.

1.5 Methodology, Sampling and Analytical Framework

As per suggested methodology, a multi-stage sampling has been adopted for the study. The first stage unit (FSU) is the district. At the first stage, one district had to be selected from each agro-climatic region in the state. In Bihar, there are three agro-climatic zones, viz., Zone - I, Zone – II, and; Zone – III (comprising IIIA & IIIB). Districts that contained in Zone – I are: Siwan, Gopalganj, Saran, Bettiah, Motihari, Vaishali, Muzaffarpur, Sheohar, Sitamarhi, Madhubani, Darbhanga, Samastipur and Begusarai (13 in number). Zone – II consists of eight districts, namely: Purnia, Katihar, Madhepura, Kishanganj, Saharsa, Supaul, Khagaria and Araria. Zone – III covers districts namely: Bhagalpur, Banka, Munger, Jamui, Lakhisarai and Sheikhpura (falling under III – A), Patna, Jehanabad, Nalanda, Aurangabad, Kaimur, Buxar, Gaya, Nawada, Ara, Sasaram and Arwal under III – B, i.e., total 17 districts formed part of Zone – III. Thus, total number of districts in Bihar is 38.

Three districts one each from the three agro-climatic regions, i.e.; Zone I, II and III have been chosen with sufficient consideration of the cropping pattern, such that the cropping pattern varied across the districts. The three selected districts are: Begusarai, Katihar and Bhagalpur from Zone – I, II and III respectively. At the second stage of sampling, from each district, two villages have been selected with sufficient geographic spread. While selecting the villages, due care was taken that the two villages were not located in contiguity. At the third level of sampling, a

complete household listing (CHHL) has been carried out in selected villages. The listing thus, carried out formed the sampling frame for the study. At the fourth stage of sampling, from each village, sample of 50 farmers has been taken with representation from each land size category (LSC). In this way, the total sample framework could be summarized as:

03 districts (01from each agro-climatic zones) X 02 villages X 50 farm Hhs = 300 Hhs.

The households from LHCs, i.e., Marginal (< 1 ha), Small (1-2 ha) Medium (2.1-4 ha), Large (4.1–10 ha) and very large (>10 ha) have been selected using stratified random sampling (SRS) with PPS method (probability proportional to size) with a minimum of two Hhs from each category. The contour of selected districts and villages under different agro-climatic zones has been presented below:

Table 1.3: Distribution of Sample Districts, Villages and Households

ACZ	Name of the Zone	District	Village Cluster	Sample Hhs
I.	North-West Alluvial Plain	Begusarai	Keshavai & Korai	100
II.	North-East Alluvial Plain	Katihar	Nawabganj & Narayanpur	100
III.	South-Bihar Alluvial Plain	Bhagalpur	Rangara & Kurpat Baizalpur	100
	Total	03	---	300

CHAPTER – II

OVERVIEW OF THE STUDY REGION

In this chapter, attempt has been made to portray overview of the study region in detail. It encompasses discussions related to the following aspects:

2.1 Overall Description of the Study Region

Economic activities in states, such as Bihar, are closely linked to development of agriculture and allied selectors for its significant links with food and nutritional security. Located in the eastern part of India, Bihar has an area of 93.6 lakh hectares, accounting for nearly 3 per cent of the country's total geographical area. The state comprises three agro-climatic zones, viz; (i) North-West alluvial plain, (ii) North-East alluvial plain, and; (iii) South-Bihar alluvial plain.

Soil types of Zone-I comprising **13 districts,** are medium acidic, heavy textured, sandy loam to clay loam. The districts in zone one are flood prone with mean rainfall of 1235 mms. Major crops grown in this zone were: Rice, wheat, Maize, Potato, Sugarcane, Mango and Litchi and maximum and minimum temperatures being 36.6 and 7.7 degree Celsius respectively. **Agro-climatic Zone–II** is comprised of **08 districts.** Characteristics of its soil are light to medium textured, slightly acidic and sandy to silty loam. The districts did oftenly face devastating floods during rainy season almost every year. Maximum and minimum temperatures of the zone are 33.8 and 8.8 degree Celsius respectively. Maize, Jute, Pineapple, etc. were some of the major crops of this zone. Its average rainfall is 1382 mms. **Agro-climatic Zone – III** comprising **17 districts** is blessed with alluvial to sandy loam types of soil. Major crops of the zone were: Paddy, Wheat, Potato, Gram, Mango and Guava.

It is to be noted here that districts namely; Begusarai (from agro-climatic zone – I, Katihar (from Zone – II) and Bhagalpur (from zone – III) were selected for this study. Villages surveyed to address objectives of the study from the three districts, were:

i. Keshavai (Barauni Block) and Korai (Garhpura Block) under Begusarai district.
ii. Nawabganj and Narayanpur villages under Manihari Block of Katihar District, and;
iii. Rangara Village (under Rangara Block) and Kurpat-Baijalpur cluster of villages (under Sabour Block) of Bhagalpur district.

In Begusarai district, wheat, maize, green fodder, paddy, soyabean, lentil, etc., were grown by different farm households (Hhs) in significant to very small areas. In Katihar district, floods that occurred during the years 2018 and 2019, had adversely affected kharif crops in the study area. As a matter of fact, the district has been flood prone one for the last more than four decades. Almost every year, significantly large area is cursed to face distracting threat of flood water that lasts during August to November, or sometimes up to December in some of the areas. Absence of desired storage facility and lack of godowns at the panchayat and block levels compel farmers (particularly semi-medium, medium, large, and in some cases, small farm Hhs too), to concord with local traders for selling their produces at lower than remunerative prices. In Bhagalpur district, wheat, maize, mustard, lentil, and gram were largely grown by farmers. Some farmers of the region could be found to have undertaken animal husbandry (as main or allied activity). Major proportions of marketable surplus were reported to have been sold through local traders and big businessmen (particularly in case of maize). Generally paddy crop in the district is damaged due to floods. It was fully damaged due to devastating flood that took place during last of September, 2019. Till the first week of March, 2020, impoverishing losses of farmers due to unprecedented late flood were not fully compensated.

2.2 Distribution of Households by Landholding

This section presents number of Hhs under different landholding categories and their percentage distribution, out of the total 300 farm Hhs surveyed. It is to be mentioned here that, as per suggested methodology, land size categories have been defined as; Marginal (< 1 ha, i.e., less than 2.471 acres), Small (1-2 ha, i.e., 2.471 to

4.94 Acres), Medium (2.1-4 ha, i.e., 5.19 -9.88 acres), Large (4.1 – ha, i.e., 10.13-24.71 acres) and Very Large (> 10 ha, i.e., > 24.71 acres). Out of the total 300 farm Hhs surveyed, 130 (43.33%) belonged to marginal followed by small, medium, large and very large sized (91, 49, 25 and 5) respectively. Percentage share of these categories were thus, 30.34, 16.33, 8.33 and 1.67 respectively. No surveyed farm Hhs belonged to landless category (table 2.1).

Table 2.1: Distribution of Households by Landholding Categories

Landholding Categories	Number of Households	Percentage
Marginal	130	43.33
Small	91	30.34
Medium	49	16.33
Large	25	8.33
Very Large	5	1.67
Total	300	100.00

Source: Primary Survey.

A glance on data in the table reveals that average size of total land holding of the surveyed farm Hhs was 4.55 acres and for marginal, small, medium, large and very large farmers were calculated as; 1.57, 3.80, 6.74, 13.94 and 27.44 acres respectively. Largest average area that had been leased-out was by large farmers (0.60 acre), marginal farmers were at top in regard to have leased-in land (0.21 acre). Average irrigated and un-irrigated land areas were largest in case of very large farmers (26.84 acres and 0.60 acre) respectively. On overall level, average areas of leased-in and leased-out land were 0.17 acre and 0.10 acre respectively. Out of the total average land holding of 4.55 acres, area of irrigated land was 4.47 acres (98.24%), whereas area under un-irrigated condition was only 0.09 acre (1.98%). The details of it may be seen from the table 2.2.

Table 2.2: Average Size of Landholding (In Acre)

Landholding Categories	Total Landholding	Owned Land	Leased-in Land	Leased Out Land	Irrigated Land	Un-irrigated Land
Marginal	1.57	1.37	0.21	0.00	1.54	0.03
Small	3.80	3.71	0.18	0.10	3.76	0.04
Medium	6.74	6.72	0.17	0.15	6.64	0.11
Large	13.94	14.54	0.00	0.60	13.54	0.40
Very Large	27.44	27.44	0.00	0.00	26.84	0.60
Total	4.55	4.49	0.17	0.10	4.47	0.09

Source: Primary Survey

2.3 Distribution of Households by Social Groups across Landholding Categories

In this section, attempt has been made to converse about distribution of Hhs by social groups across the five LHCs. Data in table 2.3 reveals that none of the farmers surveyed from medium, and very large categories belonged to SC and ST social classes. Out of the total 300 respondents, 219 (73%) were from OBCs followed by 70 (23.3%) General Castes, 9 (3%) Scheduled Castes and 2 (0.67%) belonged to Scheduled Tribes. Out of the total 70 general caste farmers, 35.72, 31.43, 22.86, 4.29 & 5.72 percentage belonged to marginal, small, medium, large and very large LHCs respectively. Surveyed farm Hhs belonging to OBC social group were viewed to have dominated from marginal and small LHCs (45.21% & 29.68%) respectively.

Table 2.3: Distribution of Households by Social Group across Land Holding Categories

Landholding Categories	Social Groups				
	Gen	OBC	SC	ST	Total
Marginal (<1ha/2.5 acres)	25	99	5	1	130 (43.33)
Small (1.1-2 ha/2.51 to 5 acres)	22	65	3	1	91 (30.34)
Medium (2.1-4 ha/5.1 to 10 acres)	16	33	0	0	49 (16.33)
Large (4.1-10 ha/10.1 to 25 acres)	3	21	1	0	25 (8.33)
Very Large (>10 ha/>25 acres)	4	1	0	0	5 (1.67)
Total (In %age)	70 (23.33)	219 (73.00)	9 (3.00)	2 (0.67)	300 (100.00)

Source: Primary Survey.

NB: In brackets percentage figures to total are shown.

2.4 Distribution of Hhs by Principal Occupation Across LHCs

This section inscribes distribution of Hhs by principal occupation across LHCs. Data in the table 2.4 confirms that none of the surveyed farmers had undertaken agricultural labour, dairy, non-agricultural labour, self-employment, salaried employment, forestry and others as their principal occupation. It was interesting to note that all of the surveyed farmers, irrespective of their numbers, undertook cultivation as their principal occupation.

Table 2.4: Distribution of Households by Principal Occupation across Landholding Categories

Landholding Categories	Principal Occupation (Number of Households)								
	Cultivation	Agri. Lab	Dairy	Non-Agri Lab	Self-Empl	Salaried Empl	Forestry	Oth	Total
Marginal	130 (43.33)	---	---	---	---	---	---	---	130 (43.33)
Small	91 (30.34)	---	---	---	---	---	---	---	91 (30.34)
Medium	49 (16.33)	---	---	---	---	---	---	---	49 (16.33)
Large	25 (8.33)	---	---	---	---	---	---	---	25 (8.33)
Very Large	5 (1.67)	---	---	---	---	---	---	---	5 (1.67)
Total	300 (100.00)	---	---	---	---	---	---	---	300 (100.00)

Source: Primary Survey.
NB: In brackets percentage figures to total are shown.

2.5 Annual Household Income from Various Sources across LHCs

Efforts have been made in this section to imprint annual household and annual per household income from various sources across LHCs. A glance on data in the table 2.5 reveals that per household total net income, at overall farms, was Rs. 50544 constituting 50.88 per cent from cultivation (Rs. 25719), 23.89 per cent from animal husbandry activities (Rs. 12077) and 25.23 per cent from wage labour (Rs. 12750). Across the farms, the total net income varied between Rs. 36723 to Rs. 173562. In fact, it increased with the increase in farm sizes. In case of marginal farmers, the income from wage labour (Rs. 18577/Hh i.e., 50.58%) was higher followed by net income from animal husbandry (Rs. 11044/hh i.e., 30.08%) and (Rs. 7102/Hh i.e, 19.34%) from cultivation. Small farmers largely earned from agriculture (20764/hh i.e., 40.52%) followed by wage labour (Rs. 18044/hh i.e., 35.21%) and animal husbandry (Rs. 12435/hh i.e., 24.27%). However, in case of medium farmers, it was higher on agriculture (Rs. 43672/hh i.e., 73.11%) followed by wage labour (Rs. 8650/hh i.e., 14.48%) and animal husbandry (Rs. 7413/hh i.e., 12.41%). Large and very large farmers obtained higher net returns from cultivation (Rs. 85658/hh i.e., 75.42% and Rs. 124292/hh i.e., 71.61% respectively) followed by animal husbandry (Rs. 17843/hh i.e., 15.71 % and Rs. 49270/hh i.e., 28.39 % respectively). Above analysis clearly reveals that marginal farmers' net income from agriculture was just 19.3 per cent as compared to 71 to 75 per cent of medium, large and very large farmers. Similarly, out of the total net income, income from animal husbandry activities was higher on marginal and very large farmers (30% and 28.4% respectively) followed by small farmers (24.3%), large farmers (15.7%) and medium

farmers (12.41%). The net income from wage labour was higher on marginal farmers (50.58%). It decreases with the increase in farm sizes.

Table 2.5: Per household Annual income from various sources across the landholding categories (in Rs)

Landholding Categories	Net Income from Cultivation	Net Income from Animal Husbandry	Income from Wage Labour	Total Net Income
Marginal	7102 (19.34)	11044 (30.08)	18577 (50.58)	36723 (100.00)
Small	20764 (40.52)	12435 (24.27)	18044 (35.21)	51243 (100.00)
Medium	43672 (73.11)	7413 (12.41)	8650 (14.48)	59735 (100.00)
Large	85658 (75.42)	17843 (15.71)	10080 (8.87)	113581 (100.00)
Very large	124292 (71.61)	49270 (28.39)	--	173562 (100.00)
Total	25719 (50.88)	12077 (23.89)	12750 (25.23)	50544(100.00)

Source: Primary Survey.

NB: In brackets figures are percentage of respective totals.

2.6 Distribution of Hhs by Livestock Possession Across LHCs

In this section of the chapter, attempt has been to outline distribution of households by livestock possession across LHCs (in number and percentage). A glance on data in table 2.6 provides ground to open up that none of the surveyed 300 farm Hhs did possess sheep and poultry. Of the total livestocks possessed by the sample households, milch cows accounted for 83.92 per cent followed by milch buffaloes (11.89%) and goats (4.19%). Goats were found to have been maintained by marginal farmers only i.e., 4.19 per cent of the total livestocks possessed by the sample households. Milch buffaloes were reared in very low proportions by farm Hhs of all LHCs except very large (4.90%, 4.20%, 2.10% and 0.7%) meant for marginal, small, medium and large respectively. Of the total milch cows possessed by the sample Hhs, 32.87 per cent belonged to marginal farmers followed by small (25.17%), medium (13.99%) large (8.39%) and very large (3.50%). It can be said that on overall level, high proportion of surveyed farm Hhs did reveal streak towards rearing milch cows and buffaloes, taken together, it was more than 95 per cent of the livestocks as the supplementary activities of agriculture.

Table 2.6: Distribution of Households by Livestock Possession across Landholding Categories (LHCs)

(Number of Households)

Landholding Categories	Households Owning Livestock					
	Milch Cows	Milch Buffaloes	Goats	Sheep	Poultry	Total (%)
Marginal	47 (32.87)	7 (4.90)	6 (4.19)	---	---	60 (41.96)
Small	36 (25.17)	6 (4.20)	---	---	---	42 (29.37)
Medium	20 (13.99)	3 (2.10)	---	---	---	23(16.08)
Large	12 (8.39)	1 (0.70)	---	---	---	13 (9.09)
Very Large	5 (3.50)	---	---	---	---	5 (3.50)
Total (%)	120 (83.92)	17 (11.89)	6 (4.19)	---	---	143 (100.00)

Source: Primary Survey.

NB: In brackets percentage figures to total are shown.

2.7 Distribution of Households by Farm Machinery/Equipments Possession across LHCs

In this section, efforts have been made to reckon distribution of surveyed farm Hhs about their possession/owning of various farm machineries and equipments in any forms, viz., purchased, shared or taken on rent. Data in table 2.7 provide ground to confide that on overall level, 100 per cent of the surveyed Hhs possessed tubewells. Borewell and diesel pumps were equally owned and shared by 57.67 per cent of the respondents. Tractors and threshers were possessed by only 10 per cent of the farm Hhs. Across the farm size, borewell was possessed and/shared by cent per cent farm Hhs belonging to medium, large and very large size classes closely trailed by small LHCs as well (93.41%). Electric pumps, bullock carts and combine harvesters were not possessed by any of the surveyed Hhs. In regard to diesel pumps, similar picture, like borewell, could be viewed. Only 6.92 per cent of the marginal farm Hhs had borewell and diesel pump sets. It is interesting to note that all sample households of very large farms and 84 per cent of large farm Hhs, possessed tractors and threshers respectively, while 8.16 per cent of the medium farm Hhs were found to have possessed tractors and threshers.

Table 2.7: Distribution of Households by Farm Machinery/Equipment possession across LHCs

(Number of Households)

Landholding Categories	Hhs having Farm Mach/Equip (Purchased/Shared/taken on Rent)								
	Tube wells	Bore wells	Electric Pump	Diesel Pump	Bullock Cart	Tractor	Thresher	Combine Harvester	Total (%)
Marginal	130 (100.00)	9 (6.92)	0.00	9 (6.92)	0.00	0.00	0.00	0.00	130 (100.00)
Small	91 (100.00)	85 (93.41)	0.00	85 (93.41)	0.00	0.00	0.00	0.00	91 (100.00)
Medium	49 (100.00)	49 (100.00)	0.00	49 (100.00)	0.00	4 (8.16)	4 (8.16)	0.00	(49 (100.00)
Large	25 (100.00)	25 (100.00)	0.00	25 (100.00)	0.00	21 (84.00)	21 (84.00)	0.00	25 (100.00)
Very Large	5 (100.00)	5 (100.00)	0.00	5 (100.00)	0.00	5 (100.00)	5 (100.00)	0.00	5 (100.00)
Total	300 (100.00)	173 (57.67)	0.00	173 (57.67)	0.00	30 (10.00)	30 (10.00)	0.00	300 (100.00)

Note: Figures in parentheses indicate percentages of respective and total sample size under particular LHCs.
Source: Primary Survey.

CHAPTER – III

CROP AND INPUT MARKETS

This chapter seeks to delineate following aspects related to crops and input markets that prevailed in the surveyed villages. Before making know to hint about detail analytical interpretation of this Chapter, it will not be out of the order to mention here that the survey includes information/data in regard to 08 crops. These have been named and coded as: (i) crop – I (Paddy) – 0101, (ii) crop – 2 (Maize, Kharif) – 0104, (iii) crop – 3 (Maize Rabi) – 0104, (iv) crop – 4 (Wheat) – 0106, (v) crop – 5 (Gram) – 0201, (vi) crop – 6 (Masur) – 0205, (vii) Crop -7 (Potato) – 0701 and (viii) crop – 8 (Onion) – 0708.

3.1 Cropping Pattern across Landholding Categories (LHCs)

In this section, attempt has been made to conjoin number of households growing different crops across LHCs. Data in table show that all of the surveyed farm Hhs belonging to all the five LHCs did undertake growing four major crops, viz., crop – I to crop – 4, namely; paddy, maize (Kharif), maize (Rabi), and wheat respectively.

Having a glance on data across LHCs, it is found that large number of marginal Hhs preferred to grow crops-6 and 5, i.e., lentil and gram (77% & 72%) respectively. Small farmers largely grew crops 5 and 6 (80% and 65%) respectively. Farm Hhs belonging to medium, large and very large LHCs were also found to have devoted more emphasis on crops 5 and 6, i.e., gram and lentil. On overall level, besides the four cereal crops, which are grown by cent per cent farmers, crops 5, 6, 7 and 8 namely; gram, masur, potato and onion were grown by 78.3 per cent, 45.3 per cent, 13.3 per cent and 8.3 per cent farmers respectively (table 3.1).

Table 3.1: Cropping Pattern across the Landholding Categories (Number of Hhs)

Landholding Categories	Number of households growing different crops								
	Crop1 Paddy	Crop2 Maize (Kharif)	Crop3 Maize (Rabi)	Crop4 Wheat	Crop5 Gram	Crop6 Lentil	Crop7 Potato	Crop8 Onion	Number
Marginal	130	130	130	130	94	100	16	12	130 (43.33)
Small	91	91	91	91	73	59	14	08	91 (30.34)
Medium	49	49	49	49	43	24	05	03	49 (16.33)
Large	25	25	25	25	22	10	03	02	25 (8.33)
Very large	05	05	05	05	03	03	02	00	05 (1.67)
Total	300 (100.00)	300 (100.00)	300 (100.00)	300 (100.00)	235 (78.34)	196 (65.34)	40 (13.34)	25 (8.34)	300 (100.00)

NB: Marginal - 0-1 ha; small 1.1-2 ha; medium 2.1-4 ha; large 4.1-10 ha; very large >10 ha
Source: Primary Survey.
NB: In brackets percentage figures to total are shown.

3.2 Average Area under Different Crops across LHCs)

This section encompasses average areas under different crops across the LHCs. A glance on data in table reveals that on overall level, maximum areas undertaken for growing different crops were found to have been covered by crop-2 (552.88 acres i.e., 25.29%) followed by crops – 4, 1, 3, 5, 6, 7, 8 (24.30%, 17.35%, 16.55%, 10.17%, 4.50%, 1.28% & 0.56%) respectively (table 3.2). Marginal farms devoted maximum area under crop-2 (kharif maize) followed by crop – 4, crop -1, 3 & 5 respectively. Surveyed farm Hhs belonging to small LHC preferred maximum area under crop-2 like marginal ones (138.60 acres) followed by crops – 4, 1, 3 & 5 respectively. Medium, large and very large farm Hhs also showed similar interest/preference towards devoting areas under different crops, like marginal and small ones.

Table 3.2: Area under different crops across the landholding categories

Landholding Categories	Area under the crops (Acre)								
	Crop1 Paddy	Crop2 Maize (Kharif)	Crop3 Maize (Rabi)	Crop4 Wheat	Crop5 Gram	Crop6 Lentil	Crop7 Potato	Crop8 Onion	GCA
Marginal	56.15	81.88	51.37	78.70	31.20	18.44	5.18	2.89	325.81 (14.91)
Small	94.32	138.60	87.96	130.28	52.58	25.87	10.50	4.27	544.38 (24.90)
Medium	90.82	132.12	87.31	128.64	56.50	20.04	4.71	2.80	522.95 (23.90)
Large	99.53	145.40	99.53	142.08	65.30	25.68	3.65	2.50	583.68 (26.70)
Very large	38.36	54.88	35.61	51.68	16.64	8.40	4.00	0.00	209.57 (9.59)
Total	379.18 (17.35)	552.88 (25.29)	361.78 (16.55)	531.38 (24.30)	222.22 (10.17)	98.44 (4.50)	28.04 (1.28)	12.46 (0.56)	2186.38 (100.00)

Source: Primary Survey.

NB: In bracket percentage figures are to total are shown.

3.3 Yield of Different Crops across LHCs

This section seeks to expatiate productivities of different crops (calculated in quintals/ acre) across LHCs. Data in the table reveal that yield of crop-1 ranged between 17.15 qtls/acre in case of very large farmers to 16.95 qtls/acre in regard to small farms. Productivities of crop – 2 were found almost similar across LHCs, 15.64 qtls/acre in case of large to 15.81 qtls/acre among very large farm Hhs. Very large and large farm households again witnessed highest and lowest yield of crop-3 (18.34 qtls/acre ad 17.91 qtls/acre) respectively. Farm Hhs belonging to very large and large LHCs reported to have obtained 19.63 qtls/acre and 19.51 qtls/acre respectively in regard to crop-4. Crops-7 & 8 did show productivities ranging from 48.80, 50 & 50.61 to 52 qtls/acre respectively. Having a glance on aggregated scenario, it is exhibited that productivities of crops 1, 2, 3, 4,5, 6, 7 & 8 (including all LHCs on overall level) were 17, 15.73, 18.02, 19.56. 6.54, 6.04, 49.33 and 51.09 qtls/acre respectively (table 3.3).

Table 3.3: Yield of different crops across the landholding categories (qtls/acre)

Landholding Categories	Yield (Qtls/Acre)							
	Crop1 Paddy	Crop2 Maize (Kharif)	Crop3 Maize (Rabi)	Crop4 Wheat	Crop5 Gram	Crop6 Lentil	Crop7 Potato	Crop8 Onion
Marginal	17.00	15.78	17.99	19.60	6.47	6.10	49.27	50.61
Small	16.95	15.71	18.05	19.59	6.42	5.87	48.80	50.79
Medium	16.96	15.77	18.00	19.55	6.55	6.22	49.57	52.00
Large	17.00	15.64	17.91	19.51	6.56	6.09	49.09	50.80
Very large	17.15	15.81	18.34	19.63	6.92	5.83	50.00	0.00
Total	17.00	15.73	18.02	19.56	6.54	6.04	49.23	51.09

Source: Primary Survey.

3.4 Average Value of Crops Produced

This section encloses data analyze average value of crops produced across LHCs. Data in the table suggest marginal farm Hhs obtained highest average value of crops by selling crop – 5 (Rs. 3996.98/qtl). It was followed by crops 6,3,8,2,4 & 1 (Rs. 2794, Rs. 1560, Rs. 1496, Rs. 1332, Rs. 1332 and Rs. 1298 per qtl.) respectively. Surveyed small farm Hhs were found to have received maximum average value from crop – 5 i.e., gram (Rs. 3467/qtl). It was followed by crops – 6, i.e., lentil, 3,8,2,4,1 & 7 having shown similar trend like marginal ones (Rs. 2868, Rs. 1559, Rs. 1519, Rs. 1342, Rs.

1342, Rs. 1300 & Rs. 982/qtl) respectively. Almost similar picture of average values of crops produced could be viewed in case of medium, large and very large LHCs of farmers in regard to all the eight crops. Conspectus on overall data did help to ascertain that highest average value was obtained by producing crop-5 (Rs. 3493/qtl). It was followed by crops-6, 3,8,2,4,1 & 7 (Rs. 2899, Rs. 1559, Rs. 1512, Rs. 1335, Rs. 1335, Rs. 1300 and Rs. 901/qtl) respectively (table 3.4).

Table 3.4: Average value of crops produced (Rs/quintal)

Landholding Categories	Crop1: Paddy	Crop2: Maize (Kharif)	Crop3: Maize (Rabi)	Crop 4: Wheat	Crop 5: Gram	Crop 6: Lentil	Crop 7: Potato	Crop 8: Onion
Marginal	1298.46	1332.31	1559.61	1331.92	3996.98	2794.00	865.62	1495.83
Small	1300.00	1342.30	1558.79	1341.76	3467.12	2867.79	982.14	1518.75
Medium	1301.02	1329.59	1561.22	1327.55	3365.12	3033.33	800.00	1538.33
Large	1292.00	1336.00	1556.00	1330.00	3540.90	3580.00	1000.00	1540.00
Very large	1340.00	1320.00	1540.00	1390.00	3633.33	3666.67	1075.00	0.00
Total	1299.50	1335.00	1559.00	1335.00	3493.19	2898.97	901.25	1511.80

Source: Primary Survey.

3.5 Agency used for Selling Reported Crops

In this section exercises have been undertaken to peer the agencies through which reported crops were sold in different disposals (estimated in terms of number of Hhs). The estimation was made for each of the crops found to have been grown by the households namely; paddy, maize (kharif), wheat, maize (rabi), masur, gram, potato and onion. All the surveyed farmers across LHCs reported to have sold paddy to 'local private traders/middlemen,' except 4 and 1 Hhs (belonging to medium and large farmers) respectively. These 4 and 1 number of medium and large Hhs respectively sold paddy through co-operative & government agency (table 3.5.1). It is to be noted here that generally the quantities of all crops were sold at the first disposal itself. It was interesting to note that cent per cent of the surveyed farm Hhs sold crops, namely: maize (kharif), wheat and maize (rabi) through local private traders (table 3.5.2, 3.5.3 & 3.5.4). Out of the total 130 marginal, 91 small, 49 medium, 25 large and 5 very large surveyed farmers 31.33, 24.33, 14.34, 7.34 and 1 per cent belonging to the above noted LHCs respectively had sold masur (lentil) through the local/private traders (table 3.5.5). Gram was found to have been sold by 33.34, 19.67, 8.00, 3.33 & 1.00 per cent of farm Hhs of the above noted LHCs respectively to again

local private traders (table 3.5.6). Potato and onion were sold by only 40 (13.33%) and 25 (8.33%) farm Hhs taken together from all LHCs. Here again the agency for selling the crops remained local private traders (table 3.5.7 & 3.5.8).

Table 3.5.1: Agency wise sale of paddy in first/second/third major disposal (No. and % of Hhs)

Landholding Categories	local pvt	mandi	input dealers	Cooperative & govt agency	processors	total
Marginal	130 (43.33)	---	---	---	---	130 (43.33)
Small	91(30.34)	---	---	---	---	91 (30.34)
Medium	45 (15.00)	---	---	04 (1.34)	---	49 (16.33)
Large	24 (8.00)	---	---	01(0.33)	---	25 (8.33)
Very large	05 (1.66)	---	---	---	---	05 (1.67)
Total	295 (98.33)	---	---	05 (1.57)	---	300 (100.00)

Source: Primary Survey.

Table 3.5.2: Agency wise sale of maize (kharif) in first/second/third major disposal

(Number and % of households)

Landholding Categories	local pvt	mandi	input dealers	Cooperative & Govt. agency	processors	total
Marginal	130 (43.33)	---	---	---	---	130 (43.33)
Small	91 (30.34)	---	---	---	---	91 (30.34)
Medium	49 (16.33)	---	---	---	---	49 (16.33)
Large	25 (8.33)	---	---	---	---	25 (8.33)
Very large	05 (1.67)	---	---	---	---	05 (1.67)
Total	300 (100.00)	---	---	---	---	300 (100.00)

Source: Primary Survey.

Table 3.5.3: Agency wise sale of wheat in first/second/third major disposal

(Number and % of households)

Landholding Categories	local pvt	mandi	input dealers	Cooperative & govt agency	processors	total
Marginal	130 (43.33)	---	---	---	---	130 (43.33)
Small	91 (30.34)	---	---	---	---	91 (30.34)
Medium	49 (16.33)	---	---	---	---	49 (16.33)
Large	25 (8.33)	---	---	---	---	25 (8.33)
Very large	05 (1.67)	---	---	---	---	05 (1.67)
Total	300 (100.00)	---	---	---	---	300 (100.00)

Source: Primary Survey.

Table 3.5.4: Agency wise sale of Maize (rabi) in first/second/third major disposal

(Number and % of households)

Landholding Categories	local pvt	mandi	input dealers	Cooperative & govt agency	processors	total
Marginal	130 (43.33)	---	---	---	---	130 (43.33)
Small	91 (30.34)	---	---	---	---	91 (30.34)
Medium	49 (16.33)	---	---	---	---	49 (16.33)
Large	25 (8.33)	---	---	---	---	25 (8.33)
Very large	05 (1.67)	---	---	---	---	05 (1.67)
Total	300 (100.00)	---	---	---	---	300 (100.00)

Source: Primary Survey.

Table 3.5.5: Agency wise sale of masur (Lentil) in first/second/third major disposal

(Number and % of households)

Landholding Categories	local pvt	mandi	input dealers	Cooperative & govt agency	processors	total
Marginal	94 (31.33)	---	---	---	---	94 (31.33)
Small	73 (24.33)	---	---	---	---	73 (24.33)
Medium	43 (14.34)	---	---	---	---	43 (14.34)
Large	22 (7.34)	---	---	---	---	22 (7.34)
Very large	03 (1.00)	---	---	---	---	03 (1.00)
Total	235 (78.34)	---	---	---	---	235 (78.34)

Source: Primary Survey.

Table 3.5.6: Agency wise sale of gram in first/second/third major disposal

(Number and % of households)

Landholding Categories	local pvt	mandi	Input dealers	Cooperative & govt agency	processors	total
Marginal	100 (33.34)	---	---	---	---	100 (33.34)
Small	59 (19.67)	---	---	---	---	59 (19.67)
Medium	24 (8.00)	---	---	---	---	24 (8.00)
Large	10 (3.33)	---	---	---	---	10 (3.33)
Very large	03 (1.00)	---	---	---	---	03 (1.00)
Total	196 (65.34)	---	---	---	---	196 (65.34)

Source: Primary Survey.

Table 3.5.7: Agency wise sale of potato in first/second/third major disposal

(Number and % of households)

Landholding Categories	local pvt	mandi	input dealers	Cooperative & govt agency	processors	total
Marginal	16 (5.34)	---	---	---	---	16 (5.34)
Small	14 (4.66)	---	---	---	---	14 (4.66)
Medium	05 (1.67)	---	---	---	---	05 (1.67)
Large	03 (1.00)	---	---	---	---	03 (1.00)
Very large	02 (0.66)	---	---	---	---	02 (0.66)
Total	40 (13.33)	---	---	---	---	40 (13.33)

Source: Primary Survey.

Table 3.5.8: Agency wise sale of onion in first/second/third major disposal

(Number and % of households)

Landholding Categories	local pvt	mandi	input dealers	Cooperative & govt agency	processors	total
Marginal	12 (4.00)	---	---	---	---	12 (4.00)
Small	08 (2.66)	---	---	---	---	08 (2.66)
Medium	03 (1.00)	---	---	---	---	03 (1.00)
Large	02 (0.67)	---	---	---	---	02 (0.67)
Very large	00 (0.00)	---	---	---	---	00 (0.00)
Total	25 (8.33)	---	---	---	---	25 (8.33)

Source: Primary Survey.

3.6 Reasons for Dissatisfaction Regarding Major Disposal of Reported Crops

In this section corroborative analysis has been performed to find out reasons for dissatisfaction in regard to major disposals at different stages in regard to all the 08 reported crops. These have been estimated in number and percentage terms both. Out of the total 300 farm Hhs, 282 (94%) belonging to all LHCs reported lower than market price and faulty weighing and grading as reasons for dissatisfaction in case of disposal of paddy. Across LHCs, 43.33, 28.00, 14.00, 7.00 and 1.67 per cent of marginal, small, medium, large and large farm Hhs respectively supported and equally noted two reasons to be responsible for dissatisfaction in regard to paddy (table 3.6.1).

Table 3.6.1: Reasons for dissatisfaction regarding first/second/third major disposal of paddy
(Number and % of households)

Landholding Categories	lower than market price	delayed payments	deductions for loans borrowed	faulty weighing & grading
Marginal	130 (43.33)	---	---	130 (43.33)
Small	84 (28.00)	---	---	84 (28.00)
Medium	42 (14.00)	---	---	42 (14.00)
Large	21 (7.00)	---	---	21 (7.00)
Very large	05 (1.67)	---	---	05 (1.67)
Total	282(94.00)	---	---	282(94.00)

Source: Primary Survey.

Cent-per-cent of the surveyed farm Hhs expressed two reasons, viz., lower than market price and faulty weighing and grading responsible for their dissatisfaction in regard to disposal of maize (kharif) (table 3.6.2). In case of dissatisfaction felt while disposing wheat, 282 (94%) and 100 per cent of the surveyed farm Hhs corroborated the two reasons as cited in case of paddy and maize (kharif). Farm class wise data show the number of Hhs to be 43.33, 29.67, 14.00. 7.00 and 1.67 per cent from marginal to very large respectively, who mentioned reason as lower than market price. Faulty weighing and grading system was described by the available farm Hhs in their respective LHCs (table 3.6.3).

Table 3.6.2: Reasons for dissatisfaction regarding first/second/third major disposal of maize (kharif) (Number and % of households)

Landholding Categories	lower than market price	delayed payments	deductions for loans borrowed	faulty weighing & grading
Marginal	130 (43.33)	---	---	130 (43.33)
Small	91 (30.34)	---	---	91 (30.34)
Medium	49 (16.33)	---	---	49 (16.33)
Large	25 (8.33)	---	---	25 (8.33)
Very large	05 (1.67)	---	---	05 (1.67)
Total	300 (100.00)	---	---	300 (100.00)

Source: Primary Survey.

Table 3.6.3: Reasons for dissatisfaction regarding first/second/third major disposal of wheat (Number and % of households)

Landholding Categories	lower than market price	delayed payments	deductions for loans borrowed	faulty weighing & grading
Marginal	130 (43.33)	---	---	130 (43.33)
Small	89 (29.67)	---	---	91 (30.34)
Medium	42 (14.00)	---	---	49 (16.33)
Large	21 (7.00)	---	---	25 (8.33)
Very large	05 (1.67)	---	---	05(1.67)
Total	287 (95.67)	---	---	300(100.00)

Source: Primary Survey.

In case of maize (rabi), the same two reasons were held responsible for dissatisfaction during disposal by 280 (93.33%) and 300 (100%) respectively. Across the LHCs, 41.67, 28.33, 14.66, 7.00 and 1.62 per cent farmers felt the reason of lower than market price, and the entire 300 farm Hhs told that faulty weighing and grading system were reasons for dissatisfaction (table 3.6.4).

Table 3.6.4: Reasons for dissatisfaction regarding first/second/third major disposal of maize (rabi) (Number and % of households)

Landholding Categories	lower than market price	delayed payments	deductions for loans borrowed	faulty weighing & grading
Marginal	125 (41.67)	---	---	130 (43.33)
Small	85 (28.33)	---	---	91 (3034)
Medium	44 (14.66)	---	---	49 (16.33)
Large	21 (7.00)	---	---	25 (8.33)
Very large	05(1.67)	---	---	05(1.67)
Total	280 (93.33)	---	---	300 (100.00)

Source: Primary Survey.

An equal number of 235 farms Hhs (78.34%) explained the two reasons noted above responsible for dissatisfaction in regard to disposal of masur (lentil). Across LHCs, number of Hhs indicating for the two reasons were 31.33, 24.33, 14.33, 7.34 and 1.00 respectively (table 3.6.5).

Table 3.6.5: Reasons for dissatisfaction regarding first/second/third major disposal of masur (Lentil) (Number and % of households)

Landholding Categories	lower than market price	delayed payments	deductions for loans borrowed	faulty weighing & grading
Marginal	94 (31.33)	---	---	94 (31.33)
Small	73 (24.33)	---	---	73 (24.33)
Medium	43 (14.34)	---	---	43 (14.34)
Large	22 (7.34)	---	---	22 (7.34)
Very large	03 (1.00)	---	---	03 (1.00)
Total	235 (78.34)	---	---	235 (78.34)

Source: Primary Survey.

Reasons, viz., lower than market price and faulty weighing and grading were disclosed by equal number of farm Hhs (65.33% in case of gram), 13.34 per cent (for potato) and 8.34 per cent each (for onion) respectively. LHCs wise number of Hhs belonging to marginal, small, medium, large and very large, who pronounced the two reasons equally valid for dissatisfaction during disposal of gram, potato and onion were: 33.34, 19.66, 8.00, 3.33 and 1.00 per cent (gram), 5.34, 4.66, 1.67, 1.00 and 0.67 per cent (potato) and 4.00, 2.67, 1.00, 0.67 and 0.00 per cent in case of onion respectively (table 3.6.6, 3.6.7 and 3.6.8).

Table 3.6.6: Reasons for dissatisfaction regarding first/second/third major disposal of gram (Number and % of households)

Landholding Categories	lower than market price	delayed payments	deductions for loans borrowed	faulty weighing & grading
Marginal	100 (33.34)	---	---	100 (33.34)
Small	59 (19.66)	---	---	59 (19.66)
Medium	24 (8.00)	---	---	24 (8.00)
Large	10 (3.33)	---	---	10 (3.33)
Very large	03 (1.00)	---	---	03 (1.00)
Total	196 (65.33)	---	---	196 (65.33)

Source: Primary Survey.

Table 3.6.7: Reasons for dissatisfaction regarding first/second/third major disposal of potato (Number and % of households)

Landholding Categories	lower than market price	delayed payments	deductions for loans borrowed	faulty weighing & grading
Marginal	16 (5.34)	---	---	16 (5.34)
Small	14 (4.66)	---	---	14 (4.66)
Medium	05 (1.67)	---	---	05 (1.67)
Large	03 (1.00)	---	---	03 (1.00)
Very large	02 (0.67)	---	---	02 (0.67)
Total	40 (13.34)	---	---	40 (13.34)

Source: Primary Survey.

Table 3.6.8: Reasons for dissatisfaction regarding first/second/third major disposal of onion (Number and % of households)

Landholding Categories	lower than market price	delayed payments	deductions for loans borrowed	faulty weighing & grading
Marginal	12 (4.00)	---	---	12 (4.00)
Small	08 (2.67)	---	---	08 (2.67)
Medium	03 (1.00)	---	---	03 (1.00)
Large	02 (0.67)	---	---	02 (0.67)
Very large	00 (0.00)	---	---	00 (0.00)
Total	25 (8.34)	---	---	25 (8.34)

Source: Primary Survey.

3.7 Reasonability of Price Received for the Reported Crops

In this section, analysis has been made to ascertain, whether prices received for the reported crops were reasonable. The answers in 'Yes' and 'No' have been captured in terms of number and percentage of Hhs. Across the LHCs, all the surveyed farm Hhs belonging to marginal, small, medium, large and very large farm Hhs in regard to crops 1, 2, 3,4 (except large 1.33 per cent Hhs and very large 0.33 per cent Hh meant for crop - 1, i.e., paddy), affirmed that prices received were not reasonable. It was interesting to note that except 1.67 per cent farms Hhs belonging to large and very large farmers for crop – 1, no surveyed farmer told that prices received for the reported crops were reasonable. Aggregate data in the table show that one of the

farmers belonging to all LHCs, who grew crops – 1 to 7 (except only 1.67 per cent in regard to crop -1) found prices received to be reasonable (table 3.7).

Table 3.7: Reasonability of price received for the reported crops (Number and % of households)

Landholding Categories	Price received for the crops reasonable															
	Crop 1		Crop 2		Crop 3		Crop 4		Crop 5		Crop 6		Crop 7		Crop 8	
	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N
Marginal	00	130	00	130	00	130	00	130	00	94	00	100	00	16	00	12
Small	00	91	00	91	00	91	00	91	00	73	00	59	00	14	00	08
Medium	00	49	00	49	00	49	00	49	00	43	00	24	00	05	00	03
Large	04	21	00	25	00	25	00	25	00	22	00	10	00	03	00	02
Very large	01	04	00	05	00	05	00	05	00	03	00	03	00	02	00	00
Total	05	295	00	300	00	300	00	300	00	235	00	196	00	40	00	25
% to Total	1.67	98.33	0.00	100.00	0.00	100.00	0.00	100.00	0.00	78.33	0.00	65.33	0.00	13.33	0.00	8.33

Source: Primary Survey.

3.8 Reasons for Unreasonable Prices Received for the Reported Crops

This section analyses data to ponder reasons for unreasonable prices received for all the 08 reported crops. These have been estimated in terms of number and percentage of Hhs. Reasons for unreasonable prices received, have been considered for analysis are: (i) very few buyers, (ii) no government purchase, (iii) private buyers collude, (iv) no minimum fixed price.

Data in table indicate that across the LHCs, 30.67, 22.66, 13.67, 7.33 and 1.67 per cent of the surveyed farm Hhs belonging to marginal, small, medium, large and very large classes respectively told 'no government purchase' to be one of the significant reasons for unreasonable price received from paddy. All of the farmers surveyed across LHCs reported 'private buyers collude' as another significant reason for price being unreasonable. On overall level, 298 farm Hhs (76%) and 300 Hhs (100%) ascertained no government purchase, and private buyers collude were prominent reasons for price received from paddy to be unreasonable (table 3.8.1).

Table 3.8.1: Reasons for unreasonable prices received for paddy

(Number and % of households)

Landholding Categories	very few buyers	no government purchase	private buyers collude	no minimum fixed price
Marginal	---	92 (30.67)	130 (43.33)	---
Small	---	68 (22.66)	91 (30.34)	---
Medium	---	41 (13.67)	49 (16.33)	---
Large	---	22 (7.33)	25 (8.33)	---
Very large	---	05 (1.67)	05 (1.67)	---
Total	---	228 (76.00)	300 (100.00)	---

Source: Primary Survey.

Cent per cent of the surveyed farm Hhs reported the same reasons as most prominent factors for the price of maize (kharif) being unreasonable (table 3.8.2). An equal number of 130 farm Hhs including all LHCs viewed the same reasons were responsible for price of wheat not being reasonable (table 3.8.3). Across farm size, number of farm Hhs supporting the above noted two reasons were: 43.33, 30.34, 16.33, 8.33 and 1.67 per cent respectively. Same two reasons were quoted by cent per cent of the farmers to be valid reasons for price of maize (rabi) being unreasonable (table 3.8.4).

Table 3.8.2: Reasons for unreasonable prices received for maize (kharif) (Number and % of households)

Landholding Categories	very few buyers	no government purchase	private buyers collude	no minimum fixed price
Marginal	---	130 (43.33)	130 (43.33)	---
Small	---	91 (30.34)	91 (30.34)	---
Medium	---	49 (16.33)	49 (16.33)	---
Large	---	25 (8.33)	25 (8.33)	---
Very large	---	05 (1.67)	05 (1.67)	---
Total	---	300 (100.00)	300 (100.00)	---

Source: Primary Survey.

Table 3.8.3: Reasons for unreasonable prices received for wheat

(Number and % of households)

Landholding Categories	very few buyers	no government purchase	private buyers collude	no minimum fixed price
Marginal	---	130 (43.33)	130 (43.33)	---
Small	---	91 (30.34)	91 (30.34)	---
Medium	---	49 (16.33)	49 (16.33)	---
Large	---	25 (8.33)	25 (8.33)	---
Very large	---	05 (1.67)	05 (1.67)	---
Total	---	300 (100.00)	300 (100.00)	---

Source: Primary Survey

Table 3.8.4: Reasons for unreasonable prices received for maize (rabi)
(Number and % of households)

Landholding Categories	very few buyers	no government purchase	private buyers collude	no minimum fixed price
Marginal	---	130 (43.33)	130 (43.33)	---
Small	---	91 (30.34)	91 (30.34)	---
Medium	---	49 (16.33)	49 (16.33)	---
Large	---	25 (8.33)	25 (8.33)	---
Very large	---	05 (1.67)	05 (1.67)	---
Total	---	300 (100.00)	300 (100.00)	---

Source: Primary Survey.

In regard to price of lentil being unreasonable, again reasons (ii) and; (iii) were informed to be prominent factors by 31.33, 24.33, 14.34, 7.33 and 1.00 per cent Hhs of marginal, small, medium, large and very large LHCs respectively. On overall level, an equal of 78.33 per cent farm Hhs each felt reasons (ii) and; (iii) responsible for lentil (masur) price not being reasonable (table 3.8.5).

Table 3.8.5: Reasons for unreasonable prices received for masur (lentil)

(Number and % of households)

Landholding Categories	very few buyers	no government purchase	private buyers collude	no minimum fixed price
Marginal	---	94 (31.33)	94 (31.33)	---
Small	---	73 (24.33)	73 (24.33)	---
Medium	---	43 (14.34)	43 (14.34)	---
Large	---	22 (7.33)	22 (7.33)	---
Very large	---	03 (1.00)	03 (1.00)	---
Total	---	235 (78.33)	235 (78.33)	---

Source: Primary Survey.

Reasons (ii) and; (iii) were again held responsible for price of gram being unreasonable as felt by an equal number of 196 farm Hhs opined for each of the two reasons respectively. Across farm size, the number of Hhs telling the two reasons were equally 33.33, 19.67, 8.00, 3.33 and 1.00 per cent respectively (table 3.8.6).

Table 3.8.6: Reasons for unreasonable prices received for gram

(Number and % of households)

Landholding Categories	very few buyers	no government purchase	private buyers collude	no minimum fixed price
Marginal	---	100 (33.33)	100 (33.33)	---
Small	---	59 (19.67)	59 (19.67)	---
Medium	---	24 (8.00)	24 (8.00)	---
Large	---	10 (3.33)	10 (3.33)	---
Very large	---	03 (1.00)	03 (1.00)	---
Total	---	196 (65.33)	196 (65.33)	---

Source: Primary Survey.

In case of potato and onion, three reasons, viz., (ii), (iii) and; (iv), i.e., no minimum fixed price were reported to be prominent ones for prices being unreasonable. At aggregate level, number of farm Hhs, who mentioned these reasons (ii), (iii) and; (iv) for potato and onion were: 13.33, 13.33, 6.33 and 8.33, 8.33, 5.67 respectively. Number of marginal, small, medium, large and very large class of farm Hhs, who pronounced reasons, (ii), (iii), and; (iv) responsible for price of potato being

unreasonable, were: 5.33, 4.66, 1.67, 1.00 and 0.67 per cent (in favour of reasons (ii) and (iii) and 3.34, 1.33, 0.67, 0.67 and 0.33 per cent for reason (iv) respectively. In regard to onion price being unreasonable, number of such Hhs were 4.00, 2.66, 1.00, 0.67 and 0.00 per cent (for reasons (ii) and (iii) and 2.67, 1.67, 1.00, 0.33 and 0.00 per cent in favour of reason (iv) respectively (table 3.8.7 & 3.8.8).

Table 3.8.7: Reasons for unreasonable prices received for potato

(Number and % of households)

Landholding Categories	very few buyers	no government purchase	private buyers collude	no minimum fixed price
Marginal	---	16 (5.33)	16 (5.33)	10 (3.34)
Small	---	14 (4.66)	14 (4.66)	04 (1.33)
Medium	---	05 (1.67)	05 (1.67)	02 (0.67)
Large	---	03 (1.00)	03 (1.00)	02 (0.67)
Very large	---	02 (0.67)	02 (0.67)	01)0.33)
Total	---	40 (13.33)	40 (13.33)	19 (6.33)

Source: Primary Survey.

Table 3.8.8: Reasons for unreasonable prices received for onion

(Number and % of households)

Landholding Categories	very few buyers	no government purchase	private buyers collude	no minimum fixed price
Marginal	---	12 (4.00)	12 (4.00)	08 (2.67)
Small	---	08 (2.66)	08 (2.66)	05 (1.67)
Medium	---	03 (1.00)	03 (1.00)	03 (1.00)
Large	---	02 (0.67)	02 (0.67)	01 (0.33)
Very large	---	00 (0.00)	00 (0.00)	00 (0.00)
Total	---	25 (8.33)	25 (8.33)	17 (5.67)

Source: Primary Survey.

3.9 Procurement of Inputs for Crop Production

Exercises have been made in this section to convoke data and analyze procurement of inputs for crop production. It has been estimated in number and percentage of Hhs terms. Such analysis has been made for inputs, namely: seed, fertilizers, manure, plant protection chemicals, interest and lease rent for land. Data in table reveals that seed was procured by 2.67 per cent of marginal Hhs from out of their farm saved quantities. Across the LHCs, remaining 292 farm Hhs (97.33%)

purchased it (table 3.9.1). In context with procurement of inputs for crop production (i) farm saved, (ii) exchange, (iii) purchase, and; (iv) borrowed like questions were considered. The entire surveyed farm Hhs told to have procured fertilizers by purchasing (table 3.9.2). In regard to procurement of manure, farm saved and exchange means were used by 28.33 and 4.33 per cent Hhs respectively. The two sources were used by 10.00, 10.00, 3.33, 3.33 and 1.67, 0.33, 2.00, 0.33 per cent and no farm Hhs belonging to marginal, small, medium, large and very large respectively (table 3.9.3). Plant protection chemicals (PPCs) were procured through purchase by cent per cent of the farm Hhs). Across the LHCs, the number of Hhs for this input was 43.33, 30.34, 16.33, 8.33 and 1.67 per cent respectively (table 3.9.4). Interest and lease rent for land like inputs were reported to have been procured through borrowing and quantities of farm saved produces' by 6.33 and 16.67 per cent farm Hhs respectively. Across the LHCs, the number of such farm Hhs confirming borrowing and from out of the farm saved were 2.67, 2.00, 1.00, and 0.67 per cent and no farm (table 3.9.5 & 3.9.6).

Table 3.9.1: Procurement of seeds for crop production (Number and % of Hhs)

Landholding Categories	farm saved	exchange	purchase	borrowed
Marginal	08 (2.67)	---	122 (40.67)	---
Small	00 (0.00)	---	91 (30.33)	---
Medium	00 (0.00)	---	49(16.33)	---
Large	00 (0.00)	---	25 (8.33)	---
Very large	00 (0.00)	---	05 (1.67)	---
Total	08(2.67)	---	292 (97.33)	---

Source: Primary Survey.

Table 3.9.2: Procurement of fertilizers for crop production (Number and % of Hhs)

Landholding Categories	farm saved	exchange	purchase	borrowed
Marginal	---	---	130 (43.33)	---
Small	---	---	91 (30.34)	---
Medium	---	---	49 (16.33)	---
Large	---	---	25 (8.33)	---
Very large	---	---	05 (1.67)	---
Total	---	---	300 (100.00)	---

Source: Primary Survey.

Table 3.9.3: Procurement of manures for crop production (Number and % of Hhs)

Landholding Categories	farm saved	exchange	purchase	borrowed
Marginal	30 (10.00)	05 (1.67)	---	---
Small	30 (10.00)	01 (0.33)	---	---
Medium	10 (3.33)	06 (2.00)	---	---
Large	10 (3.33)	01 (0.33)	---	---
Very large	05 (1.67)	00 (0.00)	---	---
Total	85 (28.33)	13 (4.33)	---	---

Source: Primary Survey.

Table 3.9.4: Procurement of plant protection chemicals for crop production (Number and % of Hhs)

Landholding Categories	farm saved	exchange	purchase	borrowed
Marginal	---	---	130 (43.33)	---
Small	---	---	91 (30.34)	---
Medium	---	---	49 (16.33)	---
Large	---	---	25 (8.33)	---
Very large	---	---	05 (1.67)	---
Total	---	---	300 (100.00)	---

Source: Primary Survey.

Table 3.9.5: Procurement of credit for crop production (Number and % of Hhs)

Landholding Categories	farm saved	exchange	purchase	borrowed
Marginal	---	---	---	08 (2.67)
Small	---	---	---	06 (2.00)
Medium	---	---	---	03 (1.00)
Large	---	---	---	02 (0.66)
Very large	---	---	---	00 (0.00)
Total	---	---	---	19 (6.33)

Source: Primary Survey.

Table 3.9.6: Procurement of leased in land for crop production (Number and % of Hhs)

Landholding Categories	farm saved	exchange	purchase	borrowed
Marginal	30 (10.00)	---	---	---
Small	12 (4.00)	---	---	---
Medium	08 (2.67)	---	---	---
Large	00 (0.00)	---	---	---
Very large	00 (0.00)	---	---	---
Total	50 (16.67)	---	---	---

Source: Primary Survey.

3.10 Agency through which Inputs Procured

In this section, attempt has been made to educe regarding agencies, through which inputs were procured by the surveyed farm Hhs. In terms of number of Hhs an estimation has been made for inputs, viz., seed, fertilizers, manure, plant protection chemicals (PPCs), irrigation, repairing and maintenance, interest and leased-in. Responses in regard to (i) own farm, (ii) local trader, (iii) input dealer, and; (iv) co-operative and government agency were obtained for analysis. Seed, fertilizers, and plant protection chemicals (PPCs) were found to have been procured through agencies namely local trader and input dealer. Across LHCs, seed was procured by large number of farmers from input dealers. Number of Hhs, who purchased from this source, were 35.00, 25.33, 10.67, 6.00 and 1.67 per cent from marginal, small, medium, large and very large classes respectively. On overall level, the number of farm Hhs, who procured seeds from agencies namely local trader and input dealer were 21.33 and 78.67 per cent respectively (table 3.10.1).

Table 3.10.1: Agency wise seed procured (Number and % of Hhs)

Landholding Categories	own farm	local trader	input dealer	cooperative & govt. agency
Marginal	08 (2.67)	24 (8.00)	105 (35.00)	---
Small	---	15 (5.00)	76 (25.33)	---
Medium	---	17 (5.67)	32 (10.67)	---
Large	---	07 (2.33)	18 (6.00)	---
Very large	---	00 (0.00)	05 (1.67)	---
Total	08 (2.67)	63 (21.00)	236 (78.67)	---

Source: Primary Survey.

Input like fertilizer was procured through agencies, namely; local trader and input dealer by 21.33 and 78.67 per cent farm Hhs respectively. Across the LHCs, number of Hhs procuring fertilizers from the two agencies were 8.33, 5.00, 5.67, 2.33 per cent and no one (0) and 35.00, 25.33, 10.67, 6.00 and 1.67 per cent respectively (table 3.10.2). Manure was found to have been procured through agencies, namely own farm and local trader by 28.33 and 4.33 per cent Hhs respectively. Across LHCs, number of farm Hhs confirming these agencies were; 10.00, 10.00, 3.33. 3.33, 1.67 and 1.67, 0.33, 2.00, 0.33 and 0.00 per cent respectively (table 3.10.3).

Table 3.10.2: Agency wise fertilizers procured (Number and % of Hhs)

Landholding Categories	own farm	local trader	input dealer	cooperative & govt. agency
Marginal	---	25 (8.33)	105 (35.00)	---
Small	---	15 (5.00)	76 (25.33)	---
Medium	---	17 (5.67)	32 (10.67)	---
Large	---	07 (2.33)	18 (6.00)	---
Very large	---	00 (0.00)	05 (1.67)	---
Total	---	64 (21.33)	236 (78.67)	---

Source: Primary Survey.

Table 3.10.3.: Agency wise manure procured (Number and % of Hhs)

Landholding Categories	own farm	local trader	input dealer	cooperative & govt. agency
Marginal	30 (10.00)	05 (1.67)	---	---
Small	30 (10.00)	01 (0.33)	---	---
Medium	10 (3.33)	06 (2.00)	---	---
Large	10 (3.33)	01 (0.33)	---	---
Very large	05 (1.67)	00 (0.00)	---	---
Total	85 (28.33)	13 (4.33)	---	---

Source: Primary Survey.

In case of PPCs, agencies through which these were procured were local trader and input dealer availed by 30.67 and 69.34 per cent farm Hhs out of the total 300 surveyed. Across LHCs, the number of marginal, small, medium, large and very large Hhs, who told the names of these agencies were: 11.67, 8.67, 8.00, 2.33 and 0.00 per cent and 31.67, 21.67, 8.33, 6.00 and 1.67 per cent respectively (table 3.10.4). The input (irrigation) like manure was indicated to have been procured through agencies

coded as (i) and (ii) by 57.67 and 42.33 per cent farm Hhs respectively. Across LHCs, no surveyed Hhs belonging to medium, large and very large were found to have procured irrigation facility through local trader. A glance on farm class wise data shows the number of the Hhs for the two agencies to be 3.00, 28.34, 16.33, 8.33 and 1.67 per cent and 40.33, 2.00, 0.00, 0.00 and 0.00 per cent respectively (table 3.10.5).

Table 3.10.4: Agency wise plant protection chemicals procured (Number and % of Hhs)

Landholding Categories	own farm	local trader	input dealer	cooperative & govt. agency
Marginal	---	35 (11.67)	95 (31.67)	---
Small	---	26 (8.67)	65 (21.67)	---
Medium	---	24 (8.00)	25(8.33)	---
Large	---	07 (2.33)	18 (6.00)	---
Very large	---	00 (0.00)	05(1.67)	---
Total	---	92 (30.67)	208 (69.34)	---

Source: Primary Survey.

Table 3.10.5: Agency wise irrigation procured (Number and % of Hhs)

Landholding Categories	own farm	local trader	input dealer	cooperative & govt. agency
Marginal	09 (3.00)	121 (40.33)	---	---
Small	85 (28.34)	06 (2.00)	---	---
Medium	49 (16.33)	00 (0.00)	---	---
Large	25 (8.33)	00 (0.00)	---	---
Very large	05 (1.67)	00 (0.00)	---	---
Total	173 (57.67)	127 (42.33)	---	---

Source: Primary Survey.

In case of inputs, viz., Repairing and maintenance and interest, local trader was the only agency as reported by 5.67 and 6.34 per cent Hhs respectively for the two. Across the LHCs, number of farm Hhs, who agreed for these two inputs were: 0.00, 2.33, 1.67, 0.00, 1.67 and 2.67, 2.00, 1.00, 0.67 and 0.00 per cent respectively (tables 3.10.6 & 3.10.7). Amount for leased-in land charge was not paid by any of the farm Hhs belonging to large and very large classes. About 15.67 per cent farm Hhs procured amount for leased-in land from out of their own farm source. Across LHCs, number of farm Hhs belonging to marginal, small and medium classes, who

told to have procured the amount from their own farms were 10.00, 4.00 and 2.67 per cent respectively (table 3.10.8).

Table 3.10.6: Agency wise repairing procured (Number and % of Hhs)

Landholding Categories	own farm	local trader	input dealer	cooperative & govt. agency
Marginal	---	00 (0.00)	---	---
Small	---	07 (2.33)	---	---
Medium	---	05 (1.67)	---	---
Large	---	00 (0.00)	---	---
Very large	---	05 (1.67)	---	---
Total	---	17 (5.67)	---	---

Source: Primary Survey.

Table 3.10.7: Agency wise credit procured (Number and % of Hhs)

Landholding Categories	own farm	local trader	input dealer	cooperative & govt. agency
Marginal	---	08 (2.67)	---	---
Small	---	06 (2.00)	---	---
Medium	---	03 (1.00)	---	---
Large	---	02 (0.67)	---	---
Very large	---	00 (0.00)	---	---
Total	---	19 (6.34)	---	---

Source: Primary Survey.

Table 3.10.8: Agency wise leased in land procured (Number and % of Hhs)

Landholding Categories	own farm	local trader	input dealer	cooperative & govt. agency
Marginal	30 (10.00)	---	---	---
Small	12 (4.00)	---	---	---
Medium	08 (2.67)	---	---	---
Large	00 (0.00)	---	---	---
Very large	00 (0.00)	---	---	---
Total	50 (16.67)	---	---	---

Source: Primary Survey.

3.11 Expenses Incurred for the Purchase of Inputs

In this section, attempt has been made to circumstantiate expenses incurred for the purchase of inputs across LHCs, estimations have been made in Rs. per acre terms.

Inputs, for which calculations have been made, include seed, fertilizers, manures, plant protection chemicals (PPCs), human labour, irrigation, repairing of machines (ROMs), interest and lease rent for land. A glance on data in the tale shows that across LHCs, highest per acre expenditures made for seeds was by marginal farms (Rs. 4100/-), while in case of fertilizers, small farmers were marginally more than the marginal ones (Rs. 4946 and Rs. 4927) respectively. In regard to expenditures on manures and PPCs, farm Hhs belonging to very large and medium groups were at top (Rs. 1968/acre and Rs. 1626/acre) respectively.

Expenses on human labour ranged with little differences between marginal, small, medium, large and very large Hhs in Rs. per acre terms (calculated at Rs. 4307, Rs. 4308, Rs. 4179, Rs. 4203 and Rs. 4220) respectively. Medium farm Hhs were at top in expenses made for irrigation, whereas large Hhs were ahead in repair of machines (Rs. 5713 per acre and Rs. 60 per acre) respectively. Small farmers, evidently being the most resource-poor ones, made highest expense on interest payment (Rs. 89/acre). Corroborating the common prevailing belief that marginal and small farmers are required to undertake more areas for crop-growing activities to maintain and survive their families, so amounts of expense in the form of rent payment for leased-in land were logically higher by marginal and small farm Hhs (Rs 9445/ acre and Rs. 9576/acre) respectively. On overall level, out of the total expense of Rs. 29791/acre, highest share of expenses made for purchase of inputs was found on lease-in rent for land (30.95%). It was followed by expenses on irrigation (17.22%), fertilizers (16.25%), human labour (14.24%), seeds (13.50%), PPCs (5.14%), manures (2.45%), interest (0.15%) and repairing and maintenance of machines (0.10%) (table 3.11).

Table 3.11: Expenses incurred for the purchase of inputs (in Rs/acre)

Landholding Categories	seeds	fertilizers	manures	plant protection chemicals	diesel	Electricity	Human Labour	animal labour	irrigation	repair of mach.	interest	Cost of hiring of machinery	lease rent for land	other expenses	Total
Marginal	4100	4927	582	1496	---	---	4307	---	4916	---	89	---	9445	---	29862
Small	4055	4946	736	1467	---	---	4308	---	4960	44	51	---	9576	---	30143
Medium	4004	4869	364	1626	---	---	4179	---	5713	20	20	---	7824	---	28619
Large	3991	4845	688	1506	---	---	4203	---	4999	60	60	---	---	---	20352
Very large	3935	4355	1968	1563	---	---	4220	---	5103	---	---	---	---	---	21144
Total	4021 (13.50)	4841 (16.25)	730 (2.45)	1529 (5.14)	---	---	4241 (14.24)	---	5131 (17.22)	29 (0.10)	47 (0.15)	---	9222 (30.95)	---	29791 (100.00)

In brackets, figures are shown in percentage to the total.

NB: Decimal figures are rounded off.

Source: Primary Survey.

3.12 Quality of Inputs

This section undertakes analysis to assert quality of inputs. Estimation has been made in terms of number of Hhs captured under four responses, viz., good, satisfactory, poor and don't know. All the 300 farm Hhs surveyed, asserted the quality of seeds to be satisfactory (table 3.12.1). In regard to quality of fertilizers, 16.67 and 83.33 per cent farm Hhs told these to be good and satisfactory respectively. Across the LHCs, 9.33, 5.00, 1.34, 1.00, 0.00 and 34.00, 25.33, 15.00, 7.33 and 1.67 per cent belonging to marginal, small, medium, large and very large classes ascertained quality of fertilizers to be good and satisfactory respectively (table 3.12.2). Responses in case of quality of manure were cited as good and satisfactory by 15.67 and 17.00 per cent Hhs respectively on aggregate level. Across LHCs, number of farm Hhs accepting the quality of manures to be good and satisfactory were 7.00, 5.00, 1.33, 0.67, 1.67 and 4.67, 5.33, 4.00, 3.00, 0.00 per cent respectively (table 3.12.3). Quality of inputs, namely; plant protection chemicals (PPCs) and irrigation were pronounced to be good and satisfactory by 24.33, 71.67 and 57.67, 42.33 per cent respectively. Across LHCs, 10.00, 4.00, 7.00, 3.33, 0.00 and 31.67, 25.00, 8.33, 5.00 and 1.67 per cent farm Hhs reported quality of PPCs to be good and satisfactory respectively. In regard to irrigation, quality being good was told by 3.00, 28.33, 16.33, 8.33 and 1.67 per cent Hhs from marginal, small, medium, large and very large classes, whereas satisfactory was told by 40.33 and 2.00 per cent farm Hhs from marginal and small LHCs respectively (tables 3.12.4 & 3.12.5).

Table 3.12.1: Quality of seed (Number and % of Hhs)

Landholding Categories	good	satisfactory	poor	don't know
Marginal	---	130 (43.33)	---	---
Small	---	91 (30.34)	---	---
Medium	---	49 (16.33)	---	---
Large	---	25 (8.33)	---	---
Very large	---	05 (1.67)	---	---
Total	---	300 (100.00)	---	---

Source: Primary Survey.

Table 3.12.2: Quality of fertilizers (Number and % of Hhs)

Landholding Categories	good	satisfactory	poor	don't know
Marginal	28 (9.33)	102 (34.00)	---	---
Small	15 (5.00)	76 (25.33)	---	---
Medium	04 (1.34)	45 (15.00)	---	---
Large	03 (1.00)	22 (7.33)	---	---
Very large	00 (0.00)	05 (1.67)	---	---
Total	50 (16.67)	250 (83.33)	---	---

Source: Primary Survey.

Table 3.12.3: Quality of manure (Number and % of Hhs)

Landholding Categories	good	satisfactory	poor	don't know
Marginal	21 (7.00)	14 (4.67)	---	---
Small	15 (5.00)	16 (5.33)	---	---
Medium	04 (1.33)	12 (4.00)	---	---
Large	02 (0.67)	09 (3.00)	---	---
Very large	05 (1.67)	00 (0.00)	---	---
Total	47 (15.67)	51 (17.00)	---	---

Source: Primary Survey.

Table 3.12.4: Quality of plant protection materials (Number and % of Hhs)

Landholding Categories	good	satisfactory	poor	don't know
Marginal	30 (10.00)	95 (31.67)	---	---
Small	12 (4.00)	75 (25.00)	---	---
Medium	21 (7.00)	25 (8.33)	---	---
Large	10 (3.33)	15 (5.00)	---	---
Very large	00. (0.00)	05 (1.67)	---	---
Total	73 (24.33)	215 (71.67)	---	---

Source: Primary Survey.

Table 3.12.5: Quality of irrigation (Number and % of Hhs)

Landholding Categories	good	satisfactory	poor	don't know
Marginal	09 (3.00)	121 (40.33)	---	---
Small	85 (28.33)	06 (2.00)	---	---
Medium	49 (16.33)	00 (0.00)	---	---
Large	25 (8.33)	00 (0.00)	---	---
Very large	05 (1.67)	00 (0.00)	---	---
Total	173 (57.67)	127 (42.33)	---	---

Source: Primary Survey.

In regard to input like interest, qualities were expatiated to be good and satisfactory by 4.67 and 1.67 Hhs. Across LHCs, number of farm Hhs telling good and satisfactory were 1.00, 2.00, 1.00, 0.67, 0.00 and 1.67 per cent by marginal Hhs only respectively (table 3.12.6). In case of repairing & maintenance (ROM), qualities were perceived as satisfactory and poor and for leased-in rent payment like input, only satisfactory was told by 3.67, 2.00 and 16.67 per cent Hhs respectively (table 3.12.7 & 3.12.8).

Table 3.12.6: Quality of interest (Number and % of Hhs)

Landholding Categories	good	satisfactory	poor	don't know
Marginal	03 (1.00)	05 (1.67)	---	---
Small	06 (2.00)	00 (0.00)	---	---
Medium	03 (1.00)	00 (0.00)	---	---
Large	02 (0.67)	00 (0.00)	---	---
Very large	00 (0.00)	00 (0.00)	---	---
Total	14 (4.67)	05 (1.67)	---	---

Source: Primary Survey

Table 3.12.7: Quality of repairing (Number and % of Hhs)

Landholding Categories	good	satisfactory	poor	don't know
Marginal	---	00 (0.00)	00 (0.00)	---
Small	---	04 (1.33)	03 (1.00)	---
Medium	---	02 (0.67)	03 (1.00)	---
Large	---	00 (0.00)	00 (0.00)	---
Very large	---	05 (1.67)	00 (0.00)	---
Total	---	11 (3.67)	06 (2.00)	---

Source: Primary Survey.

Table 3.12.8: Quality of leased in land (Number and % of Hhs)

Landholding Categories	good	satisfactory	poor	don't know
Marginal	---	30 (10.00)	---	---
Small	---	12 (4.00)	---	---
Medium	---	08 (2.67)	---	---
Large	---	00 (0.00)	---	---
Very large	---	00 (0.00)	---	---
Total	---	50 (16.67)	---	---

Source: Primary Survey.

3.13 Reasonability of Price Paid for Reported Inputs

In this section, attempt has been made to converse about, whether price paid for the reported inputs were reasonable. Estimation has been made in terms of number and percentage of Hhs. Responses were obtained on three parameters, viz., reasonable, high and very high. 261 (87% of the total) and 39 (13%) farm Hhs termed seed prices to be reasonable and high respectively (table 3.13.1). Similar responses were observed in regard to prices paid for inputs, like fertilizers and PPCs (87% and 13%) telling it to be reasonable and high respectively. On aggregate level, 32.66 per cent farms HHs accepted the price of manure to be reasonable. Across LHCs, 11.67, 10.33, 5.33, 3.67 and 1.66 per cent farm Hhs told that price of manure was reasonable (tables 3.13.2, 3.13.3 & 3.13.4). Out of the total 300 farm Hhs surveyed, 173 (57.67%) and 127 (44.33%) expressed view of price for irrigation paid to be reasonable and high respectively. Across LHCs, the number of such Hhs confirming irrigation price to be reasonable and high were 3.00, 28.34, 16.33, 8.33, 1.67 and 40.33 and 2.00 per cent by marginal and small farmers only respectively (table 3.13.5). As medium, large and very large farmers had their own sources of irrigation, so they didn't experience it to be high. In regard to prices paid for repairing of farm machineries and interests paid, these, were perceived to be reasonable and high on overall level by 4.67, 1.67 and 3.67 and 2.00 per cent respectively (tables 3.13.6 & 3.13.7). On overall level, 16.67 per cent farms Hhs, told amount of leased-in rent to be reasonable. As no large and very large groups of farm Hhs had taken land for cultivation on lease, so only marginal, small & medium Hhs told amounts of leased-in rent to be reasonable (10.00, 4.00 and 2.67 %) respectively table (3.13.8).

Table 3.13.1: Price paid for seeds (Number and % of Hhs)

Landholding Categories	reasonable	high	very high
Marginal	112 (37.33)	18 (6.00)	---
Small	85 (28.33)	06 (2.00)	---
Medium	42 (14.00)	07 (2.33)	---
Large	19 (6.34)	06(2.00)	---
Very large	03 (1.00)	02 (0.67)	---
Total	261 (87.00)	39 (13.00)	---

Source: Primary Survey.

Table 3.13.2: Price paid for fertilizers (Number and % of Hhs)

Landholding Categories	reasonable	high	very high
Marginal	112 (37.33)	18 (6.00)	---
Small	85 (28.33)	06 (2.00)	---
Medium	42 (14.00)	07 (2.33)	---
Large	19 (6.34)	06 (2.00)	---
Very large	03 (1.00)	02 (0.67)	---
Total	261 (87.00)	39 (13.00)	---

Source: Primary Survey.

Table 3.13.3: Price paid for manure (Number and % of Hhs)

Landholding Categories	reasonable	high	very high
Marginal	35 (11.67)	---	---
Small	31 (10.33)	---	---
Medium	16 (5.33)	---	---
Large	11 (3.67)	---	---
Very large	05 (1.66)	---	---
Total	98(32.66)	---	---

Source: Primary Survey.

Table 3.13.4: Price paid for plant protection materials (Number and % of Hhs)

Landholding Categories	reasonable	high	very high
Marginal	112 (37.33)	18 (6.00)	---
Small	85 (28.33)	06 (02.00)	---
Medium	42 (14.00)	07 (2.33)	---
Large	19 (6.34)	06 (2.00)	---
Very large	03 (1.00)	02 (0.67)	---
Total	261 (87.00)	39 (13.00)	---

Source: Primary Survey.

Table 3.13.5: Price paid for irrigation (Number and % of Hhs)

Landholding Categories	reasonable	high	very high
Marginal	09 (3.00)	121 (40.33)	---
Small	85 (28.34)	06 (2.00)	---
Medium	49 (16.33)	00 (0.00)	---
Large	25 (8.33)	00 (0.00)	---
Very large	05 (1.67)	00 (0.00)	---
Total	173 (57.67)	127 (42.33)	---

Source: Primary Survey.

Table 3.13.6: Price paid for repairing (Number and % of Hhs)

Landholding Categories	reasonable	high	very high
Marginal	00 (0.00)	00 (0.00)	---
Small	04 (1.33)	03 (1.00)	---
Medium	02 (0.67)	03 (1.00)	---
Large	00 (0.00)	00 (0.00)	---
Very large	05 (1.67)	00 (0.00)	---
Total	11 (3.67)	06 (2.00)	---

Source: Primary Survey.

Table 3.13.7: Price paid for credit (Number and % of Hhs)

Landholding Categories	reasonable	high	very high
Marginal	03 (1.00)	05 (1.67)	---
Small	06 (2.00)	00 (0.00)	---
Medium	03 (1.00)	00 (0.00)	---
Large	02 (0.67)	00 (0.00)	---
Very large	00 (0.00)	00 (0.00)	---
Total	14 (4.67)	05 (1.67)	---

Source: Primary Survey.

Table 3.13.8: Price paid for leased in land (Number and % of Hhs)

Landholding Categories	reasonable	high	very high
Marginal	30 (10.00)	---	---
Small	12 (4.00)	---	---
Medium	08 (2.67)	---	---
Large	00 (0.00)	---	---
Very large	00 (0.00)	---	---
Total	50 (16.67)	---	---

Source: Primary Survey.

3.14 Reasons for Unreasonable Prices Paid for Inputs

This section seeks to map out reasons for unreasonable prices paid for the inputs by the surveyed farmers. Analysis has been done in number and percentage terms of Hhs. Reasons for prices being unreasonable consist of: (i) not subsidized, (ii) very few sellers, (iii) no government sellers, (iv) private sellers collude, and; (v) no price control. In case of seed, 155 (51.67%) and 300 (100%) of farm Hhs held reasons (iii) and, (iv) responsible for price being unreasonable. Across LHCs, number of Hhs telling no government sellers and private sellers collude like reasons as significant for seeds' prices being unreasonable were: 24.00, 18.33, 5.00, 3.67, 0.67 and 43.33, 30.34, 16.33, 8.33 and 1.67 per cent respectively (table 3.14.1).

Table 3.14.1: Reasons for unreasonable prices paid for seed
(Number and % of Hhs)

Landholding Categories	not subsidized	very few sellers	no govt. sellers	pvt. sellers collude	no price control
Marginal	---	---	72 (24.00)	130 (43.33)	---
Small	---	---	55 (18.33)	91 (30.34)	---
Medium	---	---	15 (5.00)	49 (16.33)	---
Large	---	---	11 (3.67)	25 (8.33)	---
Very large	---	---	02 (0.67)	05 (1.67)	---
Total	---	---	155 (51.67)	300 (100.00)	---

Source: Primary Survey.

In case of fertilizers, on overall level, 51.67, 62.33 and 71.00 farm Hhs informed reasons; (iii), (iv) and (v) respectively responsible for prices being unreasonable. Across land holding categories, percentages of farmers belonging to marginal, small, medium, large and very large citing these reasons were: 24.00, 18.33, 5.00, 3.67, 0.67 and 21.67, 30.33, 10.00, 8.33, and 0.67 respectively (table 3.14.2).

Table 3.14.2: Reasons for unreasonable prices paid for fertilizers

(Number and % of Hhs)

Landholding Categories	not subsidized	very few sellers	no govt. sellers	pvt. sellers collude	no price control
Marginal	---	---	72 (24.00)	72 (24.00)	65 (21.67)
Small	---	---	55 (18.33)	55 (18.33)	91 (30.33)
Medium	---	---	15 (5.00)	30 (10.00)	30 (10.00)
Large	---	---	11 (3.67)	25 (8.33)	25 (8.33)
Very large	---	---	02 (0.67)	05 (1.67)	02 (0.67)
Total	---	---	155 (51.67)	187 (62.33)	213 (71.00)

Source: Primary Survey.

Reasons (iii) & (iv) were confirmed by 28.33 and 4.33 per cent Hhs respectively responsible for manure price not being reasonable. Across LHCs, the number of Hhs were 10.00, 10.00, 3.33, 3.33, 1.67 and 1.67, 0.33, 2.00, 0.33, 0.00 respectively (table 3.14.3). Farm Hhs belonging to all LHCs, except the large one, felt no government sellers' and private sellers collude to be the reasons for prices of PPCs being unreasonable 11.67, 8.67, 8.00, 2.33, 0.00 and 31.67, 21.67, 8.33, 6.00 and 1.67 per cent respectively. On overall level, 30.67 and 69.34 per cent farm Hhs accepted absence of government sellers i.e., SN. (iii) and collusion of private sellers (iv) to be significant factors for price of PPCs being unreasonable (table 3.14.4).

Table 3.14.3: Reasons for unreasonable prices paid for manure

(Number and % of Hhs)

Landholding Categories	not subsidized	very few sellers	no govt. sellers	pvt. sellers collude	no price control
Marginal	---	---	30 (10.00)	05 (1.67)	---
Small	---	---	30 (10.00)	01 (0.33)	---
Medium	---	---	10 (3.33)	06 (2.00)	---
Large	---	---	10 (3.33)	01 (0.33)	---
Very large	---	---	05(1.67)	00 (0.00)	---
Total	---	---	85 (28.33)	13 (4.33)	---

Table 3.14.4: Reasons for unreasonable prices paid for plant protection materials

(Number and % of Hhs)

Landholding Categories	not subsidized	very few sellers	no govt. sellers	pvt. sellers collude	no price control
Marginal	---	---	35 (11.67)	95 (31.67)	---
Small	---	---	26 (8.67)	65 (21.67)	---
Medium	---	---	24 (8.00)	25 (8.33)	---
Large	---	---	07 (2.33)	18 (6.00)	---
Very large	---	---	00 (0.00)	05 (1.67)	---
Total	---	---	92 (30.67)	208 (69.34)	---

Source: Primary Survey.

Non-availability of government sellers was the only factor quoted responsible for price of repairing & maintenance to be unreasonable (5.67 % farm Hhs). Across LHCs, number of Hhs telling reason i.e., SN (iii) to be responsible for charges of repairing etc., being unreasonable were 0.00, 2.33, 1.67, 0.00 and 1.67 per cent respectively (table 3.14.5).

Table 3.14.5: Reasons for unreasonable prices paid for repairing & maintenance

(Number and % of Hhs)

Landholding Categories	not subsidized	very few sellers	no govt. sellers	pvt. sellers collude	no price control
Marginal	---	---	00 (0.00)	---	---
Small	---	---	07 (2.33)	---	---
Medium	---	---	05 (1.67)	---	---
Large	---	---	00 (0.00)	---	---
Very large	---	---	05 (1.67)	---	---
Total	---	---	17 (5.67)	---	---

Source: Primary Survey.

CHAPTER – IV

ANIMAL PRODUCTS AND INPUT MARKETS

This chapter seeks to catch detail about animal products and input markets in the surveyed villages of 03 districts. Interblending analysis has been done in regard to the following aspects.

4.1 Total Sale and Average Sale Value of Milk

This section undertakes exercises for determining produce wise total sale value and per capita average sale values. In the study area, only milk was found to have been sold. Across LHCs, larger the size of landholding, lower the total sale value of milk was observed. Total sale values of milk sold by marginal, small, medium, large and very large farm households were Rs. 656348, Rs. 561736, Rs. 290490, Rs. 213024 and Rs. 189929 respectively. Overall total of sale value of milk was calculated at Rs. 1911527. As far average per capita sale value of milk is concerned, on overall level, it was Rs. 6,372 showing very large and large Hhs at top (Rs. 37986 and Rs. 8521) respectively. Small, medium and marginal farmers' average sale values of milk trailed behind large farms, and was calculated to be Rs. 6173, Rs. 5928 and Rs. 5049 respectively (table 4.1).

Table 4.1: Total Sale and per Household Sale Value of Milk (In Rs.)

Landholding Categories	Milk	
	Total Sale Value	Per Hh Sale Value
Marginal	656348	5049
Small	561736	6173
Medium	290490	5928
Large	213024	8521
Very large	189929	37986
Total	1911527	6372

Source: Primary Survey.

4.2 Agency used for Selling of Milk Produce from Animal Husbandry Activity

This section consists analysis to affirm the names, of agencies through which different number of Hhs would have sold reported produces (milk) from animal husbandry (AH). Calculation has been made in number of Hhs terms. As only milk was found to have been sold in the study area, questions related to sale of milk only were asked. On overall level, 98 farm households (32.67%) reported to have sold AH product (milk) through Primary Dairy Co-operative Societies (PDCSs). Across LHCs, number of such Hhs who sold milk though co-operative & government agencies were 11.67, 10.33, 5.33, 3.67 and 1.67 per cent respectively (table 4.2).

Table 4.2: Agency wise milk sold in first/second major disposal (Number and % of Hhs)

Landholding Categories	directly to other household	local trader	commission agent	Cooperative & Govt. agency	processor
Marginal	00	00	00	35 (11.67)	00
Small	00	00	00	31 (10.33)	00
Medium	00	00	00	16 (5.33)	00
Large	00	00	00	11 (3.67)	00
Very large	00	00	00	05 (1.67)	00
Total	00	00	00	98 (32.67)	00

Source: Primary Survey

4.3 Procurement of Inputs Related to Animal Husbandry Activity

In this section, attempt has been made to conceive about procurement of inputs related to animal husbandry calculations were done in terms of number of Hhs. Four sources of procurement, namely: (i) farm saved, (ii) exchanged, (iii) purchased, and; (iv) borrowed were taken into consideration.

Inputs, for which data have been obtained, are animal seed, green fodder, dry fodder, concentrates and veterinary charges. Barring green and dry fodder, all the inputs related to AH, namely; animal seed, green fodder, concentrates and veterinary charges were procured by purchasing as told by 10.67, 15.67, 40.34, 40.34 and 40.34 per cent farms Hhs respectively. Green and dry fodders were procured from out of the farm saved stocks (29.67% and 40.34% Hhs) respectively. Across

LHCs, marginal, small, medium, large and very large farm Hhs procured animal seed by purchasing 15.67, 12.00, 6.67, 4.33 and 1.67 per cent respectively (table 4.3.1). Number of farm Hhs, who informed to have procured green fodder through farm saved (i) and purchased (iii) were 11.67, 9.33, 4.67, 2.33, 1.67 per cent and 4.00, 2.67, 2.00, 2.00 and 0.00 per cent respectively (tale 4.3.2). Number of surveyed farm Hhs, who ascertained (i) and (iii) means regarding procurement of dry fodder were; 15.67, 12.00, 6.67, 4.33, 1.67 and 6.00, 4.00, 2.67, 3.00 and 0.00 per cent respectively (table 4.3.3). Procurement of concentrates was reported through purchasing only 15.67, 12.00, 6.67, 4.33, 1.67 per cent respectively (table 4.3.4). Same number of farm Hhs like concentrates confirmed to have availed veterinary services on purchasing basis (table 4.3.5).

Table 4.3.1: Procurement of animal seed related to animal husbandry (Number and % of Hhs)

Landholding Categories	Animal Seed			
	farm saved	exchanged	purchased	borrowed
Marginal	---	---	47 (15.67)	---
Small	---	---	36 (12.00)	---
Medium	---	---	20 (6.67)	---
Large	---	---	13 (4.33)	---
Very large	---	---	05(1.67)	---
Total	---	---	121 (40.34)	---

Source: Primary Survey

Table 4.3.2: Procurement of green fodder related to animal husbandry (Number and % of Hhs)

Landholding Categories	Green Fodder			
	farm saved	exchanged	purchased	borrowed
Marginal	35 (11.67)	---	12 (4.00)	---
Small	28 (9.33)	---	08 (2.67)	---
Medium	14 (4.67)	---	06 (2.00)	---
Large	07 (2.33)	---	06 (2.00)	---
Very large	05 (1.67)	---	00 (0.00)	---
Total	89 (29.67)	---	32 (10.67)	---

Source: Primary Survey

Table 4.3.3 : Procurement of dry fodder related to animal husbandry (Number and % of Hhs)

Landholding Categories	Dry Fodder			
	farm saved	exchanged	purchased	borrowed
Marginal	47 (15.67)	---	18 (6.00)	---
Small	36 (12.00)	---	12 (4.00)	---
Medium	20 (6.67)	---	08 (2.67)	---
Large	13 (4.33)	---	09 (3.00)	---
Very large	05(1.67)	---	00 (0.00)	---
Total	121 (40.34)	---	47 (15.67)	---

Source: Primary Survey

Table 4.3.4: Procurement of concentrates related to animal husbandry (Number and % of Hhs)

Landholding Categories	Concentrates			
	farm saved	exchanged	purchased	borrowed
Marginal	---	---	47 (15.67)	---
Small	---	---	36 (12.00)	---
Medium	---	---	20 (6.67)	---
Large	---	---	13 (4.33)	---
Very large	---	---	05 (1.67)	---
Total	---	---	121 (40.34)	---

Source: Primary Survey

Table 4.3.5: Procurement of Veterinary services related to animal husbandry (Number and % of Hhs)

Landholding Categories	Veterinary Charges			
	farm saved	exchanged	purchased	borrowed
Marginal	---	---	47 (15.67)	---
Small	---	---	36 (12.00)	---
Medium	---	---	20 (6.67)	---
Large	---	---	13 (4.33)	---
Very large	---	---	05(1.67)	---
Total	---	---	121 (40.34)	---

Source: Primary Survey

4.4. Agency though which Animal Husbandry Related Inputs Procured

This section deals with finding out number of Hhs telling about different agencies though which reported inputs related animal husbandry were procured. Agencies considered here for analysis are: (i) own farm, (ii) local trader, (iii) input dealer, (iv) co-operative agencies and; (v) others. Data in table depicts that seed for animal husbandry was procured through agencies (iii) and (iv) 7.34 and 33.00 per cent of farm households) respectively. Across LHCs marginal, small, medium, large and very large farm households, who reported about agencies (iii) and (iv) through which procurement of seed for animal husbandry made, were; 3.67, 1.67, 1.00, 1.00, 0.00 and 12.00, 10.33, 5.67, 3.33 and 1.67 per cent respectively (table 4.4.1).

Table 4.4.1: Agency wise animal seed procured (Number and % of Hhs)

Landholding Categories	Animal Seed				
	own farm	local trader	input dealer	cooperative & govt. agency	others
Marginal	---	---	11 (3.67)	36 (12.00)	---
Small	---	---	05 (1.67)	31 (10.33)	---
Medium	---	---	03 (1.00)	17 (5.67	---
Large	---	---	03 (1.00)	10 (3.33)	---
Very large	---	---	00 (0.00)	05 (1.67)	---
Total	---	---	22 (7.34)	99 (33.00)	---

Source: Primary Survey

Own farm and local traders were informed to be agencies thorough which good number of farm Hhs procured green fodder and dry fodder 29.67, 10.67 and 40.34, 15.67 per cent respectively. Across LHCs, the number of such Hhs, who told to have procured green fodder and dry fodder through agencies (i) and (ii) were: 11.67, 9.33, 4.67, 2.33, 1.67, 4.00, 2.67, 2.00, 2.00, 0.00 and 15.67, 12.00, 6.67, 4.33, 1.67 and 6.00, 4.00, 2.67, 3.00 and 0.00 per cent respectively (table 4.4.2 & 4.4.3). Local trader and input dealers were accessed to procure concentrates for animal husbandry 9 and 31.33 per cent of households respectively. Across LHCs, number of farm households, who reported about the two agencies were 2.33, 2.67, 1.33, 2.67, 0.00 and 13.33, 9.33, 5.33, 1.67 and 1.67 per cent respectively (table 4.4.4). As far procurement of veterinary services is concerned, agencies (iii) and (iv) were used (as told by 7.34 and 33.00 per cent of households respectively. Across LHCs, number of such

households ascertaining the two agencies, were; 2.67, 1.67, 1.00, 1.00. 0.00 and 12.00, 10.33, 5.67, 3.33 and 1.67 per cent respectively (tale 4.4.5).

Table 4.4.2: Agency wise green fodder procured (Number and % of Hhs)

Landholding Categories	Green Fodder				
	own farm	local trader	input dealer	cooperative & govt. agency	others
Marginal	35 (11.67)	12 (4.00)	---	---	---
Small	28 (9.33)	08 (2.67)	---	---	---
Medium	14 (4.67)	06 (2.00)	---	---	---
Large	07 (2.33)	06 (2.00)	---	---	---
Very large	05 (1.67)	00 (0.00)	---	---	---
Total	89 (29.67)	32 (10.67)	---	---	---

Source: Primary Survey

Table 4.4.3: Agency wise dry fodder procured (Number and % of Hhs)

Landholding Categories	Dry Fodder				
	own farm	local trader	input dealer	cooperative & govt. agency	others
Marginal	47 (15.67)	18 (6.00)	---	---	---
Small	36 (12.00)	12 (4.00)	---	---	---
Medium	20 (6.67)	08 (2.67)	---	---	---
Large	13 (4.33)	09 (3.00)	---	---	---
Very large	05 (1.67)	00 (0.00)	---	---	---
Total	121 (40.34)	47 (15.67)	---	---	---

Source: Primary Survey

Table 4.4.4: Agency wise concentrate procured (Number and % of Hhs)

Landholding Categories	Concentrates				
	own farm	local trader	input dealer	cooperative & govt. agency	others
Marginal	---	07 (2.33)	40 (13.33)	---	---
Small	---	08 (2.67)	28 (9.33)	---	---
Medium	---	04 (1.33)	16 (5.33)	---	---
Large	---	08 (2.67)	05 (1.67)	---	---
Very large	---	00 (0.00)	05 (1.67)	---	---
Total	---	27 (9.00)	94 (31.33)	---	---

Source: Primary Survey

Table 4.4.5.: Agency wise veterinary services procured (Number and % of Hhs)

Landholding Categories	Veterinary Charges				
	own farm	local trader	input dealer	cooperative & govt. agency	others
Marginal	---	---	11 (2.67)	36 (12.00)	---
Small	---	---	05 (1.67)	31 (10.33)	---
Medium	---	---	03 (1.00)	17 (5.67)	---
Large	---	---	03 (1.00)	10 (3.33)	---
Very large	---	---	00 (0.00)	05 (1.67)	---
Total	---	---	22 (7.34)	99 (33.00)	---

Source: Primary Survey

4.5 Expenses Incurred for Purchase of Inputs Related to Animal Husbandry

In this section exercise has been made to intensify expenses incurred in purchasing of inputs related to animal husbandry (AH) per household (Hh). These expenses have been calculated in regard to animal feed, veterinary charges, other (including rent paid for leased-in land) and labour charges. In the surveyed areas, only cattle/buffaloes were found to have been owned by surveyed households. On overall level, highest per household expenses for purchasing inputs related to animal husbandry were evident on animal feed (green and dry fodders) followed by labour charges, concentrates, veterinary charges, animal seeds and others (Rs. 1005, Rs. 996, Rs. 648, Rs. 289, Rs. 275, Rs. 105 and Rs. 46) respectively. Across LHCs, very large

and large farm households did show highest expenses on green fodder and dry fodder (Rs. 4860, Rs. 1148 and Rs. 3960, Rs. 1526) respectively. On the heads of expenses, namely; labour charges (Rs. 7500/-), concentrates Rs. 1500/- veterinary charges, animal seeds and others, again very large farmers were ahead (Rs. 700, Rs. 360 and Rs. 1540) respectively. Aggregate per household expense incurred in purchasing inputs related to animal husbandry was calculated as Rs. 3365/-. Total per household expenses made by marginal, small, medium, large and very large farm households were estimated at Rs. 2704, Rs. 3413, Rs. 2823, Rs. 4273 and Rs. 20420 respectively (tables 4.5.1 & 4.5.2).

Table 4.5.1: Expenses incurred for the purchase of inputs related to Animal husbandry (in Rs)

Landholding Categories	cost of animal seeds	animal feed			veterinary charges	lease rent for land (Other)	labour charges	total expenses (Rs)
	cattle/ buffalo	green fodder	dry fodder	Concen trates				
Marginal	12150	104360	114670	30630	30850	---	59500	351660
Small	9300	83900	112970	26330	25600	---	52500	310600
Medium	4950	60390	13710	13710	14050	---	31500	138310
Large	3450	28690	38140	8540	8400	6100	13500	106820
Very large	1800	24300	19800	7500	3500	7700	37500	102100
Total	31650	301640	298790	86710	82400	13800	194500	1009490

Source: Primary Survey

Table 4.5.2: Expenses incurred for the purchase of inputs related to animal husbandry (in Rs) per Hh.

Landholding Categories	cost of animal seeds	animal feed			veterinary charges	lease rent for land (Other)	labour charges	total expenses (Rs)
	cattle/ buffalo	green fodder	dry fodder	Concen trates				
Marginal	93.46	802.77	878.23	235.62	237.31	---	457.69	2704.31
Small	102.20	921.98	1241.43	289.34	281.32	---	576.92	3413.19
Medium	101.02	1232.45	279.80	279.80	286.73	---	642.86	2822.66
Large	138.00	1147.60	1525.60	341.60	336.00	244.00	540.00	4272.80
Very large	360.00	4860.00	3960.00	1500.00	700.00	1540.00	7500.00	20420.00
Total	105.50	1005.47	995.97	289.03	274.67	46.00	648.33	3364.97

Source: Primary Survey

4.6 Reasonability of Price paid for Reported Inputs Related to Animal Husbandry

In this section of the chapter, data has been analyzed to gain knowledge about reasonability of prices paid for the reported inputs related to animal husbandry. These have been estimated in terms of number of households. The data have been obtained and analyzed for animal seed, green fodder, dry fodder, concentrates, veterinary charges and labour charges. Prices of animal seed were felt to be reasonable by quite a large number of surveyed households (33%), while nearly 1/4th of the farm households, who owned animal husbandry, reported it to be high (7.34%). Across LHCs, the number of households confirmed animal seed prices to be reasonable and high were 12.00, 10.33, 5.67, 3.33, 1.67 and 3.67, 1.67, 1.00, 1.00 and 0.00 per cent respectively (table 4.6.1).

Table 4.6.1: Reasonability of price paid for animal seed (Number and % of Hhs)

Landholding Categories	Animal Seed		
	reasonable	high	very high
Marginal	36 (12.00)	11 (2.67)	--
Small	31 (10.33)	05 (1.67)	--
Medium	17 (5.67)	03 (1.00)	---
Large	10 (3.33)	03 (1.00)	--
Very large	05 (1.67)	00 (0.00)	--
Total	99 (33.00)	22 (7.34)	--

Source: Primary Survey

In regard to reasonability of prices paid for reported inputs related to animal husbandry, viz., green fodder, dry fodder, concentrates, veterinary charges and labour charges, reasonable was reported by a good number and prices being high by a few households 29.67, 10.67, 24.67, 15.67, 24.67, 15.67, 33.00, 7.34 and 7.00, 3.00 per cent respectively.

Data across LHCs reveal more number of farm households belonging to marginal, small and medium households telling for prices of green fodder, dry fodder, concentrates, veterinary charges and labour charges to be reasonable and quite a few reported these prices/charges as high also. Number of such farm households were; 11.67, 9.33, 4.67 and 4.00, 2.67 and 2.00 per cent for green fodder, 9.67, 8.00, 4.00 per

cent and 6.00, 4.00, 2.67 per cent in case of dry fodder, the same number being valid for concentrates, 12.00, 10.33, 5.67 and 3.67, 1.67, 1.67 per cent for veterinary charges and 2.00, 1.67, 0.67 and 1.00, 1.00, 1.00 per cent in case of labour charges respectively (tables 4.6.2, 4.6.3, 4.6.4, 4.6.5 and 4.6.6).

Table 4.6.2: Reasonability of price paid for green fodder (Number and % of Hhs)

Landholding Categories	Green Fodder		
	reasonable	high	very high
Marginal	35 (11.67)	12 (4.00)	---
Small	28 (9.33)	08 (2.67)	---
Medium	14 (4.67)	06 (2.00)	---
Large	07 (2.33)	06 (2.00)	---
Very large	05 (1.67)	00 (0.00)	---
Total	89 (29.67)	32 (10.67)	---

Source: Primary Survey

Table 4.6.3: Reasonability of price paid for dry fodder (Number and % of Hhs)

Landholding Categories	Dry Fodder		
	reasonable	high	very high
Marginal	29 (9.67)	18 (6.00)	---
Small	24 (8.00)	12 (4.00)	---
Medium	12 (4.00)	08 (2.67)	---
Large	04 (1.33)	09 (3.00)	---
Very large	05 (1.67)	00 (0.00)	---
Total	74 (24.67)	47 (15.67)	---

Source: Primary Survey

Table 4.6.4: Reasonability of price paid for concentrates (Number and % of Hhs)

Landholding Categories	Concentrates		
	reasonable	high	very high
Marginal	29 (9.67)	18 (6.00)	---
Small	24 (8.00)	12 (4.00)	---
Medium	12 (4.00)	08 (2.67)	---
Large	04 (1.33)	09 (3.00)	---
Very large	05 (1.67)	00 (0.00)	---
Total	74 (24.67)	47 (15.67)	---

Source: Primary Survey

Table 4.6.5: Reasonability of price paid for veterinary services (Number and % of Hhs)

Landholding Categories	Veterinary Charges		
	reasonable	high	very high
Marginal	36 (12.00)	11 (2.67)	---
Small	31 (10.33)	05 (1.67)	---
Medium	17 (5.67)	03 (1.00)	---
Large	10 (3.33)	03 (1.00)	---
Very large	05 (1.67)	00 (0.00)	---
Total	99 (33.00)	22 (7.34)	---

Source: Primary Survey

Table 4.6.6: Reasonability of price paid for labour charges (Number and % of Hhs)

Landholding Categories	Labour Charges		
	reasonable	high	very high
Marginal	06 (2.00)	03 (1.00)	---
Small	05 (1.67)	03(1.00	---
Medium	02 (0.67)	03 (1.00)	---
Large	03 (1.00)	00 (0.00)	---
Very large	05 (1.66)	00 (0.00)	---
Total	21 (7.00)	09 (3.00)	---

Source: Primary Survey

4.7 Reasons for Unreasonable Prices Paid for Animal Husbandry Inputs

This section of the chapter seeks to point out reasons for unreasonable prices paid for the inputs related to animal husbandry. The calculation has been done in terms of number of households. Under the reasons for prices of inputs being unreasonable, five factors were considered: (i) not subsidized, (ii) very few sellers, (iii) no government sellers, (iv) private sellers collude, and; (v) no price control. In regard to price of animal seed, 7.34 per cent households told (v) to be cause for it being unreasonable. Across LHCs, 3.67, 1.67, 1.00, 1.00 per cent and none of the marginal, small, medium, large and very large farm households confirmed, no price control to be the reason for animal, seed price being unreasonable (table 4.7.1).

Table 4.7.1: Reasons for unreasonable prices paid for animal seed (Number and % of Hhs)

Landholding Categories	Animal Seed				
	not subsidized	very few sellers	no govt. sellers	pvt. sellers collude	no price control
Marginal	---	---	---	---	11 (3.67)
Small	---	---	---	---	05 (1.66)
Medium	---	---	---	---	03 (1.00)
Large	---	---	---	---	03 (1.00)
Very large	---	---	---	---	00 (0.00)
Total	---	---	---	---	22 (7.33)

Source: Primary Survey

Very few sellers' was the only reason described by 10.67 and 15.67 per cent farm households responsible for prices of green fodder and dry fodder respectively being unreasonable. Across LHCs, number of households confirming this reason to be unreasonable in case of green fodder and dry fodder were; 4.00, 2.67, 2.00, 2.00, 0.00 per cent and 6.00, 4.00, 2.67, 3.00, 0.00 per cent respectively (tables 4.7.2 & 4.7.3). While no government sellers (iii) ad no price control (v) were stated to be reasons for unreasonable prices of concentrates 9.67 and 6.00 per cent of households respectively, only reason SN. – V was told as the reason for veterinary charges and labour charges (7.33% and 3.00%) respectively. Across LHC, number of marginal, small, medium, large and very large ascertaining reasons (iii ad (v) for concentrates and reason (v) for veterinary charges and labour charges were found to be 3.33, 2.67, 1.67, 2.00, 0.00 and 2.67, 1.33, 1.00, 1.00, 0.00 per cent for concentrates, 3.66, 1.67, 1.00, 1.00, 0.00 per cent veterinary charges and 1.00, 1.00, 1.00, 0.00, 0.00 per cent in case of labour charges respectively (tables 4.7.4, 4.7.5 and 4.7.6).

Table 4.7.2: Reasons for unreasonable prices paid for green fodder (Number and % of Hhs)

Landholding Categories	Green Fodder				
	not subsidized	very few sellers	no govt. sellers	pvt. sellers collude	no price control
Marginal	---	12 (4.00)	---	---	---
Small	---	8 (2.67)	---	---	---
Medium	---	6 (2.00)	---	---	---
Large	---	6 (2.00)	---	---	---
Very large	---	0 (0.00)	---	---	---
Total	---	32 (10.67)	---	---	---

Source: Primary Survey

Table 4.7.3: Reasons for unreasonable prices paid for dry fodder (Number and % of Hhs)

Landholding Categories	Dry Fodder				
	not subsidized	very few sellers	no govt. sellers	pvt. sellers collude	no price control
Marginal	---	18 (6.00)	---	---	---
Small	---	12 (4.00)	---	---	---
Medium	---	08 (2.67)	---	---	---
Large	---	09 (3.00)	---	---	---
Very large	---	00 (0.00)	---	---	---
Total	---	47 (15.67)	---	---	---

Source: Primary Survey

Table 4.7.4: Reasons for unreasonable prices paid for concentrates (Number and % of Hhs)

Landholding Categories	Concentrates				
	not subsidized	very few sellers	no govt. sellers	pvt. sellers collude	no price control
Marginal	---	---	10 (3.33)	---	8 (2.67)
Small	---	---	8 (2.67)	---	4 (1.33)
Medium	---	---	5 (1.67)	---	3 (1.00)
Large	---	---	6 (2.00)	---	3 (1.00)
Very large	---	---	0 (0.00)	---	00 (0.00)
Total	---	---	29 (9.67)	---	18 (6.00)

Source: Primary Survey

Table 4.7.5: Reasons for unreasonable prices paid for veterinary services (Number and % of Hhs)

Landholding Categories	Veterinary Charges				
	not subsidized	very few sellers	no govt. sellers	pvt. sellers collude	no price control
Marginal	---	---	---	---	11 (3.66)
Small	---	---	---	---	5 (1.67)
Medium	---	---	---	---	3 (1.00)
Large	---	---	---	---	3 (1.00)
Very large	---	---	---	---	0 (0.00)
Total	---	---	---	---	22 (7.33)

Source: Primary Survey

Table 4.7.6: Reasons for unreasonable prices paid for labour charges (Number and % of Hhs)

Landholding Categories	Labour Charges				
	not subsidized	very few sellers	no govt. sellers	pvt. sellers collude	no price control
Marginal	---	---	---	---	3 (1.00)
Small	---	---	---	---	3 (1.00)
Medium	---	---	---	---	3 (1.00)
Large	---	---	---	---	0 (0.00)
Very large	---	---	---	---	0 (0.00)
Total	---	---	---	---	9 (3.00)

Source: Primary Survey

CHAPTER – V

LABOUR MARKET

In this chapter, efforts have been made to endorse analysis-based concepts of labour market prevailing in the study area. Under this, data based analysis has been undertaken to ascertain the following aspects related to labour market:

5.1 Average Number of Labour Employed for Farming and Livestock Operations

This section comprises analysis of data to obtained knowledge of number of labour employed for farming and livestock operations. The number of labourers thus, obtained is, in regard to family labour, farm servants and casual labour. Data in the table reveals that across LHCs, average numbers of 0.16 and 0.09 women devoted their time as family labourers belonging to marginal and small farm Hhs, besides 0.05, 0.12 and 1 male labourers, who were found to have worked as farm servants. These male farm servants belonged to small, medium, large and very large farm Hhs respectively. On overall level, average number of casual labour per household employed meant for male and female were 22.07 and 25.39 respectively. Across LHCs, distinguished trend is observed in regard to casual labour employed both for male and female that higher the size of landholding, more the number of casual labourers. Average number of employed for farming and livestock operations belonging to marginal, small, medium, large and very large Hhs were 7.18, 15.87, 33.45, 76.80 and 137.00 (for male) and 9.08, 23.21, 36.29, 73.20 and 143 for female respectively (table 5.1).

Table 5.1: Average number of labour employed for farming and livestock operations

Landholding Categories	family labour			farm servants		casual labour	
	male	female	children	male	female	male	female
Marginal	1.00	0.16	0.04	---	---	7.18	9.08
Small	1.00	0.09	---	0.05	---	15.87	23.21
Medium	1.00	---	---	0.08	---	33.45	36.29
Large	1.00	---	---	0.12	---	76.80	73.20
Very large	1.00	---	---	1.00	---	137.00	143.00
Total	1.00	0.10	0.02	0.06	---	22.07	25.39

Source: Primary Survey.

Larger average number of casual female labourers employed per household implies that recently the demand for them has significantly increased. In particular, because the main source of earning for farm Hhs surveyed was cultivation related activities, and about 1/3rd of them also had dairy as their secondary or tertiary sources of earning, so role and contribution of women, as casual labour, could be evident. Requirement of women labourers on casual basis were exuberantly found and considered to be in the fitness of things, particularly for sowing of plants, harvesting, weeding and maintaining milch cattles like purposes.

5.2 Average Number of Days Labour Employed

In this section, exercise has been made to look through on the status of average number of days for labourers employed to get farming and livestock operations performed by the surveyed farm Hhs. Family labour, farm servants and casual labour comprising male, female and children were taken into consideration for the purpose of analysis. On overall level, average number of days employed for farming and livestock operations were higher in case of male family labour and farm servants and female causal labour (1 & 0.06 and 25.39) respectively. Across LHCs, farm servants only male were found to have been employed more prominently by very large, large, medium and small Hhs (1, 0.12, 0.08 and 0.05) respectively. No female farm servants were viewed to have been a employed by any of the surveyed farm household (table 5.2).

Table 5.2: Average number of days employed for farming and livestock operations

Landholding Categories	family labour			farm servants		casual labour	
	male	female	children	male	female	male	female
Marginal	1.00	0.16	0.04	---	---	7.18	9.08
Small	1.00	0.03	---	0.05	---	15.86	23.20
Medium	1.00	---	---	0.08	---	33.45	36.28
Large	1.00	---	---	0.12	---	76.80	73.20
Very large	1.00	---	---	1.00	---	137.00	143.00
Total	1.00	0.10	0.02	0.06	---	22.07	25.39

Source: Primary Survey.

5.3 Average Hours per Day Labour Employed for FLSOs

In this section of the chapter, obtained data has been analyzed to cut the knot in regard to average hours per day of labour employed for farming and livestock operations (FLSOs). A glance on data in the table presents aggregated picture of higher average hours/day of labour devoted by male family, farm and casual labourers (9.8, 9.6 and 8) respectively was revealed. In case of family labour, female and children were found to have devoted 2.4 and 1.2 hours/day respectively. Contribution of female casual labour in terms of average hours/day was also ot much behind (7 hours) than the male casual labourers (table 5.3).

Table 5.3: Average hours per day of labour employed for farming and livestock operations

Landholding Categories	family labour			farm servants		casual labour	
	male	female	children	male	female	male	female
Marginal	10.00	6.00	6.00	10.00	---	8.00	7.00
Small	10.00	6.00	---	10.00	---	8.00	7.00
Medium	9.00	---	---	8.00	---	8.00	7.00
Large	10.00	---	---	10.00	---	8.00	7.00
Very large	10.00	---	---	10.00	---	8.00	7.00
Total	9.8	2.4	1.2	9.6	---	8.00	7.00

Source: Primary Survey.

5.4 Average Wage Rate to Labour engaged in FLSOs

Efforts have been made here to analyze and glance over average wage rates paid to male and female farm servants and casual labour. Data in table provide ground to out speak that on overall level, average wage rates paid to male farm servants and

casual labour were much higher than female causal labour (Rs. 216, Rs. 262 and Rs. 155) respectively. Across LHCs, the average wage rates paid to farm servants (male) varied from Rs. 230/- meant for small farm Hhs and Rs. 200/- each in case of large and very large farms respectively. Highest average wage rates for casual male and female labourers engaged in farming and livestock operations were noted for medium and large farm Hhs (Rs. 264 and Rs. 160) respectively. Lowest average wage rates were noted to have been paid by very large farm Hhs to male and female casual labour (Rs. 250 and Rs. 150) respectively (table 5.4). One of the reasons for accepting lower average rates by the male and female casual labour could be that highest average number of employment is provided by very large farm Hhs.

Table 5.4: Average wage rate paid to labour engaged in farming and livestock operations (in Rs.)

Landholding Categories	farm servants		casual labour	
	male	female	male	female
Marginal	---	---	261.92	154.19
Small	230	---	263.18	153.62
Medium	225	---	264.28	154.90
Large	200	---	260.00	160.00
Very large	200	---	250.00	150.00
Total	215.62	---	262.33	154.55

Source: Primary Survey.

5.5 Reasonability of Wage Rates for Farming and Livestock Operations

This section enlaces data based analysis to know, whether wage rates paid to labourers for farming and livestock operations (FLSOs) is reasonable. Responses have been obtained in number of Hhs terms. Aggregate data reveals that 91.67 per cent of the total respondents did not have any point to ascertain that wage rates paid were unreasonable. Only 20 farms Hhs (6.67%) of them reported wage rate to be high. Across the LHCs, equal per cent of farm Hhs (1.67%) belonging to small and large, and 2.00 and 1.33 per cent of Hhs belonging to marginal and medium categories respectively felt wage rates to paid to labour for FLSOs to be high (table 5.5).

Table 5.5: Reasonability of wage rate paid to labour for farming and livestock operations (Number and % of households)

Landholding Categories	reasonable	high	very high	total
Marginal	124 (41.33)	06 (2.00)	---	130 (43.33)
Small	86 (28.67)	05 (1.67)	---	91 (30.33)
Medium	45 (15.00)	04 (1.33)	---	49 (16.34)
Large	20 (6.67)	05 (1.67)	---	25(8.34)
Very large	00 (0.00)	00 (0.00)	---	00 (0.00)
Total	275 (91.67)	20 (6.67)	---	295 (98.34)

Source: Primary Survey.

5.6 Engagement as Wage Labour

This section seeks to converse in regard to engagement as wage labour. Data have been obtained comprising: (i) Number of Hhs engaged as wage labour, duration of engagement in month, and; (ii) Wage rate (Rs./day). Activities of work, where wage employment could be provided, included: (a) others farm, and; (b) MGNREGA. Giving apriori, it is genuinely evident that marginal and small farm Hhs being more resourceless and having obligation of meeting various expenditures of family, remained engaged as wage labour on others' farm and MGNREGA related works for 5.07, 4 and 1.20 and 1 months respectively. Across LHCs also, 23.33 per cent marginal and 0.33 per cent small Hhs were found to have remained engaged as wage labour wage rates/day for wage labour on others farms and MGNREGA works were Rs. 250 and Rs. 168 respectively (table 5.6).

Table 5.6: Engagement as wage labour

Landholding Categories	number of households engaged in wage labour	duration of engagement(in months)		wage rate (Rs per day)	
		others' farm	MNREGS	others' farm	MNREGS
Marginal	70	5.07	1.20	250	168
Small	01	4.0	1.00	250	168
Medium	---	---	---	---	---
Large	---	---	---	---	---
Very large	---	---	---	---	---
Total	71	5.05	1.20	250	168

Source: Primary Survey.

5.7 Constraints Related to Wage Labour

In this section efforts have been made to capture information related to constraints of wage labour so that their solution could be extricably presented. Out of the surveyed Hhs, who worked as wage labour (23.67%), confirmed work available for a very limited period and very low wage to be prominent constraints during their engagement as wage labour. On overall level, the number of such Hhs, who remained engaged as wage labour were 23.67 per cent. Across LHCs, distribution of such farm Hhs were 23.34 and 0.33 per cent belonging to marginal and small Hhs (table 5.7).

Table 5.7: Constraints related to wage labour (Number and % of households)

Landholding Categories	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
Marginal	70 (23.34)	70 (23.34)	---	---	---	---	---
Small	01 (0.33)	01 (0.33)	---	---	---	---	---
Medium	00 (0.00)	00 (0.00)	---	---	---	---	---
Large	00 (0.00)	00 (0.00)	---	---	---	---	---
Very large	00 (0.00)	00 (0.00)	---	---	---	---	---
Total	71 (23.67)	71 (23.67)	---	---	---	---	---

Source: Primary Survey.

CHAPTER – VI

CREDIT MARKET

This chapter envisages discussions on credit related aspects. With the view to evolve observation based credit market imperfections following aspects have been discussed.

6.1 Sources of Money Borrowed

In this section, data analysis has been contrived to know about sources of money borrowed by the landholding categories (LHCs) in their number and percentage of households (Hhs) terms, who borrowed. It is revealed that out of the total, 19 Hhs, (6.33%) took loan and of them 14 (73.69%) borrowed from government banks followed by SHGs – 2 (10.53%). On overall level, one each, i.e. 5.26 per cent of the households, who borrowed, equally preferred Co-operative Society, Micro Finance/Common Group/NGOs (MFIs/CG/NGOs) and relatives. Across LHCs, lower the size of land holdings, larger the number of Hhs were found to have taken loan. 42.11, 31.58, 15.79 and 10.52 per cent of Hhs belonging to marginal, small, medium and large LHCs, did borrow money from different formal and non-formal sources of credit. Small farm Hhs were ahead in borrowing money from government banks (6 nos.) equally followed by marginal and medium Hhs (3 & 3) respectively. Only marginal Hhs did borrow money from informal sources (table 6.1).

6.2 Borrowing of Money by Households during last Two Years

This section consists of analysis of data to illuminate number of surveyed households, who borrowed money during the last two years, i.e., July 2016 to June, 2018. Out of the total surveyed farm Hhs, only 19 (6.33%) borrowed money during July, 2016 to June, 2018. Across LHCs, 2.67, 2.00, 1.00 and 0.66 per cent households belonging to marginal, small, medium and large households were found to have borrowed money during the referred two years' period (table 6.2).

Table 6.1: Source of money borrowed by the landholding categories

(Number and % of households)

Landholding Categories	govt. bank	cooperative society	Micro finance/ comm group/ NGOs	SHGs	fellow farmer/ neighbours	input dealers/ commission agents	money lenders	employer	relatives	total
Marginal	3	1	1	2	---	---	---	---	1	8 (42.11)
Small	6	---	---	---	---	---	---	---	---	6 (31.58)
Medium	3	---	---	---	---	---	---	---	---	3 (15.79)
Large	2	---	---	---	---	---	---	---	---	2 (10.52)
Very large	---	---	---	---	---	---	---	---	---	00 (0.00)
Total (%)	14 (73.69)	1 (5.26)	1 (5.26)	2 (10.53)	---	---	---	---	1 (5.26)	19 (100.00)

Source: Primary Survey.

NB: In brackets percentage to total shown.

Table 6.2: Households borrowed money during the last two years

(Number and % of households)

Landholding Categories	Number of households	Percent
Marginal	8	2.67
Small	6	2.00
Medium	3	1.00
Large	2	0.66
Very large	00	0.00
Total	19	6.33

Source: Primary Survey.

6.3 Total amount Borrowed from the Sources

In this section, efforts have been made to grasp total and percentages of borrowed amounts from different formal and non-formal sources of credit, from which the surveyed farmers had taken loan. All in total 19 farm households had borrowed, out of which 8, 6, 3 and 2 belonged to marginal, small, medium and large households respectively. A glance on table reveals that on overall level, out of the total amount borrowed by all the loanee households Rs.13,05,000/-, highest amount i.e., Rs.12,00,000/- (91.95%) was given by government banks. Small and medium households did enjoy equally highest share of the total amount borrowed (30.65%). Rs. 45000, Rs. 20000 and Rs. 15000, i.e., (3.45%, 1.53% and 1.15%) respectively were also found to have been approached by the marginal farm Hhs for obtaining loans. Rs. 25,000/- means 1.92 per cent of the total borrowed amount was also taken from relatives. Data in the table also ascertains that government banks were prominently accessed for borrowing by farmers. Across LHCs, on overall level, equally higher amounts were borrowed by small and large farm Hhs (Rs. 400000/-). It was followed by marginal and medium farm Hhs totaling to Rs. 255000 and Rs. 250000 (i.e., 19.54% and 19.16% of the total amount borrowed respectively (table 6.3).

Table 6.3: Total Amount borrowed from the sources (Rs)

Landholding Categories	govt. bank	cooperative society	micro finance/comm group/ NGOs	SHGs	fellow farmer/ neighbours	input dealers/ commission agents	money lenders	employer	relatives	Total
Marginal	150000	20000	15000	45000	---	---	---	---	25000	255000 (19.54)
Small	400000	---	---	---	---	---	---	---	---	400000 (30.65)
Medium	250000	---	---	---	---	---	---	---	---	250000 (19.16)
Large	400000	---	---	---	---	---	---	---	---	400000 (30.65)
Very large	---	---	---	---	---	---	---	---	---	---
Total (%)	1200000 (91.95)	20000 (1.53)	15000 (1.15)	45000 (3.45)	---	---	---	---	25000 (1.92)	1305000 (100.00)

Source: Primary Survey.

NB: In brackets percentage to total shown

6.4 Rates of Interest Charged by the Reported Sources

This section encompasses analysis of data examined source wise and farm class wise, and rates of interest charged by the reported sources, from whom money was borrowed. The sources accessed for taking loan by the farm Hhs in the surveyed area were noted as (i) government bank, (ii) co-operative society, (iii) micro finance/ community group/NGOs (MF/CG/NGOs), (iv) self help groups (SHGs), and; relatives. On overall level, highest rate of interest was found to have been charged by MF/GC/NGOs (16%/annum) equally followed by Co-operative societies and SHGs (14%/ annum) and government banks (7%/annum) (table 6.4).

Table 6.4: Median rate of interest charged by the reported source from whom money was borrowed (in %)

Landholding Categories	govt. bank	Cooperative society	micro finance/ comm group/ NGOs	SHGs	fellow farmer/ neighbours	input dealers/ commission agents	money lenders	Employyer	relatives
Marginal	7	14	16	14	---	---	---	---	---
Small	7	---	---	---	---	---	---	---	---
Medium	7	---	---	---	---	---	---	---	---
Large	7	---	---	---	---	---	---	---	---
Very large	---	---	---	---	---	---	---	---	---
Total	7	14	16	14	---	---	---	---	---

Source: Primary Survey.

6.5 Purpose of Borrowing from the Reported Sources

This section deals to discover purpose of borrowing from the reported sources. Purposes have been counted in number percentage terms of Hhs. Following purposes were included to obtain data in this regard: (i) capital expenditure in farm business, (ii) current expenses in farm business, (iii) non-farm business, (iv) consumption expenditure, (v) marriage and ceremonies, (vi) education, (vii) medical, and; (viii) for migrating outside the village. All the 6, 3, and 2 Hhs belonging to small, medium and large LHCs respectively, did borrow from government banks. Their purpose of taking loans, were current expenses in farm business only.

In case of marginal farm Hhs, out of whom 8 Hhs did borrow, 3 got loan amounts from government banks, 1 each from co-operative society and MF/CG/NGOs, 2

from SHGs and one from relatives. Out of these surveyed Hhs, purpose of borrowing in case of 4 Hhs were current expenses in farm business and two each for non-farm business and marriage and ceremonies respectively (table 6.5).

Table 6.5: Purpose of borrowing from the reported source (Number and % of households)

Landholding Categories	capital exp in farm business	current exp in farm business	non-farm business	consump. Exp	Marriages & ceremonies	Education	medical	for migrating outside the village	total
Marginal	---	4	2	---	2	---	---	---	8 (42.11)
Small	---	6	---	---	---	---	---	---	6 (31.58)
Medium	---	3	---	---	---	---	---	---	3 (15.79)
Large	---	2	---	---	---	---	---	---	2 (10.52)
Very large	---	---	---	---	---	---	---	---	00(0.00)
Total	---	15	2	---	2	---	---	---	19
% to total	---	(78.95)	(10.53)	---	(10.52)	---	---	---	(100.00)

Source: Primary Survey.

NB: In brackets percentage to total shown.

6.6 Average number of Loans taken from the source during the last One Year

As no loan was found to have been taken by the surveyed farm Hhs during the last one year, i.e., July, 2017 to June, 2018, so no details related to credit and number of Hhs borrowing money could be obtained.

6.7 Total amount Repaid to each source and number of Households Repaying Loan

In this section, data have been obtained and analyzed to portray farm class wise and source wise repaid amounts of borrowed loans and number of Hhs, who could be found repaying their loans. A glance on data in the table helps provides ground to proclaim that 90 per cent (Rs. 872102) of the total borrowed amount by all loanees of different LHCs (Rs. 968802) had been repaid in regard to government banks. Across LHCs, maximum repayment of borrowed amounts were recorded by small and large farm Hhs equally comprising 29.32 per cent. Further, on overall level, amounts and percentages of repayment of borrowed amounts were calculated as Rs. 15400, Rs.

1500, Rs. 41300 and Rs. 25000 in cases of co-operative societies (CSs), micro finance/community groups/NGOs (MF/CG/NGOs), SHGs and relatives (i.e., 1.59%, 1.55%, 4.26% and 2.58%%) respectively. Across LHCs, on overall level, after large and small farmers (Rs. 284000 and Rs. 284042) respectively, marginal farm Hhs did repay higher amount Rs. 210760 (i.e., 21.75%) of the total amount borrowed by Hhs of all LHCs. It was followed by medium Hhs amounting to Rs. 190000 (19.61%) of the total amount borrowed (table 6.6).

6.8 Reasons for Non-repayment of Borrowed Money

All of the farm Hhs, who borrowed money from different formal and non-formal sources of credit (19) during the last two years, i.e., from July, 2016 to June, 2018; were found to have repaid larger proportions and/full amounts to respective sources during short period of two years only. So, obtaining responses in regard to reasons for non-payment of the borrowed money did not arise.

Table 6.6 : Total amount repaid to each source and number of households repaying loan

Landholding Categories	Total amount repaid (In Rs.)									Number of households which repaid										
	govt. bank	Coopera Tive society	micro finance/ comm group/ NGOs	SHGs	fellow farmer/ neigh bours	input dealers/ commi ssion agents	money lenders	Em pl oye r	Relati ves	gov t. ban k	Coopera tive society	Micro finance/ comm group/ NGOs	SHGs	fellow farmer/ neigh bours	Input dealers/ commi ssion agents	money lenders	em plo yer	relati ves	Total amount repaid (In %)	Total Hhs Who Rep aid
Marginal	114060	15400	15000	41300	---	---	---	---	25000	3	1	1	**2**	---	---	---	---	**1**	**210760 (21.75)**	**8 (42.11)**
Small	284042	---	---	---	---	---	---	---	---	6	---	---	---	---	---	---	---	---	**284042 (29.32)**	**6 (31.58)**
Medium	190000	---	---	---	---	---	---	---	---	3	---	---	---	---	---	---	---	---	**190000 (19.61)**	**3 (15.79)**
Large	284000	---	---	---	---	---	---	---	---	2	---	---	---	---	---	---	---	---	**284000 (29.32)**	**2 (10.52**
Very large	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	**---**	**00 (0.00)**
Total (In %)	872102 (90.02)	15400 (1.59)	15000 (1.55)	41300 (4.26)	---	---	---	---	25000 (2.58)	14	1	1	**2**	---	---	---	---	**1**	**968802 (100.00)**	**19 (100.00)**

Source: Primary Survey.

NB: In parenthesis percentage to total is shown

CHAPTER – VII

ASSET ENDOWMENT OF THE HOUSEHOLDS, GOVERNMENT SUPPORT PROGRAMMES AND INSURANCE

This chapter comprises analysis of obtained data to display asset endowments of the households (Hhs) if any, government support programmes and insurance. In the light of availability of data and information, attempt has been made to present following aspects. Questions related to purchase and sale of productive assets made during July, 2018 and June, 2019 had to be asked and thus, data had to be obtained. As no such purchase and sale of productive assets were found to have been made during the period, so no information could be obtained for analysis in regard to asset endowments.

Government support

Pradhan Mantri Annadata Aaya Sanrakshan Abhiyan (PM-AASHA) is an umbrella scheme aimed at ensuring remunerative prices to the farmers and is comprised of price support scheme (PSS), price deficiency payment scheme (PDPS), and; pilot of private procurement & stockiest scheme (PPPSS). As far the Bhavantar Bhugtan Yojana (BBY) is concerned, under which the MP Government had decided to compensate the farmers for kharif crops (since the August, 2018) in regard to registered farmers, if their selling prices were lower than the MSP. However, the surveyed farmers of the three districts were not covered/had taken advantages of any of the two programmes/schemes, namely; PM-AASHA and Bhavantar Bhugtan Yojana (BBY) during the reference period, i.e., July 2018 to June, 2019. But advantages/coverages of PM-Kisan were witnessed in the study area. The Pradhan Mantri Kisan Samman Yojana (PM-KISAN YOJANA) is a centrally sponsored scheme, under which income support of Rs. 6000 per annum is provided to all eligible farmer families across the country in three equal installments of Rs. 2000/- each every four months. Farmers from both the urban and rural areas, who belong to marginal and small land holding categories (LHCs) are eligible under the scheme.

Crops Insurance

Insurance related information/data were obtained for the crops insured during July, 2018 to June, 2019. Fortunately during the period July 2018 to June 2019, no crop losses were experienced by the surveyed farm Hhs, so discussions in regard to causes of crop loss, receiving of claim amount in time, claim amount received for the insured crops and reasons for not receiving the claim amount didn't form part of this chapter.

7.1 Sources of Technical Advice Accessed for Crops Grown

This section seeks to analyze data for grasping sources of technical advice accessed for crops grown. Estimation has been made in number and percentage of Hhs terms. On overall level, 73 farm Hhs (24.33%) accessed different sources of technical advice. Extension agents were the most instrumental, who were accessed by 40 Hhs (13.33%). Krishi Vigyan Kendra (KVK) and Radio/TV/Newspapers/Internet (RTNI) also provided technical advices to 5.67 and 5.33 per cent of farms Hhs respectively. Across LHCs, small farmers could get advantage of technical advice in larger number (8%) followed by marginal, medium and large Hhs (6.67%, 6.33% and 3.33%) respectively (table 7.1).

Table 7.1: Sources of technical advice accessed for crops grown (Number and % of households)

Landholding Categories	extension agents	krishi vigyan kendra	agri. university/ college	pvt. commercial agents	radio/tv/ newspaper/ internet	veterinary dept.	NGO	total
Marginal	17	3	---	---	---	---	---	20 (6.67)
Small	13	8	---	---	3	---	---	24 (8.00)
Medium	7	4	---	---	8	---	---	19 (6.33)
Large	3	2	---	---	5	---	---	10 (3.33)
Very large	0	0	---	---	0	---	---	00 (0.00)
Total	40 (13.33)	17 (5.67)	---	---	16 (5.33)	---	---	73 (24.33)

Source: Primary Survey.

NB: In brackets percentage figures are shown.

7.2 Frequency of Contact with the Sources

Enumeration of obtained data has been made in this section to know the frequency of contact with the sources. Frequencies classified into daily, weekly, monthly, seasonally, need-based and casual contact types have been analyzed. In regard to extension agents, 8.67 and 4.67 per cent of Hhs (including all LHCs) got technical

advice on seasonal and need based basis respectively. Across LHCs, access by marginal and small farm Hhs were larger (as told by 4.00 and 2.33 % of Hhs), who belonged to marginal and small classes (table 7.2.1) on seasonal and need-based basis respectively. Only 4.00 and 1.67 per cent of farm Hhs reported to have accessed to KVK for technical advice on need based and casual contact basis respectively. Across LHCs, small farmers were ahead in accessing KVKs for obtaining technical advices on need based and casual contact basis (as reported by 1.67 and 1.00 % of Hhs) respectively (table 7.2.2). Radio/TV/Newspaper/Internet like sources of technical advice was accessed on need-based by 5.33 per cent Hhs, among whom medium farmers (2.67%) were more eager. Across LHCs, this source of technical advice was accessed by 1.00, 2.67 and 1.66 per cent farmers belonging to small, medium and large categories respectively (table 7.2.3).

Table 7.2.1: Frequency of contact with extension agency

(Number and % of households)

Landholding Categories	daily	weekly	monthly	seasonally	need based	casual contact	total
Marginal	---	---	---	12	5	---	17 (5.67)
Small	---	---	---	6	7	---	13 (4.33)
Medium	---	---	---	5	2	---	7 (2.33)
Large	---	---	---	3	---	---	3 (1.00)
Very large	---	---	---	---	---	---	00 (0.00)
Total	---	---	---	26 (8.67)	14 (4.67)	---	40 (13.33)

Source: Primary Survey.

NB: In brackets percentage figures are shown.

Table 7.2.2: Frequency of contact with krishi vigyan Kendra (No. and % of Hhs)

Landholding Categories	daily	weekly	monthly	seasonally	need based	casual contact	total
Marginal	---	---	---	---	3	---	3 (1.00)
Small	---	---	---	---	5	3	8 (2.67)
Medium	---	---	---	---	2	2	4 (1.33)
Large	---	---	---	---	2	---	2 (0.67)
Very large	---	---	---	---	---	---	00 (0.00)
Total	---	---	---	---	12 (4.00)	5 (1.67)	17 (5.67)

Source: Primary Survey.

NB: In brackets percentage figures are shown.

Table 7.2.3: Frequency of contact with radio/tv/newspaper/internet

(Number and % of households)

Landholding Categories	daily	weekly	monthly	seasonally	need based	casual contact	total
Marginal	---	---	---	---	---	---	00 (0.00)
Small	---	---	---	---	3	---	3 (1.00)
Medium	---	---	---	---	8	---	8 (2.67)
Large	---	---	---	---	5	---	5 (1.66)
Very large	---	---	---	---	---	---	00 (0.00)
Total	---	---	---	---	16 (5.33)	---	16 (5.33)

Source: Primary Survey.
NB: In brackets percentage figures are shown.

7.3 Number of Households Adopted Advice from Reported Sources

This section undertakes analysis to discover number of Hhs, which adopted the advice from reported sources, namely; extension agencies (EAs), Krishi Vigyan Kendra (KVK), agricultural university/college (AU/C), private commercial agents (PCAs), Radio/TV/Newspaper/Internet (RTVNI), veterinary department and NGO. Out of the total 73 farm Hhs, who accessed for technical advice, highest number of Hhs adopted advices given by extension agents 40 (54.79%) followed by KVK and RTVNI - 17 and 16 (23.29% and 21.92%) respectively. Across LHCs, in regard to adoption of technical advices provided by all sources (on overall level), small farm Hhs were ahead 24 (32.88%). It was followed by marginal, medium and large farmers calculated as 20, 19 and 10 (27.40%, 26.03% and 13.69%) respectively (table 7.3).

Table 7.3: Number of households which adopted the advice from the reported source (Number and % of households)

Landholding Categories	extension agents	krishi vigyan kendra	agri. university/ college	pvt. commercial agents	radio/tv/ newspaper/ internet	veterinary dept.	NGO	Total (In %)
Marginal	17	3	---	---	---	---	---	20 (27.40)
Small	13	8	---	---	3	---	---	24 (32.88)
Medium	7	4	---	---	8	---	---	19 (26.03)
Large	3	2	---	---	5	---	---	10 (13.69)
Very large	---	---	---	---	---	---	---	---
Total (In %)	40 (54.79)	17 (23.29)	---	---	16 (21.92)	---	---	73 (100.00)

Source: Primary Survey.

7.4 Reasons for not Accessing Sources of Technical Advice

In regard to reasons mentioned by the surveyed farm Hhs, for not having accessed all the sources of technical advices, out of the total 300 Hhs, majority of the farmers, i.e., 156 (52%) told they couldn't access sources of technical advice due to non-availability, whereas 144 (48%) were not aware. Across LHCs, more the number of farmers under different landholding groups, larger their number confirming the two reasons, i.e., non-availability and unawareness responsible for not accessing the sources of technical advice. Not aware and not available reasons were deliberated by 21.00, 16.00, 9.33, 1.67 and none Hhs belonging to marginal, small, medium, large and very large and 22.33, 14.33, 7.00, 6.67 and 1.67 per cent of Hhs of the above noted classes respectively (table 7.4).

Table 7.4: Reasons for not accessing the sources of technical advice (Number and % of households)

Landholding Categories	not aware	not available	not required	others	total
Marginal	63	67	---	---	130 (43.34)
Small	48	43	---	---	91 (30.33)
Medium	28	21	---	---	49 (16.33)
Large	5	20	---	---	25 (8.33)
Very large	---	5	---	---	5 (1.67)
Total (In %)	144 (48.00)	156 (52.00)	---	---	300 (100.00)

Source: Primary Survey.

7.5 Usefulness of the Adopted Advice

In this section, obtained data have been used to bring forward about the responses of farmers in connection with usefulness of the adopted advice. Analysis has been made in number of Hhs terms. On overall level, the entire 73 (24.33%) farm Hhs, who had accessed technical advice through EA, KVK and RTVNI, found it useful. Households, who could have got some technical advices from three sources only, namely; EA, KVK and RTVNI were 13.33, 5.67 and 5.33 per cent respectively (table 7.5).

Table 7.5: Usefulness the adopted advice (Number and % of households)

Landholding Categories	useful			not useful	don't know	total
	Ext. Agency	KVK	R/TV/ NP/Int.			
Marginal	17	3	---	---	---	20 (6.67)
Small	13	8	3	---	---	24 (8.00)
Medium	7	4	8	---	---	19 (6.33)
Large	3	2	5	---	---	10 (3.33)
Very large	---	---	---	---	---	00 (0.00)
Total (%)	40 (13.33)	17 (5.67)	16 (5.33)	---	---	73(24.33)

Source: Primary Survey.

NB: In brackets percentage figures are shown.

7.6 Impact of Adoption of Advice from the Reported Source

In this section, impact of the adoption of advice extended by Extension agencies, KVK and RTVNI has been examined in number of Hhs terms. Out of the total 73 farm Hhs (24.33%), who confirmed to have accessed some sources of technical advices, 11.00, 5.67 and 5.33 per cent of Hhs felt the advices to be beneficial provided by EA, KVK and RTVNI respectively. Only 2.33 per cent Hhs experienced the advices provided by EA to be moderately beneficial. Maximum number of farm Hhs out of the total, who could access the sources for technical advices (on overall level) expressed these to be beneficial in case of EA (13.33%) KVK (5.67%) and RTVNP (5.33%) tables 7.6.1, 7.6.2 and 7.6.3). It indicates that extension agents were more easily available for providing technical advices as compared to KVKs.

Table 7.6.1: Impact of the adoption of advice from the reported source extension agencies (Number and % of households)

Landholding Categories	beneficial	moderately beneficial	no effect	harmful	don't know	total
Marginal	15	2	---	---	---	17 (5.67)
Small	10	3	---	---	---	13 (4.33)
Medium	5	2	---	---	---	7 (2.33)
Large	3	---	---	---	---	3 (1.00)
Very large	---	---	---	---	---	00 (0.00)
Total	33 (11.00)	7 (2.33)	---	---	---	40 (13.33)

Source: Primary Survey.

NB: In brackets percentage figures are shown.

Table 7.6.2: Impact of the adoption of advice from the reported source KVK (Number and % of households)

Landholding Categories	beneficial	moderately beneficial	no effect	harmful	don't know	total
Marginal	3	---	---	---	---	3
Small	8	---	---	---	---	8
Medium	4	---	---	---	---	4
Large	2	---	---	---	---	2
Very large	---	---	---	---	---	---
Total	17 (5.67)	---	---	---	---	17 (5.67)

Source: Primary Survey.
NB: In brackets percentage figures are shown.

Table 7.6.3: Impact of the adoption of advice from the reported source radio/tv/NP/Internet (Number and % of households)

Landholding Categories	beneficial	moderately beneficial	no effect	harmful	don't know	total
Marginal	---	---	---	---	---	---
Small	3	---	---	---	---	3
Medium	8	---	---	---	---	8
Large	5	---	---	---	---	5
Very large	---	---	---	---	---	---
Total	16 (5.33)	---	---	---	---	16 (5.33)

Source: Primary Survey.
NB: In brackets percentage figures are shown.

7.7 Awareness of MSP related to Reported Crops

In this section, data has been analyzed to expound the extent of awareness about MSP related to reported crops. As only paddy was being purchased by the mandated agencies in the study area, so response was obtained in regard to MSP of paddy only. 3 and 2 farm Hhs (1.00 & 0.67 %) respectively, who belonged to small and medium LHCs respectively were found to be aware of MSP related to paddy only (table 7.7).

Table 7.7: Awareness of MSP related to the reported crops
(Number and % of households)

Landholding Categories	Aware of MSP		
	paddy	wheat	other crops
Marginal	---	---	---
Small	3	---	---
Medium	2	---	---
Large	---	---	---
Very large	---	---	---
Total	5 (1.67)	---	---

Source: Primary Survey.
NB: In brackets percentage figures are shown.

7.8 Agencies available for Procuring Crops Reported at MSP

This section undertakes analysis to brood about the agencies availing for procuring the crop at MSP. Data has been analyzed in number of Hhs terms. On overall level, 5 farmers (1.67%) reported PACSs as the agency to procure paddy at MSP. Across LHCs, 3 and 2 farm Hhs, who belonged to small and medium classes respectively told that paddy was procured by PACSs at minimum support price (MSP) (table 7.8).

Table 7.8: Agencies available for procuring the crops paddy reported at MSP
(Number and % of households)

Landholding Categories	FCI	PACS	JCI	CCI	NAFED	State Food Corporation	State Civil Supplies	do not know
Marginal	---	---	---	---	---	---	---	---
Small	---	3	---	---	---	---	---	---
Medium	---	2	---	---	---	---	---	---
Large	---	---	---	---	---	---	---	---
Very large	---	---	---	---	---	---	---	---
Total	---	5 (1.67)	---	---	---	---	---	---

Source: Primary Survey.
NB: In brackets percentage figures are shown.

7.9 Agencies for Selling Reported Crops

Through the discussions under the above sections, it is clear that only paddy was procured. Having a glance on data in the table, the same 5 farm Hhs (1.67%) ascertained PACS as the agency, to whom paddy was sold. Across LHCs, 3 and 2

Hhs belonging to small and medium classes respectively told PACS as the agency to whom paddy was sold (table 7.9).

Table 7.9: Agencies to whom the reported crops paddy sold (Number of Households)

Landholding Categories	FCI	PACS	JCI	CCI	NAFED	State Food Corporation	State Civil Supplies
Marginal	---	---	---	---	---	---	---
Small	---	3	---	---	---	---	---
Medium	---	2	---	---	---	---	---
Large	---	---	---	---	---	---	---
Very large	---	---	---	---	---	---	---
Total	---	5 (1.67)	---	---	---	---	---

Source: Primary Survey.
NB: In brackets percentage figures are shown.

7.10 Quantities of Crops Sold at Lower than MSP

In this section, analysis has been made to brevity in regard to quantities of crops sold at lower than MSPs. It is to be noted here that only paddy was procured at MSP by PACS. Data based analysis in regard to four crops, namely paddy, wheat, maize (kharif) and maize (rabi) has been done. On overall level, largest quantums of crops sold at lower than MSPs, were found in case of maize (rabi 9188.20 qtls). It was followed by maize (kharif), wheat and paddy (7431.24 qtls., 5105.72 qtls and 4703 qtls.) respectively. Across the LHCs, it was interesting to note that largest and lowest quantities of paddy, wheat, maize (kharif) and maize (rabi) reported to have not been sold by the farm Hhs at MSPs were found in case of large and very large classes for each of the crop respectively. These quantities (in quintals) were 1275, 1396.96, 1950.05 and 2451.68 in regard to large farmers and 487, 531.67, 744.25 and 890.52 qtls in case of very large farm Hhs (table 7.10).

Table 7.10 : Quantity of crops sold at lower than MSP (mean or median) quantity (In qtls)

Landholding Categories	Paddy	Wheat	Maize (kharif)	Maize (rabi)
Marginal	714	724.61	1111.44	1361.71
Small	1139	1224.65	1873.56	2256.38
Medium	1088	1227.83	1751.94	2227.91
Large	1275	1396.96	1950.05	2451.68
Very large	487	531.67	744.25	890.52
Total	4703	5105.72	7431.24	9188.20

Source: Primary Survey.

7.11 Total Value of Crops Sold to Agencies at MSP

It is to be noted here that only paddy was, sold at MSP through PACSs by 3 and 2 small and medium farm Hhs respectively. So, in this section, total value of 62 qtls and 66 qtls of paddy sold by 3 and 2 small and medium Hhs (on aggregate level), has been calculated at Rs. 232320 and the sale price of which being Rs. 1815/qtl. On overall level, 128 qtls of paddy were sold to agency, i.e., PACS. Total value of paddy sold by small Hhs (62 qtls) at MSP was Rs. 112530. In case of medium farm Hhs, who sold 66 qtls of paddy at MSP, received Rs. 119790 as total value (table 7.11).

Table 7.11: Total Value of crop paddy sold to agencies at MSP (in Rs)

Landholding Categories	quantity sold (Qtls)	sale price (Rs)	value of the crop (Rs)
Marginal	---	---	---
Small	62	1815.00	112530.00
Medium	66	1815.00	119790.00
Large	---	---	---
Very large	---	---	---
Total	128	1815.00	232320.00

Source: Primary Survey.

7.12 Reasons for not selling to Agencies at MSP

In this section, exercise has been made to decipher about the reasons for not selling to mandated agencies that procure crops at MSP. Calculations have been made in number of Hhs terms. Except the 5 farmers (1.67%), who sold paddy at MSP, remaining 295 (98.33%) Hhs found the agency not procuring disposable quantities of the crop in time. In regard to maize (kharif), wheat and maize (rabi), all the 300 surveyed Hhs mentioned that procurement agencies were not available for purchases of these crops (tables 7.12.1, 7.12.2, 7.12.3 and 7.12.4).

Table 7.12.1: Reasons for not selling to agencies procuring crops paddy at MSP
(Number and % of Households)

Landholding Categories	procurement agency not available/Not procured in time	no local purchaser	poor quality of crop	crop already pre-pledged	received better price over MSP	total
Marginal	130 (43.33)	---	---	---	---	130 (43.33)
Small	88 (29.33)	---	---	---	---	88 (29.33)
Medium	47 (15.67)	---	---	---	---	47 (15.67)
Large	25 (8.33)	---	---	---	---	25 (8.33)
Very large	5 (1.67)	---	---	---	---	5 (1.67)
Total	295 (98.33)	---	---	---	---	295 (98.33)

Source: Primary Survey.
NB: In brackets percentage figures are shown.

Table 7.12.2: Reasons for not selling to agencies procuring crops maize (kharif) at MSP
(Number and % of Households)

Landholding Categories	procurement agency not available	no local purchaser	poor quality of crop	crop already pre-pledged	received better price over MSP	total
Marginal	130 (43.33)	---	---	---	---	130 (43.33)
Small	91 (30.33)	---	---	---	---	91 (30.33)
Medium	49 (16.33)	---	---	---	---	49 (16.33)
Large	25 (8.33)	---	---	---	---	25 (8.33)
Very large	5 (1.67)	---	---	---	---	5 (1.67)
Total	300 (100.00)	---	---	---	---	300 (100.00)

Source: Primary Survey.
NB: In brackets percentage figures are shown.

Table 7.12.3: Reasons for not selling to agencies procuring crops wheat at MSP
(Number and % of Households)

Landholding Categories	procurement agency not available	no local purchaser	poor quality of crop	crop already pre-pledged	received better price over MSP	total
Marginal	130 (43.33)	---	---	---	---	130 (43.33)
Small	91 (30.33)	---	---	---	---	91 (30.33)
Medium	49 (16.33)	---	---	---	---	49 (16.33)
Large	25 (8.33)	---	---	---	---	25 (8.33)
Very large	5 (1.67)	---	---	---	---	5 (1.67)
Total	300 (100.00)	---	---	---	---	300 (100.00)

Source: Primary Survey.
NB: In brackets percentage figures are shown

Table 7.12.4: Reasons for not selling to agencies procuring crops maize (rabi) at MSP
(Number and % of Households)

Landholding Categories	procurement agency not available	no local purchaser	poor quality of crop	crop already pre-pledged	received better price over MSP	total
Marginal	130 (43.34)	---	---	---	---	130 (43.34)
Small	91 (30.33)	---	---	---	---	91 (30.33)
Medium	49 (16.33)	---	---	---	---	49 (16.33)
Large	25 (8.33)	---	---	---	---	25 (8.33)
Very large	5 (1.67)	---	---	---	---	5 (1.67)
Total	300 (100.00)	---	---	---	---	300 (100.00)

Source: Primary Survey.
NB: In brackets percentage figures are shown.

7.13 Total Payment Received under PM-KISAN

In this section, data have been used to digest total payment received by the farm Hhs under PM-KISAN. It has been analyzed in number of Hhs terms. Data in table reveals that all the surveyed Hhs belonging to marginal and small LHCs, did receive two installments of their payment under PM-KISAN totaling Rs 1038000/- in 9 months. Across LHCs, marginal Hhs received Rs. 612000/- and small farmers got Rs. 426000/- (table 7.13). It is, thus evident that PM-KISAN has been functioning satisfactorily in the study area.

Table 7.13: Total payment received under PM-KISAN (number and % of households

Landholding Categories	payment received (Rs)	Number of households	time taken (months)
Marginal	612000	130 (43.34)	9
Small	426000	91(30.33)	9
Medium	---	00 (0.00)	---
Large	---	00 (0.00)	---
Very large	---	00 (0.00)	---
Total	1038000	221 (73.67)	9

Source: Primary Survey.
NB: In brackets percentage figures are shown.

7.14 Insurance of Reported Crops Grown

In this section, data based exercises have been made to embody in regard to whether the reported crops grown were insured. Findings have been made in number of Hhs terms. On overall level, only 14 Hhs (4.90%) out of the 300 surveyed farmers, reported to have been insured, when they received loan showing 286 Hhs (95.33%) to have not been insured. Across the LHCs, 3, 6, 3 and 2 farmers, who belonged to marginal, small, medium and large farm sizes respectively were insured only when they received loans. Thus, number of not insured farmers were quite large in regard to all LHCs, i.e., 42.33, 28.33, 15.33, 7.67 and 1.67 respectively (table 7.14).

Table 7.14: Whether the reported crops grown are insured? (Number and % of households)

Landholding Categories	insured only when received loan	insured additionally	not insured
Marginal	3	---	127 (42.33)
Small	6	---	85 (28.33)
Medium	3	---	46 (15.33)
Large	2	---	23 (7.67)
Very large	---	---	5 (1.67)
Total	14 (4.67)	---	286 (95.33)

Source: Primary Survey.
NB: In brackets percentage figures are shown.

7.15 Reasons for not insuring the Reported Crops

This section encompasses data based analysis to uncover reasons for not insuring the reported crops. It is to be noted here that only 14 Hhs (4.67%) had told to be insured in regard to reported crops i.e., paddy and wheat only. So, in this section, responses in regard to reasons for not insuring the reported crops have been captured and analyzed for 286 farm Hhs (95.33%) only. On overall level, not aware about availability of facility was told as most prominent reason for not insuring the crops 169 Hhs (59.09%). It was followed by not satisfied with terms and conditions, not aware, and not interested (15.73%, 13.99% and 11.19%) respectively. In number of Hhs terms, 45, 40 and 32 Hhs cited the reasons for not getting their crops insured as not satisfied with terms and conditions, not aware and not interested respectively. Across LHCs, marginal farmers were ahead in ascertaining different reasons for not

getting their crops insured, i.e., 127 Hhs (44.41%). It was followed by small, medium, large and very large farm Hhs with number being 85, 46, 23 and 5 (29.72%, 16.08%, 8.04% and 1.75%) respectively (table 7.15).

Table 7.15: Reasons for not insuring the reported crop (Number and % of households)

landholding categories	not aware	not aware about the availability of facility	Not interested	no need	insurance facility not available	lack of resources for premium payment	not satisfied with terms & conditions	nearest bank at a long distance	complex procedures	delay in claim payment	Others	Total N=286 (In %)
Marginal	18	82	12	---	---	---	15	---	---	---	---	127 (44.41)
Small	5	61	7	---	---	---	12	---	---	---	---	85 (29.72)
Medium	12	21	5	---	---	---	8	---	---	---	---	46 (16.08)
Large	5	5	8	---	---	---	5	---	---	---	---	23 (8.04)
Very large	---	---	---	---	---	---	5	---	---	---	---	5 (1.75)
Total (%)	40 (13.99)	169 (59.09)	32 (11.19)	---	---	---	45 (15.73)	---	---	---	---	286 (100.00)

Source: Primary Survey.

7.16 Total Premium Paid

This section is devoted to analysis of obtained data for trying to seize total premium paid, number of Hhs and average premium per household. As the 14 Hhs (4.67%) did get their crops, namely; paddy and wheat insured only when they had received loan, information related to these two crops and 14 Hhs (4.67%) have been dealt here. On overall level, average premium per Hh (having considered 14 Hhs) only paid for paddy and wheat were calculated as Rs. 1714.29 and Rs. 1285.71 respectively. Total amounts of premium paid by all the loanee farmers in regard to paddy and wheat were estimated at Rs. 24000/- and Rs. 18000/- respectively. Across LHCs, highest and lowest amounts of average premium per Hh paid were evident in regard to large and marginal farm Hhs meant for both the crops, i.e., paddy and wheat (Rs. 4000, Rs. 3000 and Rs. 1000 and Rs. 750) respectively (table 7.16.1 & 7.16.2).

Table 7.16.1: Total Premium paid paddy

Landholding Categories	premium paid (Rs)	Number of households	Average premium per household (Rs.)
Marginal	3000	3	1000.00
Small	8000	6	1333.33
Medium	5000	3	1666.66
Large	8000	2	4000.00
Very large	---	---	---
Total	24000	14 (14.67%)	1714.29

Source: Primary Survey.

Table 7.16.2: Total Premium paid wheat

Landholding Categories	premium paid (Rs)	Number of households	Average premium per household (Rs.)
Marginal	2250	3	750
Small	6000	6	1000
Medium	3750	3	1250
Large	6000	2	3000
Very large	---	---	---
Total	18000	14 (4.67%)	1285.71

Source: Primary Survey.

CHAPTER – VIII

PROBLEMS IN FARMING, ECONOMIC RISKS FACED, COPING STRATEGIES AND SOCIAL NETWORKS

8.1 Adequacy of Income from Farming

A glance on data in the table imparts knowledge to the interesting fact that 100 per cent of the surveyed Hhs found income from farming to be inadequate. Across LHCs, irrespective of farm sizes, opined income from farming to be inadequate (table 8.1).

Table 8.1: Adequacy of income from farming

Landholding Categories	number of households		percentage of households	
	yes	no	yes	no
Marginal	---	130	43.34	100.00
Small	---	91	30.33	100.00
Medium	---	49	15.33	100.00
Large	---	25	8.33	100.00
Very Large	---	5	1.67	100.00
Total	---	300	100.00	100.00

Source: Primary Survey.
NB: In brackets percentage to total are shown.

8.2 Reasons for Inadequacy of Income from Farming

In this section, attempt has been made to draw inferences describing reasons for inadequate income from agriculture. Analysis has been made in number and percentage of Hhs terms. A glance on data in table helps to expatiate that declining yield, small landholdings, high temperature and non-availability of desired government support were equally prominent reasons (97.67%), responsible for income from farming being inadequate. Other significant reasons told by large number of total farm Hhs surveyed for incomes from farming being inadequate, were too low temperature (96%) followed by insufficient irrigation and bank credit not available (88.33%), un-remunerative price (87.67%), limited sources of credit (86.33%), price fluctuating a lot, and high interest rates charged by money lenders

(82% and 81.67%), equally intense reasons, like; absence of storage facility, poor market facilities, uncertain government support and inadequate bank credit (76.67% for each of the reasons). Surveyed farm Hhs also ascertained the reasons, viz., rodent problem and other animals' problem to be less prominent factors responsible for inadequate income from farming (96% and 32.67%) respectively (table 8.2).

Table 8.2: Reasons for inadequate income from farming
(Number and % to households)

Landholding Categories	Marginal	Small	Medium	Large	Very Large	Total (%)
yield going down	130	91	45	22	5	293 (97.67)
yield fluctuating a lot	---	---	---	---	---	---
small land size	130	91	45	22	5	293 (97.67)
absence of irrigation	---	---	---	---	---	---
insufficient irrigation	115	81	42	22	5	265 (88.33)
price not remunerative	115	80	41	22	5	263 (87.67)
price fluctuating a lot	110	75	40	18	3	246 (82.00)
temp is too high	130	91	45	22	5	293 (97.67)
temp is too low	130	91	45	22	---	288 (96.00)
temp fluctuating a lot	---	---	---	---	---	---
rainfall too high	---	---	---	---	---	---
rainfall too low	---	---	---	---	---	---
rainfall fluctuating a lot	---	---	---	---	---	---
pest problem/crop diseases	---	---	---	---	---	---
unavailability/inadequate supply of pesticides	---	---	---	---	---	---
unavailability/inadequate supply of fertilizers	---	---	---	---	---	---
absence of storage facility	101	76	32	18	3	230 (76.67)
absence of marketing facilities	---	---	---	---	---	---
poor marketing facilities	102	75	30	19	4	230 (76.67)
poor road connectivity	---	---	---	---	---	---
govt. support not available	130	91	45	22	5	293 (97.67)
uncertain govt. support	102	75	30	19	4	230 (76.67)
limited sources of credit	105	82	45	22	5	259 (86.33)
bank credit not available	115	81	42	22	5	265 (88.33)
inadequate bank credit	102	75	29	20	4	230 (76.67)
high interest rate of money lenders	100	80	40	20	5	245 (81.67)
rodent problem	102	72	31	18	5	228 (76.00)
other animal problem	36	30	16	11	5	98 (32.67)
lab shortage	---	---	---	---	---	---

Source: Primary Survey.

8.3 Severity of Reported Problems Faced in Farming

This section directs gaze to assess severity of reported problems faced in farming. On overall level, the entire farm Hhs surveyed (300), faced problems in different degrees. Lowest severity of problems was faced by maximum Hhs 242 (80.67%) followed by moderate and high. Moderate and high severity of the reported problems were told to have been experienced in farming by 53 and 5 Hhs (17.67% and 1.66%) respectively. Across LHCs, as per availability of farmers under different landholding classes selected for detail survey, proportionately higher to low number told for the severity level gauged in low, moderate and high (table 8.3).

Table 8.3: Severity of the reported problems faced in farming (Number of households)

Landholding Categories	low	moderate	high	Total (%)
Marginal	99	30	1	130 (43.34)
Small	80	11	---	91 (30.33)
Medium	42	5	2	49 (16.33)
Large	18	5	2	25 (8.33)
Very large	3	2	---	5 (1.67)
Total (%)	242 (80.67)	53 (17.67)	5 (1.66)	300 (100.00)

Source: Primary Survey.

NB: Figures in brackets indicate percentage of total

8.4 Economic Risks Faced by the Hhs during Last 2 Years

This section deals with analysis to find out economic risks faced by the Hhs in the last two years, i.e., July 2016 to June, 2018. Economic risks have been broadly divided in 8 types (i) lack of finance/capital, (ii) lack of access to inputs, (iii) sharp fluctuations in input prices, (iv) sharp fluctuations in output prices, (v) lack of demand/inability to sell agricultural products, (vi) lack of demand/inability to sell non-agricultural products (vii) seasonal unemployment and (viii) other economic shocks. Analysis has been made in ranking terms (1-8) based on economic risks faced during July, 2016 to June, 2018. Rank-1 shows the risk to be most intense, whereas 8 indicate least important risk. Across LHCs, lack of finance/capital, and sharp fluctuations in output prices were the most intense risks, majority of marginal farm Hhs, i.e., 84 (28%) experienced with ranks 1 and 3 respectively. Same risks were found to have been reported by majority of small Hhs 59 number (19.67%) each

(ranks 1 and 4) respectively. Similar responses about the two above mentioned economic risks with ranking of 1 and 4 witnessed by an equal of 32 medium Hhs (10.67%). Almost similar response was observed with ranking 1 and 4 for the two economic risks experienced by large farms. Only in case of very large Hhs, 4 (1.33) out of 5 (1.67%) of Hhs experienced seasonal unemployment, lack of demand/inability to sell agricultural products and the above noted two risks i.e., 3 each in number (with ranking of 7, 6, 3 and 1) respectively. Cent per cent of the surveyed farm Hhs belonging to all LHCs (except medium ones) reported to have faced other economic shocks with least rank rating of 8 (table 8.4).

8.5 Coping Strategies Undertaken by the Households

This section uncovers by data digging coping strategies undertaken by the surveyed Hhs with respect to economic risks faced. On overall level, 158 farms Hhs, i.e., 52.67 per cent of the total 300 households told one or other type of coping strategies undertaken by the Hhs with respect to economic risks. Most strong coping strategy cited was reduction in Hhs consumption expenditure calculated at 76 (48.11%). Across LHCs, out of the total 158 Hhs (52.67%), who ascertained one or other type of coping strategies, marginal Hhs were ahead (29%) followed by small, medium, large and very large (12.00, 6.67, 3.33 and 1.67 %) respectively. Some other coping strategies undertaken by Hhs in regard to economic risks faced were storage of crops for better price 60 Hhs (37.97%), deferred social and family functions and worked as wage labour in the village counted as 11, each 6.96 per cent (table 8.5).

Table 8.4: Types Economic risks faced in the last two years (Rank 1-8) (N= 300 Hhs)

	Marginal								Small								Medium								Large								Very large							
	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8
lack of finance/capital	84	46	-	-	-	-	-	-	59	32	-	-	-	-	-	-	32	17	-	-	-	-	-	-	17	8	-	-	-	-	-	-	3	2	-	-	-	-	-	-
lack of access to inputs	54	25	23	28	-	-	-	-	26	23	22	40	-	-	-	-	15	18	11	8	-	-	-	-	8	7	6	4	-	-	-	-	1	1	1	2	-	-	-	-
sharp fluctuations in input prices	20	16	42	40	12	-	-	-	11	10	30	32	8	-	-	-	7	12	11	12	7	-	-	-	3	6	7	7	2	-	-	-	1	1	2	-	1	-	-	-
sharp fluctuations in output prices	-	-	84	46	-	-	-	-	-	-	32	59	-	-	-	-	-	-	17	32	-	-	-	-	-	-	8	17	-	-	-	-	-		3	2	-	-	-	-
lack of demand or inability to sell agricultural products	-	-	-	-	51	52	27	-	-	-	-	-	34	38	19	-	-	-	-	-	21	20	8	-	-	-	-	-	11	10	4	-	-	-	-	-	2	3	-	-
lack of demand or inability to sell non-agricultural products	-	-	-	-	48	51	31	-	-	-	-	-	35	36	20	-	-	-	-	-	18	10	11	-	-	-	-	-	8	12	5	-	-	-	-	1	2	1	-	-
Seasonal unemployment	-	-	-	-	31	48	51	-	-	-	-	-	22	22	36	-	-	-	-	-	9	12	18	-	-	-	-	-	4	10	11	-	-	-	-	-	-	1	4	-
Other economic shocks (specify)	-	-	-	-	-	-	-	130	-	-	-	-	-	-	-	91	-	-	-	-	-	-	-	39	-	-	-	-	-	-	-	25	-	-	-	-	-	-	-	5

Source: Primary Survey.

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

Landholding Categories	Marginal	Small	Medium	Large	Very Large	Total (%)
stored crops for better price	27	18	10	5	---	60 (37.97)
carried out primary processing	---	---	---	---	---	---
reduced household consumption exp	38	18	10	5	5	76 (48.11)
reduced health exp	---	---	---	---	---	---
took children out of school	---	---	---	---	---	---
deferred social & family functions	11	---	---	---	---	11 (6.96)
sold land	---	---	---	---	---	---
sold livestock	---	---	---	---	---	---
mortgaged/leased out land	---	---	---	---	---	---
borrowed money from bank	---	---	---	---	---	---
borrowed money from moneylenders	---	---	---	---	---	---
borrowed from friends/relatives	---	---	---	---	---	---
worked as wage labour in the village	11	---	---	---	---	11 (6.96)
started petty business/shops	---	---	---	---	---	---
total	87 (29.00)	36 (12.00)	20 (6.67)	10 (3.33)	5 (1.67)	158 (52.67)

Source: Primary Survey.
NB: In brackets percentage to total are shown.

8.6 Membership of Hhs in Gram Panchayat and other Organizations

In this section, data based analysis in regard to membership of Hhs in Gram Panchayat (GP) and other organizations as reported by the Hhs has been resolved. Information related to membership was asked for the last 3 years' period, i.e., during July, 2015 to June, 2018. On overall level, out of the total farm Hhs (300) surveyed, highest number of Hhs, i.e., 97 (32.33%) were found to be the member of Dairy Co-operative Societies (DCSs) followed by political parties and SHGs (8.67% & 6%) respectively. An equal number of 15 Hhs (5%) were the members of GPs and Caste-based associations. Across LHCs, farms of all size groups, except very large had taken membership of GP, DCSs, SHGs, political parties and caste-based association in different numbers. The number of Hhs with membership was, no doubt, very small,

except that of DCS. Very large farm Hhs were not found to be the members of GPs, SHGs and Caste-based Associations (table 8.6).

Table 8.6: Membership of households in different organizations during last 3 years

Landholding Categories	Gram Panchayat		DCS		SHGs		Political Party		Caste-based Association	
	number of Hhs	%	number of Hhs	%	number of Hhs	%	Number of Hhs	%	Number of Hhs	%
Marginal	7	2.33	36	12.00	9	3.00	8	2.67	7	2.33
Small	4	1.33	30	10.00	5	1.67	5	1.67	4	1.33
Medium	2	0.67	16	5.33	1	0.33	7	2.33	2	0.67
Large	2	0.67	10	3.33	3	1.00	4	1.33	2	0.67
Very large	---	---	5	1.67	---	---	2	0.67	---	---
Total	15	5.00	97	32.33	18	6.00	26	8.67	15	5.00

Source: Primary Survey.

8.7 Reasons for not being Member of Gram Panchayat and/Other Organizations

In this section, exercises have been to enumerate the number of Hhs, who told about reasons for not being a member of GP and /other organizations. Analysis has been done in number of Hhs terms. It is to be noted here that some of the Hhs could be at a time, members of more than one or all the five types of associations/groups/party or GP as well. On overall level, majority of surveyed Hhs cited available but no opportunity, as the main reason for not being member of the Gram Panchayat, DCS, and SHGs i.e., 285, 203 and 282 (95%, 66.67% and 94%) respectively. Time consuming was the reason told by large number of Hhs for not being members of political party/group and caste association 274 and 208 (91.33% and 69.33%) respectively. Across LHCs, the number of farm Hhs in proportion to their available number chosen for detailed survey, was found to have been described as reasons for not being members of GP and other organizations (tables 8.7.1, 8.7.2, 8.7.3, 8.7.4 & 8.7.5).

Table 8.7.1: Reasons for not being a member of gram panchayat (Number and % of households)

Landholding Categories	not available	available but no opportunity	no benefit	time consuming
Marginal	---	123 (41.00)	---	---
Small	---	87 (29.00)	---	---
Medium	---	47 (15.67)	---	---
Large	---	23 (7.67)	---	---
Very large	---	5 (1.66)	---	---
Total	---	285 (95.00)	---	---

Source: Primary Survey.
NB: Figures in brackets indicate percentage of total

Table 8.7.2: Reasons for not being a member of PDCS (Number and % of households)

Landholding Categories	not available	available but no opportunity	no benefit	time consuming
Marginal	---	94 (31.34)	---	---
Small	---	61 (20.33)	---	---
Medium	---	33 (11.00)	---	---
Large	---	15 (5.00)	---	---
Very large	---	00 (0.00)	---	---
Total	---	203 (66.67)	---	---

Source: Primary Survey.
NB: Figures in brackets indicate percentage of total

Table 8.7.3: Reasons for not being a member of SHGs (Number and % of households)

Landholding Categories	not available	available but no opportunity	no benefit	time consuming
Marginal	---	121 (40.33)	---	---
Small	---	86 (28.67)	---	---
Medium	---	48 (16.00)	---	---
Large	---	22 (7.33)	---	---
Very large	---	5 (1.67)	---	---
Total	---	282 (94.00)	---	---

Source: Primary Survey.
NB: Figures in brackets indicate percentage of total

Table 8.7.4: Reasons for not being a member of Political Party/Group (Number and % of households)

Landholding Categories	not available	available but no opportunity	no benefit	time consuming
Marginal	---	---	---	122 (40.67)
Small	---	---	---	86 (28.66)
Medium	---	---	---	42 (14.00)
Large	---	---	---	21 (7.00)
Very large	---	---	---	3 (1.00)
Total	---	---	---	274 (91.33)

Source: Primary Survey.
NB: Figures in brackets indicate percentage of total

Table 8.7.5: Reasons for not being a member of Caste-based Association (Number and % of households)

Landholding Categories	not available	available but no opportunity	no benefit	time consuming
Marginal	---	---	---	94 (31.33)
Small	---	---	---	61 (20.33)
Medium	---	---	---	33 (11.00)
Large	---	---	---	15 (5.00)
Very large	---	---	---	5 (1.67)
Total	---	---	---	208 (69.33)

Source: Primary Survey.
NB: Figures in brackets indicate percentage of total

8.8 Post Held as Member of Gram Panchayat and Other Organizations

A glance on data in the table provides ground to enunciate that all the Hhs, who reported to be members of Gram Panchayat, DCS and SHGs, were active members (5.00, 32.33 & 6.00 %) respectively. Only in case of political party (ies) and caste-based associations, 100 per cent of the members, who told to be the members, were ordinary members (8.67 & 5.00 %) respectively (tables 8.8.1, 8.8.2, 8.8.3, 8.8.4 & 8.8.5).

Table 8.8.1: Post held as a member of gram panchayat (Number and % of households)

Landholding Categories	ordinary member	active member	office bearer
Marginal	---	7 (2.33)	---
Small	---	4 (1.33)	---
Medium	---	2 (0.67)	---
Large	---	2 (0.67)	---
Very large	---	00 (0.00)	---
Total	---	15 (5.00)	---

Source: Primary Survey.
NB: In brackets percentage to total are shown.

Table 8.8.2: Post held as a member of PDCS (Number and % of households)

Landholding Categories	ordinary member	active member	office bearer
Marginal	---	36 (12.00)	---
Small	---	30 (10.00)	---
Medium	---	16 (5.33)	---
Large	---	10 (3.33)	---
Very large	---	5 (1.67)	---
Total	---	97 (32.33)	---

Source: Primary Survey.
NB: In brackets percentage to total are shown.

Table 8.8.3: Post held as a member of SHGs (Number and % of households)

Landholding Categories	ordinary member	active member	office bearer
Marginal	---	9 (3.00)	---
Small	---	5 (1.67)	---
Medium	---	1 (0.33)	---
Large	---	3 (1.00)	---
Very large	---	00 (0.00)	---
Total	---	18 (6.00)	---

Source: Primary Survey.
NB: In brackets percentage to total are shown.

Table 8.8.4: Post held as a member of Political Party/Group (Number and % of households)

Landholding Categories	ordinary member	active member	office bearer
Marginal	8 (2.67)	---	---
Small	5 (1.67)	---	---
Medium	7 (2.33)	---	---
Large	4 (1.33)	---	---
Very large	2 (0.67)	---	---
Total	26 (8.67)	---	---

Source: Primary Survey.
NB: In brackets percentage to total are shown.

Table 8.8.5: Post held as a member of Caste-based Association (Number and % of households)

Landholding Categories	ordinary member	active member	office bearer
Marginal	7 (2.33)	---	---
Small	4 (1.33)	---	---
Medium	2 (0.67)	---	---
Large	2 (0.67)	---	---
Very large	00 (0.00)	---	---
Total	15 (5.00)	---	---

Source: Primary Survey
NB: In brackets percentage to total are shown.

8.9 Benefits of Membership of Gram Panchayats and other Organizations

This section deals with analysis of data to depict benefits of being a member of Gram Panchayats (GPs) and other organizations. Benefits have been examined in terms of sharing information. Sharing of information comprises; (i) agricultural practices and

livestock management, (ii)_ input usage, (iii) credit sources, (iv) price and markets, and; (v) government schemes. Farm Hhs, who were members of GP (5.00%) were benefitted in the form of government schemes. Members of DCSs got benefitted in the form of information sharing related to price and markets (32.33%) and SHGs by credit sources (6.00%). On the one hand, members of caste-based associations didn't experience any benefit of being member, there on the other hand, all the surveyed Hhs, who were members of political party(ies) 8.67 per cent got benefits of government schemes (tables 8.9.1, 8.9.2, 8.9.3 & 8.9.4).

Table 8.9.1: Benefits of being a member of Gram Panchayat (Number and % of households)

Landholding Categories	**sharing information on**					
	agricultural practices & livestock management	input usage	credit sources	price & markets	govt. schemes	total
Marginal	---	---	---	---	7 (2.33)	7 (2.33)
Small	---	---	---	---	4 (1.33)	4 (1.33)
Medium	---	---	---	---	2 (0.67)	2 (0.67)
Large	---	---	---	---	2 (0.67)	2 (0.67)
Very large	---	---	---	---	00 (0.00)	00 (0.00)
Total	---	---	---	---	15 (5.00)	15 (5.00)

Source: Primary Survey.
NB: In brackets percentage to total are shown.

Table 8.9.2: Benefits of being a member of PDCS (Number and % of households)

Landholding Categories	**sharing information on**					
	agricultural practices & livestock management	input usage	credit sources	price & markets	govt. schemes	total
Marginal	---	---	---	36 (12.00)	---	36 (12.00)
Small	---	---	---	30 (10.00)	---	30 (10.00)
Medium	---	---	---	16 (5.33)	---	16 (5.33)
Large	---	---	---	10 (3.33)	---	10 (3.33)
Very large	---	---	---	5 (1.67)	---	5 (1.67)
Total	---	---	---	97 (32.33)	---	97 (32.33)

Source: Primary Survey.
NB: In brackets percentage to total are shown.

Table 8.9.3: Benefits of being a member of SHGs (Number and % of households)

Landholding Categories	sharing information on					
	agricultural practices & livestock management	input usage	credit sources	price & markets	govt. schemes	total
Marginal	---	---	9 (3.00)	---	---	9 (3.00)
Small	---	---	5 (1.67)	---	---	5 (1.67)
Medium	---	---	1 (0.33)	---	---	1 (0.33)
Large	---	---	3 (1.00)	---	---	3 (1.00)
Very large	---	---	00 (0.00)	---	---	00 (0.00)
Total	---	---	18 (6.00)	---	---	18 (6.00)

Source: Primary Survey.
NB: In brackets percentage to total are shown.

Table 8.9.4: Benefits of being a member of Political Party/Group (Number and % of households)

Landholding Categories	sharing information on					
	agricultural practices & livestock management	input usage	credit sources	price & markets	govt. schemes	total
Marginal	---	---	---	---	8 (2.67)	8 (2.67)
Small	---	---	---	---	5 (1.67)	5 (1.67)
Medium	---	---	---	---	7 (2.33)	7 (2.33)
Large	---	---	---	---	4 (1.33)	4 (1.33)
Very large	---	---	---	---	2 (0.67)	2 (0.67)
Total	---	---	---	---	26 (8.67)	26 (8.67)

Source: Primary Survey.

CHAPTER – IX

SUMMARY AND CONCLUSIONS

9.1 Introduction

Agricultural Marketing is defined as the commercial functions involved in transferring agricultural products consisting of farm, horticultural, dairy and other allied products from producer to consumer. It includes all activities involved in moving agricultural produces from producers to consumers through time (storage), space (transport), form (processing) and; transferring ownership at various levels of marketing channels.

Since we do not have NSSO data for farmers' income after 2012-13, one way to extrapolate farmers' income in 2018-19 would be to apply CAGR of 8.2 per cent in the nominal gross value added component of agriculture and allied activities between 2012-13 and 2018-19 on the farmers' income figures given in the NSSO report. Basically, this increases farm incomes by the same proportion as the agriculture component of the economy. Once this growth rate is applied, the nominal average income of a farmer in 2018-19 increased to Rs. 10329 per month, while the average weighted income of the beneficiary group increased to Rs. 8422 per month.

The effects of input prices and input-use on increase in cost of cultivation from the trend in cost expressed at current and at 2004-05 prices, show that at aggregate level, physical use of inputs has marginally changed, whereas cost of cultivations at current prices, witnessed sharp increase, which turned exponential after mid-2000. These changes imply that a large share of increase in cost is attributed to the rising prices of the inputs, which in turn, will result in declined cost saving for the farmers.

It is, in this context, the present work is an inevitable attempt to study the functioning of some of these important outputs and input markets, and their effects on erosion of farm profitability. Attempt has been made to understand market imperfections

related to product, input, labour, credit, and; land, etc. Before dwelling on possible market imperfections in the region, it will be desirable to understand what perfect markets are. A perfect market is one, in which the conditions hold good: (a) large number of buyers and sellers (b) all the buyers and sellers in the market have perfect knowledge of demand, supply and prices, (c) prices at any one time are uniform over a geographical area, (d) the prices are uniform at any one place over periods of time, plus or minus the cost of storage from one place to another, and (e); the prices of different forms of a product are uniform, plus or minus the cost of converting the product from one to another.

As regards the **product market** in the state, it is to noted here that cereals dominate the cropping pattern, occupying more than 86 per cent of the gross cropped area (GCA) followed by pulses (6.94%), oilseeds (1.46%), fibre crops (1.24%) and cash crops (3.6%). Within the cereals; rice (48.8%), wheat (33.3%) and maize (10.3%) contribute 79.5 per cent of the GCA. Moreover, the state has a traditional food grain economy of the total food grains production (16.31 MTs), cereals constitute 97.2 per cent and pulses 2.8 per cent. The marketed surplus of food grains ranged between 20-30 per cent and around 35-40 per cent in case of pulses. The inadequate post-harvest infrastructure in the state results 3-6 per cent losses in food grains *(Intodia, 2012).* As per our study *(Sinha, 2004),* the marketed surplus of paddy and wheat were 42.2 per cent and 68.8 per cent and the producer's share in consumer's rupee for paddy and wheat were about 80.15 per cent and 78.40 per cent respectively. However, in case of maize produce, the marketed surplus was 90.2 per cent and the most important marketing channel was 'Farmer --- Village Trader --- Commission Agent --- Wholesaler --- Maize Stocker (mainly from corporate houses or big industrialists), accounted for 44.04 per cent of total disposal.

Besides, **prices** received by the producers for the major cereals particularly, trail behind the MSPs of the respective produces, as revealed in our recent studies. It generally ranged between 20 to 30 per cent lower than MSP of the respective produces. During 2019-20, the state government fixed a rate of Rs. 1815/quintal as MSP of paddy, but farmers were compelled to sell paddy to local traders at lower

rate of around Rs. 1350/quintal i.e., 25.62 per cent lower to MSP till February, 2020. As regards the procurement of cereals is concerned only paddy and to some extent wheat were also procured. The quantities of procurement of paddy during last five years were about 23.06 per cent in 2014-15, 26.94 per cent in 2015-16, 22.35 per cent in 2016-17, 14.63 per cent in 2017-18 and 23 per cent in 2018-19 against the total production of paddy in respective years *(Khan, 2020).* In case of wheat, less than one per cent i.e., 0.81 per cent was procured in the state by the Central and State government agencies in the rabi marketing season of 2020-21, against the estimated production of wheat for 61 lakh metric tons. In 2019-20, 2815 tons, 17504 tons and in 2017-18, 20000 tons were procured in the state. These quantities too are less than 1.00 per cent of the total wheat produced in the state in respective years.

The Government has repealed its APMC Act (1960), w.e.f., 2006 as the functioning of the markets during the APMC regime was not very efficient and therefore trade in number of markets could not fully shifted till date. As of now a significant part of the marketable surplus is being traded outside the market yards in free market regime. Though, the state had 95 regulated APMC markets, out of which 54 markets, where basic infrastructure existed are under comprehensive review for its revival under different State Agriculture Road Maps (I, II & III) but still devoid of basic infrastructural facilities.

As regards the **seed market** in the state is concerned, it is hardly met by the government agency i.e., Bihar State Seed Corporation. During last four years, i.e., 2015-16 to 2018-19, there was wide gap between the demand and supply of seeds in the state. Among major kharif crops, the demand and supply gap stood between 25 to 33 per cent for paddy, about 80 per cent plus for maize. However, in case of rabi crops, the demand and supply gap for wheat crop has improved significantly and it was surplus of 1.28 per cent in 2018-19. Similarly, the surplus was noticed in case of gram pulse. Besides, huge gap was noticed in case of lentil pulse (-75.97%) during 2018-19, which is the most important pulse crop in the state. These gaps are fulfilled either from the farmer's last year's retained stock for seeds or from local seeds market, which are exploitative in terms of prices and quality both.

Fertilizers have become an integral input in augmenting crop productivity since the era of Green Revolution. Per hectare consumption of fertilizer (NPK) in the state during 2018-19 was 227.30 kg (the second highest in the country after Telangana) as compared to 133.12 kg/ha for the All-India figure. About 58 per cent of the total annual consumption of fertilizers is made during rabi season and 42 per cent in kharif season. Urea (N) accounts for 69 per cent of the overall fertilizer consumption followed by Phosphate (P) (23%) and Potassium (K) (8%). The sale of fertilizers has been made mandatory for the whole country through POS machine since March, 2018 in Go-live mode, which is monitored under iFMS. More than 90 per cent fertilizers are sold by licensee fertilizer retailers who charge 10 to 20 per cent higher prices over the MRPs of respective grade of fertilizers. Besides, 56 per cent fertilizers are sold without Aadhar or other Ids and 46 per cent transactions are made on false/dummy identifications, State Government enquiry report revealed. Recently, to check the menace of black marketing of fertilizers, the government raided 1300 licensee retailers of fertilizers and of them, 318 licenses have been cancelled and 217 dealers were served with show cause notices. A study *(Sinha, 2020)* conducted on 60 retailers and 250 fertilizer buyer farmers in two sample districts of Bihar reveals that, on the day of visit, the opening stock of total fertilizers was 2459 MTs and out of it, the receipt of the stock in the PoS was just 0.03 per cent and sale (3.9%). The closing stock, as per PoS was (-) 3 per cent, physical stock 10.8 per cent and stock as per manual records (-) 16.17 per cent. So, the selling of fertilizers was being made without following the mandated norms of fertilizers' sale in the state, despite sufficient supply of all the grades of fertilizers.

The advent of technology has led to increased demand for modern inputs, which requires **credit support** particularly when nearly 42.5 per cent farm households in the state are indebted as compared to 51.9 per cent in the country. In fact, the indebted farmers borrowed 28.9 per cent from institutional sources and 71.1 per cent from non-institutional sources. Among the non-institutional sources, money lenders occupied large share, which accounted for 72 per cent, as revealed from NSSO's survey (70th round) conducted during the year 2013. The achievements of targets

under the Annual Credit Plan (ACP) have shown significant decline for the agriculture sector, besides the decline in achievement percentage of targets set for the agriculture sector from 97.3 per cent in 2015-16 to 69.08 per cent in 2019-20. The outstanding advances to agriculture sector were 20.08 per cent in 2014-15. Though, it has slashed to 0.24 per cent in 2018-19. In these circumstances, there is need to increase the targets for agricultural credit under the ACP so that dependence of the farmers on non-institutional credit could be minimized.

During the past 25 years, the average annual inflation in cost A_1+FL was about 10 per cent per annum. The decomposition of cost inflation among various factors revealed that labour alone contributed 53 per cent to the increase in cost of cultivation during 2007-08 to 2014-15. Labour cost contributed 16 per cent to the cost inflation during the same period. Thus, the labour cost is the predominant contributor of cost inflation, particularly in recent years and managing this factor of production alone can substantially reduce the cost of cultivation and increase the farm profitability *(Srivastava et.al, 2017).* **Agriculture labour market** in the state like; other state is in unorganized form. No institutions, be it formal or informal sector are in active mode for ensuring the supply of agricultural labour and monitor the cause of farm labour, despite many welfare programmes and existence of Minimum Wages Act. In fact, there is farm labour scarcity in the state. The percentage of people employed in agriculture has reduced by 17 per cent during 1999-2000 to 2019-20. Major factors responsible for disappearance of farm labourers in search of new livelihood options are low labour productivity and low real wages *(Jha, 2006),* increase in wages in non-farm sector (65%) compared to farm sector (15%), seasonality in agriculture, presumption of having low esteemed work, distress migration, threat of lives and livelihood due to recurring floods and frequent droughts, highly subsidized distribution of food grains through PDS in recent past and subsidy of farm machineries to some extent. It is also to be noted here that despite about 25 lakh reverse migrants in the state during Covid – 19 lockdowns; they have started to return their respective places, leaving the farm economy of the state in pre-Covid-19 situations, which witnessed farm labour scarcity in the state.

Agricultural land constitutes a substantial part of Bihar in total geographical area (9360 thousand hectares), as nearly 56 per cent is under net sown area in 2018-19, which declined from 60.5 per cent in 2001-02 (after bifurcation of the state in November, 2000). The gross cropped area (GCA), which was 7897 thousand hectare in 2001-02 slashed to 7525 thousand hectare in 2018-19, registering a decline of nearly 4.7 per cent. However, the cropping intensity has increased from 1.39 in 2001-02 to 1.44 in 2018-19. As per 2011 census, more than 85 per cent of the population lived in rural areas and their most important source of livelihood is their own landholdings. There is growing evidences indicating very small size of land holdings in India, and Bihar is no exception. Small and marginal landholdings, which are less than two hectares, account for nearly 97 per cent of the landholdings in the state. The average size of land holdings in Bihar during 2015-16 was just 0.39 hectare, while it was 1.08 hectares at All-India level. The average agricultural density in the state was 238 per square hectare in 2011, against the all-India figure of 110 per square hectare. It is obvious that the pressure on land in the state is more than double than the all-India situation. So, the dependence of agricultural population on cultivable land needs to be reduced for enhanced farm profitability.

9.2 Objectives of the Study

i. To analyze the product markets (output) including price(s) received (market as well as MSP if any), marketing channels, market structure and bottlenecks;
ii. Analyze the input markets including seeds, fertilizer, labour, etc. with particular attention to costs (of the inputs), market structure and problems in accessing the same;
iii. Analyze the government support structure including access to credit, and;
iv. Analyze the coping strategies of farmers during economic hardships and their social networks.

9.3 Methodology, Sampling and Analytical Framework

As per suggested methodology, a multi-stage sampling has been adopted for the study. At the first stage, one district had to be selected from each agro-climatic

region in the state. In Bihar, there are three agro-climatic zones, viz., Zone - I, Zone – II, and; Zone – III (comprising IIIA & IIIB). Districts that contained in Zone – I are: Siwan, Gopalganj, Saran, Bettiah, Motihari, Vaishali, Muzaffarpur, Sheohar, Sitamarhi, Madhubani, Darbhanga, Samastipur and Begusarai (13 in number). Zone – II consists of eight districts, namely: Purnia, Katihar, Madhepura, Kishanganj, Saharsa, Supaul, Khagaria and Araria. Zone – III covers districts namely: Bhagalpur, Banka, Munger, Jamui, Lakhisarai and Sheikhpura (falling under III – A), Patna, Jehanabad, Nalanda, Aurangabad, Kaimur, Buxar, Gaya, Nawada, Ara, Sasaram and Arwal under III – B, i.e., total 17 districts formed part of Zone – III. Thus, total number of districts in Bihar is 38.

Three districts one each from the three agro-climatic regions, i.e.; Zone I, II and III have been chosen with sufficient consideration of the cropping pattern, such that the cropping pattern varied across the districts. The three selected districts are: Begusarai, Katihar and Bhagalpur from Zone – I, II and III respectively. At the second stage of sampling, from each district, two villages have been selected with sufficient geographic spread. At the third level of sampling, a complete household listing (CHHL) has been carried out in selected villages. At the fourth stage of sampling, from each village, sample of 50 farmers has been taken with representation from each land size category (LSC). The households from LHCs, i.e., Marginal (< 1 ha), Small (1-2 ha) Medium (2.1-4 ha), Large (4.1–10 ha) and very large (>10 ha) have been selected using stratified random sampling (SRS) with PPS method (probability proportional to size) with a minimum of two Hhs from each category. The contour of selected districts and villages under different agro-climatic zones has been presented below:

ACZ	Name of the Zone	District	Village Cluster	Sample Hhs
I.	North-West Alluvial Plain	Begusarai	Keshavai & Korai	100
II.	North-East Alluvial Plain	Katihar	Nawabganj & Narayanpur	100
III.	South-Bihar Alluvial Plain	Bhagalpur	Rangara & Kurpat Baizalpur	100
	Total	03	---	300

9.4 Summary of Findings

9.4.1 Overview of the Study Region

Located in the eastern part of India, Bihar has an area of 93.6 lakh hectares, accounting for nearly 3 per cent of the country's total geographical area. The state comprises three agro-climatic zones, viz, (i) North-West alluvial plain, (ii) North-East alluvial plain, and; (iii) South-Bihar alluvial plain. **Soil types of Zone-I** comprising 13 districts (34.21%) are medium acidic, heavy textured, sandy loam to clay loam. The districts in zone one are flood prone with mean rainfall of 1235 mms. Major crops grown in this zone were: Rice, wheat, Maize, Potato, Sugarcane, Mango and litchi. **Agro-climatic Zone–II** is comprised of 08 districts (21.05%). The districts did oftenly face devastating floods during rainy season almost every year. Maize, Jute, Pineapple, etc. were some of the major crops of this zone. **Agro-climatic Zone – III** comprising 17 districts (44.74%) is blessed with alluvial to sandy loam types of soil. Major crops of the zone were: Paddy, Wheat, Potato, Grams, Mango and Guava.

Absence of desired storage facility and lack of godowns at the panchayat and block levels compel farmers (particularly semi-medium, medium, large, and in some cases, small farm Hhs too) to concord with local traders for selling their produces at lower than remunerative prices also. Generally paddy crop in the district is damaged due to floods. It was fully damaged due to devastating flood that took place during last of September, 2019. Till the first week of March, 2020, impoverishing losses of farmers due to unprecedented late flood were not fully compensated.

It is to be mentioned here that as per suggested methodology, land size categories have been defined as; Marginal (< 1 ha, i.e., less than 2.471 acres), Small (1-2 ha, i.e., 2.471 to 4.94 Acres), Medium (2.1-4 ha, i.e., 5.19 -9.88 acres), Large (4.1 – ha, i.e., 10.13-24.71 acres) and Very Large (> 10 ha, i.e., > 24.71 acres). Out of the total 300 farm Hhs surveyed, 130 (43.33%) belonged to marginal followed by small, medium, large and very large sized (30.33, 16.33, 8.33 and 1.67 %) respectively. No surveyed farm Hhs belonged to landless category. Average size of total land holding of the surveyed farm Hhs was 4.55 acres and for marginal, small, medium, large and very large farmers were calculated as; 1.57, 3.80, 6.74, 13.94 and 27.44 acres respectively. Largest

average area that had been leased-out was by large farmers (0.60 acre), marginal farmers were at top in regard to have leased-in land (0.21 acre). Average irrigated and un-irrigated land areas were largest in case of very large farmers (26.84 acres and 0.60 acre) respectively. None of the farmers surveyed from medium, and very large categories belonged to SC and ST social classes. Out of the total 300 respondents, only 9 (3%) and 2 (0.67%) belonged to SCs and OBCs and 70 (23.33%) from general castes. Large number of these castes was from marginal and small LHCs. It was interesting to note that all of the surveyed farmers irrespective of their numbers undertook cultivation as their principal occupation. Per household total net income at overall farms was Rs. 50544 constituting 50.88 per cent from cultivation (Rs. 25719), 23.89 per cent from animal husbandry activities (Rs. 12077) and 25.23 per cent from wage labour (Rs. 12750). Across the farms, the total net income varied between Rs. 36723 to Rs. 173562. In fact it increased with the increase of farm sizes. In case of marginal farmers, the income from wage labour (Rs. 18577/hh) was higher. Small farmers largely earned from agriculture (20764/hh) In case of medium farmers, it was higher on agriculture (Rs. 43672/hh). Large and very large farmers obtained higher net returns from cultivation (Rs. 85658/hh and Rs. 124292/hh respectively). Above analysis clearly reveals that marginal farmers' net income from agriculture was just 19.3 per cent as compared to 71 to 75 per cent of medium, large and very large farmers.

Of the total livestocks possessed by the sample households, milch cows accounted for 83.92 per cent followed by milch buffaloes (11.89%) and goats (4.19%). Of the total milch cows possessed by the sample Hhs, 32.89 per cent belonged to marginal farmers followed by small (25.17%), medium (13.99%) large (8.39%) and very large (3.50%). It can be said that on overall level high proportion of surveyed farm Hhs streaked rearing milch cows and buffaloes taken together more than 95 per cent of the livestocks as the supplementary activities of agriculture. On overall level, 100 per cent of the surveyed Hhs possessed tube wells. Bore well and diesel pumps were equally owned and shared by 57.67 per cent of the respondents. Tractors and threshers were possessed by only 10 per cent of the farm Hhs. It is interesting to note

that all sample households of very large farms and 84 per cent of large farm Hhs possessed tractors and threshers respectively while 8.16 per cent of the medium farm Hhs were found to have possessed tractors and threshers.

9.4.2 Crop and Input Markets

The survey includes information/data in regard to 08 crops. These have been named and coded as: (i) crop – I (Paddy) – 0101, (ii) crop – 2 (Maize, Kharif) – 0104, (iii) crop – 3 (Maize Rabi) – 0104, (iv) crop – 4 (Wheat) – 0106, (v) crop – 5 (Gram) – 0201, (vi) crop – 6 (Masur) – 0205, (vii) Crop -7 (Potato) – 0701 and (viii) crop – 8 (Onion) – 0708. All of the surveyed farm Hhs belonging to all the five LHCs did undertake growing four major crops, viz., crop – I to crop – 4, namely; paddy, maize (Kharif), maize (Rabi), and wheat respectively. On overall level, besides the four cereal crops, crops 5, 6, 7 and 8 namely gram, masur, potato and onion were grown by 78.3, 65.3, 13.3 and 8.3 per cent of farmers respectively. Maximum areas undertaken for growing different crops were found to have been covered by crop-2 (552.88 acres) followed by crops – 4, 1, 3, 5, 6, 7, 8 (531.38, 379.18, 361.78, 222.22, 98.44, 28.04 and 12.46 acres) respectively. The productivities of crops 1, 2, 3, 4, 5, 6, 7 & 8 (including all LHCs on overall level) were 17, 15.73, 18.02, 19.56, 6.54, 6.04, 49.33 and 51.09 qtls/acre respectively. Conspectus on overall data did help to ascertain that highest average value was obtained by producing crop-5 (Rs. 3493/qtl). It was followed by crops-6, 3,8,2,4,1 & 7 (Rs. 2899, Rs. 1559, Rs. 1512, Rs. 1335, Rs. 1335, Rs. 1300 and Rs. 901/qtl) respectively. All the surveyed farmers across LHCs reported to have sold paddy to 'local private traders/middlemen,' except 4 (1.33%) and 1 (0.33%) Hhs (belonging to medium and large farmers) respectively. Cent per cent of the surveyed farm Hhs sold crops, namely: maize (kharif), wheat and maize (rabi) through local private traders Potato and onion were sold by only 40 (13.33%) and 25 (8.33%) farm Hhs taken together from all LHCs. Here again the agency for selling the crops remained local private traders. Out of the total 300 farm Hhs, 282 (94%) belonging to all LHCs reported lower than market price and faulty weighing and grading as reasons for dissatisfaction in case of disposal of paddy. Cent-per-cent of the surveyed farm Hhs expressed two reasons, viz., lower than market price and faulty weighing and grading responsible for their dissatisfaction in regard to disposal of maize

(kharif). In case of dissatisfaction felt while disposing wheat, 282 (94%) and (100%) of the surveyed farm Hhs corroborated the two reasons as cited in case of paddy and maize (kharif). In case of maize (rabi), the same two reasons were held responsible for dissatisfaction during disposal by 280 (93.33%) and 300 (100%) respectively. An equal number of 235 farms Hhs (78.33%) explained the two reasons noted above responsible for dissatisfaction in regard to disposal of masur (lentil). Reasons, viz., lower than market price and faulty weighing and grading were disclosed by equal number of farm Hhs (65.33 % in case of gram), 13.33 per cent (for potato) and 8.33 per cent each (for onion) respectively. It was interesting to note that except 5 farms Hhs (1.67%) belonging to large and very large farmers for crop – 1, no surveyed farmer told that prices received for the reported crops were reasonable. Reasons for unreasonable prices received have been considered for analyses are: (i) very few buyers, (ii) no government purchase, (iii) private buyers collude, (iv) no minimum fixed price. On overall level, 298 farm Hhs (76%) and 300 Hhs (100%) ascertained no government purchase, and private buyers collude, are prominent reasons for price received from paddy to be unreasonable. Cent per cent of the surveyed farm Hhs reported the same reasons as most prominent factors for the price of maize (kharif) being unreasonable. An equal number of 130 farm Hhs (43.33%) including all LHCs viewed the same reasons are responsible for price of wheat not being reasonable. Same two reasons were quoted by cent per cent of the farmers to be valid reasons for price of maize (rabi) being unreasonable. On overall level, an equal of 235 farm Hhs (78.33%) each felt reasons (ii) and; (iii) responsible for lentil (masur) price not being reasonable. Reasons (ii) and; (iii) were again held responsible for price of gram being unreasonable as felt by an equal number of 196 farm Hhs (65.33%) for each respectively. At aggregate level, number of farm Hhs, who mentioned these reasons (ii), (iii) and; (iv) for potato and onion were: 13.33, 13.33, 6.33 and 8.33, 8.33, 5.67 per cent respectively. Seed was procured by 2.00 and 0.33 per cent of marginal and small Hhs respectively from out of their farm saved quantities. In context with procurement of inputs for crop production (i) farm saved, (ii) exchange, (iii) purchase, and; (iv) borrowed like questions were considered. The entire surveyed farm Hhs told to have procured fertilizers by purchasing. In regard to procurement

of manure, farm saved and exchange means were used by 28.33 and 4.33 per cent of Hhs respectively. Plant protection chemicals (PPCs) were procured through purchase by cent per cent of the farm Hhs). Interest and lease rent for land like inputs were reported to have been procured through borrowing and quantities of farm saved produces' by 6.33 and 16.67 per cent of farm Hhs respectively.

Responses in regard to (i) own farm, (ii) local trader, (iii) input dealer, and; (iv) co-operative and government agency were obtained for analysis. Seed, fertilizers, and plant protection chemicals (PPCs) were found to have been procured through agencies namely local trader and input dealer. On overall level, the number of farm Hhs, who procured seeds from agencies namely local trader and input dealer were 64 (21.33%) and 236 (78.67%) respectively. Input like fertilizer was procured through agencies, namely; local trader and input dealer by 64 (21.33%) and 236 (78.67%) farm Hhs respectively. Manure was found to have been procured through agencies namely own farm and local trader by 85 (28.33%) and 13 (4.33%) Hhs respectively. In case of PPCs, agencies through which procured were local trader and input dealer availed by 92 (30.67%) and 208 (69.33%) farm Hhs out of total 300 surveyed. The input (irrigation) like manure was indicated to have been procured through agencies coded as (i) and (ii) by 173 (57.67%) and 127 (42.33%) farm Hhs respectively. In case of inputs, viz., Repairing and maintenance and interest, local trader was the only agency as reported by 17 (5.67%) and 19 Hhs (6.33%) respectively for the two. 50 farm Hhs (16.67%) out of the total 300 surveyed, procured amount for leased-in land from out of their own arm source. Expenses on human labour ranged with little differences between marginal, small, medium, large and very large Hhs in Rs./acre terms (calculated at Rs. 4307, Rs. 4308, Rs. 4179, Rs. 4203 and Rs. 4220) respectively. Medium farm Hhs were at top in expenses made for irrigation, whereas large Hhs were ahead in repair of machines (Rs. 5713/acre and Rs. 60/acre) respectively. Small farmers, evidently being the most resource-poor ones, made highest expense on interest payment (Rs. 89/acre). On overall level, out of the total expense of Rs. 29791/acre, highest share of expenses made for purchase of inputs was found on lease-in rent for land (30.95%). It was followed by expenses on irrigation (17.22%),

fertilizers (16.25%), human labour (14.24%), seeds (13.50%), PPCs (5.14%), manures (2.45%), interest (0.15%) and repairing and maintenance of machines (0.10%).

The entire 300 farm Hhs surveyed asserted the quality of seeds to be satisfactory. In regard to quality of fertilizers, 16.67 and 83.33 per cent of farm Hhs told these to be good and satisfactory respectively. Responses in case of quality of manure were cited as good and satisfactory by 15.67 and 17.00 per cent of Hhs respectively on aggregate level. Quality of inputs, namely; plant protection chemicals (PPCs) and irrigation were pronounced to be good and satisfactory by 24.33, 71.67 and 57.67, 42.33 per cent of Hhs respectively. Quality of inputs, namely; plant protection chemicals (PPCs) and irrigation were pronounced to be good and satisfactory by 24.33, 71.67 and 57.67, 42.33 per cent of Hhs respectively. In regard to input like interest, qualities were expatiated to be good and satisfactory by 4.67 and 1.67 per cent of Hhs. In case of repairing & maintenance, qualities were perceived as satisfactory and poor and for leased-in rent payment like input; only satisfactory was told by 3.67, 2.00 and 16.67 per cent of Hhs respectively. 261 (87% of the total) and 39 (13%) farm Hhs termed seed prices to be reasonable and high respectively. Similar responses were observed in regard to prices paid for inputs, like fertilizers and PPCs (87% and 13%) telling it to be reasonable and high respectively. On aggregate level, 32.67 per cent of farms HHs accepted the price of manure to be reasonable. Out of the total 300 farm Hhs surveyed, 173 (57.67%) and 127 (44.33%) expressed view of price for irrigation paid to be reasonable and high respectively. In regard to prices paid for repairing of farm machineries and interests paid, these, were perceived to be reasonable and high by 3.67, 2.00 and 4.67, 1.67 per cent of Hhs respectively. On overall level, 16.67 per cent of farms Hhs, told amount of leased-in rent to be reasonable. Reasons for prices being unreasonable consist of: (i) not subsidized, (ii) very few sellers, (iii) no government sellers, (iv) private sellers collude, and; no price control. In case of seed, 155 (51.67%) and 300 (100%) of farm Hhs held reasons (iii) and, (iv) responsible for price being unreasonable. In case of fertilizers, on overall level, 51.67, 62.33 and 71.00 per cent of farm Hhs informed reasons; (iii), (iv) and (v) responsible for prices being unreasonable. Reasons (iii) & (iv) were confirmed by 28.33 and 4.33 per cent of Hhs

respectively responsible for manure price not being reasonable. On overall level, 30.67 and 69.33 per cent of farm Hhs accepted absence of government sellers SN. (iii) and collusion of private sellers (iv) to be significant factors for price of PPCs being unreasonable. Non-availability of government sellers was the only factor quoted responsible for price of repairing & maintenance to be unreasonable (17 farm Hhs i.e., 5.67%).

9.4.3 Animal Products and Input Markets

Across LHCs, larger the size of landholding, lower the total sale value of milk was observed. As far average per capita sale value of milk is concerned, on overall level, it was Rs. 6,372 showing very large and large Hhs at top (Rs. 37986 and Rs. 8521) respectively. On overall level, 32.67 per cent of farm households reported to have sold AH product (milk) through Primary Dairy Co-operative Societies (PDCSs). Barring green and dry fodder, all the inputs related to AH, namely; animal seed, green fodder, concentrates and veterinary charges were procured by purchasing as told by 10.67, 15.67, 40.33, 40.33 and 40.33 per cent of farms Hhs respectively. Green and dry fodders were procured from out of the farm saved stocks (29.67 and 40.33 % Hhs) respectively. Number of surveyed farm Hhs, who ascertained (i) and (iii) means regarding procurement of dry fodder were; 15.67, 12.00, 6.67, 4.33, 1.67 and 6.00, 4.00, 2.67, 3.00, 0.00 per cent respectively. Procurement of concentrates was reported through purchasing only (15.67, 12.00, 6.67, 4.33 and 1.67 %) respectively. Same number of farm Hhs, like concentrates confirmed to have availed veterinary services on purchasing basis. Agencies considered here for analysis are: (i) own farm, (ii) local trader, (iii) input dealer, (iv) co-operative agencies and; (v) others. Data depicts that seed for animal husbandry was procured through agencies (iii) and (iv) 7.33 and 33.00 per cent of farm households) respectively. Own farm and local traders were informed to be agencies thorough which good number of farm Hhs procured green fodder and dry fodder (29.67, 10.67 and 40.33, 15.67 %) respectively. Local trader and input dealers were accessed to procure concentrates for animal husbandry (9.00 and 31.33 % of households) respectively. As far procurement of veterinary services is concerned, agencies (iii) and (iv) were used (as told by 7.33 and 33 % of households) respectively. In the surveyed areas, only cattle/buffaloes were found to have been

owned by surveyed households. On overall level, highest per household expenses for purchasing inputs related to animal husbandry were evident on animal feed (green and dry fodders) followed by labour charges, concentrates, veterinary charges, animal seeds and others (Rs. 1005, Rs. 996, Rs. 648, Rs. 289, Rs. 275, Rs. 105 and Rs. 46) respectively. Aggregate per household expense incurred in purchasing inputs related to animal husbandry was calculated as Rs. 3365/-. Prices of animal seed were felt to be reasonable by quite a large number of surveyed households (33%), while nearly 1/4th of the farm households, who owned animal husbandry, reported it to be high (7.33%). In regard to reasonability of prices paid for reported inputs related to animal husbandry, viz., green fodder, dry fodder, concentrates, veterinary charges and labour charges, reasonable was reported by a good number and prices being high by a few households (29.67, 10.67, 24.67, 15.67, 24.67, 15.67, 33, 7.33 and 7, 3%) respectively.

Under the reasons for prices of inputs being unreasonable, five factors were considered: (i) not subsidized, (ii) very few sellers, (iii) no government sellers, (iv) private sellers collude, and; (v) no price control. In regard to price of animal seed, 7.33 per cent of households told (v) to be cause for it being unreasonable. Very few sellers were the only reason described by 10.67 and 15.67 per cent of farm households responsible for prices of green fodder and dry fodder respectively being unreasonable. While no government sellers (iii) ad no price control (v) were stated to be reasons for unreasonable prices of concentrates (9.67 and 6.00 % of households) respectively, only reason SN. – V was told as the reason for veterinary charges and labour charges (7.33% and 3%) respectively.

9.4.4 Labour Market

On overall level, average number of casual labour per household employed meant for male and female were 22.07 per cent and 25.39 per cent respectively. Across LHCs, distinguished trend is observed in regard to casual labour employed both for male and female that higher the size of landholding, more the number of casual labourers. Larger average number of casual female labourers employed per household implies that recently the demand for them has significantly increased. In

particular, because the main source of earning for farm Hhs surveyed was cultivation activities, and about 1/3rd of them also had dairy as their secondary or tertiary sources of earning, so role and contribution of women as casual labour could be evident. On overall level, average number of days employed for farming and livestock operations were higher in case of male family labour and farm servants and female causal labour (1,0.06 and 25.39 days) respectively. Aggregated picture of higher average hours/day of labour devoted by male family, farm and casual labourers (9.8, 9.6 and 8 hours) respectively was revealed.

On overall level, average wage rates paid to male farm servants and casual labour were much higher than female causal labour (Rs. 216, Rs. 262 and Rs. 155) respectively. Highest average wage rates for casual male and female labourers engaged in farming and livestock operations were noted for medium and large farm Hhs (Rs. 264 and Rs. 160) respectively. Lowest average wage rates were noted to have been paid by very large farm Hhs to male and female casual labour (Rs. 250 and Rs. 150) respectively. One of the reasons for accepting lower average rates by the male and female casual labour could be that highest average number of employment is provided by very large farm Hhs. Aggregate data reveals that 91.67 per cent of the total respondents did not have any point to ascertain that wage rates paid were unreasonable. Giving apriori, it is genuinely evident that marginal and small farm Hhs being more resourceless and having obligation of meeting various expenditures of family, remained engaged as wage labour on others' farm and MGNREGA related works for 5.07, 4 and 1.20 and 1 months respectively. Out of the surveyed Hhs, who worked as wage labour (23.67%), confirmed work available for a very limited period and very low wage to be prominent constraints during their engagement as wage labour.

9.4.5 Credit Market

It is revealed that out of the total 19 Hhs, who took loan, 14 (73.69%) borrowed from government banks followed by SHGs 2 (10.53%). Only marginal Hhs did borrow money from informal sources. Out of the total surveyed farm Hhs (300), only 19 (6.33%) borrowed money during July 2016 to June, 2018. On overall level, out of the

total amount borrowed by all the loanee households (Rs.13,05,000/-), highest amount i.e., Rs.12,00,000/- (91.95%) was given by government banks. Small and medium households did enjoy equally highest share of the total amount borrowed (30.65%). Government banks were prominently accessed for borrowing by farmers. On overall level, highest rate of interest was found to have been charged by MF/GC/NGOs (16%/annum) equally followed by co-operative societies and SHGs (14%/ annum) and government banks (7%/annum). All the 2.00, 1.00 and 0.67 per cent Hhs belonging to small, medium and large LHCs respectively, did borrow from government banks their purpose of taking loans were current expenses in farm business only. In case of marginal farm Hhs, out of whom 8 Hhs (2.67%) did borrow, 3 (1.00%) got loan amounts from government banks, 1 (0.33%) each from co-operative society and MF/CG/NGOs, 2 (0.67%) from SHGs and one from relatives. Data provides ground to proclaim that 90 per cent (Rs. 872102) of the total borrowed amount by all loanees of different LHCs (Rs. 968802) had been repaid in regard to government banks. Across LHCs, maximum repayment of borrowed amounts were recorded by small and large farm Hhs equally comprising 29.32 per cent. All of the farm Hhs, who borrowed money from different formal and non-formal sources of credit (6.33%)) during the last two years, i.e., from July, 2016 to June, 2018; were found to have repaid larger proportions and/full amounts to respective sources during short period of two years only. So, obtaining responses in regard to reasons for non-payment of the borrowed money did not arise.

9.4.6 Asset Endowments of Households, Government Support Programmes and Insurance

Questions related to purchase and sale of productive assets made during July, 2018 and June, 2019 had to be asked and thus, data had to be obtained. As no such purchase and sale of productive assets were found to have been made during the period, so no information could be obtained for analysis in regard to asset endowments. The surveyed farmers of the three districts were not covered/had taken advantages of any of the two programmes/schemes, namely; PM-AASHA and Bhavantar Bhugtan Yojana (BBY) during the reference period, i.e., July 2018 to June, 2019. But advantages/coverages of PM-Kisan were witnessed in the study area. On

overall level, 24.33 per cent of farm Hhs accessed different sources of technical advice. Extension agents were the most instrumental, who were accessed by 40 Hhs (13.33%). In regard to extension agents, 26 (8.67%) and 14 Hhs (4.67%) (including all LHCs) got technical advice on seasonal and need based basis respectively. Only 12 (4.00%) and 5 (1.67%) farm Hhs reported to have accessed to KVK for technical advice on need based and casual contact basis respectively. Radio/TV/Newspaper/Internet like sources of technical advice were accessed on need-based by 16 Hhs (5.33%), among whom medium farmers (2.67%) were more eager. Out of the total 73 farm Hhs (24.33%), who accessed for technical advice, highest number of Hhs adopted advices given by extension agents 40 (54.79%) followed by KVK and RTVNI - 17 and 16 (23.29% and 21.92%) respectively. Out of the total 300 Hhs, majority of the farmers, i.e., 156 (52%) told they couldn't access sources of technical advice due to non-availability, whereas 144 (48%) were not aware. On overall level, all the 73 farm Hhs (24.33%), who had accessed technical advice through EA, KVK and RTVNI, found it useful. Out of the total 73 farm Hhs (24.33%), who confirmed to have accessed some sources of technical advices, 11.00, 5.67 and 5.33 per cent of Hhs felt the advices to be beneficial provided by EA, KVK and RTVNI respectively. Only 7 Hhs (2.33%) experienced the advices provided by EA to be moderately beneficial. (1.00 and 0.67%) of farm Hhs respectively, who belonged to small and medium LHCs respectively were found to be aware of MSP related to paddy only. On overall level, 5 farmers (1.67%) reported PACSs as the agency to procure paddy at MSP. The same 5 farm Hhs ascertained PACS as the agency, to whom paddy was sold. On overall level, largest quantums of crops sold at lower than MSPs, were found in case of maize (rabi 9188.20 qtls). It was followed by maize (kharif), wheat and paddy (7431.24 qtls., 5105.72 qtls and 4703 qtls.) respectively.

It is to be noted here that only paddy was, sold at MSP through PACSs by 3 and 2 small and medium farm Hhs (1.00 and 0.67 %) respectively. Total value of 62 qtls and 66 qtls of paddy sold by 3 (1.00%) and 2 (0.67%) small and medium Hhs (on aggregate level), has been calculated at Rs. 232320 and the sale price of which being Rs. 1815/qtl. Except the 5 farmers (1.67%), who sold paddy at MSP, remaining 295

Hhs (98.33%) found the agency not procuring disposable quantities of the crop in time. In regard to maize (kharif), wheat and maize (rabi), all the 300 surveyed Hhs mentioned that procurement agencies were not available for purchases of these crops. All the surveyed Hhs belonging to marginal and small LHCs, i.e., 130 (43.33%) and 91 (30.33%) respectively did receive two installments of their payment under PM-KISAN totalling Rs 10, 38,000/- in 9 months. It is, thus evident that PM-KISAN has been functioning satisfactorily in the study area. On overall level only 14 Hhs (4.90%) out of 300 surveyed, reported to have been insured when they received loan showing 286 Hhs (95.33%) to have not been insured. On overall level, not aware about availability of facility was told as most prominent reason for not insuring the crops 169 Hhs (59.09%). It was followed by not satisfied with terms and conditions, not aware, and not interested (15.73%, 13.99% and 11.19%) respectively. On overall level, average premium per Hh (having considered 14 Hhs i.e, 4.67 %) only paid for paddy and wheat were calculated as Rs. 1714.29 and Rs. 1285.71 respectively. Across LHCs, highest and lowest amounts of average premium per Hh paid were evident in regard to large and marginal farm Hhs meant for both the crops, i.e., paddy and wheat (Rs. 4000, Rs. 3000 and Rs. 1000 and Rs. 750) respectively.

9.4.7 Problems in Farming, Economic Risks Faced, Coping Strategies and Social Networks

Data imparts knowledge to the interesting fact that 100 per cent of the surveyed Hhs found income from farming to be inadequate. It is expatiated that declining yield, small landholdings, high temperature and non-availability of desired government support were equally prominent reasons (97.67%), responsible for income from farming being inadequate. Lowest severity of problems was faced by maximum Hhs 242 (80.67%) followed by moderate and high. Moderate and high severity of the reported problems were told to have been experienced in farming by 53 and 5 Hhs (17.67% and 1.66%) respectively. Analysis has been made in ranking terms (1-8) based on economic risks faced during July, 2016 to June, 2018. Rank-1 shows the risk to be most intense, whereas 8 indicate least important risk. Across LHCs, lack of finance/capital, and sharp fluctuations in output prices were the most intense risks, majority of marginal farm Hhs, i.e., 84 (28.00%) experienced with ranks 1 and 3

respectively. Same risks were found to have been reported by majority of small Hhs 59 (19.67%) number each (ranks 1 and 4) respectively. Similar responses about the two above mentioned economic risks with ranking of 1 and 4 witnessed by an equal of 32 medium Hhs (10.67%). Cent per cent of the surveyed farm Hhs belonging to all LHCs (except medium ones) reported to have faced other economic shocks with least rank rating of 8. On overall level, 158 farms Hhs, i.e., 52.67 per cent of the total 300 households told one or other type of coping strategies undertaken by the Hhs with respect to economic risks. Most strong coping strategy cited was reduction in Hhs consumption expenditure calculated at 76 (48.11%). Some other coping strategies undertaken by Hhs in regard to economic risks faced were storage of crops for better price 60 Hhs (37.97%), deferred social and family functions and worked as wage labour in the village counted as 11, each 6.96 per cent.

Information related to membership was asked for the last 3 years' period, i.e., during July, 2015 to June, 2018. On overall level, out of the total farm Hhs (300) surveyed, highest number of Hhs, i.e., 97 (32.33%) were found to be the member of Dairy Co-operative Societies (DCSs) followed by political parties and SHGs (8.67% & 6%) respectively. Very large farm Hhs were not found to be the members of GPs, SHGs and Caste-based Associations. On overall level, majority of surveyed Hhs cited available but no opportunity as the main reason for not being member of the Gram Panchayat, DCS, and SHGs i.e., 285, 203 and 282 (95%, 66.67% and 94%) respectively. Time consuming was the reason told by large number of Hhs for not being members of political party/group and caste association 274 and 208 (91.33% and 69.33%) respectively. Data provides ground to enunciate that all the Hhs, who reported to be members of Gram Panchayat, DCS and SHGs, were active members (15, 97 & 18 i.e., 5%, 32.33% & 6.00%) respectively. Benefits have been examined in terms of sharing information. Farm Hhs, who were members of GP (15 i.e., 5%) were benefitted in the form of government schemes. Members of DCSs got benefitted in the form of information sharing related to price and markets (32.33%) and SHGs by credit sources (6.00%). On the one hand, members of caste-based associations didn't experience any benefit of being member, there on the other hand, all the surveyed

Hhs, who were members of political party(ies) 26 in number (8.67%), got benefits of government schemes.

9.5 Suggested Action Points

i. Rising prices of inputs is attributed to a large share of increase in the cost of cultivation of crops, so there is need to check input prices, which usually increase during the peak seasons of respective crops.

ii. More than half of the cost inflation is contributed by the rising labour cost, besides its scarcity; so managing agricultural labour, from out of MGNREGA job card holders, would alone bring substantial reduction in the crop budget of farmers.'

iii. Negative and inelastic demand for farm inputs leads to sharp increase in the cost of cultivation, so there is need for proper use of agricultural inputs, besides following suitable agro-economic practices for cultivation of the respective crops.

iv. Substitution between human labour and machine is quite important in influencing the cost of cultivation, so mechanization of agricultural activities in mission mode is of utmost importance across the farms to enhancing the farm profitability.

v. Motivation for institutionalization of custom hiring services (CHSs) at the farm levels by building Farmers Groups (FGs), Farmer Production Organizations (FPOs), Farmer Clubs (FCs) etc., may be initiated for fair profit margins in crop cultivation.

vi. To ensure ultimate benefits of the agricultural development programmes, like; demonstration, distribution of minikits, extension backstopping, transferring of technology, relief under natural disasters, providing credit, insurance and many others, factors like; timelines, transparency and mandated provisions should be strictly followed by the programme implementing agencies.

vii. Agricultural marketing infrastructure in the state is overwhelmed despite repealment of BAPMC (Bihar Agricultural Produce Marketing Committee)

Act (1960) in 2006, so it needs to be developed in time bound manner for better price realization, as acclaimed, while repealing the referred Act.

viii. Free agricultural markets, as such did not really break up local trader monopolies, reduce the control of intermediaries or improve market access, and alternatives for farmers in the state, so to fetch the benefits of free agricultural markets, investment, particularly private, need to be allowed along with sound institutional mechanism for greater participation of farmers.

ix. Procurement exercise in the state has miserably failed in terms of volume (against the marketable surplus), prices (delayed payment) and procedures. So, the procurement canvas needs to be increased following equity, accessibility and transparency issues in the system for realization of MSPs by the farmers.

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Annexure – I

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Comments on the Draft Report submitted by AERC, Bhagalpur, Bihar

1) A critical review of existing literature needs to be provided. The insights coming out of the literature review, which could be relevant for the study, need to be highlighted.
2) Majority of the tables in the text provides only absolute numbers instead of percentages. Along with absolute numbers, please provide the row percentages as well.
3) While in some cases findings are discussed in terms of percentages, there are several instances where only the absolute numbers are provided. Please try to maintain uniformity in the interpretation of tables and provide interpretation in terms of percentages rather than absolute numbers.
4) Further, along with a simple description of the observed trends, interpretation of those trends and explanation of the same to the extent possible is needed.
5) There are several spelling mistakes in the text which needs to be corrected. Further, there are several sentences which are too long and unclear. This could be rephrased into simple sentences.
6) Interpretations of some of the tables are not clear. For instance, table 2.3 on distribution of households by social groups across the landholding categories in chapter 2.
7) Full forms of acronyms are missing in the text in several places. Such as JEEViKA --- AAPCL Ltd. ---- NeML and several others as well. A separate section with a list of abbreviations/acronyms should be provided in the text for the convenience of the readers.

Sd/-
(C.S.C.Sekhar)
Professor & Head

December 16, 2020

Annexure – II

Agro-Economic Research Centre for Bihar & Jharkhand
T M Bhagalpur University, Bhagalpur – 812 007 (Bihar)

Action Taken Report

1. Title of the Report : **Extent of Erosion into Farm Profitability Due to Market Imperfections in Bihar**

2. Date of Dispatch of the Draft Report : 9th Nov., 2020
3. Date of Receipt of the Comments on Draft Report: 16th Dec., 2020
4. Date of Dispatch of the Final Report: 26th Dec. 2020
5. Para wise Actions Taken:
   - i. Incorporated.
   - ii. Percentage figures in the tables and texts given.
   - iii. Percentage figures incorporated in the tables and interpretation in percentages also provided.
   - iv. Adequate Explanation made.
   - v. Necessary corrections made.
   - vi. Simple Interpretations made.
   - vii. Incorporated at proper places.

Dr Rajiv Kumar Sinha
Research Associate-Cum-Project Leader