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Agro-Economic Research

Market Imperfection and Farm Profitability in Madhya Pradesh

H.O. SHARMA[1], DEEPAK RATHI[1] AND H.K. NIRANJAN[3]

1. Introduction

Market imperfections are common in rural markets of developing countries and the efficiency implications of market imperfections have been a controversial issue. Marshall claimed that share tenancy was an inefficient institutional arrangement and developed the separable farm household model as a benchmark approach to the analysis of rural economies. The presence or absence of market imperfections may have significant efficiency and other policy implications (Holden *et al.,* 2001). In the product market, imperfections of the Indian agricultural marketing are the presence of too many middlemen and exploitation of farmers by them. On one hand, these middlemen exploit the farmers by purchasing the produce at lower prices, and on the other hand, they exploit the customers by demanding higher prices from them. The only aim of a number of commission agents, brokers, etc. is to derive a higher income from the middle processes. These middlemen take undue advantage of the poor farmer on the basis of their financial resources *i.e.,* defective weights and scales. The biggest imperfections of agricultural marketing arise due to weights and scales. Usually in rural areas, bricks, kilo bats, etc. are used as weights and in urban markets also, defective weights are found. Most of the traders keep separate weights for purchase and sale of grain. The farmers who are illiterate are easily fooled by the money lenders, traders and middlemen. Similarly, lack of unity among farmers also causes their exploitation because farmers are spread in distant areas in rural places. They are unable to meet each other and resolve their problems; as a result, they do not get a fair price for their produce. In rural areas, there is a lack of financial resources due to which even their emergency requirements are not fulfilled. Some financial facilities like, installments on loans for pumping set, tractor, thrasher, etc. have to be paid on a monthly or quarterly basis due to which they have to sell the product as soon as possible.

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

The role of capital input is becoming more and more important with the advancement of farm technology. Since the agriculturist's capital is locked up in his lands and stocks, he is obliged to borrow money for stimulating the tempo of agricultural production. Although different banks and Government agencies provide agricultural loan, but it involves a lot of formalities. Villagers get easy money after mortgaging their land. The main supplier of money to the farmers are the money-lenders, traders and commission agents, who charge high rate of interest and purchase the agricultural produce at very low price.

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The problem of small and fragmented holdings is more serious. Sub-division and fragmentation of the holdings is one of the main cause of low income. A lot of time and labour is wasted in moving seeds, manure, implements and cattle from one piece of land to another. Irrigation becomes difficult on such small and fragmented fields. Further, a lot of fertile agricultural land is wasted in providing boundaries. Under such circumstances, the farmer cannot concentrate on improvement. Large tracts of fertile land suffer from soil erosion by wind and water. Similar condition also exists in the case of Madhya Pradesh. Keeping the above facts in mind, the present study attempts to analyze the functioning of output and input markets and their effect on the erosion of farm profitability in Madhya Pradesh with following specific objectives.

1.1 Objectives of the study

1) To analyze the product markets (output) including price received, marketing channels, market structure and bottlenecks.

2) To analyze the input markets, including seeds, fertilizer, and labour market structure, and problems in accessing the same.

2. Data sources and methodology

The study is confined to four major crops (wheat, rice, soybean and chickpea) of Madhya Pradesh. One major district having maximum production in the state related to selected crop has been selected for the study. Therefore, Hoshagabad district for wheat, Ujjain for soybean, Vidisha for chickpea and Balaghat for rice were selected for the study. A list of the blocks in these selected districts was prepared and a block having maximum production of respective selected crops was selected for the study. A list of all the villages in the selected blocks was prepared and a village near to the headquarters and a village far away from the headquarters was selected randomly for the study.

A list of cultivators from each selected village was prepared and 50 households were selected randomly from each selected villages for in-depth study. Thus 100 HHs were selected from each selected district of Madhya Pradesh (Table 1).

TABLE 1: NUMBERS OF RESPONDENTS SELECTED FOR THE STUDY

Sl. No.	Name of the districts	Name of the blocks	Crop selected	Name of the villages	Respondents
1	Hoshangabad	Hoshangabad and Seonimalwa	Wheat	Rampura, Gadaria	100
2	Balaghat	Balaghat	Rice	Bhuttehazari, Merigaon	100
3	Ujjain	Ujjain and Badnagar	Soybean	Paldhuna, Badganwa	100
4	Vidisha	Vidishaand Gulabganj	Chick pea	Badkhera Kachwa, Badkhera Gambheer	100
	Total				**400**

Source: Primary data

3. Results and discussion

Agricultural inputs and related services are the basic requirements for procurement of any crop. Agribusiness sector consists of businesses that supply farm inputs such as seeds, fertilizers, pesticides, farm machineries, etc. as well as sale and distribution of farm products and related services. An efficient delivery system of agricultural inputs and services can play a pivotal role in the agricultural productivity. Cropping pattern, pattern of disposal and procurement of input including seed and other inputs with farmers' opinion were identified for the study.

3.1 Cropping pattern

Kharif (50.31%) and Rabi (49.69%) were found to be major seasons in which an average household allocated his maximum net operated area. Soybean (91%), followed by rice (7%) and urad (2%) were found to be major farm products grown by sample households in Kharif season, while in Rabi season, wheat (70%), chickpea (26%) and garlic (2%) were found to be major farm products grown by the majority of sample HHs in the area under study. The cropping intensity at overall level was found to be 198 percent (Table 2).

TABLE 2: CROPPING PATTERN OF SELECTED RESPONDENTS

Particulars	Overall
Kharif season	
Rice	0.38 (6.77)
Soybean	5.13 (91.44)
Urad	0.1 (1.78)
Total	**5.61 (100) /50.31/**
Rabi season	
Wheat	3.86 (69.68)
Chickpea	1.42 (25.63)
Pea	0.04 (0.72)
Garlic	0.1 (1.81)
Onion	0.04 (0.72)
Lentil	0.08 (1.44)
Total	**5.54 (100) /49.69/**
GCA	**11.15 /100/**
CI (%)	**198**

Source: Primary data
Note: Figure in parenthesis shows percentage area covered during Kharif and Rabi Season. Figure in slash shows percentage area covered under GCA

3.2 Pattern of output marketing

In the pattern of output marketing, gross sale value, disposal and price received of major farm produces *viz.*; rice, soybean, wheat and chickpea, with the reasons of dissatisfaction in disposal of produce and price of the produce were worked out for the study.

3.2.1 Gross sale value of produce

An average HH of the study area was found to harvest 3526 kg/ha, 3435 kg/ha, 1053 kg/ha and 999 kg/ha of wheat, rice, soybean and chickpea, respectively, with average yield of 2253 kg/ha of all these crops in the area under study. An average HH was found to receive Rs. 49778 per ha with average price of Rs. 22.09/kg of produce from cultivation of crops. The highest sale value of main product was received from wheat (Rs. 64907/ha) followed by rice (Rs. 59031/ha), chickpea (Rs. 41140/ha) and soybean (Rs. 34035/ha).

TABLE 3: PATTERN OF DISPOSAL OF FARM PRODUCE

Particulars	Rice	Soybean	Wheat	Chickpea	Overall
Gross sale value of produce (%)					
Yield (kg/ha)	3435	1053	3526	999	2253
Average sale value of main produce (Rs./ha)	59031	34035	64907	41140	49778
Received Price/kg	17.19	32.32	18.41	41.18	22.09
Gross sale value of crops produced (Main+By-product) (in Rs./ha)	67013	35648	72472	42338	54,368
Disposal of farm produce (%)					
Local pvt.	0	2.18	1.46	26.01	7.41
Mandi	10.17	95.72	15.46	68.01	47.34
Input Dealers	16.01	2.1	0	4.05	5.54
Cooperative & Govt. Agency	73.82	0	83.08	1.93	39.71
Total	**100**	**100**	**100**	**100**	**100.00**
Reasons of dissatisfaction regarding disposal (%)					
Satisfactory	86.88	18.33	90.1	62.25	64.39
Lower than market price	2.58	81.67	9.9	37.75	32.98
Delayed payments	10.54	0	0	0	2.64
Deductions for loans borrowed	0	0	0	0	0.00
Total	**100**	**100**	**100**	**100**	**100.00**
Price received of major disposal (%)					
Reasonable	70.48	71.72	92.23	12.02	61.61
Non-reasonable	29.52	28.28	7.77	87.98	38.39
Total	**100**	**100**	**100**	**100**	**100.00**
Farmers' perception regarding crop produce disposal (%)					
Very few buyers	35.48	0	9.52	0	11.25
No government purchase	38.71	56.07	45.24	67.63	51.91
Private buyers collude	25.81	43.93	45.24	32.37	36.84
Total	**100**	**100**	**100**	**100**	**100.00**

Source: Primary data

The gross sale value of main as well as by-product was also found to be more in case of wheat (Rs. 72472/ha), followed by rice (Rs. 67013/ha), chickpea (Rs. 42338/ha) and soybean (Rs. 35648/ha). The price received per kg of grain was found to be highest in case of chickpea (Rs. 41.18/kg) as compared to soybean (Rs. 32.33/kg), wheat (Rs. 18.41/kg) and rice (Rs. 17.19/kg) (Table 3).

3.2.2 Disposal of farm produce

At an overall level, the majority of sample HHs were found to sell their produce to regulated market (47.34%), followed by cooperative/ Govt. agencies (39.71%), input dealers (5.54%) and to local village merchants (7.41%). Majority of them were found to sell rice to cooperative/ Govt. agencies (73.82%) followed by input dealers

(16.01%) and regulated market (10.17%) while no HH was found to sell the produce to local village merchant. Majority of sample HHs sold soybean to regulated market (95.72%) followed by local village merchant (2.18%) and input dealers (2.10%). None of the HH was found to sell the produce to cooperative/Govt. agencies. In case of wheat, the majority of growers sold their produce to cooperative/Govt. agencies (83.08%) followed by regulated market (15.46%) and local village merchant (1.46%). None of the HH was found to sell wheat to input dealers. Majority of sample HHs sold chickpea in regulated market (68.01%) followed by local village merchant (26.01%), input dealers (4.05%) and cooperative/Govt. agencies (1.93%) (Table 3).

3.2.3 Reasons of dissatisfaction regarding disposal

At an overall level, out of total HHs, 64.39 percent HHs were found to be satisfied with disposal of farm product in the market. The remaining reported dissatisfaction due to lower market price (32.98%), followed by delayed payment (2.64%). In case of rice, 86.88 percent were found to be satisfied from the disposal of rice in the market. The main reason of dissatisfaction in disposal of rice was found to be delayed payment (10.54%), followed by lower market price (2.58%). Out of total sample HHs only 18.33 percent were found to be satisfied with the disposal of soybean and the main reason of dissatisfaction amongst sample HHs was lower market price (81.6%). Out of total sample HHs, 90.10 percent were found to be satisfied with the disposal of wheat in the market while the remaining reported lower market price (9.90%) as a reason of dissatisfaction among them. Out of total sample HHs, 62.25 percent were found to be satisfied with the disposal of chickpea in the market and remaining (37.75%) reported lower market price as the main reason of their dissatisfaction (Table 3).

3.2.4 Price received of major disposal

At an overall level, the majority of HHs related to rice (70.48%), soybean (71.72%) and wheat (92.23%) production found the price of the produce to be reasonable but the majority of chickpea growers (87.98%) of the study area reported that price of the produce in the market was non-reasonable.

3.2.5 Farmers perception regarding crop produce disposal

At an overall level, 61.61 percent HHs reported that they got reasonable price for their farm products. The rest of them reported the price of the produce to be unreasonable due to no cooperative/Government agencies purchase (51.91%), followed by collusion by private buyers (36.84%) and very few buyers (11.25%). Amongst different farm products, the majority of HHs (86.88%) were found to be satisfied with the price of rice. The rest of the HHs reported that the price of rice was unreasonable due to no Govt. purchase (38.71%) followed by very few buyers (35.48%) and collusion of private buyers (25.81%). In case of soybean, the majority of HHs reported that the price of the produce was found to be unreasonable due to collusion of private buyers (43.93%), no cooperative/Government agencies to purchase soybean (56.07%). In case of wheat, the majority of HHs reported that the price of the produce was found to be unreasonable due to collusion of private buyers (45.24%), no purchase by cooperative/Government agencies (45.24%) and very few buyers (9.52%). In case of chickpea, the price of the produce was found to be unreasonable due to no purchase by cooperative/Government agencies (67.63%) and collusion of private buyers (32.37%) (Table 3).

3.3 Pattern of input marketing

Pattern of input marketing of seed as well as other inputs were considered for the study.

3.3.1 Seed

Seed is the master key to success in cultivation. Seed is crucial and basic input to increase crop yield per unit area. Quality seed is a vital input in crop production. It is estimated that good quality seeds of improved varieties can contribute about 20-25% increase in yield. This knowledge may be key in selling the seed to a specific quality market, when the variety grown has the desired quality characteristics. The procurement, agencies

involved, expenditure incurred, quantity and price of seed with reasons of unreasonable price of seed of various crops were analysed for the study.

3.3.1.1 Procurement of seed

The procurement agencies involved and quality of seed for production of major crops *viz.*; rice, soybean, wheat and chickpea cultivated by the sample HHs has been analysed and presented in Table 4. It is observed from the data that at an overall level, the majority of HHs reported use of farm saved seeds (58.73%), followed by exchanged seed (8.59%) and seeds purchased from others (32.02%). Amongst different farm products, majority of HHs used farm saved seeds (53.44%), followed by exchanged seed (28.87%) and seed purchased from the others (17.69%) in cultivation of rice. None of the farmer reported borrowing seed from others for production of rice. Majority of them reported use of purchased seeds (56.59%), followed by farm saved seed (38.08%), seeds exchanged from the others (3.46%), and seeds borrowed from others (1.87%) for cultivation of soybean. In case of wheat, the majority of HHs reported that they used farm saved seed (83.20%), followed by purchased seed (14.48%), exchanged seeds (1.56%) and borrowed seeds (0.76%) for cultivation of wheat in their farms. In the production of chickpea, majority of the growers reported use of farm saved seed (60.19%), followed by purchased seed (39.33%) and exchanged seeds (0.48%). None of the farmer reported use of borrowed seeds for production of chickpea in the area under study.

3.3.1.2 Agencies involved in seed procurement

At an overall level, the majority of HHs reported that they used own farm seed (60.10%) followed by purchase from input dealer (32.90%), cooperative & Government agency (5.12%) and from local traders (1.89%). Amongst the production of different crop products, majority of the HHs reported use of own farm seed (53.44%) followed by purchase from input dealer (44.02%) and local traders (2.54%) for rice while none of the sample HH reported procurement of seed from cooperative & Government agencies. In case of soybean, majority of the HHs purchased seeds from input dealer (46.92%), followed by their own farm seed (41.54%) and purchase from cooperative & government agencies (11.54%). For the wheat crop, majority of HHs reported use of own farm seed (84.75%), followed by purchase of seed from input dealer (11.13%) and cooperative & Government agencies (4.12%). The majority of the HHs reported use of own farm saved seed (60.67%), followed by seeds purchased from input dealer (29.51%), from local traders (5.01%) and from cooperative & Government agency (4.80%) in the production of chickpea (Table 4).

3.3.1.3 Expenses incurred in the purchase of seed

At an overall level, an average HH was found to spend Rs. 4423.25 on seeds in a hectare of land. An average HHs spent Rs. 5254 on seeds for cultivation of chickpea, Rs. 5763 on soybean seed, Rs. 4052 on wheat seed and Rs. 2624 on rice seed to cultivate in a hectare of land. The cost of seed for production of a quintal of grain was found to be more in soybean (Rs. 547/q), followed by chickpea (Rs. 526/q), wheat (Rs. 115/q) and rice (Rs. 76/q) on an average major crop producer farm (Table 4).

3.3.1.4 Quality of seed purchased from agencies

The quality of seed that HHs purchased from different agencies in cultivation of various crops was also observed. It was found that an average HH reported that the quality of seed was found to be good (89.34%), which they had purchased from different agencies for cultivation of crops (Table 4).

TABLE 4: PATTERN OF PROCUREMENT OF SEED BY THE CROP PRODUCERS

Particulars	Rice	Soybean	Wheat	Chickpea	Overall
Procurement of seed for crop production (%)					
Farm saved	53.44	38.08	83.2	60.19	58.73
Exchange	28.87	3.46	1.56	0.48	8.59
Purchase	17.69	56.59	14.48	39.33	32.02

Particulars	Rice	Soybean	Wheat	Chickpea	Overall
Borrowed	0	1.87	0.76	0	0.66
Total	**100**	**100**	**100**	**100**	**100.00**
Agencies involved in procurement of seed (%)					
Own farm	53.44	41.54	84.75	60.67	60.10
Local trader	2.54	0	0	5.01	1.89
Input dealer	44.02	46.92	11.13	29.51	32.90
Cooperative & Govt. Agency	0	11.54	4.12	4.8	5.12
Total	**100**	**100**	**100**	**100**	**100.00**
Expenses incurred for the purchase of seed (in Rs.)					
Per ha	2624	5763	4052	5254	4423.25
Per HH	1187	30917	16874	7394	14093.00
Per q of crop produce	76	547	115	526	316.00
Price/Kg	19	19	19	19	19.00
Quality of seed purchased from agencies (%)					
Good	86.63	91.99	93.38	85.36	89.34
Satisfactory	13.37	8.01	5.92	14.64	10.49
Poor	0	0	0.71	0	0.18
Don't know	0	0	0	0	0.00
Total	**100**	**100**	**100**	**100**	**100.00**
Ranking of price paid for seed (%)					
Reasonable	88.55	50.3	92.77	82.26	78.47
High	11.45	48.18	4.51	13.92	19.52
Very High	0	1.52	2.71	3.82	2.01
Total	**100**	**100**	**100**	**100**	**100.00**
Reasons for unreasonable prices paid for seed inputs (%)					
Not subsidised	0	0.98	13.57	0	3.64
Very few sellers	8.33	7.69	16.67	0	8.17
No govt. sellers	0	0	34.05	0	8.51
Pvt. sellers collude	83.33	59.34	35.71	70.78	62.29
No price control	8.33	32	0	29.22	17.39
Total	**100**	**100**	**100**	**100**	**100.00**

Source: Primary data

3.3.1.5 Ranking of price paid for seed

At an overall level, an average farmer reported that the price paid to purchase seed for cultivation of crop was reasonable (78.47%). 19.52% of the farmers reported the price to be high while 2.01% reported it as very high. Amongst the different farm products, majority of the HHs (85.55%) reported that the price of seed of rice was reasonable. None of the selected rice growers reported that the price of the seed was very high and he was not able to pay it for production of rice. The majority of them (50.30%) also reported that the price paid to purchase seed for cultivation of soybean was also reasonable while 48.18% found it to be high and 1.52% to be very high. The majority of the farmers (92.77%) reported that the price paid to purchase seed for cultivation of wheat was reasonable while in case of chickpea, 82.26% of the HHs reported the price paid for purchase of seed to be reasonable.

3.3.1.6 Reasons for unreasonable prices paid

The majority of the HHs were satisfied with the quality and price of the seed. Although, at an overall level, the HHs reported price to be unreasonable due to collusion of private sellers (62.29%), no control on prices of seed (17.39%), no Govt. sellers (8.51%), very few sellers (8.17%) and not subsidised rate (3.64%) for production of crops (Table 4).

3.3.2 Other inputs

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

3.3.2.1 Expenses of other inputs

At an overall level, an average HH was found to invest Rs. 61662/ha on other inputs to cultivate crops for a year. The total expenditure excluding land was found to be Rs. 24520/ha/year in cultivation of crops in the area under study. Out of the total expenditure incurred (excluding leased in land) in cultivation of crops in a hectare, the maximum expense was of human labour (43%), followed by fertilizer (18%), hiring of machinery (14%), plant protection chemicals (9%), electricity (5%), maintenance cost (3%), diesel (2%), animal labour (1%) and irrigation charges (1%) in the area under study. At an overall level, an average HH was found to invest Rs. 257265 on other inputs to cultivate crops for a year in which the share of leased in land was found to be only 2.23 percent. The total expenditure excluding land was found to be Rs. 251520/HH/year in cultivation of crops in the area under study (Table 5).

TABLE 5: TOTAL EXPENSES INCURRED FOR THE PURCHASE OF OTHER INPUTS

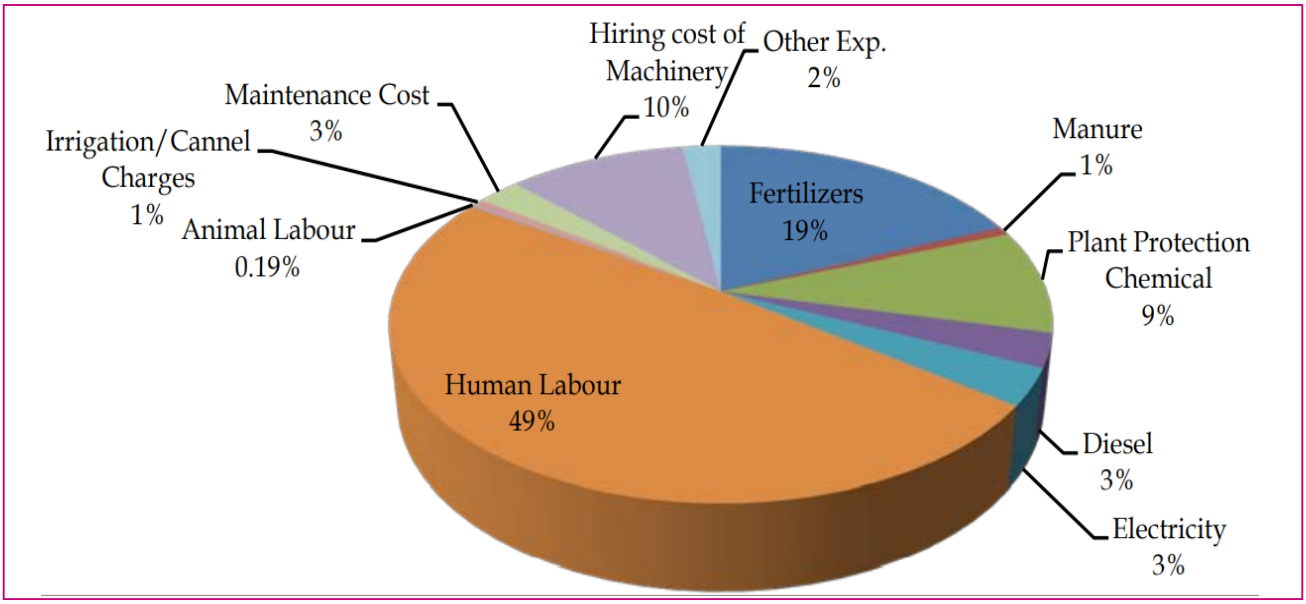
Particulars	Expenses (Rs./ha/year)	Expenses (Rs./HHs)
Fertilizers	4289	46781
Manure	454	1835
Plant protection chemical	2244	23629
Diesel	528	7660
Electricity	1288	8421
Human labour	10646	123182
Animal labour	203	489
Irrigation/Canal charges	144	1528
Maintenance cost	646	6267
Hiring cost of machinery	3520	26156
Other expenditure	556	5573
Sub-total	**24520**	**251520**
Leased in land	37142	5745
Total	**61662**	**257265**
	Expenses percentage to total	
Fertilizers	17.49	18.60
Manure	1.85	0.73
Plant protection chemical	9.15	9.39
Diesel	2.16	3.05
Electricity	5.25	3.35

Particulars	Expenses (Rs./ha/year)	Expenses (Rs./HHs)
Human labour	43.42	48.98
Animal labour	0.83	0.19
Irrigation/Canal charges	0.59	0.61
Maintenance cost	2.64	2.49
Hiring cost of machinery	14.36	10.40
Other expenditure	2.27	2.22
Sub-total	**39.76**	**97.77**
Leased in land	60.24	2.23
Total	**100**	**100**

Source: Primary data

Out of total expenditure incurred (excluding leased in land) in cultivation of crops by every HH, maximum expense was in human labour (49%), followed by fertilizer (19%), hiring of machinery (10%), plant protection chemicals (9%), electricity (3%), diesel (3%), maintenance cost (3%), manure (1%), irrigation charges (1%) animal labour (1%) and other charges (2%) in the area under study (Figure 1).

Figure 1: Percentage Contribution of Other Inputs to Total Expenses

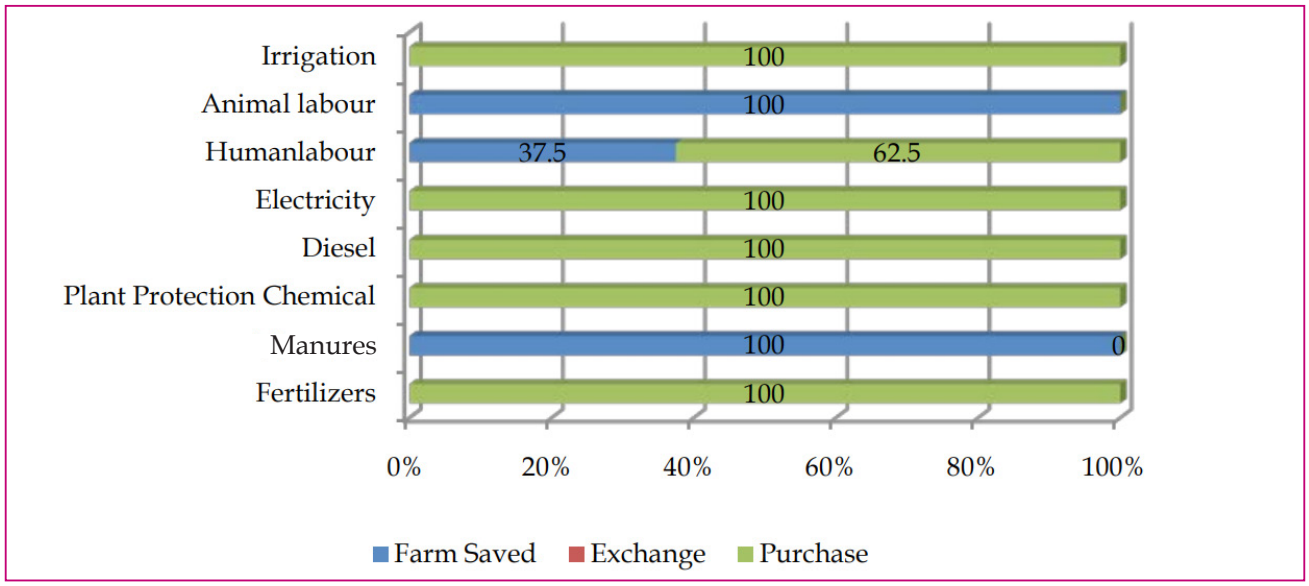


Source: Primary data

3.3.2.2 Procurement of other inputs

Cent percent sample HHs reported that they purchased fertilizer, plant protection chemicals, diesel, electricity and irrigation for production of major crops. Cent percent sample HHs also reported that they used farm saved manures and animal labour for cultivation of crops (Figure 2).

Figure 2: Procurement of Inputs for Crop Production at Overall Level

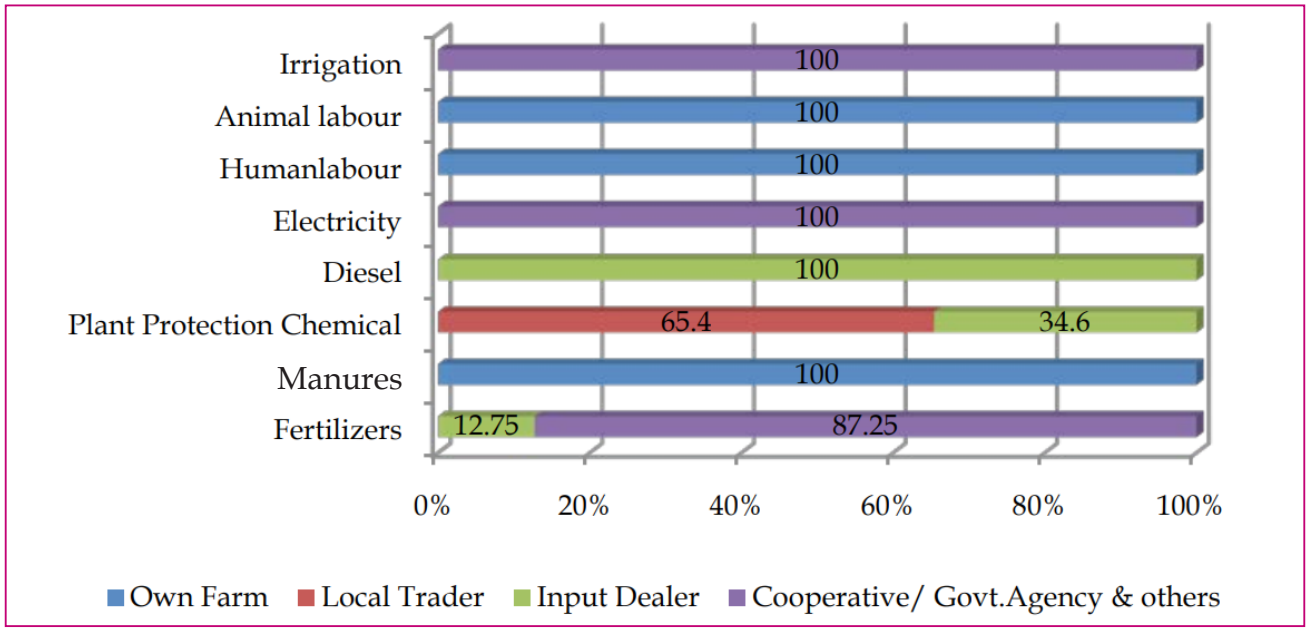


Source: Primary data

3.3.2.3 Agencies through which inputs are procured

Cent percent sample HHs were found to use human labour, animal labour & manures from their own farm, while diesel and electricity & irrigation were procured from input dealers and Govt. agencies, respectively, for production of crops. Majority of sample HHs were found to procure fertilizers from cooperative societies (87.25%), followed by input dealers (12.75%) and plant protection chemical from local traders (65.40%) followed by input dealers (34.60%) (Figure 3).

Figure 3: Agencies through which Inputs are Procured



Source: Primary data

3.3.2.4 Ranking of inputs procured by the respondents

Various inputs procured by the sample HHs were ranked into good, satisfactory and poor. It is observed from the data that hundred percent sample HHs ranked diesel & plant protection chemical as good. The majority of sample HHs reported good quality of fertilizer (64.75%), manures (91.57%), electricity (92.28%), human labour (78.25%), animal labour (70.69%) and irrigation (91.00%), which they procured for production of crops (Figure 4).

Figure 4: Ranking of Inputs Procured by the Respondents

Source: Primary data

3.3.2.5 Ranking of price paid for inputs

It is observed that at an overall level, the majority of sample HHs ranked the price of fertilizer (91.00%), manures (100.00%), electricity (95.99%), animal labour (87.50%), irrigation (96.00%) and human labour (62.50%) as good while only 64.90 percent and 92.36 percent sample HHs reported the price of plant protection chemical and diesel, respectively, as satisfactory (Figure 5).

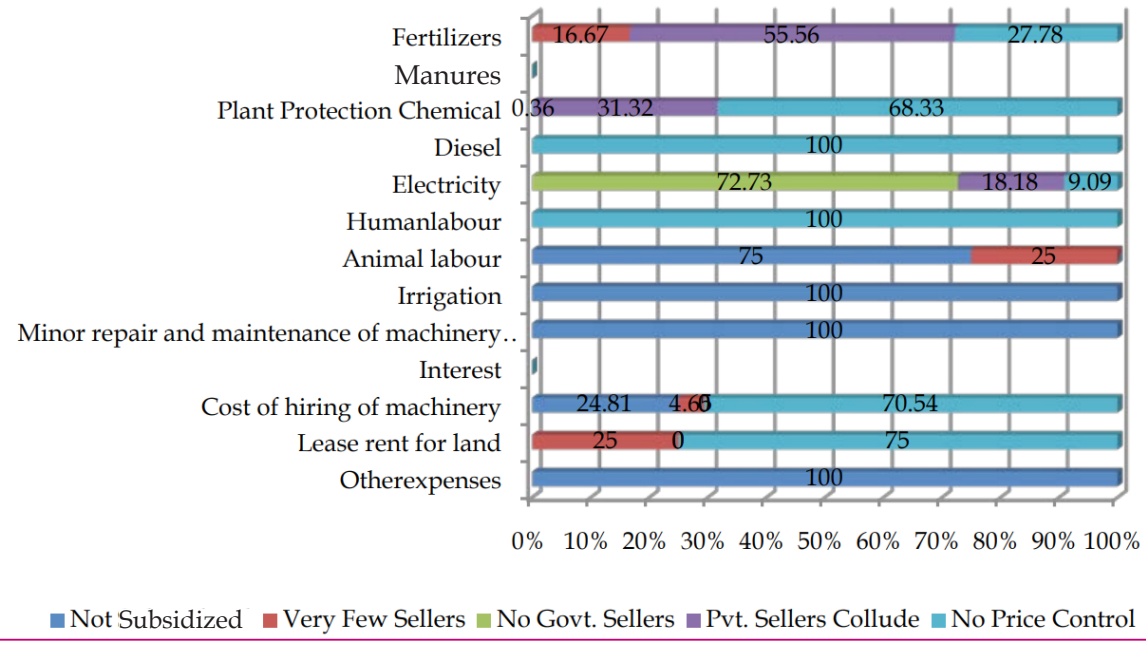
Figure 5: Ranking of Price Paid for Inputs

Source: Primary data

3.3.2.6 Reasons for unreasonable prices

The various reasons for unreasonable price of different inputs used by the sample HHs in cultivation of crops were observed. The main reasons for unreasonable rate of fertilizer were collusion of private sellers (55.56%), no price control (27.78%) and very few sellers (16.67%). The majority of sample HHs also reported that the main reasons for unreasonable price of plant protection chemicals were no price control, collusion of private sellers and no subsidy available to purchase inputs as reported by 68.33 percent, 31.32 percent and 0.36 percent of sample HHs, respectively (Figure 6).

Figure 6: Reasons for Unreasonable Prices Paid for the Inputs at Overall Level



Source: Primary data

The majority of sample HHs reported that the main reasons for unreasonable rate of human labour and diesel were no price control (100.00%). Cent percent sample HHs reported that the main reason of unreasonable price of minor repair and irrigation was no subsidy available in the market. The majority of sample HHs reported that the main reasons of unreasonable rate of hiring of machinery were no price control, no subsidy available and very few sellers as reported by 70.54 percent, 24.81 percent and 4.65 percent of sample HHs, respectively (Figure 6).

4. Conclusions

The following points can be concluded from the above findings:

- Kharif (50.31%) and Rabi (49.69%) were found to be major seasons in which an average HH allocated his maximum net operated area. Soybean (91%) & rice (7%) and wheat (70%) & chickpea (26%) were found to be major farm products grown in Kharif and Rabi season, respectively. The cropping intensity of an average HH was found to be 198 percent. He was found to harvest of 3526 kg/ha, 3435 kg/ha, 1053 kg/ha and 999 kg/ha of wheat, rice, soybean and chickpea, respectively, with the average yield of 2253 kg/ha of all these crops farm products. He was found to receive Rs. 49778 per ha in a year from cultivation of crops. Amongst the major farm products, the HH received highest sale value (main product) from wheat (Rs. 64907/ha) followed by rice (Rs. 59031/ha), chickpea (Rs. 41140/ha) and soybean (Rs. 34035/ha). He was also found to receive more gross sale value of main as well as by-product from wheat (Rs. 72427/ha) followed by rice (Rs. 67013/ha), chickpea

(Rs. 42338/ha) and soybean (Rs. 35648/ha). However, the price received from a kg of grain was found to be highest in case of chickpea (Rs. 41.18/kg) as compared to soybean (Rs. 32.33/kg), wheat (Rs. 18.41/kg) and rice (Rs. 17.19/kg).

- The majority of sample HHs were found to sell rice and wheat to cooperative/Govt. agencies, followed by input dealers and regulated market & local village. However, none of the HH was found to sell the produce of rice and wheat to local village merchant and input dealers, respectively, while the majority of sample HHs growing soybean and chickpea were found to dispose of the produce through regulated market followed by local village merchant and input dealers & cooperative/ Govt. agencies. None the HH was found to sell soybean produce to cooperative/Govt. agencies.

- The majority of sample HHs were found to be satisfied from the disposal of crop produce in the market. Others were dissatisfied due to delayed payments, followed by lower market price. The main reason for dissatisfaction was lower market price, unreasonable price due to no Government purchase, very few buyers (35.48%) and collusion of private buyers. The majority of HHs growing rice (70.48%), soybean (71.72%) and wheat (92.23%) found the price of the produce to be reasonable, while majority of chickpea growers (87.98%) reported the price to be non- reasonable.

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

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

- An average HH was found to invest Rs. 61662/ha/year on other inputs to cultivate crops in which the share of leased in land was 60.24 percent. The total expenditure excluding land was found to be Rs. 24520/ha/year in the cultivation of crops in the area under study. Out of total expenditure incurred (excluding leased in land) in cultivation of crops per hectare, maximum was in human labour (43%), followed by fertilizer (18%), hiring of machinery (14%), plant protection chemicals (9%), electricity (5%), maintenance cost (3%), diesel (2%), animal labour (1%) and irrigation charges (1%) in the area under study.

- Cent percent sample HHs reported that they purchased fertilizer, plant protection chemicals, diesel, electricity and irrigation for production of major crops. Cent percent sample farmers also reported that they used farm saved manures and animal labour for cultivation of crops.

- Majority of sample HHs were found to procure fertilizers from cooperative societies (87.25%), followed by input dealers. Cent percent sample HHs ranked diesel & plant protection chemical as good. The majority of sample HHs reported that the quality of fertilizer (64.75%), manure (91.57%), electricity (92.28%), plant protection chemical (100%), human labour (78.25%), animal labour (70.69%) and irrigation (91.00%) were good, which they procured for production of crops.

- Cent percent sample HHs reported good ranking to the price of manure followed by

fertilizer (91.00%), manures (100%), electricity (95.99%), animal labour (87.50%), irrigation (96.00%) and human labour (62.50%), while only 64.90 percent and 92.36 percent sample HHs reported the price of plant protection chemical and diesel were satisfactory. On an overall level, the majority of sample HHs reported that the main reasons for unreasonable rate of fertilizer were collusion of private sellers (55.56%), no price control (27.78%) and very few sellers (16.67%). The majority of sample HHs reported that the main reasons for unreasonable price of plant protection chemicals were no price control, collusion of private sellers and no subsidy available to purchase inputs as reported by 68.33 percent, 31.32 percent and 0.36 percent of sample HHs, respectively.

- The majority of sample HHs reported that the main reason for unreasonable rate of human labour and diesel was no price control (100.00%). Cent percent sample HHs reported that the main reason for unreasonable price of minor repair and irrigation was no subsidy available in the market. The majority of sample HHs reported that the main reasons for unreasonable rate of cost of hiring of machinery were no price control, no subsidy available and very few sellers as reported by 70.54 percent, 24.81 percent and 4.65 percent of sample HHs, respectively. The majority of sample HHs reported that the main reasons of unreasonable rate of leased in land were no price control (75%) and very few sellers (25%).

5. Policy implications

The following policies emerge from the above conclusions:

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

- The assets possessed by the sample HHs were found to be less productive. Therefore, priority should be given on capacity building for generating income through these assets. Some app based solutions are coming up for custom hiring. Therefore, farmers should be made aware to register themselves in such activities to generate income from their assets.

- It was observed during the investigation that farmers were not getting solution for their need based problems. They were unaware about Kisan Call Centre Toll free No. 1800-180-1551. Thus, to solve their need based problems, they must be made aware through extensive campaigning.

- The majority of HHs reported that they did not get any benefit from Kisan Mitra, gram panchayat, SHGs and cooperative societies. This calls for strengthening of these bodies for empowerment farming community.

- The Government should take initiative for capacity building of FPOs on various aspects such as awareness about various schemes of agricultural inputs and outputs and other schemes related to agriculture and allied sectors, marketing of inputs and outputs, processing and value addition, entrepreneurship skills, accounts, business laws, export and import, marketing strategies, market intelligence, trade literacy, etc. and providing hand holding support at various levels to make them confident enough and self-reliant in performing various business and

various day to day activities, thereby ensuring profitability to member farmers on continuous basis for the long term and helping them in building international brand of their products.

- It has become imperative to take immediate steps for making markets efficient, not only by incentivizing the farming community for producing crops but by increasing the farmers' share in consumer rupee. It is required to establish valuable and viable long term value chain not only to provide livelihood security to the deprived farmers of the State but at the same time ensure nutritional food security at national level thereby reducing the burden of imports and saving foreign exchange reserves.

- The input as well as output market of farm products was found towards perfection in the State as more than 60 percent of sample HHs of the study area were found to be satisfied with the disposal of their crop products. All of them reported that price of various inputs was found to be reasonable and its quality was also found to be fair enough. It became possible due to introduction of various schemes and their effective implementation for increasing production and procurement of farm products by the Government of Madhya Pradesh. Along with this, the Government of Madhya Pradesh also provided handsome bonus over and above the MSP to the farmers for procurement of food grains. Kisan Samriddhi Yojana (Rs. 4,000/farmer/year) was also introduced by the State Government over and above the Kisan Samman Nidhi (Rs. 6000/farmer/year) to support the farmers for enhancing production. With the result of timely interventions of all the above schemes, the State could win prestigious Krishi Karman Award under various categories consecutively for the last 6 years. The Government of Madhya Pradesh also performed well in harvesting and procurement of farm produce under pandemic Covid-19 situation.

- Apart from this, the Government of Madhya Pradesh has recently launched "MP Farm-Gate App" for their farmers to sell their produce from farm gate to the traders. It was successfully implemented in Satna, Jabalpur, Sagar, Bhopal, Guna and Dewas districts of Madhya Pradesh on pilot basis and very soon will be implemented across districts of the State. This will not only reduce the marketing cost of farm products, but at the same time brings radical changes to increase their farm income. This will bring revolutionary changes by converting farmers from price taker to price maker for their farm produce.

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