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Pulses Production in Lalitpur District of Bundelkhand: Constraints and Opportunities

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ABSTRACT

Per capita net availability of pulses in the country declined sharply over the years due to stagnation of productivity as well as decline in area. For present study, fifteen villages of three blocks and from each village 12 farmers were selected randomly making a total of 180 farmers from Lalitpur district of Bundelkhand region to find out the constraints and opportunities in pulse production. It was revealed that stray animal & blue bull, middle man and lack of education were socio-personal constraints. Among infrastructural constraints lack of irrigation facility, non availability of quality seed were major. Other constraints included high infestation of pest and diseases (wilt, root rot and pod borer), non availability of inputs at proper time (quality seed, bio-pesticide and herbicides etc.), low market price, lack of technical guidance as perceived by the pulse farmers.

Keywords: Chickpea, Constraints, Farmers, Lentil and field pea, Pulse production

INTRODUCTION

Pulses in India have long been considered as the poor man's only source of protein and named as "the poor man's meat" because the consumption of dairy and animal products is very low among the poorest segment of both rural and urban India. Pulses also play predominant role in food and nutritional security due to their high nutritional value (20-30% protein) (Srivastava *et al*., 2010). Pulses contribute substantially to food production system by enriching the soil through biological nitrogen fixation, improving soil physical conditions and maintenance soil condition. India accounts for 33 per cent of the world area and 22 per cent of the world production of pulses, also, India is the largest producer (25.7% to the world production) consumer and importer of pulses in the worlds (Chauhan *et al.,* 2016). Pulse production can be increased by 5-6 million tonnes by 2020 by promoting adoption of shorter duration pulse varieties and varieties that are disease and pest resistant (Joshi *et al.,* 2017). It has been projected that total pulse requirement for the burgeoning 1.69 billion population by 2050 will be 32.0 million tones (Yadav *et al.,* 2019). There is a big gap in supply and demand of major pulses in India, suggesting a shortage of pulse for domestic consumption to the tune of 114.50 lakh tonnes of Gram (Chickpea) and 365.60 lakh tonnes of Tur (Pigeon pea) by 2030 (Jadhav *et al.,* 2018). Pulse account for around 20 per cent of the area under food grain and contribute around 7-10 per cent of the total food grains production in the country. Madhya Pradesh, Maharashtra, Rajasthan, Uttar Pradesh and Karnataka are the top five pulses producing state. In India, pulses constitute a group of 12 crops that include mainly chickpea pigeonpea (*Cajanus cajan* L.), chickpea (*Cicer*

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arietinum L.), mungbean (*Vigna radiata* L. Wilczek), urdbean (*Vigna mungo* L. Hepper), lentil (*Lens culinaris* L.) and fieldpea (*Pisum sativum* L.). Since more than 80 per cent of the area under pulses is under stressed rainfed environment, the quality seed of improved varieties has emerged as the most vital input for enhancing pulses production in India. U.P. plays an important role in pulses production by contributing about 9.0 per cent to the total pulses production of the country. Among pulses, chickpea contributes maximum (28%) followed by lentil (22%), urdbean (16%) pigeonpea (14%) and moongbean (2%) in the total production of pulses in U.P. Bundelkhand region is consisting of 13 districts including 7 districts in UP and 6 districts in MP. In U.P. Bundelkhand is a major pulses growing region of India (Sharma and Sisodia, 2018). The 7 districts of Bundlekhand *viz.*, Banda, Chitrakoot, Jalaun, Mahoba, Hamirpur, Lalitpur, and Jhansi are famous for pulses cultivation and these areas are considered as pulse bowl in the country. The major *kharif* crops in the NFSM (Lalitpur District) district are Pulses (90%) and in the *rabi* season pulses (59%) and wheat (41%) are the major crops. Overall, 74 per cent of the GCA has been allocated to pulses and 21 per cent to wheat and 5 per cent to other crops in the district (Shekhar and Bhatt, 2012). The present study was undertaken to analyze the factors affecting pulse production in Lalitpur district of U.P.

METHODOLOGY

The present study was conducted in purposively selected block Jakhaura, Birdha and Mehrauni of the Lalitpur district. From each block 5 villages were identified for the study. From each village 12 farmers were selected randomly. Thus, the total a sample of 180 farmers was drawn from the fifteen village of three block of the district. Data were collected through interview schedule and group discussion. Thereafter data were analyzed by using simple calculation frequency and percentage. The exhaustive list of constraints was prepared in advance from review of literature to formulate the schedule.

RESULTS AND DISCUSSION

The data presented in the Table 1 show that maximum farmers were in middle (39%) age followed by young (23%) and old (38%) involved in pulse production in the area where as 43.8, 23.3 and 10.5 per cent had a Medium, Low, and High level of education, respectively. It was found that 35.5 per cent of them had small family size, while only 13.3 per cent had large family size. About 55.0 per cent respondents were having joint family and 45.5 per cent belonged to nuclear family. It was observed that 57.7 per cent respondent had large land holding, while 26 and 16 per cent had small and marginal respectively. It was found that 54.4 per cent holding farming, while one-third of them were labourers; and about 6 per cent of them followed business or service as occupation.

Table 1: Socio- Personal Characteristics of the Respondents (N-180)

Variables	Categories	No.	%
Age	Young (0-30 years)	42	23.0
	Middle (30-45 years)	70	39.0
	Old (45 to 70 years)	68	38.0
Education	Illiterate	40	22.2
	Low (0-5th)	42	23.3
	Medium (6th-12th)	79	43.8
	High (12th-above)	19	10.5
Family size	Small (Up to 4 members)	64	35.5
	Medium (4 to 8 member)	92	51.0
	Large (8th above)	24	13.3
Family type	Nuclear	82	45.5
	Joint	98	54.5
Land holding	Marginal (up to 2 ha)	29	16.0
	Small (2 to 4 ha)	47	26.0
	Large (8th above)	104	57.7
Occupation	Farming	98	54.4
	Labour	60	33.3
	Business	12	6.7
	Service	10	5.5

The data in Table 2 shows that majorly five constraints were perceived by the farmers as Stray animal and blue bull was ranked the first. Similar results reported by Nain *et al.* (2015) whereas Crop damage by wild animals and high cost of input were the other major constraints. The other constraints like that Middle Man (69.4%), Education (63.8%), Labour Scarcity (56.6%) and High Transportation Cost (52.7%) were reported as important

Table 2: Socio-Personal Constraints (N=180)

Constraints	Frequency	Percentage	Rank
Education	115	63.8	III
Labour sacristy	102	56.6	IV
Stray animal and blue bull	126	70.0	I
Middle man	125	69.4	II
High transportation cost	95	52.7	V

Table 3: Infrastructural constraints

Constraints	Frequency	Percentage	Rank
Non availability of quality seed at time of sowing	120	66.6	II
Lack of effort towards seed production	94	52	V
Poor quality input in the market	110	61	IV
Lack of irrigation facility	124	68.8	I
Lack of Soil Testing facilities	117	65	III

constraints ranked at II, III, IV and V place respectively. Similar results have also been reported by Pandey *et al.* (2016).

It was found that lack of irrigation facility with 68.8 per cent was placed that Ist rank among infrastructural constraints (Table 3). The other constraints like non availability of quality seed at a time of sowing (66.6%), lack of soil testing facilities for providing quality inputs (65%), poor quality inputs in the market (61%), lack of interest towards seed production (52%), were reported constraints ranked at II, III, IV & V respectively. Similar results have also been reported by Kumar *et al.* (2010).

It is evident from Table 4 that lack of technical knowledge about pulse production (68.3%), lack of motivation about pulse production (63.8%), low risk bearing ability of the farmers (60%), negative attitude of the farmers about pulse production (51.6%) and lack of confidence about technical knowledge provided by government agencies (49.4%) were major psychological constraints respectively.

Table 5: Financial constraints technical constraints marketing constraints

Constraints	Frequency	Percentage	Rank
High labor charges	109	60.5	III
Lack of subsidy on HYV	118	65.5	I
High cost of weedicides and pesticides	115	63.8	II
Non availability of credits facility in a time	90	50.0	V
High cost of equipments	84	46.6	VI

It was observed that lack of subsidy on HYV (65.5%), high cost of weedicide and pesticide (63.8%), with high labors charges (73.8%), non availability of credit facility in a time (50%) and high cost of equipments (46.6%) were financial constraints as assigned by the respondents respectively.

The data presented in Table 6 reflects that lack of technical guidance at a right time as (69.4%) was ranked 1st, followed by lack of knowledge about seed treatment, lack of knowledge about fertilizer application method and doses, unavailability of suitable variety and lack of knowledge about seed rate with an overall percentage 67.2, 64.4, 63.3 were major technical constraints. The other constraints were lack of knowledge about package of practices, lack of knowledge about insect pest and disease management and lack of knowledge about bio-fertilizer with an overall percentage 60.5, 53.8, 50.0 and 46, respectively. The perusal of data presented in Table 7 clearly show that monopoly of traders was major marketing constraint. Low price of agriculture

Table 4: Psychological constraints

Constraints	Frequency	Percentage	Rank
Low risk bearing ability of the farmers	108	60.0	III
Lack of motivation about pulse production	115	63.8	II
Lack of technical knowledge about pulse production	123	68.3	I
Negative attitude of farmers towards pulse cultivation	93	51.6	IV
Lack of confidence about technical knowledge providing by Govt. agencies	89	49.4	V

Table 6: Technical Constraints

Constraints	Frequency	Percentage	Rank
Unavailability of suitable variety	114	63.3	IV
Lack of knowledge about package of practices	107	59.4	VI
Lack of technical guidance at a right time	125	69.4	I
Lack of knowledge about seed treatment	121	67.2	II
Lack of knowledge about seed rate	109	60.5	V
Lack of knowledge about fertilizer application methods and doses	116	64.4	III
Lack of knowledge about weed management	97	53.8	VII
Lack of knowledge about insect pest and disease management	90	50.0	VIII
Lack of knowledge about Bio fertilizer	83	46.0	IX

Table 7: Marketing Constraints

Constraints	Frequency	Percentage	Rank
Price fluctuation	110	61.0	IV
Lack of storage facility	102	56.6	V
Low price of agriculture commodities in peak season	125	69.4	II
Monopoly of traders	130	72.0	I
Biasness by Mandi Officers	90	50.0	VI
Malpractices of middle man	118	65.5	III

commodities in peak season and malpractices of middle man followed. Other marketing constraints were price fluctuation, lack of storage facilities and biasness by Mandi officers.

Suggestions of pulse growers for minimizing the constraints presented in Table 8 shows that easy provision of timely quality input (70.5%) can solve the issue at large. The other suggestions made by the respondents include extension agencies should conduct required training at a right time (67%) , Government department should arrange quality inputs at a time (63.8%), Organize kisan goshti at a village level (60.0%), field visit and field day be organized by extension officer (54.4%), Govt. department should convey right information at right time (50%) and Technical information should be published in newspaper, technical bulletin and extension literature (43.3).

CONCLUSION

On the basis of study it may be concluded that the maximum numbers of pulse farmers experienced various constraints in adoption of pulse production technologies. The most important problems were lack of sufficient irrigation, climate change scenario, stray animals and blue bull. Lack of timely technical knowledge, unavailability and high cost of new variety, fluctuation of price and monopoly of traders were constraint perceived by the respondents in adoption of scientific pulse production technology. To overcome such problems, there should be research and development of short duration varieties of pulses as catch crop, identify the niche markets and policy for enhancement of variety/seed replacement rate and

Table 8: Suggestion of Pulse growers to minimize the constraints

Suggestion	Frequency	NPS Percent	Rank
To provide timely quality inputs	127	70.5	I
Extension agencies should conduct required training at right time	121	67.0	II
Organize Kisan Gosthi at village	108	60.0	IV
Technical information should be published in Newspaper, Bulletin and folder	78	43.3	VII
Govt. department should convey right information at right time	90	50.0	VI
Field days and field visit organized by extension officer	98	54.4	V
Govt. department should arrange quality inputs	115	63.8	III

quality production. Research on modification of agronomic practices and their different components for excelling production under changing climatic scenario need to be strengthened.

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