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Technological Gap in Adoption of Pulse Production Technologies in Central Plain Zone of Uttar Pradesh

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ABSTRACT

India's population lives in villages and the principal source of livelihood is agriculture, comprising of crop and animal husbandry, forestry, fisheries, agro-processing and agri-business. Therefore, accelerated progress in enhancing the productivity, profitability, stability, and sustainability of the major farming systems is the best safety net against hunger and poverty. To overcome this situation, pulses can play a vital role besides the cereal crops. Pulses are the rich sources of proteins, quality nutrition and valuable cash also. The study of technological gap in adoption of pulse production technologies in Lucknow district revealed that maximum technological gap in seed rate(75%) followed by plant protection measure(54%),seed treatment(43%),method of sowing(32%),fertilizer management (32%),time of irrigation (22%) and intercultural operations(9%).Stray cattle (86%),remuneration of labour and implementation of recommended technologies(78%) were important constraints in adoption of pulse production technologies.

Key Words: Adoption, Constraints, Production, Pulse crop, Technological gaps.

INTRODUCTION

Pulses are mostly cultivated under rainfed conditions and do not require intensive irrigation facility and this is the reason why pulses are grown in areas left after satisfying the demand for cereals/ cash crops. Further, are rich in protein, improve soil fertility and physical structure, fit in mixed/inter-cropping system, crop rotations and dry farming and provide green pods for vegetable and nutritious fodder for cattle as well. Although this crop group is more important from the nutritional point of view, there has not any significant increase in area and production during 1950-51 to 2009-10, however, significant growth in area and production has been recorded during the last five years (i.e. 2010-2011 to 2014-15). The productivity of pulses has increased about 68% at 764 kg/ha during 2013-14 from the level of 441 kg/ha during 1950-51. The productivity of food grains has also sharply increased to 2120 kg/ ha during 2013-14 from the level of only 522 kg/ha during 1950-51 (Tiwari and Shivhare, 2016). The major pulse producing states are Madhya Pradesh (24%) Uttar Pradesh (16%)accounted Maharastra (14%),Andhra Pradesh (10%),Karnatka (7%) and Rajsthan (6%)contribution, which together for about 77 percent of the total production(Reddy *et al*,2013).

Lucknow district falls under the central plane zone of Uttar Pradesh. Total cultivable area in the district is 1.38 lakh ha., of which pulses (Chickpea, Field pea, Pigeon pea, Lentil etc) covered upto 10%. Here, traditional method of crop raising still dominates in pulse cultivation ,which causes low production of crops. In spite of agricultural modernization in pulse crops, farmers are still facing diverse technological gap in cultivation. Keeping this fact in view, an attempt was made to study those factors which affect the pulses production with the objectives to ascertain the technological gap in recommended package of practices of pulse crops and to find out constraints of low production of pulse crops.

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Table 1. Technological gap in pulse crop production practices. (N=100)

Technology	Technological gap (Percentage)		
	Low	Medium	High
HYVs seed in term of area	45	30	25
Seed rate	9	15	75
Seed treatment	11	46	43
Method of sowing	23	45	32
Fertilizer Management	13	55	32
Time of irrigation	56	22	22
Intercultural operation	24	67	9
Plant Protection measure	12	34	54

MATERIALS AND METHODS

The study was conducted during 2016-17 in Lucknow district of Uttar Pradesh. The *Jawaharkhera* village of *Mohan Lal ganj* block was purposively selected. The total 100 respondents were purposively selected randomly from the selected village. For studying technological gap,8 important cultivation practices i.e. HYV, seed rate, seed treatment, method of sowing, fertilizer management, time of irrigation intercultural operations and plant protection measures were considered. In this investigation, the constraint refers to the difficulty or problem faced by the respondents in adopting the recommended production technologies of pulse crops were studied. The data were collected with the help of well-structured interview schedule by personal approach. The technological gap refers to the gap between the recommended package of practices and practices actually adopted by the farmers. The formula used for measuring the technological gap was as follows.

$$\text{Technological gap} = \frac{R - A}{R} \text{ X100}$$

Where, R= Recommended technology; A= Technology adopted by the farmers.

RESULTS AND DISCUSSION

The data (Table 1) revealed that a majority (45%) of the farmers belonged to low technological gap category followed by medium (30%) and high technological gap(25%) in the use of high yielding varieties (HYVs) of pulse crops. In case of seed rate, 9, 15 and 75 per cent of the farmers belonged to low, medium and high technological gaps, respectively. In respect of seed treatment, majority (46%) of farmers were found in medium category followed by high (43%) and low technological gap category (11%). It was also evident that the majority of farmers (45%) had medium technological gap in method of sowing followed by low (32%) and high technological gap(23%). This might be due to lack of knowledge about the technological practices. The data further indicated that the majority (55%) of farmers belonged to medium technological gap followed by low (13%) and high technological gap (32%) in fertilizer management. A majority (56%) of respondents were found to be in low technological category in the aspect of time of irrigation. With regards to intercultural operations, majority (76%) of the farmers were in medium technological gap category, 24% in high and 9%of respondents were in low technological category. It was also found that majority (54%) of the farmers had high technological gap category in case of plant protection measure followed by medium (34%) and low (12%). This might be due to lack of knowledge and high cost of plant protection measures. The results were in line of conformity with the finding of Burman *et al* (2010).

Table 2. Constraints in adoption of pulse production technologies. (N=100)

Sr. No.	Constraint	N	Per centage	Rank
A.	**Bio-physical constraint**			
1.	Stray cattle	86	86	I
2.	Availability of high yielding varities	79	79	II
3.	Incidence of disease and insect pest	57	57	III
4.	Cost of seed	46	46	IV
5.	Weed infestation	35	35	V
B.	**Socio-economic constraint**			
6.	Remuneration of labour	79	79	I
7.	Commodity price	67	67	II
8.	Input cost	58	58	III
9.	Subsidy for input	43	43	IV
C.	**Technological constraint**			
10.	Implementation of recommended technologies	78	78	I
11.	Extension of technologies at gross root level	63	63	II
12.	Awareness about recommended technologies	37	37	III

Constraints in pulse production

The constraints faced by the farmers in adoption of recommended production technology of pulse crops were presented in Table 2. Stray cattle was the most important constraint as reported by 86 per cent of the respondents, unavailability of suitable high yielding varieties (79%) in time at local market and block level agricultural office. Fifty seven percent respondent faced difficulties about high incidence of insect pest followed by high cost of seed (46%) and weed infestation (35%).

Socio-economic constraints like remuneration of labour, commodity price, input cost and subsidy of input were expressed as constraints by 79, 67, 58 and 43 per cent of the respondent, respectively. Under technological constraints, lack of proper management was response given by 78 per cent followed by weak extension support at village level (63%) and lack of awareness about recommended technologies (37%).

CONCLUSION

The study revealed that technological gap on pulse production ranged between 7 to 75 per cent. The maximum pulses growers faced hindrances in the production technology due to higher cost of seed, unavailability of quality seeds, rate, faulty method of sowing and fertilizer application, and injudiciously application of plant protection measures. Stray cattle were very important constraints of bio-physical constraints. Higher rate of labour and lack of proper management was also important constraints of socio-economic and technological constraints. For improve to technological gap in adoption of pulse production technologies in Lucknow district felt need to management of stray cattle, mechanization and large scale demonstration of newer technologies at farmers field.

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