RESEARCH NOTE

Technological Gap Faced by Mustard Growers in Firozabad District, Uttar Pradesh

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ABSTRACT

Mustard is the second most important oil seed crop in India after soybean. It accounts for nearly 23 per cent of the total oilseeds produced in the country. India is the third largest rapeseed-mustard producer in the world after China and Canada with 12.5 per cent of world's total production (2018-19). This crop accounts for nearly one-third of the oil produced in India, making it the country's key edible oilseed crop. Rapeseed-mustard is the major source of income especially even to the marginal and small farmers in rain-fed areas. Since these crops are cultivated mainly in the rain-fed and resource scarce regions of the country, their contribution to livelihood security of the small and marginal farmers in these regions is also very important. Hence the present study was undertaken to find out the technological gap faced by mustard growers in Firozabad district, Uttar Pradesh .The study revealed that majority of the respondents (63.33%) had medium level of Technological gap followed by high (20.84%) and low (15.83%).

***Key word** : Rapeseed-Mustard; Technological gap; Constraints; Knowledge level;*

The major oilseed crops in India are ground nut, sunflower and mustered. Among them mustered is the one of the most important oilseed cope. Its oil is the important component of human diet and it has diversified domestic and industrial uses. (*Vinod et al 2018*). Indian mustard (Brassica juncea) is predominantly cultivated and account more than 80 per cent of total rapeseed-mustard production in country. Of the total area and production under the nine oilseeds crops grown in India, rapeseed-mustard accounts for 22.2 per cent of the acreage and 22.6 per cent of the production. In India, although, rapeseed-mustard is cultivated in 25 states, Major states contribute in area >75 per cent are Rajasthan (45%), UP (13%), Haryana (9%), MP (10%) and production>80 per cent are Rajasthan (46 %), UP (13%), Haryana (11%), MP (10%) (*Vinod et al, 2019*).

In Uttar Pradesh, the western part includes the districts, Agra, Aligarh, Mathura, Budaun, Hathras and Firozabad account for more than 25 per cent of total area in state under rapeseed-mustard. The area, production and productivity of rapeseed-mustard in Firozabad district recorded about 13.51 thousand hectare, production 25.16 thousand tonnes and productivity 1800 kg/ha respectively during 2018-19 (*Anonymous, 2019*).

The technological knowledge vary from farmer to farmer according to their personal and socio-economic characteristics, perceived training needs, availability of factors of production and the problems in adoption of improved cultivation practices of rapeseed-mustard. Therefore, an appropriate understanding of Knowledge level of improved cultivation practices and the constraints analysis would help to arrive at appropriate extension and research strategies to increase their knowledge level. Keeping this in view a study was conducted to know the knowledge level and technological gap of improved cultivation practices of rapeseed-mustard growers in Firozabad district, Uttar Pradesh. The major objectives of the study were to know the knowledge of mustard growers, technology gap in each practice and constraints face by the mustard growers in adoption of mustard production technology.

METHODOLOGY

This study was conducted in Firozabad district of Uttar Pradesh, rapeseed-mustard is grown in more than 13 thousand hectare area in the district. The district contributes more than 2 per cent and 2.5 per cent of total area and production of total rapeseed-mustard in the state. The farmers of Aroan Block were interviewed. The total sample size for this study was 120 farmers. Data collected were tabulated on the basis of logical categorization method for calculation of Percentage, Frequency analysis purposes. The following formula was used to ascertain the technological gap in adoption of each of the considered practices.

$$\text{Tech. Gap Index (TGI)} = \frac{R - A}{R} \times 100$$

Where,

R= Number of the recommended practices

A= Number of practices knowledge known by the farmer

The mean technological gap (MTG) for each practice was calculated as follows

$$\text{MTG} = \frac{\text{Total gap for all practices}}{\text{No. of practices}} \times 100$$

RESULTS AND DISCUSSION

Knowledge level : The data in Table 1 shows that the farmers do not have adequate knowledge about recommended doses of fertilizer, insect-pest management and weed management.

The data presented in table 2 reveals that majority 50.84 per cent of the mustard growers were having medium level of knowledge, followed by 18.33 per cent of growers, who had low level of knowledge and 30.83 per cent of growers were having the high level of knowledge regarding improved technologies of rapeseed-mustard cultivation, Similar finding is also reported by *Ashiwal et al (2014)*.

Technological gap : Gap analysis indicates the extent to which technologies have not been adopted. This feedback information is essential to identify the weakness of technology transfer programme, to remove bottlenecks and accelerate adoption.

Technology gap in recommended production technology of mustard was operationalized as the difference between the recommended package of practices and the actual knowledge of the practices has the respondents in the field. There were sixteen

Table 1. Distribution of the respondents according to their Knowledge level

Categories	Level of knowledge		
	Fully No. (%)	Partially No. (%)	Not No. (%)
Selection of land	43 (35.84)	58 (48.33)	19 (15.83)
Land preparation	44 (36.67)	56 (46.66)	20 (16.67)
Seed rate	47 (39.17)	55 (45.83)	18 (15.00)
Seed treatment	41 (34.16)	62 (51.67)	17 (14.17)
Improved variety	35 (29.17)	70 (58.34)	15 (12.5)
Time of sowing	47 (39.17)	65 (54.17)	8 (6.66)
Method of sowing	47 (39.17)	66 (55.00)	7 (5.83)
Use of manure	52 (43.33)	60 (50)	8 (6.67)
Use of fertilizer	28 (23.33)	59 (49.17)	33 (27.5)
Weed management	38 (31.67)	65 (54.17)	17(14.16)
Irrigation	42 (35.00)	57 (47.50)	21 (17.50)
Inter/mixed cropping	35 (29.16)	65 (54.16)	20 (16.66)
Insect control	55 (45.83)	35 (29.16)	30 (25)
Disease control	32 (26.67)	61 (50.83)	27 (22.5)
Harvesting	30 (25)	70 (58.33)	20 (16.67)
Storage	46 (38.33)	54 (45.00)	20 (16.67)

Table 2. Distribution of respondents according to their overall knowledge level

Level of knowledge	No.	%
Low (16-26)	22	18.33
Medium (27-37)	61	50.84
High (38-48)	37	30.83
Total	120	100.00

recommended practices of rapeseed-mustard cultivation about which scores were obtained from the cultivators relating their adoption level, knowledge and attitude towards improved rapeseed mustard production practices. A device was developed to measure the level of technology gap of respondents regarding selected practices of recommended mustard production technology and technology gap index calculated by the following formula *Dubey et al., (1981).*

The Table 3 shows that maximum technology adoption gap among the respondents was in use of storage practices i.e. 35 per cent, followed by 34.17 per cent in time of sowing, 33.33 percent in irrigation and 29.16 per cent in insect control. Present result is in line with the findings of *Dubolia and Jaiswal, 2000, Rai et al. 2012* and *Gupta and Srivastava, 2002.*

The Table 4 indicates that majority of the respondents (63.33%) had medium level of technology gap in practicing recommended cultivation practices of

Table 3. Distribution of the respondents according to their technological gap

Categories	Level of knowledge		
	Fully No. (%)	Partially No. (%)	Not No. (%)
Selection of land	29 (24.16)	65 (54.17)	26 (21.67)
Land preparation	37 (30.83)	59 (49.17)	24 (20.00)
Seed rate	38 (31.67)	61 (50.83)	21 (17.50)
Seed treatment	30 (25.00)	70 (58.33)	20 (16.67)
Improved variety	27 (22.50)	76 (63.34)	17 (14.16)
Time of sowing	41 (34.17)	68 (56.67)	11 (9.16)
Method of sowing	31 (25.83)	60 (50.00)	29 (24.17)
Use of manure	32 (26.66)	66 (55.00)	22 (18.34)
Use of fertilizer	26 (21.67)	63 (52.50)	31 (25.83)
Weed management	38 (31.67)	65 (54.17)	17 (14.16)
Irrigation	40 (33.33)	57 (47.50)	23 (19.17)
Inter/mixed cropping	35 (29.16)	65 (54.16)	20 (16.66)
Insect control	35 (29.16)	55 (45.84)	30 (25.00)
Disease control	32 (26.67)	61 (50.83)	27 (22.50)
Harvesting	34 (28.34)	64 (53.33)	22 (18.33)
Storage	43 (35.84)	54 (45.00)	23 (19.16)

Tabl 4. Distribution of respondents according to their overall technological gap

Level of knowledge	No.	%
Low (16-26)	19	15.83
Medium (27-37)	76	63.33
High (38-48)	25	20.84
Total	120	100.00

rapeseed-mustard. There were 15.83 per cent and 20.84 per cent respondents who had low and high level of technological gap in adopting recommended practices respectively. Similar findings were reported by *Rai et al. 2012* and *Deshmukh et al. 2014*

CONCLUSION

In the light of said findings and discussions of the present study, the following conclusions can be draw. That majority of the mustard growers 50.84 per cent have medium knowledge level followed by 18.33 per cent belonged to low knowledge level and 30.83 per cent falls in high knowledge level. Due to which majority of the respondents (63.33%) had medium level of Technological gap followed by high (20.84%) and low (15.83%) .

The maximum technology adoption gap was found in the area of storage management followed by time of sowing, irrigation management, plant protection technique. The study demands the effective extension efforts (training, field demonstration, more interaction with the farmers) to be made to transfer the technology among the growers so that the technological gap can be overcome which in tern will helps in the upliftment of society and more profit to the rapeseed-mustard growers. This will help the rapeseed-mustard growers to earn more profit by way of optimally utilizing the rapeseed-mustard production technology.

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