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Adoption of improved mustard production technology by farmers in sujanganj block of Jaunpur district (Uttar Pradesh)

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Abstract

Five attributes were studies to know the farmer's status on mustard production in the study area. These were participation of respondents in different social, Mass media, extension activities, Level of knowledge about mustard production technology and extent of adoption level of improved production technology of mustard. Majority (43.34 per cent) of respondents had medium adoption, 26.66 per cent had low and only 30 per cent had high adoption of the recommended package of mustard production practices. That might be due to their medium level of knowledge about the recommended package and innovativeness. The respondents were found to be of some traditional in nature to adopt new technology.

Keywords: Adoption, attributes, innovativeness, traditional.

Introduction

Mustard (*Brassica* spp.) is a member of the Cruciferae family. Indian mustard (*Brassica juncea* L.) is predominantly cultivated in Rajasthan, Uttar Pradesh, Haryana, Madhya Pradesh, Punjab, Orissa, West Bengal, Assam and Gujarat. It is also grown under some non traditional areas of South India including Karnataka, Tamil Nadu, and Andhra Pradesh. The crop can be raised well under both irrigated and rainfed conditions. India is blessed with varied agro-ecological environments ideally suited for growing a variety of oilseeds which include groundnut, rapeseed and mustard, sunflower, soybean, sesamum, safflower, castor, linseed and Niger seed, two perennial oilseeds (coconut and palm oil). India occupies the place of pride as the world's largest producer of groundnuts, sesamum, linseed and castor seeds (Reddy and Immanuelraj,

2017). In the world, India stands at 4th position in soybean area with share of 8.6 per cent to the total area and in production it occupies 6th position with 3.8 per cent share. In groundnut area, India stands at 1st position in the world with share of 14.9 per cent whereas in production it occupies 3rd position with share of 10.5 per cent. In rapeseed and mustard area India stands at 2nd position with 15.2 per cent share whereas, in production it occupies 4th position with share of 9.5 per cent (FAOSTAT, 2018). In India total area of oilseeds was accounted for 24507.90 ha, whereas, production was 31459.26 th.t with yield of 1283.63 kg/ha. Highest share (27.10 per cent) in area was contributed by Madhya Pradesh state followed by Maharashtra with 16.87 per cent and in production highest share was contributed by Madhya Pradesh with 22.09 per cent followed by Rajasthan with 19.43 per cent. Out of 9 oilseeds, 7 are edible (Soyabean, Rapeseed and Mustard, Groundnut, Sesamum, Sunflower, Safflower, Niger seed) and 2 are non-edible (Castor seed and Linseed). Out of these 7 edible oilseeds only Soyabean (36.79), Groundnut (31.13) and Rapeseed and Mustard (28.37) contributes to 96.29 per cent of production share in India (Department of Agriculture. cooperation and farmers Welfare ministry of Agriculture and farmers welfare, Govt. of India, New Delhi 2018)**.** India accounts for only about 2.4 per cent of the world's geographical area and 4 per cent of its water resources, but has to support about 17 per cent of the livestock. Agriculture is an important sector of the In Indian economy, accounting for 14 per cent of the nation's GDP, It is a source of raw material for a large number of industries. The rate of growth in agriculture since independence has been 2.8 per cent /year, while during the pre-independence year. It was 0.37 per cent only. Accelerating the growth of agriculture production, there fore, it is necessary not only to achieve an over all GDP target of 8 per cent during the 12th plan and meet the rising demand for food, but also to increase income of those dependent on agriculture to ensure inclusiveness (Annual report, 2012-13*).* The food grain production has increased from a level of 50.83 million tonnes in 1950-1951 to over 259 million tonnes in 2012-13. This significant achievement in food grain production is due to adoption of high yielding varieties, chemical fertilizers and other critical inputs or as a result of green revolution. (Agricultural Statistics, 2012-13)

The Indian Council of Agricultural Research (ICAR) established the National Research Centre on Rapeseed and Mustard (NRCRM) on October 20, 1993 and redesignated it as the Directorate of Rapeseed and mustard Research (DRMR) in February 2009 to carry out basic, Strategic and applied research on rapeseed and mustard. Besides, generating basic knowledge and material, the Directorate is also engaged in developing ecologically sound and economically viable agro production and protection technologies. The Directorate has the responsibility of planning, coordination and execution of research programmes through wide network of 11 main, 12 sub- and

22 verification centre across the country to augment the production and productivity of rapeseed and mustard. Considering the importance of rapeseed and mustard group of crops in the Indian economy, there is urgent need for undertaking the basic & strategic research for stabilizing and increasing the production and productivity of mustard in our country. The "Technology Mission" in 1986 was established by the ICAR in close collaboration with the Department of Agriculture, Government of India for production of oil seed crops at an accelerated pace.

Research methodology

The study was conducted in Jaunpur district of Uttar Pradesh. This district covers an area of 4,038 sq. km. This district is situated in the plains of the five Rivers, in the Jaunpur (Gomti, Sai, Varuna, Basuhi, Pili) which forms the southwestern border of the Jaunpur district. It shares border with Allahabad District to the East, Azamgarh District to the West, Pratapgarh District to the South, Sant Ravidas Nagar District to the South, Sultanpur District to the west, Varanasi District to the South. The study was undertaken in Jaunpur district. Jaunpur district comprises of 21 blocks out of which Sujanganj block had been selected purposively since most of the FLDs are situated in the Sujanganj block. It has maximum area under mustard cultivation. Village wise list of rapeseed and mustard growers were prepared with the help of agriculture supervisor from each selected 10 Village and total respondents 120 rapeseed and mustard growing farmers were selected randomly through proportional allocation to the size of sample. The adoption behavior of mustard production technology refers to the extent of adoption of recommended improved farm prentices. The question were regarding improved varieties, sowing time and methods, recommended dose of chemical fertilizer, irrigation management, and plant protection were selected.

The weightage of 3for high adoption, 2 for medium adoption and 1 for low adoption of each practices were assigned. The total score obtained by the respondent from all the ten practices was the adoption score of individual respondent. Finally this raw adoption score obtained by individual respondent was converted into adoption index as below.

Sr. No	Category	Scores
1.	Low	(Mean – SD)
2.	Medium	(Mean – SD) to (Mean + SD)
3.	High	Above (Mean + SD)

Results and discussion

Distribution of respondents according to their social participation

The data (table 1) indicate that maximum 45.84 per cent of the respondents had medium social participation. The percentages of participation regarding to the low and high level of social participation were observed as 30 per cent and 24.16 per cent, respectively.

Therefore, it may be stated that most of the respondents had medium social participation.

Table: 1. Distribution of respondents according to their Social Participation.

Sr. No	Categories	Respondents (n=120)	
		Frequency	Percentage
1.	Low	36	30.00
2.	Medium	55	45.84
3.	High	29	24.16
	Total	120	100.00

Regarding social participation, majority of the respondents 45.84 per cent had medium participation in social organization. This might be due to limited social activities conducted in the selected area. This finding finds support with the work of Singh (2003), Kawale *et al*. (2003), Rajput (2005).

Distribution of respondents according to their Mass media Participation.

Data presented in Table 2 show the participation of respondents in social organizations. It is concluded that 40.83 per cent had belonged to medium mass media participation, whereas, 36.67 per cent had low participation in social organizations and 22.5 per cent had high mass media participation. The data presented in Table 2 found that more than half of the farmers 40.83 per cent had belonged to medium mass media participation, whereas, 36.67 per cent belonged to low and 22.5 per cent belonged to high mass media participation. The finding finds support with the Adhikari (2007), Solanki (2008), Sharma *et al.* (2014) and Sharma *et al.* (2015). There were several reasons behind their medium mass media participation. Mass media connectivity of the mustard growers effects their adoption behavior significantly, mass media makes them aware about new advancements in farming if they are not connected with some media they will not come to know about recent happenings and show poor or lees

interest in adoption behavior since they does not know about the benefits of that programme because of lack of mass media participation.

Table: 2. Distribution of respondents according to their mass media participation

Sr. No	Categories	respondents (n=120)	
		Frequency	Percentage
1.	Low	44	36.67
2.	Medium	49	40.83
3.	High	27	22.5
	Total	120	100.00

Distribution of respondents according to their Extension Participation:

The percentage distribution (table 3) of extension participation of the respondents. It is obvious from the table that out of total respondents, 45 per cent had medium level of extension participation, while 34 per cent had low and only 20.83 per cent had high level of extension participation.

Table: 3. Distribution of respondents according to their Extension Participation

Sr. No	Categories	respondents (n=120)	
		Frequency	Percentage
1.	Low	41	34.17
2.	Medium	54	45.00
3.	High	25	20.83
	Total	**120**	**100.00**

Extension participation refers to the participation of respondents in various extension activities conducted by the village extension workers or by other agency in relation to acquire knowledge about the technology.

Distribution of respondents according to their Level of knowledge

The summated score represents the extent of knowledge on mustard production practices of a respondent. The data presented in table 4 depict the knowledge level on the basis of scores obtained by the respondents on selected mustard production practices. The majority of the farmer 49.17 per cent possessed medium knowledge category, followed by 19.17 per cent farmers who had low knowledge category and only 31.66 per cent possessed high knowledge about mustard production technology.

Table: 4 Distribution of respondents according to their Level of knowledge

Sr. No	Categories	respondents (n=120)	
		Frequency	Percentage
1.	Low level of knowledge (< 22.60 Score)	23	19.17
2.	Medium level of knowledge (22.60 to 35 core)	59	49.17
3.	High level of knowledge (> 35 Score)	38	31.66
	Total	120	100.00

Fig. 4.2 Distribution of respondents according to their Level of knowledge

A higher percentage 49.17 per cent of growers obtained medium knowledge level of farmers about recommended production technology of rapeseed and mustard crop and their caste was therefore, accepted. It means the caste did not affect knowledge level of farmers about recommended production technology of rapeseed and mustard crop because all the rapeseed and mustard growers might have paid the attention on acquiring the knowledge about recommended production technology of rapeseed and mustard crop. The findings of this study support the findings of Kumawat (2007).

Distribution of respondents according to their adoption level

The distribution of the respondents according to their extent of adoption (overall) of selected mustard production technologies is shown in Table- 5 revealed that most of the farmers 43.34 per cent had belonged to medium adoption behavior category while one fourth 30 per cent of the farmers belonged to high and one fifth 26.66 per cent of them belong to low and high adoption categories of mustard production technologies, respectively. Majority of 43.34 per cent of respondents had medium adoption, 26.66 per cent had low and only 30 per cent had high adoption of the recommended package of mustard production practices. That might be due to their medium level of knowledge about the recommended package and innovativeness. The respondents were found to be of some traditional in nature to adopt new technology. This finding finds support with the work of Jadav *et al*. (2004) and Sachan *et al.* (2005).

Table: 5. Distribution of respondents according to their adoption level.

Sr. No	Categories	respondents (n=120)	
		Frequency	Percentage
1.	Low (<44.75 score)	25	26.66
2.	Medium (44.75-79.99)	52	43.34
3.	High (>76.99 score)	36	30.00
	Total	120	100.00

Conclusion

Maximum 45.84 per cent of the respondents had medium social participation. The participation of respondents in social organizations. It is concluded that 40.83 per cent had belonged to medium mass medium participation. Majority of respondents 45 per cent had medium level of extension participation. Knowledge level of farmers about mustard production technology. The knowledge level on the basis of scores obtained by the respondents on selected mustard production practices. That majority of the farmer 49.17 per cent possessed medium knowledge category.The distribution of the respondents according to their extent of adoption (overall) of selected mustard production technologies reflects that most of the farmers had belonged to medium adoption behavior category.

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