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ADOPTION GAP AND CONSTRAINTS IN ADOPTION OF IMPROVED MUSTARD PRODUCTION TECHNOLOGY IN SEMI ARID REGION OF RAJASTHAN

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ABSTRACT

The present study was conducted in Sikar district of Rajasthan. From 8 adopted villages of KVK, 50 beneficiary respondents were selected proportionate randomly and 50 non-beneficiaries were also selected from 8 another villages in order to get the responses of non-beneficiaries of Front Line Demonstration (FLD). Thus, a total sample size comprised of 100 respondents from 16 villages. From the study it was found that 63.00 per cent respondents belong to medium level of adoption whereas, 22.00 per cent under low and only 15.00 per cent farmers were grouped under high adoption category. The adoption gap in case of beneficiary & non-beneficiary farmers was found 26.50% and 47.20 per cent, respectively with regards to major packages of practices of mustard production technologies. Maximum adoption gap was found in weed management practice (80.0%), followed by physiological aspects (48.5%) per cent, soil treatment and field preparation (46.0%), plant protection measures (44.0%) per cent, fertilizer application (42.2%) and HYVs (26.0%), respectively. The major constraints reported by the repondents were weed control through weedicide is complex practice (83.99 MPS), high cost of insecticides and pesticides (82.33MPS), malpractice of the merchants in the mandies (80.66MPS), high cost of fertilizers (79.33MPS), high cost of HYVs seed (78.66 MPS).

INTRODUCTION

Mustard is an important oilseed crop widely grown in India. Rajasthan is the largest rapeseed mustard growing state and alone contributes 46.19 per cent production from 39.3 per cent hectare area. The total oilseed production of India is 27.7 million tones and the share of mustard production is 7.37 million tones (2008-09). There is an urgent need to increase the production of oilseeds.

To accelerate the production of oilseeds the Department of Agriculture and Cooperation (DAC), Govt. of India had initiated a "Technology Mission on Oilseed" in 1986 to achieve self-sufficiency in oilseeds production. Under this mission the ICAR introduced the concept of "First Line Demonstration" during 1990-91. These demonstrations have been conducted under the close supervision of scientists of the NARS, KVK, SAUs and their Regional Research Stations in a block of two to four hectares of land.

A large yield gap was found in FLD field trials and farmer's field trials due to partial adoption of improved mustard production technologies on their farm. The adoption gap in the new technologies due to some constraints like- high cost of HYVs, high cost of critical inputs and lack of technical advices when needed etc. were faced by the farmers. To evaluate the adoption gap of mustard growers in semi arid zone of Rajasthan, the present study was under taken with objectives:

1. To find out the extent of adoption of improved mustard production technology by the farmers.
2. To study the practice wise adoption gap among beneficiaries and non-beneficiaries farmers.
3. To identify the constraints faced by the farmers in adoption of improved mustard puodution technology.

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RESEARCH METHODOLOGY

The present study was conducted in purposively selected Laxmangarh Panchayat Samiti of Sikar district of Rajasthan. All the 8 adopted villages of BKVK, Fatehpur where FLDs were conducted were included in the study (as beneficiaries) and 8 other villages within the radius of 2 to 5 km from the adopted villages were also selected randomly in order to get the responses of non-beneficiaries of FLDs.

From adopted villages, 50 beneficiaries were selected by using proportionate random and 50 non-beneficiary respondents were selected randomly from nearby villages not covered under FLD. Thus, a total sample size comprised of 100 respondents from 16 villages. The data were collected through personal interview with the help of pretested schedule developed with regard to recommended package of practices and all possible constraints faced by growers in mustard cultivation.

$$\text{Adoption gap index} = \frac{R - A}{R} \times 100$$

Where, R= Recommended practice

. A= Practice actually adopted by the farmer

RESULTS & DISCUSSION

Adoption of inproved mustard cultivation technology by the farmers.

The farmers were grouped into low, medium and high adoption categories according to their obtained scores of adoption.

Table1 indicates that only 6 per cent beneficiary farmers come under low adopter's category. Whereas, maximum number of beneficiary farmers i.e. 68% & 26% were found under medium and high adoption categories, respectively. While in case of non-beneficiaries, 38 per cent and 58 per cent farmers were found in low and medium adoption; whereas, only 4 per cent come under high adoption category, respectively. Above findings are similar with the findings of Narpat (2004) who observed that higher percentage of beneficiary farmers possessed medium to high adoption level whereas non-beneficiary farmers had poor adoption level.

As a whole, it was found that 63 per cent respondents belong to medium level of adoption category whereas, 22 per cent farmers were found under low adoption category and only 15 per cent farmers were grouped under high adoption category.

Table 1: Distribution of beneficiary and non-beneficiary farmers under different adoption categories

S. No.	Categories of adoption level	Beneficiary Farmer		Non-beneficiary Farmer		Total (n=100)
		f	%	f	%	
1	Low (Below 23.95)	03	06	19	38	22
2	Medium (23.95 to 38.29)	34	68	29	58	63
3	High (Above 38.29)	13	26	02	04	15
	Mean = 31.12, ó = 7.17		Total			100

Practice wise adoption gap among beneficiary and non-beneficiary respondents regarding improved mustard production technology

The adoption gap of beneficiary and non-beneficiary farmers was measured for all the eleven important package of practices of mustard production technologies in terms of Mean Per cent Score (MPS) & gap. The statistical data were analyzed and presented in Table 2.

The data presented in Table 2 reveal that maximum adoption (83.00%) was reported in practice like Irrigation management. This was followed by the practices like Time of sowing, Seed rate and spacing, Seed treatment, HYVs, Harvesting and storage, Manures & fertilizer application, Plant protection measures, Soil treatment and field preparation, Physiological aspects and Weed management' with 82.00, 75.50, 75.00, 74.00, 66.70, 57.80, 55.10, 54.20, 51.50, and 20.00% adoption, respectively.

Further analysis of Table 2 indicates that maximum adoption gap (80.0%) was found in practice Weed management followed by Physiological aspects (48.5%), Soil treatment and field preparation (46.0%),

Table 2: Major practices wise adoption gap among beneficiary and non-beneficiary respondent regarding improved mustard production technology (n=100)

S.No	Package of practices	Beneficiary		Non-beneficiary		Total		Rank
		Adoption%	Gap %	Adoption%	Gap %	Adoption%	Gap %	
1.	High yielding varieties	86.0	14.0	62.0	38.0	74.0	26.0	VII
2.	Soil treatment and field preparation	62.5	37.5	45.5	54.5	54.0	46.0	III
3.	Seed treatment	90.0	10.0	60.0	40.0	75.0	25.0	VIII
4.	Time of sowing	91.0	9.0	73.0	27.0	82.0	18.0	X
5.	Seed rate and spacing	88.3	11.7	62.6	37.4	75.5	24.5	IX
6.	Manures and fertilizer application	68.0	32.0	47.6	52.3	57.8	42.2	V
7.	Irrigation management	92.5	7.5	73.5	26.5	83.0	17.0	XI
8.	Weed management	30.0	70.0	10.0	90.0	20.0	80.0	I
9.	Plant protection measures	66.2	33.8	44.0	56.0	55.1	44.9	IV
10	Physiological aspects	56.5	43.5	46.5	53.5	51.5	48.5	II
11	Harvesting and storage	77.0	33.0	56.5	43.5	66.7	33.3	VI
	Overall	73.5	26.5	52.8	47.2	63.1	36.9	

Table 3: Constraints faced by mustard growers in adoption of improved mustard production technology (n=100)

S. No	Constraints	Overall respondents	
		MPS	Rank
1.	High cost of HYV seed	78.66	V
2.	High cost of insecticides and pesticides	82.33	II
3.	High cost of weedicide	66.66	XII
4.	High cost of fertilizers	79.33	IV
5.	Weed control through weedicide is technically complex practice	83.99	I
6.	Unavailability of technical advice when needed	67.00	XI
7.	Unavailability of improved seed at the time of sowing	67.96	X
8.	Unavailability of fertilizers at the peak season	70.65	IX
9.	Malpractice of the merchants in the mandies	80.66	III
10.	Lack of assured irrigation water	77.98	VI
11.	Scarcity of moisture in soil	71.99	VIII
12.	Occurrence of frost	77.33	VII

Mean Per cent Score (MPS)

Plant protection measures (44.0%), Fertilizer application (42.2%), HYVs (26.0%), Seed treatment (25.0%), Seed rate and spacing (24.5%), Time of sowing (18.0%) and Irrigation management (17.0%). This wide adoption gap may be due to high cost of chemicals, improper know how about their application and negligence of extension worker or agencies in persuasion of farmers for proper adoption of these prac-

tices.

The comparative results also show that overall adoption gap in case of non-beneficiary farmers were found 47.20% which was more than that of beneficiary (26.50%) with regards all practices of mustard.

Similar findings were also reported by Narpat (2004) and Singh *et al* (2002).

Major constraints faced by mustard growers in Adoption of improved mustard production technology

All the major possible technical, economical, input, mechanical and environmental constraints which hinder the adoption of improved practices of mustard faced by the mustard growers were taken in the study.

The Table 3 shows that "Weed control through *weedicide* is technical complex practice" (83.99 MPS), was perceived as major constraint with high intensity faced by all respondents indicated by first rank assigned to it. This was followed by high cost of insecticides and pesticides (82.33 MPS), malpractice of the merchants in the *mandies* (80.66 MPS), high cost of fertilizers'(79.33 MPS), high cost of HYVs seed (78.66 MPS), lack of assured irrigation water' (77.98 MPS), occurrence of frost (77.33 MPS), scarcity of moisture in soil (71.99 MPS), unavailability of fertilizers at the peak season (70.65 MPS), unavailability of improved seed at the time of sowing (67.96 MPS), unavailability of technical advice when needed (67.00 MPS) and high cost of weedicide (66.66 MPS).

Above findings were also in line with the findings of Chandra *et al* (2002), Narpat (2004), Sharma and Sharma (2006) and Singh (2002).

CONCLUSION

It is concluded that 68.00% and 26.00% beneficiary farmers were under medium and high adopterion categories. While in case of non-beneficiales 38.0 per cent and 58.0 farmers were found in low to high adoption categories, respectively. The study shows that adoption gap in case of beneficiary and non-beneficiary farmers was 26.50 and 47.20, respectively. Maximum adoption gap (80.0%) was found in weed management followed by physiological aspects (48.5%), soil treatment and field preparation (46.0%), plant protection measures (44.0%), fertilizer application (42.2%) and HYVs (26.0%). This wide adoption gap between the beneficiary and non-beneficiary respondents may be due to wide knowledge gap about these technologies and due to some major constraints faced by the respondents in adoption of improved technology like weed control through weedicide is complex practice (83.99 MPS), high cost of insecticides and pesticides (82.33 MPS), malpractice of the merchants in the *mandies* (80.66 MPS), high cost of fertilizers (79.33 MPS) and high cost of HYVs seed (78.66 MPS).

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