

Research
Paper

Adoption pattern of improved cultivation practices of mustard

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ABSTRACT

The present study was conducted in Sriganganagar district of Rajasthan to find-out the adoption pattern of improved package technologies of mustard crop with a sample of 98 mustard growing farmers. The study found that almost all farmers (98%) used recommended variety and sowed their crop at normal time (95%) but 75 % of them used excess seed rate. 83 % of the farmers treated their seeds while only 51 % of them followed the recommended doses of manure and fertilizers. 22 % applied less fertilizers and 27 % of them opted for higher doses. No farmer used weedicide and 86 % of them opted for manual hoeing and weeding. 84 % farmers gave 2 irrigation and 9 % went for only one irrigation and the rest went for 3 irrigation. 73 % of the respondents followed plant protection measures. The average yield was found to be quite high (15 qtl/ha) in the selected villages under the study.

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INTRODUCTION

Mustard is the main oilseed cash crop being grown by farmers during *Rabi* season in Rajasthan. The State is a leading in the country ranked first in area and production of the mustard crop (Singh, 2005). Scientists have developed improved production technologies of this crop for obtaining higher production level. North western part of the state having assured irrigation facilities contributes a significant share in total production of this crop. Important technologies such as new varieties, agronomic practices and control measures for insect pest and diseases have been developed for zone 1-b. It is worth to know the adoption of these packages of practices by the farmers of the zone and also the constraints if any in adoption of the package. Primary data were collected in a set of schedule from the farmers.

MATERIALS AND METHODS

The study was conducted in Sriganganagar to find-out the adoption pattern of package technologies developed

for mustard by Agricultural Research Station, Sriganganagar. Five villages namely- Jameetsinghwal, Odaki, Mirjewala, Netewala and Kundlawali of Sriganganagar were selected. A sample of 98 farmers covering various categories of farmers was taken to collect the data from the five selected villages of the district. The number of the farmers was chosen on the basis of area under mustard crop in these villages. Data collected in interview schedule developed for this purpose and analyzed as per objectives of the study.

RESULTS AND DISCUSSION

The results of the study have presented on the basis of major sub-heads of the package of practices of the mustard. These are as follows. Variety, seed rate, seed treatment and sowing, manures and fertilizers, weed control, irrigation, plant protection and harvesting and yields.

Variety:

Majority of the farmers adopted recommended

Table 1: Area under different varieties of mustard in selected villages of the sample farmers (ha)

Variety/ villages	Jameet Singh Wala	Odaki	Mirjewala	Netewala	Kundlawali	Total
Pusa bold	31.13	-	30.88	25.25	2.75	90.01 (29.09%)
Laxmi	56.87	27.25	29.50	23.00	10.25	146.87 (47.47%)
Varuna	31.00	-	1.88	10.00	2.50	45.38 (14.67%)
Rohini	20.50	-	-	-	-	20.5 (6.62%)
Durgamani	2.50	-	-	-	-	2.50 (0.80%)
Pusa Jai kisan	-	1.63	-	-	-	1.63 (0.50%)
Parasmani	-	-	2.50	-	-	2.50 (0.80%)

varieties of mustard crop. Variety Laxmi ranked first in acreage in selected villages followed by Varuna (T 59) and pusa bold. Only ten per cent acreage is covered by local varieties prevailed in the area and their seed owned by farmers (Table 1). The study fall in the line with the study of Singh (2006) who reported that farmers adopted recommended varieties of mustard crop.

Sowing time:

The study found that 95 per cent of the farmers sowed their mustard crop on normal recommended sowing time *i.e.* 5th October to 20 October, while rest of the farmers (5%) did late sowing (Table 2). This might be due to late harvesting of previous crop and non-availability of canal water for palewa during that time.

Table 2: No. of farmers doing early, normal and late sowing of mustard

Village	Time of sowing			Total
	Early	Normal	Late	
Jameet Singh wala	--	30	--	30
Odaki	--	17	--	17
Mirjewala	--	18	3	21
Netewala	--	20	2	22
Kundlawali	--	8	--	8
Total	--	93 (95%)	5 (5%)	98 (100%)

Seed rate:

The normal recommended seed rate for mustard crop is 600-700 g per bigha. The study indicates deviations in adoption of seed rate in mustard crop. Table 3 revealed that that only 23 per cent of respondents under study used recommended seed rate while majority (75%) of respondents used higher seed than recommended. The investigator was told that due to small seed size, there is problem in sowing through seed drill. If the plant population was higher, it could be maintained by thinning before first irrigation. The study fall in line with the study of Sharma and Sharma (2006).

Table 3: No. of farmers using recommended seed rate in mustard

Village	No. of farmers			Total
	Below RP	As per RP	Above RP	
Jameet Singhwala	1	15	14	30
Odaki	--	1	16	17
Mirjewala	1	4	16	21
Netewala	--	2	20	22
Kundlawali	--	1	7	8
Total	2(2%)	23 (23%)	73 (75%)	98 (100%)

Seed treatment:

Seed treatment in mustard is found effective in protecting standing crop by diseases like white rust, stem rot etc. The study revealed that majority of farmers (83%) did not practice seed treatment and only 17 per cent adopted seed treatment in mustard crop (Table 4). The reason for low adoption of seed treatment might be lack of awareness in farmers about importance of seed treatment. There is a need to make farmers more aware about seed treatment by trainings and other extension activities at the time of sowing by the extension agency.

Table 4: No. of farmers who followed seed treatment in mustard

Village	Yes	No	Total
Jameet Singhwala	2	28	30
Odaki	5	12	17
Mirjewala	3	18	21
Netewala	3	19	22
Kundlawali	4	4	8
Total	17 (17%)	81 (83%)	98 (100%)

Manures and fertilizers:

The study found that about half of the respondents (51%) used manures and fertilizers as per recommendation in their mustard crop. 22 per cent farmers

applied less dose of fertilizers than recommendation. The study also indicated that a sizeable number of farmers (27%) applied higher quantity of chemical fertilizers especially nitrogenous in the mustard crop. This showed their tendency to use higher amount of fertilizers for obtaining more production. The investigator was told by the farmers that higher dose of chemical fertilizers leads excess vegetative growth and height of crop plants. This may some time cause low level of production (Table 5).

Table 5: No. of farmers using recommended quantity of manure and fertilizers

Village	No. of farmers			Total
	Below RP	As per RP	Above RP	
Jameet Singhwala	8	20	2	30
Odaki	6	8	3	17
Mirjewala	6	7	8	21
Netewala	2	11	9	22
Kundlawali	--	4	4	8
Total	22 (22%)	50 (51%)	26 (27%)	98 (100%)

Weed management:

Weed control practices were partially adopted by the respondents. Majority of the farmers (86%) practiced two hoeing and weeding and 14 per cent did only one hoeing and weeding. The study revealed that none of the respondents use recommended weedicides to control weeds in their mustard crop (Table 6).

Table 6: No. of farmers using weedicide and/or practicing manual weeding

Village	Hoeing and weeding		Weedicide	Total
	One	Two		
Jameet Singhwala	6	24	--	30
Odaki	2	15	--	17
Mirjewala	3	18	--	21
Netewala	2	20	--	22
Kundlawali	1	7	---	8
Total	14 (14%)	84 (86%)	--	98 (100%)

Irrigation:

Majority (84%) of the respondents applied recommended number of irrigation *i.e.* 2 irrigation in their mustard crop (Table 7). About 7 per cent of the farmers applied more than two irrigation. On the other hand, 9 per cent of the respondents under study applied only one irrigation in their mustard crop due to lack of canal water.

Table 7: Number of irrigation given by selected farmers in mustard crop

Village	No. of irrigation			Total
	One	Two	Three	
Jameet Singhwala	3	26	1	30
Odaki	4	13	--	17
Mirjewala	1	18	2	21
Netewala	1	18	3	22
Kundlawali	--	7	1	8
Total	9 (9%)	82 (84%)	7 (7%)	98 (100%)

Plant protection measures:

Seventy three per cent of respondents adopted recommended plant protection measures to control insects and diseases in standing mustard crop (Table 8). Remaining 27 per cent of respondents did not follow them. The study emphasized for conducting trainings for making farmers more aware about plant protection practices in mustard crop.

Table 8: No. of farmers using plant protection measures

Village	Yes	No	Total
Jameet Singhwala	23	7	30
Odaki	13	4	17
Mirjewala	10	11	21
Netewala	20	2	22
Kundlawali	6	2	8
Total	72 (73%)	26 (27%)	98 (100%)

Harvesting and yield:

Majority of farmers were able to decide about the physiological maturity of mustard crop. Most of them used local sickle to harvest the crop and threshing was done by tractor drawn thresher. Majority (57%) of the farmers

Table 9: Average yield of mustard crop of the selected farmers

Village	Average yield (q/ha)	No. of farmers in the yield group		
		10-14 (q/ha)	15-20 (q/ha)	Above 20 (q/ha)
JameetSingh wala	14.40	13	17	--
Odaki	13.60	7	9	1
Mirjewala	15.68	8	8	5
Netewala	15.80	3	17	2
Kundlawali	16.25	2	5	2
Total	15.00	33 (33%)	56 (57%)	10 (10%)

harvested a good yield (15-20 q/ha.) and 10 per cent of them obtained more than 20 q per hectare. However, 33 per cent of the respondents of selected villages obtained yield between 10-14 q per hectare. There was a slight variation in average yield of mustard crop among selected villages.

Conclusion:

Results of the study revealed that variety Laxmi covered 47 per cent area under mustard crop sown by farmers. The other important varieties covered sizeable area was Pusa Bold (29 per cent) and Varuna (14.67 per cent). 95 per cent farmers did mustard sowing at recommended normal sowing time (5th to 20th October). The study found that 75 per cent of farmers used higher seed rate than recommended one. Result of the study showed that only 17 per cent farmers followed seed treatment in mustard. About 51 per cent of farmers applied recommended dose of fertilizers while 22 per cent used below the recommended dose and 27 per cent of farmers applied more than recommended dose. In case of weed control in mustard almost all the farmers practiced 1-2 hoeing but no one has applied weedicide to control weed infestation in mustard crop. 84 per cent of farmers applied two irrigations in their mustard crop. Approximately 73 per cent farmers used plant protection measure to save mustard crop from various diseases and insects. An

average of 15 q/ha yield was received by the selected farmers. 56 per cent of farmers had mustard yield between 15-20 q/ha.

The study concluded that farmers used higher seed rate in mustard and use less seed treatment. The extension agencies are advised to give more emphasis on those components of technologies in which farmers have low adoption.

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