

## Extent of Adoption of Improved Production Practices of Mustard by the Farmers

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### ABSTRACT

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The present study was carried out on Mustard crop in Karauli District of Rajasthan. Objective of the study is to see the extent of adoption level of improved production practices of Mustard by the farmers. For the study purpose ten villages selected with simple random sampling method. Data collected and tabulated under statistical manner. The result shows that the maximum adoption gap in “soil treatment” is with 73.50% followed by “weed management” 66.50% by the beneficiary’s respondent. In the category of non-beneficiary’s respondent the maximum adoption gap percents in “soil treatment” with 80.84 MPS followed by “Weed Management” 76.34 MPS. The result also show that the significant difference between beneficiaries and non-beneficiaries respondents and there farmers categories big, small and marginal. It can be concluded that the non-beneficiaries farmer’s having more adoption gap than the beneficiary’s farmers, due to lack of contact with extension personnel, less resources and low socioeconomic status.

### Introduction

Although India ranks first in area and production of major edible oilseeds in the world, its performance in terms of yield is dismal. Compared to India, the yield levels in other countries are much higher and even the world average is above the Indian average. The year to year fluctuations in oil seeds production is attributed to a number of problems. They are Environmental, Technological, Organizational and Socio-economic problems. Social constraints limit the progress of transfer of technology to the users. For example, adoption of any new

technology involves a lot of risk which farmers are reluctant to under taken. Most of the farmers have become subsidy minded and accept new packages only when adequate incentives are offered. Further, most of our farmers are small and marginal with little capital to invest in strategic inputs.

It has been proved beyond doubt that timely sowing and proper seed rate for optimum plant population, pre sowing seed treatment have a bearing on crop output but it appears that oil seed crops in general do not receive

the required managerial care. As a result there is a wide gap between the actual yield and the national demonstration trial productivity level.

To keep pace with the development in agricultural technology, it is imperative to stream in the transfer of technology system so that the benefits of innovations can reach the farming community in the quickest possible time.

For speedily transfer of improved agricultural technologies, role of research and training for farmers has been recognized according to their requirements. Several organized efforts have been made to train the farmers but it was taken as a national programme in 1965, when farmers training and education scheme was launched in this country. This programme proved very useful. In this direction Krishi vigyan Kendras, are popularly known as farm Science center are engaged in transfer of technical know-how of agriculture in the area of its operation for more than a decade.

It is therefore planned to know as how far KVK has been able to promote adoption of improved production practices of Mustard in the area. With this view in mind the present investigation has been under taken.

### **Materials and Methods**

The present study was conducted in Karauli district of Rajasthan. The Karauli district was purposively selected for the study due to third position in area and production and Krishi Vigayn Kendra located here. Karauli district consist of 6 Panchayat Sami ties in total, out of which two Panchayat Sami ties were selected Randomly. From the list so prepared five villages each from the identified Panchayat Samiti were selected. Thus in all 10 villages were selected for investigation purpose.

30 respondents from each of the selected villages were sampled, out of which 5 from each category (big, small and marginal) farmers were selected randomly. Thus, the total sample size was 300 respondents in which 150 respondents from beneficiary group and 150 respondents from Non-beneficiary group and further 50 respondents were from each category (big, small and marginal) from beneficiary and Non-beneficiary groups respectively.

To measure varies aspects of the research study; devices were developed with the help of subject matter specialists of concerned discipline and scientists.

The schedule so prepared was presented among the small group of non-sampled respondents prior to administering it to actual respondents for its content validity. The schedule was the revised in the light of suggestions. The test-retest method was used for the measure of reliability of the test.

Thus, making the schedule valid, reliable, objective and clear.

For collection of data, the interview were held personally by the investigator at home or the farms of the respondents in local dialect whereas the assistance of local field functionaries was also sought during investigation in locating the actual respondents. Hypothesis formulated and appropriate statistical tests were used to arrive at conclusion. The statistical tests included percentage, mean, mean score, mean percentage score, standard deviation, analysis of variance 'F' test and rank order correlation were used in this study.

### **Results and Discussion**

Adoption is a mental process. In the modern era many new things are being invented by

our agricultural scientists but all the innovations are not being adopted by many of the members of social system. Adoption of innovations depends on many factors as, awareness and knowledge of adopters, innovativeness, characteristics individual, complexity and visibility of innovations. It is generally assumed that if an individual has more knowledge about different aspects of technologies he is likely to adopt the innovations with greater speed.

The results regarding the extent of adoption of Mustard production technology are narrated here under:

### **Distribution of respondents according to their extent of adoption**

The range of adoption score obtained by the groups of respondents was found wide spread. In order to have a closer look, this range of score was divided into three groups based on the calculated by the respondents and were reset to find out the frequency and percentage of respondents falling in each category. The data have been reported in table 1.

Table 1 depicts that overall 64.66 percent respondents of beneficiaries were medium adoption level whereas majority of marginal 84 percent and 80 percent small farmers respectively were falling in the medium adopter category while the percentage of big farmers under this category were 30 percent.

In case of respondents of non-beneficiaries i.e. 62.66 percent were under medium adoption level while majority of big and small farmers 86 percent and 74 percent respectively were falling in the medium adopters category. Although 26 percent marginal farmers comes under this group.

Overall percentage of the beneficiary and non-beneficiary respondents in the adoption

categories were 1.33 percentage and the groups were marginal 4 percent respectively.

There was no any big respondents of beneficiary and non-beneficiary was found to adoption category, while, 24 percent non-beneficiary small respondents belonged to low level of adoption about improved production practices of Mustard.

### **Extent of adoption of improved production practices of mustard by the beneficiary and non-beneficiary respondents**

The level of adoption of beneficiary and non-beneficiary respondents was measured for all the twelve important practices of Mustard production technology. The data have been presented in table 2.

The data in the table indicate that beneficiary and non-beneficiary respondents had fully adopted "Seed rate" on their fields with MPS 87.66 and 87.00 respectively.

The table further shows that the MPS pertaining to practices spacing", Application of irrigation", Fertilizer application", "High yielding varieties", and "plant protection measures" were 83.78, 82.93, 68.88, 68.80, 65.11, 58.00, 52.55 and 49.25 respectively.

On the contrary, other practices such as "Seed treatment", "Weed management" and Soil treatment" were found to be least adopted with 33.93, 33.50 and 26.50 MPS, respectively.

The table further indicates that the practices like with "Time of sowing", Recommended spacing", "Soil and field preparation", "Application of irrigation", "Fertilizer application", "High yielding varieties", Harvesting and storage" and "Plant protection measures" were adopted to the extent of 83.16, 67.99, 60.66, 51.33, 46.66, 39.86, 36.55 and 31.69 MPS, respectively.

**Table.1** Distribution of different categories of respondents according to their extent of Adoption about improved production practices of Mustard

N= 300

S. No.	Adoption level	Beneficiary (N=150)								Non-Beneficiary (N=150)							
		Big		Small		Marginal		Pooled				Small		Marginal		Pooled	
		F	%	F	%	F	%	F	%	F	%	F	%	F	%	F	%
1	Low (up to 38)	0	0.00	0	0.00	2	4.00	2	1.33	0	0.00	12	24.00	37	74.00	49	32.67
2	Medium (39 to 65)	15	30.00	40	80.00	42	84.00	97	64.67	43	86.00	38	76.00	13	26.00	94	62.67
3	High (above 66)	35	70.00	10	20.00	6	12.00	51	34.00	7	14.00	0	0.00	0	0.00	7	4.66
<b>Total</b>		<b>50</b>	<b>100</b>	<b>50</b>	<b>100</b>	<b>50</b>	<b>100</b>	<b>150</b>	<b>100</b>	<b>50</b>	<b>100</b>	<b>50</b>	<b>100</b>	<b>50</b>	<b>100</b>	<b>150</b>	<b>100</b>

F = Frequency, %= Percentage

**Table.2** Extent of adoption of different categories of respondents about improved production practices of Mustard

N = 300

S.No	Aspects of adoption	Beneficiaries				Adoption gap percent	Non- Beneficiaries(N=150)				Adoption gap percent
		MPS					MPS				
		Big	Small	Marginal	Pooled		Big	Small	Marginal	Pooled	
1	Use of high yielding varieties	65.20	60.40	48.40	58.00	<b>42.00</b>	57.20	37.20	25.20	39.36	<b>60.14</b>
2	Soil and field preparation	91.20	85.60	72.00	82.93	<b>17.07</b>	80.00	60.00	42.00	60.66	<b>39.34</b>
3	Soil treatment	32.50	27.00	20.00	26.50	<b>73.50</b>	25.00	18.00	14.50	19.16	<b>80.84</b>
4	Seed treatment	39.60	34.20	28.00	33.93	<b>66.07</b>	30.00	26.40	17.40	24.60	<b>75.40</b>
5	Time of sowing	93.50	90.00	68.00	83.78	<b>16.22</b>	93.00	89.50	67.00	83.16	<b>16.84</b>
6	Seed rate	96.50	90.50	76.00	87.66	<b>12.22</b>	96.50	89.50	75.00	87.00	<b>13.00</b>
7	Recommended spacing	76.66	68.00	62.00	68.88	<b>31.12</b>	76.00	66.66	61.33	67.99	<b>32.01</b>
8	Fertilizer application	80.66	68.22	46.66	65.11	<b>34.89</b>	65.33	41.33	33.33	46.66	<b>53.34</b>
9	Application of irrigation	82.40	72.00	52.00	68.80	<b>31.20</b>	68.40	45.60	40.00	51.33	<b>48.67</b>
10	Weed management	43.00	32.50	25.00	33.50	<b>66.50</b>	28.88	21.50	21.00	23.66	<b>76.34</b>
11	Plant protection measure	56.88	50.88	40.00	49.25	<b>50.75</b>	47.55	28.88	18.66	31.69	<b>68.31</b>
12	Harvesting and storage	60.00	54.33	43.33	52.55	<b>47.45</b>	47.66	38.33	23.66	36.55	<b>63.45</b>
<b>Overall</b>		<b>68.17</b>	<b>61.13</b>	<b>48.44</b>	<b>59.24</b>	<b>40.76</b>	<b>59.59</b>	<b>46.90</b>	<b>36.59</b>	<b>47.69</b>	<b>5231</b>

MPS = Mean per cent score

**Table.3** Analysis of variance of adoption score of respondents in different categories of mustard growers

Sources of Variance	D.f.	S.S.	MSS.	'F' Value
Between the group	5	71493.45	14298.69	175.63**
Between beneficiaries Vs Non-beneficiaries respondents	1	43190.55	43190.55	530.53*
Within beneficiaries (between big, small and marginal farmer	2	11503.24	5751.62	70.65*
Within Non-beneficiaries (between big, small & marginal farmers)	2	16799.66	8399.83	103.17**
Error	294	23935.24	81.41	
<b>Total</b>	299			

C.V. = 17.38

\*Significant at 5% level of significance

**Adoption Scores Mean Table**

	<b><u>Big</u></b>	<b><u>Small</u></b>	<b><u>Marginal</u></b>	<b><u>Overall</u></b>
Beneficiary respondents	69.54	60.84	47.12	59.16
Non Beneficiary respondents	58.46	42.46	32.76	44.64

**Sources**

	<b><u>SEM</u></b>	<b><u>CD (%)</u></b>
Within Beneficiary respondents	0.736	1.712
Within Non-Beneficiary respondents	0.736	1.712
Between Beneficiary and Non- Beneficiary respondents	0.521	1.212

The “Seed treatment”, “weed management” and “Soil treatment” were found to be least adopted with 24.60, 23.66 and 19.16 MPS, and adoption gap of 75.40, 76.34 and 80.84 percent respectively.

The overall level of adoption of Mustard production technology by the beneficiary and non-beneficiary farmers were 59.24 and 47.69 MPS, respectively, which indicates the glaring gap in level of adoption of Mustard production technology with 40.76 and 52.31 percent, respectively in case of beneficiary and non-beneficiary farmers.

Thus, this is proved evidently that the adoption of improved production practices of Mustard was more among beneficiary farmers as compared to non-beneficiary farmers. The significant different between beneficiary and non-beneficiary respondents about adoption due to the fact that beneficiary farmers being in continuous touch with the KVK personnel might have required sufficient skills pertaining to improved production practices of Mustard. Thus they are more likely to practices the learnt skills in their fields.

A study conducted by Singh (2000) indicated that there was significant different between beneficiary and non-beneficiary farmers in case of Mustard production technology.

These findings were also supported with the findings of Singh (1990), Farooqua *et al.*, (1993), Bzugu (1995), Deshmukh *et al.*, (1997) Singh and Gill (1998).

### **Analysis of variance of adoption level of respondents regarding improved production practices of mustard**

The study of table 3 shows that the calculated “F” value was significant at 5

percent level of significance thus Null hypothesis ( $H_0$ ) was rejected. This leads to conclusion that there is significant difference was found in the overall adoption of improved production practices by the respondent’ between beneficiary and non-beneficiary and within each category of respondents i.e. big, small and marginal farmers with respect to improved production practices of Mustard.

From the above findings it could be concluded that majority of Mustard growers were in medium adoption group followed by high and low adoption groups, respectively. It was found that the adoption gap was higher of the non-beneficiary farmers that the beneficiary farmers in all the major Mustard cultivation practices.

The low adoption level of the marginal farmers may be due to illiteracy, non-contact of extension personnel and traditional outlook etc. The beneficiary farmers have been more adoptions as compared to non-beneficiary farmers due to the reason of that the beneficiary farmers having close contact with the Krishi Vigyan Kendra personnel and innovativeness. The big farmers having more adoption as compared to small and marginal farmers- due to fact that the big farmers having high socio-economic status and more resource full.

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