

## FACTORS ASSOCIATED WITH ADOPTION OF IMPROVED MUSTARD PRODUCTION TECHNOLOGY

B. L. Asiwali\*, Sangram Singh\*\*, N.K. Sharma\*\*\* and I.M. Khan\*\*\*\*

### ABSTRACT

The present study was conducted in Sikar district of Rajasthan. For this 50 beneficiary respondents were selected proportionate randomly from 8 adopted villages (area covered under FLDs) of Bharatiya Krishi Vigyan Kendra (BKVK), Fatehpur. Similarly, from 8 another village 50 non-beneficiary respondents were also selected randomly. Thus, total 100 respondents selected from 16 villages. An interview schedule was prepared and data were collected by personal interview method. The Chi-square method was used to find out the association of selected independent variables viz., age, education, size of land holding, annual income and social participation with their adoption level of farmers about improved mustard production technology. In this study, Annual income and Social participation were positively and significantly associated, while their Age was non-significantly associated with their adoption level in both the categories of the farmers. The Education level and Size of land holding of beneficiary respondents was non-significantly associated while, in case of non-beneficiary it was significantly associated with their extent of adoption of improved mustard production technology

### INTRODUCTION

Indian mustard (*Brassica juncea*) is cultivated in rabi-season throughout the country mainly in Northern plains. Rajasthan is the largest rapeseed mustard growing state and alone contributes 46.19 per cent production from 39.3 per cent area.

Generally, there is a large gap between the yield of mustard recorded at the research farms and its production at farmer's field and more time lag between origin of a technology and its adoption. To accelerate the yield of oilseed crops the ICAR introduce a new concept of Front Line Demonstration (FLD) in year 1990-91 under "Technology Mission on oilseed".

The Front Line Demonstration is an important method of transfer of latest package of practices in totality to farmers. These demonstrations are conducted under the close supervision of scientists of the National Agricultural Research System comprising of ICAR Institutions, National Research Centers, Project Directorates, KVKs, SAUs and its

Regional Research Stations in a block of two to four hectares of land in order to have better impact of the demonstrated technology on the farmers and field level extension functionaries.

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 the social system. It is generally assumed that if an individual has more knowledge about different aspects of technologies he is likely to adopt the innovations early. Adoption of an innovation depends on many factors viz., age and education, size of land holding, social participation and annual income of adopters, complexity and visibility of the innovations which may affect the adoption of improved mustard production technology. Realizing the importance of KVK in conducting front line demonstrations, the present study was under taken with the specific objective:-

1. To find out the association of personal attributes of farmers viz., age, education, land

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\* Assistant Professor, Bharatiya Krishi Vigyan Kendra, Fatehpur, Sikar.

\*\* Associate Professor, Deptt. of Ext. Education, S.K.N. College of Agriculture, Jobner, Jaipur.

\*\*\* Associate Professor & Head, Department of Extension Education, S.K.N. College of Agriculture, Jobner, Jaipur.

\*\*\*\* Associate Professor, Deptt. of Ext. Education, S.K.N. College of Agriculture, Jobner, Jaipur.

holding, income and social participation with their adoption level of mustard production technology.

## RESEARCH METHODOLOGY

The present study was undertaken in Laxmangarh panchayat samiti of Sikar district. All the 8 adopted villages (where FLDs were conducted) of BKVK, Fatehpur were included for the study (as beneficiaries). Similarly 8 another villages were also selected randomly in order to get the responses of non-beneficiaries of FLD. Hence, total 16 villages were included in the study. From these villages a sample of 50 beneficiary respondents were selected proportionate randomly and 50 non-beneficiary respondents were selected randomly that not covered under FLD. Thus a total sample size was 100 respondents from 16 villages.

An interview schedule was prepared and data were collected by personal interview method. The Chi-square (X<sup>2</sup>) method was used to find out the

association of selected independent variables viz., age, education, size of land holding, annual income and social participation with their adoption level of farmers about improved mustard production technology. The data were classified, tabulated and inference was drawn after subjecting the data to appropriate statistical analysis, which led to the following findings.

Chi-square Test: To study the association of two attributes the statistics X<sup>2</sup> test was used by using the following formula:

$$X^2 = \sum_{j=1}^m \sum_{i=1}^n \frac{(O_{ij} - E_{ij})^2}{E_{ij}}$$

$$\text{d.f.} = (m-1) \times (n-1)$$

Where,

O<sub>ij</sub> = Observed frequency of (i,j)th cell.

E<sub>ij</sub> = Expected frequency of (i,j)th cell.

**Table 1. Association between age and adoption level of respondents about improved mustard production technology**

Age group	Beneficiary (n=50) Adoption level				Non-beneficiary (n=50) Adoption level			
	Low	Medium	High	Total	Low	Medium	High	Total
Young (Below 30 years)	3	4	2	9	0	3	2	5
Middle (30-54 years)	5	15	7	27	4	23	5	32
Old (Above 54 years)	2	10	2	14	3	8	2	13
Total	10	29	11	50	7	34	9	50

Cal. X<sup>2</sup> 2.37 NS, Cal. X<sup>2</sup> 3.21 NS, \* Significant at 5 % level, NS = Non- significant

## RESULTS AND DISCUSSION

The association between extent of adoption of farmers about improved mustard production technology and selected independent variables viz.; age, education, size of land holding, annual income and social participation was measured by computing "Chi-square (X<sup>2</sup>) method.

### Association between adoption level of farmers and selected independent variable:

#### 1. Association between Age and Adoption level of respondents

The data incorporate in table 1 shows that the

calculated chi-square value was 2.37 for beneficiary respondents and 3.21 for non-beneficiary respondents which were less than their tabulated value at 5 per cent level of significance. This reveals that there is no association between age and adoption level of respondents about improved mustard production technology.

The Findings is in accordance with the findings of Lakhera & Sharma (2002) which found non-significant association of age with adoption level of mustard grower and Kher (1992) in wheat crop. The Khan (2005) also reported that except age, all other variables were positively associated with

adoption behavior of framers about new technology of gram, groundnut and mustard.

## 2. Association between education and adoption level of respondents

The data in table 2 indicated that the calculated

chi-square value was 1.51 for beneficiary respondents were highly non-significant. Thus, this asserted that there was no association between education and their level of adoption about improved mustard production technology.

**Table 2. Association between education and adoption level of respondents**

Educational level	Beneficiary (n=50) Adoption level				Non-beneficiary (n=50) Adoption level			
	Low	Medium	High	Total	Low	Medium	High	Total
Educated (Secondary and above)	4	12	6	22	2	14	8	24
Literate (Upto middle standard)	5	14	5	24	2	17	1	20
Illiterate (Can not read and write)	1	3	0	4	3	3	0	6
Total	10	29	11	50	7	34	9	50

Cal.  $X^2$  1.51 NS, Cal.  $X^2$  13.89\*

Whereas, calculated value of chi-square 13.89 for non-beneficiary respondents was significantly associated with their adoption level. Therefore, this reveals that there was a significant association between education and adoption level of respondents about improved mustard production technology.

The above findings of the study are in line with the findings of Lakhera & Sharma (2002) and Narpat (2004) who also found significant association of education in case of non-beneficiary and non-significant association in case of beneficiary

respondents with adoption level of farmers about mustard production technology.

## 3. Association between size of land holding and adoption level of respondents

The table 3 reveals that the calculated value of chi-square was 7.82 for beneficiary respondents was non-significant at 5% levels of significance. This revealed that there is no association between size of land holding of beneficiary respondents with their adoption level about improved mustard production technology.

**Table 3. Association between size of land holding and adoption level of respondents**

Size of land holding	Beneficiary (n=50) Adoption level				Non-beneficiary (n=50) Adoption level			
	Low	Medium	High	Total	Low	Medium	High	Total
Marginal (>1 ha)	0	4	1	5	0	2	0	2
Small (1-2 ha)	8	9	4	21	6	11	1	18
Big (<2 ha)	2	16	6	24	1	21	8	30
Total	10	29	11	50	7	34	9	50

Cal.  $X^2$  7.82 NS, Cal.  $X^2$  11.13\*, \* Significant at 5 % level, NS = Non- significant

In case of non-beneficiary, calculated value of chi-square 11.13 was significantly associated with their size of land holding at 5 per cent level of significance. This means there is an association between size land holding and adoption level of non- beneficiary respondents about improved mustard production technology.

The findings are in line with the findings of

Khan (2005) and Narpat (2004) who reported significant association between size of land holding and extent of adoption in case of non- beneficiary respondents about improved mustard production technology.

## 4. Association between annual income and adoption level of respondents

The data accorded in table 4 shows that the

calculated chi-square value was 8.33 for beneficiary and 9.45 for non-beneficiary respondents which were highly significant at 5 per cent level of

significance. Thus, there was significant association between income and adoption level of both categories of respondents.

**Table 4. Association between annual income and adoption level of respondents**

Category	Beneficiary (n=50) Adoption level				Non-beneficiary (n=50) Adoption level			
	Low	Medium	High	Total	Low	Medium	High	Total
Above poverty line (> Rs. 24000/-)	8	29	11	48	5	34	7	46
Below poverty line (< Rs. 24000/-)	2	0	0	2	2	0	2	4
Total	10	29	11	50	7	34	9	50

Cal.  $X^2$  8.33\*, Cal.  $X^2$  9.45\*, \* Significant at 5 % level

### 5. Association between social participation and adoption level of respondents

It is clear from Table 5 that the calculated chi-square value was 6.49 for beneficiary respondents and 12.97 for non-beneficiary respondents which were more than their respective tabulated value at 5 per cent level of significance. It means social

participation of farmers has highly significant effect on extend of adoption about improved mustard production technology.

The findings of the study are in line with the findings of Lakhera & Sharma (2002) and Khan (2005) who also found significant association of social participation with their adoption level.

**Table 5. Association between social participation and adoption level of respondents**

Category	Beneficiary (n=50) Adoption level				Non-beneficiary (n=50) Adoption level			
	Low	Medium	High	Total	Low	Medium	High	Total
Active (member of more than one organization)	6	25	11	42	0	14	8	22
Passive (no member of any organization)	4	4	0	8	7	20	1	28
Total	10	29	11	50	7	34	9	50

Cal.  $X^2$  6.49\*, Cal.  $X^2$  12.9\*, \* Significant at 5 % level

## CONCLUSION

Based on the study it could be concluded that the adoption level of beneficiary and non-beneficiary categories of the farmers was positively and significantly associated with their annual income and social participation while their age was non-significantly associated with their adoption level of mustard production technology.

The education level and size of land holding of beneficiary respondents was non-significantly associated while, in case of non-beneficiary respondents education level and size of land holding were significantly associated with their adoption level of improved mustard production technology.

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