FACTORS AFFECTING KNOWLEDGE OF FARMERS ABOUT IMPROVED MUSTARD PRODUCTION TECHNOLOGY

D. S. Bhati[1] and S. K. Sharma[2]

ABSTRACT

This research study was conducted in Bharatpur District of Rajasthan. The 300 mustard growers consisted of big, small & marginal farmers constituted the respondents. The results of the study indicated that education, occupation, social participation, source of information utilized, irrigation potentiality and cropping intensity were found to be most important variables responsible for the knowledge of mustard growers about recommended mustard production technology. The twelve selected independent variables jointly accounted for 80.23 per cent of variation in the knowledge level of big farmers regarding recommended mustard production technology. Similarly these variables jointly accounted for 42.51 per cent of variation in the knowledge level of small farmers. The same twelve selected independent variables jointly accounted for 58.97 per cent of variation in the knowledge of marginal farmers regarding recommended mustard production technology.

INTRODUCTION

Mustard is one of the main oilseed crops in rabi season. In view of the projected oil requirement by the end of 2020 AD, there is an urgent need for increasing the production of oilseeds in the country. Quite a good number of recommendations of mustard are generated by the scientists. Unless these technologies are reached to the farmers, it is not feasible to use the technologies by the farmers and there by to increase the yield of the crop.

This can only be possible provided farmers have knowledge about and they adopt the recommended technology. If they lack necessary knowledge, some counteractive remedy can be taken up to transfer the technology. Keeping this in view, the present investigation was under taken to study the factors affecting farmers' knowledge about improved mustard production technology.

METHODOLOGY

The Bharatpur district of Rajasthan was purposely selected for the study. The district is having scanty and erratic rainfall and covers more than 500 thousand hectares. There are nine panchayat samities in Bharatpur district. Out of these three panchayat samities namely Kumher, Sewar and Bayana were selected by simple random sampling technique, for the purpose of the study. The panchayat samities Kumher, Sewar and Banaya comprises of 36, 34 and 37 gram panchayats respectively. Five gram panchayat were selected randomly from each of the three selected panchayat samities making a total of 15 gram panchayats. Two villages from each of the above fifteen selected Gram Panchayats were selected randomly comprising a total of 30 villages.

In all, ten mustard cultivating farmers from each of the selected village were selected

[1] Scientist, National Research Centre on Rapeseed-Mustard, Dahod - 389 151, Gujarat
[2] Associate Professor, Deptt. of Extn. Educ., SKN College of Agriculture, Jobner (Rajasthan)

by proportionate random sampling method (consisting big, small and marginal farmers). Thus, the sample for the present investigation consisted of 300 respondents.

A specially structured questionnaire was developed containing 21 questions to test the knowledge of farmers. One mark was given to every right answer and zero for wrong answer. After reviewing some of the past studies and on the basis of pilot study conducted in the area of investigation, independent variables viz. education, size of family, age, caste, occupation, social participation, farm power, farm implements, source of information utilized, irrigation potentiality, credit behaviour and cropping intensity of farmers were selected for the purpose of the study.

Coefficient of correlation, correlation of multiple determination and partial regression were employed to determine the correlation of independent variables with the knowledge of farmers.

RESULTS AND DISCUSSION

The results of correlation between selected independent variables and knowledge level of farmers about the recommended mustard production technology are presented in Table 1.

It may be observed from the data presented in Table 1 that education, occupation, source of information utilized, irrigation potentiality, cropping intensity and social participation were significantly correlated with the level of knowledge of big farmers. The age of big farmers was also significantly but negatively correlated with their level of knowledge.

Further, the independent variables namely size of family, caste, farm power, farm implements and credit behaviour were not significantly related with the level of knowledge of the farmers for recommended mustard production technology.

In case of small farmers' education, source of information utilized and irrigation potentiality, followed by occupation, social participation and cropping intensity were positively and significantly associated with the knowledge level of small farmers about recommended mustard production technology. Where as age was significantly but negatively associated with knowledge level of small farmers.

A perusal of the data in Table 1 brings to the fore that education, social participation, source of information utilized, irrigation potentiality and cropping intensity, subsequently occupation and credit

Table 1. Correlation between level of knowledge and independent variables

Sr. No.	Independent variables	Co-efficient of correlation 'r' values		
		Big	Small	Marginal
1.	Size of family	0.209488	0.036025	-0.11608
2.	Education	0.600726**	0.593311**	0.660442**
3.	Age	-0.31193*	-0.20413*	-0.35195**
4.	Caste	-0.1294	0.097594	0.152852
5.	Occupation	0.416637**	0.221625*	0.173273*
6.	Social participation	0.288687*	0.233736*	0.242748**
7.	Farm power	0.050109	0.161633	0.097283
8.	Farm implements	0.140323	0.149499	0.1206
9.	Source of information utilized	0.639523**	0.440409**	0.54057**
10.	Irrigation potentiality	0.486096**	0.268741**	0.216223**
11.	Credit behaviour	0.257919	0.157507	0.173035*
12.	Cropping intensity	0.2899*	0.189377*	0.264675**

* Significant at 0.05 level of probability
** Significant at 0.01 level of probability

behaviour found to be positively and significantly related to the knowledge level of marginal farmers about the recommended mustard production technology. Age was found to be negatively and significantly related with knowledge level of marginal farmers.

Multiple regressions

To know the comparative and over all influence of all the twelve selected independent variables on the knowledge of the big, small & marginal farmers about recommended mustard production technology, multiple regression technique was applied. The results have been presented in Table 2.

It is explicit from the data in Table 3 that all the twelve independent variables taken together explained the variation in the knowledge of big farmers to the extent of 80.23 per cent. The respective 'f' value (significant at 1 per cent level) at 12 and 33 degree of freedom was 11.162 for the big farmers. Thus, the results showed that all the twelve selected independent variables had accounted for a significant amount of variation in knowledge of big farmers about recommended mustard production technology.

Further, the 't' test of significance indicated that coefficient of regression (b-value) was found positively significant at 1 per cent level of probability only for source of information utilized, while occupation and irrigation potentiality were found positively significant at 5 per cent level of significance. Only cropping intensity was negatively significant at 5 per cent level of significance. The results also depicted that coefficient of regression (b-value) was non-significant for the rest of the variables.

Thus, the in-depth analysis of the relationship between dependent and independent variables portrayed that source of information utilized; occupation; irrigation potentiality and cropping intensity of the big farmers were the most important variables among all the twelve independent variables

Table 2 : Coefficient of multiple determination and partial regression of independent variables on knowledge of big farmers about the recommended mustard production technology.

N=46

Sr. No.	Independent variables	b-value (Regression coefficient)	Std. error of b	t-value
1.	Size of family	-3.02853	1.982692	1.527522
2.	Education	0.622879	0.345381	1.803454
3.	Age	0.021582	0.046988	0.459306
4.	Caste	-0.38407	0.38605	-0.99487
5.	Occupation	0.533928	0.224158	2.381923*
6.	Social participation	-0.186561	0.190711	0.97824
7.	Farm power	-0.27345	0.371111	-0.73685
8.	Farm implements	-0.24461	0.486187	-0.50313
9.	Source of information utilized	0.160342	0.053049	3.022517**
10.	Irrigation potentiality	0.074645	0.029037	2.570653*
11.	Credit behaviour	0.335228	0.773125	0.433602
12.	Cropping intensity	-0.03424	0.01378	-2.48445*

Determination coefficient R^2 = 0.802328
Multiple correlation R = 0.895728
F- Calculated = 11.16197 with 12, 33 d.f.s.
* Significant at 0.05 level of probability
** Significant at 0.01 level of probability

Table 3 : Coefficient of multiple determination and partial regression of independent variables on knowledge of small farmers about the recommended mustard production technology

N=109

Sr. No.	Independent variables	b-value (Regression coefficient)	Std. error of b	t-value
1.	Size of family	-1.57797	3.140052	-0.50253
2.	Education	1.879827	0.356596	5.271584**
3.	Age	-0.05344	0.0394	-1.35644
4.	Caste	-0.14466	0.233112	-0.62054
5.	Occupation	0.529035	0.254917	2.075327*
6.	Social participation	0.307127	0.251997	1.218772
7.	Farm power	-0.19063	0.351591	-0.54219
8.	Farm implements	0.00891	0.211238	0.042181
9.	Source of information utilized	0.059709	0.076656	0.77892
10.	Irrigation potentiality	0.01625	0.019482	0.834064
11.	Credit behaviour	1.112334	0.63351	1.755826
12.	Cropping intensity	-0.01441	0.014195	-1.01541

Determination coefficient R^2 = 0.425102
Multiple correlation R = 0.651999
F- Calculated = 5.915513 with 12, 96 d.f.s.
* Significant at 0.05 level of probability
** Significant at 0.01 level of probability

in the study which were predictors of knowledge of big farmers about recommended mustard production technology.

In case of small farmers, data in Table 3 indicated that there was 42.51 per cent contribution of all the twelve independent variables on the knowledge level of small farmers about recommended mustard production technology. The respective 'F' value was 5.915 at 12 and 96 degrees of freedom which was significant at 0.01 level of probability. Thus the results implied that all the twelve selected factors had accounted for a significant amount of variation in the knowledge of farmers about recommended mustard production technology.

Further, the 't' test of significance indicated that coefficient of regression (b-value) was found positively significant at 1 per cent level of probability only for the education, while for occupation it was found positively significant at five per cent level of significance. The results also depicted that the coefficient of regression (b-value) was non-significant for size of family, age, caste, social participation, farm power, farm implement, source of information utilized, irrigation potentiality, credit behaviour and cropping intensity.

Thus the detailed analysis of the relationship between dependent and independent variables portrayed that education and occupation of the small farmers were the most important variables among all the twelve independent variables in the study which were predictors of knowledge of small farmers about recommended mustard production technology.

It may be revealed from the values of multiple regressions co-efficient from Table 5 that all the twelve variables had significant contribution to the knowledge level of the marginal farmers about the recommended mustard cultivation to the extent of 58.97 per cent. The respective 'F' value at 12, 132 degrees of freedom was 15.81381 which were significant at 1 per cent level of

Table 4 : Coefficient of multiple determination and partial regression of independent variables on knowledge of marginal farmers about the recommended mustard production technology

N=145

Sr. No.	Independent variables	b-value (Regression coefficient)	Std. error of b	t-value
1.	Size of family	-1.10685	0.286617	-3.86177**
2.	Education	1.69868	0.252251	6.734079**
3.	Age	-0.07185	0.029032	-2.47497*
4.	Caste	-0.15582	0.161631	-0.96403
5.	Occupation	0.06172	0.179053	0.344704
6.	Social participation	0.058155	0.393949	0.14762
7.	Farm power	-0.52818	0.742865	-0.711
8.	Farm implements	-0.14403	0.696886	-0.20668
9.	Source of information utilized	0.101232	0.039964	2.533061*
10.	Irrigation potentiality	0.0054	0.01265	0.426664
11.	Credit behaviour	-0.07014	0.485346	-0.14451
12.	Cropping intensity	0.026866	0.015421	1.742213

Determination coefficient R^2 =0.589764
Multiple correlation R =0.767961
F- Calculated =15.81381 with 12, 132 d.f.s.
* Significant at 0.05 level of probability
** Significant at 0.01 level of probability

significance. Thus, the result showed that all the twelve selected independent variables had accounted for a significant amount of variation in the knowledge of marginal farmers about recommended mustard production technology.

Further, the 't' test of significance indicated that coefficient of regression (b-value) was found positively and significant at one per cent level of significance for education while for source of information utilized it was found positively and significant at five per cent level of significance. However, size of family and age were negatively significant at one and five per cent level of significance respectively. The results also depicted that coefficient of regression (b-value) was non-significant for the rest of the variables.

Thus the detailed analysis of the relationship between dependent and independent variables describe that education, and source of information utilized of the marginal farmers were the most important variables among all the twelve selected variables in the study whose contribution was maximum in acquiring knowledge about recommended mustard production technology by the marginal farmers.

CONCLUSION

Of the twelve selected independent variables, the education, occupation, social participation, source of information utilized, irrigation potentiality and cropping intensity were positively and significantly correlated with the knowledge of all the three categories of improved mustard production technology. The age was also significantly correlated with the knowledge; but negatively.

The twelve selected independent variables jointly accounted for 80.23 per cent of variation in the knowledge level of big farmers regarding recommended mustard production technology. Similarly these variables jointly accounted for 42.51 per cent of variation in the knowledge level of small farmers. The same twelve selected independent variables jointly accounted for 58.97 per cent of variation in the knowledge of marginal farmers regarding recommended mustard production technology.