

## ADOPTION PATTERN OF FARMERS TOWARDS NEW FARM TECHNOLOGY

P.M. Khan<sup>1</sup> & Jitendra Chauhan<sup>2</sup>

### ABSTRACT

*New Agricultural Technologies generated by the Agricultural Scientists of Indian Council of Agricultural Research, Agricultural Universities and Scientists of NGOs etc. are of no use unless they are understood and put into practice by the farming community. Many constraints are considered responsible affecting the adoption pattern of technology. This investigation was undertaken to study the adoption pattern of the gram and groundnut crops in Bhilwara district, Rajasthan. The findings of the study indicated that there was different set of constraints for different practices as well as from crop to crop. Except age, 13 independent variables included in the study were significant and positively correlated with adoption of new technology. The poor economic conditions of the farmers were also responsible for non-adoption of the technology. It needs the assessment and refinement of the new technologies in view of the local farming situations as per results of the present study.*

**Key words :** Adoption, New Farm Technology, Constraints, Socio-Economic Status

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### INTRODUCTION

A wide gap has been observed between technology generated and its utilization in the field situation. There may be many constraints, including poor knowledge of the farmers regarding the technology. The front line extension system of ICAR, central and state departments of agriculture, agricultural universities, NGOs, voluntary organizations and agricultural input manufacturing industries are actively engaged in the transfer of new technology available to the farmers throughout the nation.

It has been observed that it is not only the new technology generated that works at the farming situations, but the field condition, socio-economic conditions of the farmers, their preferences, ITK available with them as well as multiple purposes to cultivate a crop are also responsible for adoption or non-adoption of a new technology generated. The farmers are not only managing the technologies but are also handling their farming systems. Hence, it is highly important to find out firstly the pattern of adoption of a set of technology and after that to find out under what circumstances the farmers are adopting, not adopting a particular technology. It will be highly useful for the extension functionaries to follow a viable strategy for transfer of technology and as well as the research scientists to restructure the research system. Keeping this in mind, the present investigation was conducted with the following specific objectives :

- (i) To find out the level of adoption of new farm practices of principle crops of kharif and rabi season by the farmers.
- (ii) To determine the constraints perceived by the farmers in adoption of new farm practices.
- (iii) To study the influence of certain personal, socio-economic and psychological variables on the adoption of new technology by the farmers.

### METHODOLOGY

The investigation was conducted in two blocks of Bhilwara district (Rajasthan) following multistage stratified random sampling method in six villages comprising three villages from each block. From each village, 20 respondents cultivating groundnut and gram crops were selected randomly. Thus, the total sample comprised 120 respondents. With the help of interview schedule prepared especially for the purpose the data were collected from the respondents with the help of subject matter specialists and extension workers.

### RESULTS AND DISCUSSION

**1. Level of adoption**—Twelve improved packages of practices of groundnut and gram cultivation were selected for the present investigation to find out the level of adoption. The response received from the respondents was calculated and are presented in table 1.

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1. Asso. Prof.(Ext.Edu.) & Chief Scientist-cum-Head, KVK, Bhilwara (MPUAT, Udaipur) Raj.
  2. Reader (Ag. Ext.), RBS College, Bichpuri, Agra.

**Table 1. Level of adoption of improved practices of groundnut and gram Crop (N = 120)**

S No.	Improved Practices	Crops (%)	
		Groundnut	Gram
1.	Soil treatment	08.05	06.50
2.	Seed treatment with seed dresser	38.66	15.00
3.	Improved seed	47.72	38.54
4.	Sowing method	100.00	38.67
5.	Seed rate	38.72	51.00
6.	Recommended distance	57.35	34.53
7.	Soil analysis	06.00	02.18
8.	Use of F.Y.M.	14.00	07.50
9.	Application of NPK fertilizers	21.37	05.38
10.	Method of Irrigation	23.80	13.15
11.	P.P. measures for insect pests and diseases	18.51	14.43
12.	Fumigant's use in storage	54.70	52.82

**(a) Adoption level of new practices of groundnut**—The data presented in table 1 with respect to adoption of new practices of groundnut cultivation indicated that all the respondents were following correct method of sowing and a good number of farmers i.e. 57.35 per cent were using the recommended plant-to-plant and row-to-row distance. A fairly good numbers of farmers i.e. 54.70 per cent were using fumigants in storage. The 38.72 and 38.66 per cent followed recommended seed rate and seed treatment with seed dresser, respectively. However, it was discouraging to observe that the farmers were poor adopter of other improved package of practices of groundnut cultivation.

**(b) Adoption level of new practices of gram**—Table 1 revealed that the level of adoption of new package of practices of gram cultivation by the respondents was not satisfactory. The 52.82 percent, 51 per cent, 38.67 per cent, 38.54 per cent and 34.53 percent farmers were using fumigants in storage, correct seed rate, correct showing method, improved seed and recommended distance, respectively. Again it was discouraging to note that the farmers were poor adopters of other improved package of practices of gram cultivation.

**2. Constraints in adoption of new practices**—The constraints perceived by the respondents in the adoption of new farm practices of groundnut and gram cultivation were also studied and the results are presented in table 2.

It is evident from table 2 that high cost of improved seeds, unavailability of seeds in time and lack of knowledge about the improved seeds were the main constrains perceived by the respondents in using the improved seed. Soil and seed treatment were not followed mainly due to costly chemicals and poor knowledge. Lack of confidence in recommended seed rate and lack of

**Table 2. Constraints in adoption of new farm practices (N = 120)**

S.No.	Constraints perceived by the respondents	Number	Percent
<b>1.</b>	<b>Improved seed</b>	<b>48</b>	<b>40.00</b>
(i)	Unavailability of seed in time	64	53.33
(ii)	Lack of knowledge about the improved seeds	64	53.33
(iii)	Costly seed	79	65.83
(iv)	Higher manure and fertilizer requirements	47	39.16
(v)	Higher susceptibility to pest and diseases	47	39.16
<b>2.</b>	<b>Soil and seed treatment</b>	<b>61</b>	<b>53.33</b>
(i)	Poor knowledge	82	68.33
(ii)	Costly chemicals	92	76.66
(iii)	Non-availability of chemicals in time	10	8.33
<b>3.</b>	<b>Seed rate</b>	<b>62</b>	<b>51.66</b>
(i)	Lack of confidence in recommended seed rate	74	61.66
(ii)	Lack of knowledge	49	40.83
<b>4.</b>	<b>Farm yard manure</b>	<b>51</b>	<b>42.50</b>
(i)	Costly	47	39.16
(ii)	Not available	24	20.00
(iii)	Lack of knowledge of utility	82	68.33
<b>5.</b>	<b>Fertilizer application</b>	<b>61</b>	<b>50.83</b>
(i)	Lack of knowledge	112	93.33
(ii)	More risk involved in investing on fertilizer	95	79.16
(iii)	Non-availability of fertilizer in time	03	2.50
(iv)	High cost of fertilizer	77	64.16
(v)	Organic manure sufficient	29	24.16
(vi)	Soil fertility is deteriorated	27	22.50
(vii)	Irrigation facility inadequate	85	70.83
<b>6.</b>	<b>Chemical control of weeds</b>	<b>68</b>	<b>56.66</b>
(i)	Poor Knowledge	117	97.50
(ii)	Method is risky	46	38.33
(iii)	Enough labour available	20	16.66
(iv)	Batter manual weeding	22	18.33
(v)	Green fodder not provided	112	93.33
(vi)	High cost involved	92	76.66
<b>7.</b>	<b>Plant protection measures</b>	<b>72</b>	<b>60.00</b>
(i)	Poor knowledge	117	97.50
(ii)	Harmful residual effect	7	05.83
(iii)	Costly	92	76.66
<b>8.</b>	<b>Ecological constraints</b>	<b>91</b>	<b>75.83</b>
(i)	Erratic rainfall	117	97.50
(ii)	Long dry spell	112	93.33
(iii)	Untimely rainfall	114	95
(iv)	Water logging condition	22	18.33
<b>9.</b>	<b>Post harvest technology</b>	<b>67</b>	<b>55.83</b>
(i)	Storage facility inadequate	79	65.83
(ii)	Non-availability of fumigants easily	32	26.66
(iii)	Poor knowledge	71	59.16
<b>10.</b>	<b>Marketing</b>	<b>95</b>	<b>79.16</b>
(i)	Poor transportation facility	77	64.16
(ii)	Poor proper marketing facility	112	93.33
(iii)	Low price of higher quality product	109	90.83
(iv)	Because of advance dept. bounded by local businessman	81	67.50

knowledge were the main constrains in following proper seed rate. Farmyard manure was not applied mainly due to lack of knowledge of utility and high cost. Lack of knowledge, high risk involved in investing on fertilizer, inadequate irrigation facility and high cost of fertilizer were the main constrains in the proper fertilizer application. Poor knowledge, green fodder not provided due to chemical control of weeds and high costs involved

were the main constraints perceived by farmers for not adopting chemical control of weeds. Erratic rainfall, long dry spell and untimely rains were some of the ecological constrains expressed by majority of the respondents. Due to poor knowledge and high cost, majority of the farmers were not following proper plant protection measures. Owing to inadequate storage facility and poor knowledge, the respondent unable to store the produce and forced to sell the production immediate after harvesting. Regarding marketing, improper marketing and low price of high quality product were the main constrains perceived by the farmers.

**Table 3. Impact of independent variables on adoption behaviour**

S. No.	Independent Variable	Zero order correlation coefficient
<b>A. Personal Variables</b>		
1.	Age	-0.13NS
2.	Income	0.87**
3.	Knowledge of the technology	0.78**
4.	Extension participation	0.51**
<b>B. Socio-Economic Variables</b>		
1.	Caste	0.39**
2.	Education	0.71**
3.	Farm power	0.37*
4.	Social participation	0.54**
5.	Socio-economic status	0.87**
<b>C. Psychological Variables</b>		
1.	Aspiration level	0.71**
2.	Risk orientation	0.83**
3.	Economic motivation	0.78**
4.	Cosmo politeness	0.48**
5.	Attitude towards new farm technology	0.67**

\*\* Significant at 1% level \* Significant at 5% level  
NS = Non-Significant

**3. Influence of personal, SES, and psychological variables on adoption behaviour**—In this study, adoption behaviour was treated as dependent variable and other 14 variables as independent variables. The result of the influence of independent variables on the adoption behaviour of respondents has been presented in table 3.

Perusal of table 3 indicates that out of the 14 independent variables, except age, all other 13 independent variables were significantly and positively correlated with the dependent variable i.e. adoption behaviour.

**CONCLUSION**

The findings of the investigation revealed that adoption behaviour of farmers with respect to new farm technology was different from practice to practice and crop to crop. The constraints faced by the farmers were also different for different technologies. All the 13 independent variables were positively and significantly correlated with the adoption behaviour of new farm technology by the farmers, except age. Efforts should, therefore, be made by the extension agencies in their transfer of technology programmes to consider the constraints as perceived by the farmers in this investigation as well as personal, socio-economic and psychological variables which affect the adoption behaviour of the farmers at local level.

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