

## Adoption Pattern of Farm Technology

S. L. Intodia<sup>1</sup> and Purnesh Mathur<sup>2</sup>

### ABSTRACT

*Technologies generated by the scientists, are of no use unless adopted by the farmers. There are many constraints that affect the adoption pattern of a technology. The present study was concentrated on studying adoption pattern of maize and groundnut in Udaipur district. It was found that the technologies that require purchased inputs were less adopted. The poor economic conditions of the farmers led to non adoption of such technologies. This required for assessment and refinement of such technologies in view of local conditions.*

### Introduction

A big gap is observed between technology generation and its utilization by the farmers. The reasons may be many, including unawareness of the users for the technology. Several agencies are actively engaged in minimizing this gap like ICAR system of transfer of technology, Ministry of Agriculture, Ministry of Rural Development and Industries, NGOs and Voluntary Organizations.

It is not only the technology that works at the field level, but the field conditions, socio-economic conditions of the farmers, his preferences as well as multiple purpose for cultivating a crop leads to adoption or no adoption of a technology. The farmer is not managing a technology but he is handling his farming system. It is therefore, of utmost importance to know, first, the pattern of adoption of a set of technology and thereafter to know under what circumstances the farmer is adopting, not

adopting or rejecting a technology. This in turn will help the extension mechanism to follow a viable strategy for technology transfer and the research functionaries to restructure the path for further research.

With this in view, the present study was conducted in the operational area of Vigyan Samity, a voluntary organization in Udaipur district, with the following specific objectives:

1. To study the level of adoption of improved agricultural practices in kharif crops by the farmers.
2. To find out the constraints faced by farmers is adoption of recommended technologies.

### Methodology

Two panchayat Samities viz. Mavli and Bhinder were selected for the study purpose. From Panchayat Samiti Mavli, seven villages and from Panchayat Samiti

<sup>1</sup> Emeritus Scientist, Directorate of Extension Education, M.P. University of Agri. and Technology, Udaipur (Rajasthan).

<sup>2</sup> Senior Research Fellow, Directorate of Extension Education, M.P. University of Agri. and Technology, Udaipur (Rajasthan)

Bhinder, six villages were selected. From these villages, a sample of 150 farmers who were selected for training programme by Vigyan Samiti, were identified.

An interview schedule was specially prepared for the purpose of collecting information, with the help of subject matter specialists. Two major kharif crops of the area occupying relatively higher acreage namely maize and groundnut were selected

were asked to give their responses to these practices. Thereafter, the response was calculated and converted into mean per cent as mentioned in Table-1.

#### (A) Maize

Data presented in Table-1 regarding adoption pattern of maize cultivation show that the respondents were not convinced with the improved varieties of maize viz. Ganga-2, Ganga-5, Navjot, etc., as more than half

**Table 1: Extent of adoption of recommended package of practices**

Sr. No.	Practices	Crops (MPS)	
		Maize	Groundnut
1	Hybrid/ Improved Seed	44.32	10.03
2	Method of Sowing	100	100
3	Seed Treatment	10.23	14.71
4	Seed Rate	45.39	37.53
5	Soil Treatment	12.33	12.33
6	Recommended Distance	59.37	65.81
7	Fertilizer and Manure	25.75	6.81
8	Irrigation Method	23.15	4.74
9	Use of Pesticides/ Insecticides/ Weedicides	3.71	3.87
10	Storage	56.83	56.83

for the purpose. Data were collected through personal interview technique. Besides, informal field-observations were also made to get first hand information regarding specific practices. Collected data were analyzed, tabulated and inferences were drawn in light of the objectives.

## Results and Discussion

### Adoption Pattern

In order to find out the extent of adoption of improved agricultural practices of maize and groundnut, ten improved practices were identified. The respondents

(around 56 per cent) of them were using the local or desi seeds. Similarly, they were using higher seed rate 35-40 kg/ha as against the recommended dose of 20-25 kg/ha. However, all the respondents were following correct method of sowing and a good number were using the recommended plant to plant and row to row distance. Nitrogenous and phosphatic fertilizers were adopted by about one-fourth of the respondents.

Though maize is taken as rainfed crop, but in the absence of adequate and timely rainfall, at least two or three irrigations are required at critical stages viz. 20-25 days

after sowing, tussling and grain formation stage. However, majority of the farmers were not following the irrigation schedule. It was discouraging to note that the farmers were poor adopters of improved practices related to soil-treatment, seed-treatment and plant protection measures as these were adopted by only 3.00 to 12.00 per cent of the farmers. Further, none of the respondents were using weedicides but were doing the same manually.

With respect to post-harvest handling of the maize, response was taken from the female family members, as management of farm-produce after harvesting is the prime responsibility of the farm women. It was encouraging to note that around 57 per cent of respondent women were using the fumigants for safe storage of the maize. Though, some of them were also using traditional methods like neem, ash etc., which according to them is effective for short-term storage of about six month. Conversely, for storage of seed, fumigants were not used by any of the respondents. According to them, use of fumigants reduces the germination power of the seeds.

### **(B) Groundnut**

The level of adoption of recommended package of practices of groundnut cultivation (Table 1) by the farmers revealed that all the respondents were following recommended method of sowing, though, the recommended distance was adopted by 65.81 per cent. Similarly, almost 57 per cent respondents were using scientific methods in post-harvest handling of the produce. There were only 37.53 per

cent who were using appropriate quantity of seed for sowing. Seed treatment with fungicides and rhizobium culture was uncommon and soil treatment measures against termite and white-grub were not adopted by majority of the respondents. Only 10.03 per cent respondents were using improved varieties of groundnut and the rest of them were giving preference to local seed material.

The results also reveal that the farmers were very poor adopters of improved practices related to use of fertilizer, irrigation method and use of pesticides/ insecticides/ weedicides. The small group of respondents using fertilizers are also using only nitrogenous fertilizer in the form of urea in the quantity of 20-22 kg/ha, which is higher than recommended dose of 15 kg/ha. Use of phosphatic fertilizer was not common in case of groundnut.

The respondents were not using any plant protection measures against Collar rot and Tikka disease, which are most common and reduces the yields drastically.

### **Constraints for Adoption of Recommended Technology**

Efforts were also made to know the reasons of partial or non-adoption of technologies by the farmers. A majority of the respondents were not using Improved seeds of maize or groundnut. Similarly, they were not using soil and seed treatment techniques.

The major constraints perceived by the respondents were high cost of seed, non-availability of seeds in time and lack of

Table 2 : Technological constraints in crop production

S.No.	Constraints	Nos.	Per cent
<b>1</b>	<b>Improved Seed</b>	<b>61</b>	<b>40.67</b>
I	Timely unavailability of seed in and around village	77	51.33
ii	Inadequate irrigation facility	45	30
iii	Lack of knowledge	77	58
iv	Seed is costly	92	61.33
V	Require more organic manure and fertilizer	60	43.33
vi	More susceptible to pest and diseases	60	43.33
vii	Not good in taste	49	32.67
viii	Less fodder production	27	18
<b>2</b>	<b>Soil and seed treatment</b>	<b>74</b>	<b>49.33</b>
i	Lack of knowledge	95	63.33
ii	Chemicals are costly	105	70
iii	Non-availability of chemicals in time	23	15.33
<b>3</b>	<b>Seed rate</b>	<b>75</b>	<b>50</b>
i	Lack of confidence in recommended seed rate	87	58
ii	To get fodder	62	41.33
<b>4</b>	<b>Fertilizer application</b>	<b>76</b>	<b>50.67</b>
i	Poor knowledge	125	80
ii	Risky to invest on fertilizer	108	72
iii	Non-availability of fertilizer	12	8
iv	High cost of fertilizer	105	70
v	Sufficient organic manure	42	28
vi	It deteriorates soil fertility	40	26.66
vii	Inadequate irrigation facility	98	65.33
<b>5</b>	<b>Chemical control of weeds</b>	<b>80</b>	<b>53.33</b>
i	Lack of knowledge	130	86.67
ii	Risky method	59	39.33
iii	Enough labour available	33	22
iv	Manual weeding is better	35	23.33
v	Green fodder not provided	115	76.67
vi	High cost involved	105	70
<b>6</b>	<b>Plant protection measures</b>	<b>85</b>	<b>56.67</b>
i	Lack of knowledge	130	86.67
ii	Harmful residual effect	20	13.33
iii	High cost	105	70
<b>7</b>	<b>Ecological constraints</b>	<b>121</b>	<b>80.67</b>
i	Erratic rainfall	150	100
ii	Long dry spell	150	100
iii	Untimely rainfall	150	100
iv	Water logging condition	35	23.33
<b>8</b>	<b>Post harvest technology</b>	<b>70</b>	<b>46.67</b>
i	Inadequate storage facility	92	61.33
ii	Fumigants not available easily	45	30
iii	Lack of knowledge	74	49.33
<b>9</b>	<b>Marketing</b>	<b>106</b>	<b>70.67</b>
i	Lack of transportation facility	90	60
ii	Lack of proper marketing facility by govt.	115	76.67
iii	Low price of higher quality product	122	81.33
iv	Bounded by local businessmen due to advance debt	95	63.33

adequate knowledge. Regarding soil and seed treatment measures, lack of knowledge and high cost of purchased inputs were the main reasons for non-adoption. The farmers were using higher seed rate in case of maize so as to obtain more fodder for the milch animals over and above lack of faith in recommended technology.

The farmers were not applying recommended dose of nitrogenous and phosphatic fertilizers mainly due to lack of knowledge, inadequate irrigation facility, high cost of fertilizer and lack of credit facility. Farmers generally preferred manual weeding over the chemical method due to lack of knowledge and high cost of weedicides. More than two-third respondents were not using weedicides due to the fact that use of weedicides checks the availability of green fodder. Regarding plant protection, lack of knowledge and high cost of chemicals were the main reasons realized by the farmers.

Since maize and groundnut are kharif crops, erratic rainfall, long dry spell and untimely rains were some of the ecological constraints expressed by all the respondents. A considerable loss of food grain occurs due to unscientific practices in handling the

produce. Due to lack of warehouses near the village and inadequate storage facility of their own, they are unable to store the produce and compelled to sell the produce just after harvesting.

With respect to marketing, lack of transportation facility, lack of proper marketing facility by government and unawareness about the procurement price were the main problems realized by the farmers.

### **Conclusion**

Of the set of technologies of maize and groundnut, the technologies that require purchased inputs were less adopted, due to the poor economic conditions of the farmers. This required for technology assessment and refinement in view of local conditions. The research scientist concerned, in coordination with front-line transfer of technology project of ICAR shall concentrate on the issue and come out with viable technologies for local conditions. There were some technologies, the farmers were not aware of it. For such technologies, extension efforts shall be strengthened.

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