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Agricultural Technologies Adoption Behavior of Rural Farmers

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INTRODUCTION

Some farmers are very quick to adopt innovations and put them into action but some farmers are slow to adopt innovations because adoption of improved agricultural practices varies from frmer to farmer according to their knowledge, understanding about the technology and availability of resources. Under this study, adoption behaviour of rural farmers was studied with the specific objective to assess the adoption, overadoption and discontinuance behaviour of rural farmers towards agricultural technologies.

METHODOLOGY

The study was conducted in 1991-92 in Mangywas and Vatika villages of Sanganer block in Jaipur district, Rajasthan. The Mangyawas village is an adopted village by the Agricultural Research Station; Durgapura, Jaipur, where minikit trials have been conducted. The village is located to the southern side of Agricultural Research Station; Durgapura, at a distance of 10 kms. Whereas, the Vatika village is a non-adopted village and it is located to the southeastern side of the Agricultural Research Station; Durgapura at a distance of 15 kms.

From each village twenty-five rural farmer respondents were selected with the help of stratified proportionate sampling plan. The respondents from each village were groupted into five categories on the basis of land holdings i.e. marginal farmers (less than 1.0ha), small farmers (1 to 2 ha), medium farmers (2 to 4 ha), large farmers (4 to 8ha) and large farmers (above 8 ha) and from each category five respondents were selected proportionately (e.g. the five respondent farmers from a category group of 50 farmers may be selected at regular interval

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of 10 i.e. 10th, 20th,30th,40th and 50th). Thus, in total fifty respondents were included from both the adopted and non-adopted villages for the study. To measure the different variables included in the study, the available schedule of Sabarathnam et al., 1991 was used.

FINDINGS AND DISCUSSION

Adoption of agricultural technologies

The improved agricultural technologies recommended and suitable for Sanganer block in Jaipur district of Rajasthan state were studied. The important technologies adopted in both the villages are presented in table-1.

The data revealed that the majority of farmers adopted Raj-1972 variety of wheat for cultivation ini adopted village (44%) as well as non-adopted village (40%). The farmers were also cultivating wheat varieties i.e. Kalyansona, Sonalika and Lok-1 but their level of adoption was low as compared to Raj-1972. The data also indicated that the pearlmillet varieties i.e. BJ-104, RCB-2 were most commonly adopted by the farmers but their level of adoption was higher in adopted village than the non-adopted village. The varieties of mustard and barley commonly cultivated were Varuna and Rajkiran respectively. Among the various fertilizers, the Urea and DAP most commonly used and their adoption level was higher in adopted village. The most commonly used pesticides were Malathion, Aldrin and Forate in both the villages but number of users were higher in adopted village. To analyze the difference in between the adoption behaviour of farmers of adopted and non-adopted villages, the T-test was computed. The calculated t value is 3,4523,

Table-1. Adoption behaviour of farmers towards agricultural technologies.

Name of technology	Adoption by		
	Adopted village	Non-adopted village	Mean
Seed varieties			
a) Wheat			
Raj-1972	44	40	42
Kalyansona	16	12	14
Sonalika	8	123	10
Lok-I	4	0	2
b) Pearlmillet			
BJ-104	40	28	34
RCB-2	36	28	32
RHB-30	8	12	10
C) Mustard:			
Varuna	24	20	22
d) Barley			
Rajkiran	8	4	6
Fertilizers			
Urea	(68*+12**)80	(44+16**)60	70
DAP	(32*+8**)40	(16*+4**)20	30
Pesticides			
Malathion	40	32	36
Aldrin	36	28	32
Forate	16	12	14

* Per cent of farmers used fertilizers as per recommended doses.

**Per cent of farmers used fertilizers less than recommended doses.

which is higher than the table value (i.e. 3.012) at 1 per cent level of probability. Hence, we may conclude that there is significant difference in the adoption behaviour of farmers of adopted and non-adopted villages towards agricultural technologies.

Overadoption of agricultural technologies

The concept of overadoption in this context is the adoption of technology by an individual or farmer, when experts feel that the adopter should reject the technology. Overadoption occurs because of the reasons such as insufficient knowledge about the new technologies on the part of the adopter, inability to predict the consequences etc. The farmers of both the adopted and non-adopted villages had overadopted some earlier existing traditional agricultural technologies ad practiced them continuously without replacing by available new improved technologies (tabel2). The majority of farmers in both the villages were overadopting the cultivation of local varieties and various traditional agricultural practices as they have perceived that certain existing local technologie were better in quality and easy to adopt as compared to other new technologies. The farmers also practices the traditional local techologies such as broadcasting of urea before irrigation and bajra-wheat crop rotation due to suitability and less cost of cultivation. The data also revealed that the level of overadoption of technologies was higher in non-adopted village than the adopted village. Therefore, the farmers of adopted village were found more enthusiatic towards adoption of improved new agricultural innovations.

Table-2. Agricultural technologies overadopted by rural farmers.

Technologies	Overadoption by farmers(%)		
	Adopted village	Non-adopted village	Mean
Cultivation of local varieties and traditional practices	24	40	32
Broadcasting of urea before irrigation	20	26	23
Bajra-wheat crop rotation	12	20	16
Desi (local) variety of wheat	12	12	12

Reasons for overadoption of agricultural technologies

According to table3, the majority of farmers in both the adopted and non-adopted villages were overadopted the traditional agricultural technologies instead of replacing with them by new technologies due to the most important reason that the existing traditinal technologies found better in quality than the another new developed technology. Easy to understand and adopt a technology was also considered important

Table-3. Reasons for overadoption of agricultural technologies.

Reasons for overadopton	Overadoption by farmers (%)		
	Adopted illage	Non-adopted village	Mean
Better in quality	24	32	28
Easy to adopt	12	8	10
Require less imputs	8	8	8
Less cost of cultivation	8	0	4
Inputs easily available	4	4	4

reason for overadoption of agricultural technologies. The other important reasons perceived by the rural farmers for overadoption of traditional agricultural technologies were less inputs required, less cost of cultivation and inputs easily availble. The farmers also expressed that due to risk involved in various moden technologies, they could not replaced the traditional technologies by new technologies on large scale.

Discontinuance of agricultural technologies:

Some of the useful and recommended agricultural technologies of the area were discontinued by the farmers of both the villages.

The table 4 elucidated that the majority of 44% farmers of adopted village and 36% farmers of non-adopted village had stopped the use of pesticides like DDT

Table-4. Agricultural technologies discontinuace by the farmers.

Technologies discontinued	Discontinuance by farmers(%)		
	Adopted	Non-adopted	Mean
Use of DDT/ BHC pesticides	44	36	40
Use of hybrid varieties	20	32	26
Use of fungicide	4	8	6
Use of fertilizers	8	0	4

and BHC because of new improved agricultural innovations such as Malathion, Aldrin, Forate etc. were found better suitable. Farmers had also discontinued even the cultivation of recommended hybrid variety seeds due to high requirement of inputs and unavailability of resources at proper time. Some of the farmers had also discontinued the use of fungicides and fertilizers in both the villages due to lack of inputs and poor irrigation facility.

Reasons for discontinuance of agricultural technologies

The majority of farmers discontinued the recommended agricultural technologies due to availability of other better agricultural technologies (table 5). The advice of extension workers also played vital role in discontinuance of the existing technologies and adoption of improved agricultural technologies to increase agricultural production. The negative consequences of technologies,

Tabel-5. Reasons for discontinuance of agricultural technologies

Reasons for	Discontinuance by discontinued		
	Adopted village	Non-adopted village	Mean
Availability of better technology	80	32	56
Advice of extension worker	80	24	52
Negative consequences	64	4	34
Non-availability of inputs	8	12	10
Uneconomical	12	0	6
Non-compatibility	4	0	2
Demands additional attention	4	0	2

non-availability of inputs and uneconomical technology were the other important reasons for the discontinuance of agricultural technologies by the rural farmers. The data also indicated that the more number of farmers of adopted villae were responded to discontinued the existing traditional technologies and adopted new improved agricultural technologies as compared to farmers of non-adopted village. It shows that the farmers of the adopted village having risk taking ability in replacing the traditional agricultural technologies by adopting new improved agricultural technologies.

CONCLUSION

The results shows that the most important reasons for overadoption of existing traditional agricultural technologies were better in quality, easy to adopt, require less inputs and low cost of cultivation. Simultaneously, the reasons for discontinuance of agricultural technologies were such as availability of another new better technologies, negative consequences, non-availability of inputs and uneconomical technology. Therefore, the new improved agricultural technologies developed through researches should be farmers need based having better sustainability than the existing technologies, easy to understand and adopt, require comparatively low input cost of cultivation and minimum management with significantly higher potential for economic returns.

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