Adoption of Improved Wheat Cultivation Technologies in Unnao District of Uttar Pradesh

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ABSTRACT

A study was conducted in one district of U.P. 'Unnao' which has a Krishi Vigyan kendra run by Non-Govt. Organization. The KVK is repository of scientific knowledge for agriculture and its allied disciplines and it can be transmitted through effective extension means to the farmers who, in turn, can use this knowledge to improve the production and productivity in their farm operations. KVKs are playing a vital role across the rural economy in areas as diverse as animal husbandry, horticulture, plant protection and food processing. KVK's role in these sectors is crucial as it is ideally placed to disseminate field-tested proven technologies with appropriate modulations which addresses location specific problems and concerns on the prevailing natural and socio-economic conditions, needs and priorities. In this study, extents of adoption of eight selected improved cultivation practices of wheat production technologies were measured. To measure the extent of adoption and to campare the impact of training on extent of adoption, 110 number of respondents were selected from trained farmers and the same number of respondents were selected from surrounding area who had not been trained. Study was conducted in three different ways- firstly, all respondents were interviewed and categorised in to three groups of high, medium and low category of farmers for adoption of improved wheat production technologies. Secondly, overall adoption for both categories of respondents was measured and lastly difference between the adoption of both categories of respondents was reckoned in terms of adoption of different practices of wheat production. High level of adoption was seen in adopting appropriate seed-rate (63.64% in trained groups) and (55.45% in untrained groups), whereas majority of the farmers were falling under medium adopters.

Key words: *Technology; Adoption;*

The Krishi Vigyan Kendra is repository of scientific knowledge for agriculture and its allied disciplines that can be disseminated through effective extension means to the farmers who, in turn, can use this knowledge to improve the production and productivity in their farm operations. In Unnao district the Krishi Vigyan Kendra which is managed by an NGO plays crucial role in dissemination of field-tested proven technologies with appropriate modulations which addresses location specific problems and concerns on the prevailing natural and socio-economic conditions, needs and priorities. The present study was conducted to measure the adoption of improved wheat cultivation technologies among farmers in the operational area of KVK, Unnao.

METHODOLOGY

Multistage stratified random sampling procedure was followed for the selection of respondents. Unnao district was purposively selected for the present study. Unnao district comprises of 16 blocks and KVK is working in six blocks. Out of these six blocks, one block 'Hasanganj' was randomly selected. Out of the 14 villages where KVK is working, 10 villages were selected randomly. Thereafter, additional ten villages were selected randomly from the remaining villages of the block, where KVK has not been working. Farmers from the villages were selected as untrained group. Thus, the total number of villages became 20.

Proportionate sampling procedure was followed for the selection of KVK trained farmers. Approximately

30 per cent of farmers from each village, where KVK has been working were selected making a total number of trained farmers as 110. Equal number of farmers were selected from additional ten villages of the block, where the KVK has not been working. Thus, the total number of farmers under this study came to 220 (110 trained+110 untrained). The respondents were interviewed personally to get first hand information and also through direct observations. The responses received were coded, processed and tabulated. The statistical procedure and tests following for analysis of the data were frequency and percentage, arithmetic mean (X), standard deviation (SD) and t-test.

RESULTS AND DISCUSSION

It is clear from Table 1 that majority (52.73%) of the respondents from trained category had medium use of improved wheat variety, while 33.63 per cent had high and 13.64 per cent had low use of improved wheat variety. In the untrained category, majority (56.36%) of the respondents had medium use of improved wheat varieties, while 22.73 per cent had high use of improved wheat varieties and 20.91 per cent had low use of improved wheat varieties. Thus, it can be inferred that the respondents from trained category showed higher extent of adoption of improved wheat cultivation in case of using improved wheat varieties as compared to the respondents from untrained category.

Table 1. Distribution of respondents according to their adoption of various wheat cultivation practices.

S. No.	Wheat cultivation practices	Categories of adoption	Frequency	
			Trained	Untrained
1.	Use of improved wheat varieties	Low	15 (13.64)	23 (20.91)
		Medium	58 (52.73)	62 (56.36)
		High	37 (33.63)	25 (22.73)
2.	Seed rate	Low	5 (4.54)	9 (8.19)
		Medium	35 (31.82)	40 (36.36)
		High	70 (63.64)	61 (55.45)
3.	Application of nitrogenous fertilizers	Low	13 (11.82)	20 (18.18)
		Medium	65 (59.09)	69 (62.73)
		High	32 (29.09)	21 (19.09)
4.	Application of phosphates' fertilizers	Low	15 (13.64)	25 (22.73)
		Medium	60 (54.55)	65 (59.09)
		High	35 (31.81)	20 (18.18)
5.	Application of potassic fertilizers	Low	27 (24.55)	36 (32.73)
		Medium	53 (48.18)	57 (51.82)
		High	30 (27.27)	17 (15.45)
6.	Seed treatment	Low	20 (18.18)	27 (24.55)
		Medium	62 (56.36)	68 (61.82)
		High	28 (25.46)	15 (13.63)
7.	Herbicides	Low	25 (22.73)	33 (30.00)
		Medium	59 (53.64)	64 (58.18)
		High	26 (23.63)	13 (11.82)
8.	Insecticides/pesticides	Low	30 (27.27)	40 (36.36)
		Medium	51 (46.36)	46 (41.82)
		High	29 (26.37)	24 (21.82)

Figures in parentheses indicate percentages

In case of seed-rate, it is evident from Table that majority of trained and untrained respondents were using appropriate seed rate. As such, 63.64 per cent of trained respondents and 55.45 per cent of untrained respondents were found in high category. So far, the adoption of nitrogenous fertilizers was concerned, majority (59.09 %) of the respondents from trained category had medium application of nitrogenous fertilizers, while 29.09

per cent had high application of nitrogenous fertilizers and 11.82 per cent had low application of nitrogenous fertilizers. In the untrained category majority (62.73%) of the respondents had medium application of nitrogenous fertilizers, while 19.09 per cent had high application of nitrogenous fertilizers and 18.18 per cent had low application of nitrogenous fertilizers. Thus, it can be concluded that respondents from the trained group showed higher extent of adoption of improved wheat cultivation technologies on application of nitrogenous fertilizers as compared to the respondents from the untrained category. Same type of adoption was seen in case of phosphate and potassic fertilizers in both categories of farmers.

It is evident from the Table that the majority (56.36%) of the respondents from trained category had medium seed treatment, while 25.46 per cent had high seed treatment and 18.18 per cent had low seed treatment. In the untrained category, (61.82 %) of the respondents had medium seed treatment, while 24.55 per cent were having low seed treatment and 13.63 per cent had high seed treatment. Thus, it can be inferred that the respondents from trained category showed higher extent of adoption of improved wheat cultivation technologies on seed treatment as compared to the respondents from untrained category. Majority (53.64%) of the respondents from trained category had medium use of herbicides; while 23.63 per cent had high use of herbicides and 22.73 per cent had low level of herbicides. In the untrained category, majority 58.18 per cent of the respondents had medium use of herbicides, while 30.00 per cent were found having low level of herbicides and 11.82 per cent had high level of herbicides. Thus, it can be concluded that respondents from the trained category showed higher extent of adoption of improved wheat cultivation technologies on herbicides as compared to the respondents from the untrained category.

Table 2. Distribution of respondents according to their overall extent of adoption of improved wheat cultivation technologies (N=110)

S. No.	Categories	Frequency	
		Trained	Untrained
1	Low	18 (16.37)	27 (24.54)
2	Medium	55 (50.00)	57 (53.64)
3	High	37 (33.63)	24 (21.82)
	Total	110 (100)	110 (100)

Figures in parenthesis indicate percentages

As far as overall adoption was concerned, it is evident from Table 2 that majority (50.00%) of the respondents were having medium level of adoption of improved cultivation technologies of wheat and 33.63 per cent as well as 16.37 per cent were found in high and low category, respectively in respect of trained groups. The respondents from the trained category also showed higher overall extent of adoption of improved wheat cultivation technologies. From the above discussion, it can be concluded that the farmers of the trained category showed higher extent of adoption of improved wheat cultivation technologies pertaining to all eight wheat practices than those of the untrained category. Thus, the trained farmers showed an increasing trend in the use of improved wheat cultivation technologies.

Table- 3 Difference in adoption of improved wheat cultivation technologies between the trained and untrained respondents

S. No.	Wheat cultivation practices	Mean Scores		't' value of mean difference
		Trained	Untrained	
1	Use of improved wheat varieties	65.21	54.50	6.3 **
2	Seed rate	89.18	80.74	5.46 **
3	Application of Nitrogen (N)	68.77	57.23	6.78 **
4	Application of Phosphorus(P)	70.11	60.04	5.92 **
5	Application of Potash (K)	62.21	51.45	6.33 **
6	Seed treatment	59.37	45.21	8.32 **
7	Herbicides	61.52	48.95	7.39 **
8	Insecticides/Pesticides	63.24	54.21	5.31 **
9	Overall extent of adoption	67.45	56.66	6.47 **

**Significant at 0.01 level of probability, df = 108

This could be due to the exposure of the trained category farmers to the improved wheat cultivation technologies through on-farm trials conducted under KVK. The untrained farmers lacked this opportunity and hence, they showed lower extent of adoption of these technologies. Similar observations were also made by *Sharma et al. (1997); Muttaleb (1998)* and *Murzaman et al. (2000)*.

As far as the adoption of improved wheat cultivation technologies on seed rate was concerned, the mean scores of the trained and the untrained respondents were 89.18 and 80.74, respectively (Table 3). The value of 't' ratio is 5.46 which is significant at 0.01 level of probability, which indicates that the respondents from trained category adopted improved seeds due to the exposure through on farm trials conducted by KVK.

As regards to the adoption of improved wheat cultivation technologies on application of N, the mean scores of the trained and the untrained respondents were 68.77 and 57.23, respectively (Table 3). The value of 't' ratio is 6.78 which is significant at 0.01 level of probability. This indicates that the respondents from the trained category showed significantly higher level of adoption of nitrogen application than the respondents from the untrained category for the improved wheat cultivation technologies through the training they received at KVK.

Similarly, in case of adoption of improved wheat cultivation technologies on application of P, the mean scores of the trained and untrained respondents were 70.11 and 60.04, respectively. The value of 't' ratio is 5.92 which is significant at 0.01 level of probability. This indicates that the respondents from the trained category showed significantly higher level of adoption of phosphorus application than the respondents from the untrained farmers for the improved wheat cultivation technologies through the training they received at KVK. In case of first practice i.e. use of improved wheat varieties, mean score calculated were 65.21 and 54.50 for the categories trained and untrained respectively. 't' values for all cultivation practices were found to be significant. The above findings are in accordance with the findings of *Girase et al. (1988). Chaudhury and Dasgupta (1989),* and *Hussain et al. (1994).*

CONCLUSION

Majority of the trained farmers were in medium level of adoption. The trained farmers showed an increasing trend in the use of improved wheat cultivation technologies. This could be due to the exposure of the trained category farmers to the improved wheat cultivation technologies through on-farm trails conducted under KVK. The untrained farmers lacked this opportunity and hence, they showed lower extent of adoption of these technologies.

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