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Extent of Knowledge of ATMA Beneficiaries and Non-beneficiaries Farmers towards Improved Wheat Cultivation Technology

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ABSTRACT

The study was conducted in Arazilines and Kashividyapeeth block of Varanasi distract of Uttar Pradesh to identify the impact of ATMA training programme on extent of knowledge about improved wheat cultivation technologies. 120 trained and 120 untrained farmers were selected trough PPS technique for study. 60.83 per cent trained farmers were in medium knowledge level regarding improved wheat cultivation technologies. Besides 20.83 per cent and 18.33 per cent untrained farmers were in low and high knowledge level respectively. While in case of untrained farmers 70.83 per cent were in medium knowledge level regarding improved wheat cultivation technologies. Besides 20.83 per cent and 8.33 per cent untrained farmers were in low and high knowledge level respectively. The study revealed that trained farmers had higher extent of knowledge of about improved wheat cultivation technologies than untrained farmers.

Keywords: Extent, knowledge, ATMA

INTRODUCTION

The role of extension is increasingly being recognized world over, there are criticisms about the manner in which extension work is being performed. Every approach has its own limitation. (Kumar and Hansara, 1999) listed some of the common criticism as extension bureaucracy, techno- centric work, top - down approach, providing subsidy or free inputs, emphasizing special groups and publicity stunt. In developing countries, small and marginal farmers constitute the major portion of the farming community. But due to various reasons, these segments could not get any benefits from the extension system. After analyzing the weaknesses of extension from a long period, Government of India reformed the extension approach through introduction of Agricultural Technology Management Agency (ATMA), it follows group approach of extension. Large number of technologies evolved in the field of agriculture is not being accepted and adopted at its fullest extent by the farmers (Singh and Barman, 2011). There is urgent need to enhance the communication, training and extension system to make the farmers aware about agricultural technologies related in the locale. With this approach the knowledge of the farmers can be improved (Chaudhary *et al.,* 2013). The concept of ATMA focuses shift from "top down" to "bottom up" in planning and implementation of agriculture development programmes.

METHODOLOGY

The present study was conducted in Varanasi district of Uttar Pradesh during 2013- 2014 purposively selected. There are 8 blocks in Varanasi district; out of these blocks, two blocks namely Arazilines and Kashividyapeeth selected randomly. Five villages (maximum number of beneficiaries) from each selected bock which covered under ATMA programme were selected purposively thus, a total 10 village were selected to select 120 trained farmers. Similarly, five villages from one block uncovered under ATMA programme were selected thus, a total 10 villages were selected to select 120 untrained farmers. A cumulative number of farmers (120 trained + 120 Untrained = 240) were selected by using probability proportionate to size (PPS) sampling method. Data were collected by pretested interviewing the farmers with the help of an interview schedule. Collected data were tabulated and analyzed by using mean, frequency, percentage, coefficient of correlation, multiple regressions.

The knowledge of farmers about package of practices of wheat cultivation technology was measured with the help of a structured schedule, which was developed in consultation with the experts from Agricultural Universities, KVK and ATMA staff, Varanasi. The schedule consists of twenty nine (29) statements on

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different aspects of wheat cultivation like field preparation, sowing technique, irrigation and fertilizer application, plant protection, harvesting and storage based on training provided by ATMA, Varanasi. The scoring of each item was done on a scale with two- point continuum in "Yes" and "No" based on the correctness of the knowledge held. In this method a score of '1' is given for 'Yes' '0' for incorrect and 'no' answer. As such attainable score range from 0 to 29 based on their responses. The level of knowledge was classified in three categories i.e. low (mean - S.D), medium (mean - S.D. to mean + S.D.) and high (mean + S.D.).

RESULT AND DISCUSSION

The Table-1 reveals that the respondents possessed knowledge about different components of practice of improved wheat cultivation technologies with their mean score. The majority of the trained farmers possessed knowledge about practices like pesticides and weedicides (0.89) followed by field preparation (0.82), sowing technique (0.81), harvesting and storage (0.79), irrigation and fertilization (0.77), respectively. Likewise, majority of the untrained farmers were possessed knowledge about practices like pesticides and weedicides (0.77) followed by sowing technique (0.73), irrigation and fertilization (0.71) field preparation (0.70) and harvesting and storage (0.55), respectively.

Table 1: Distribution of trained and untrained farmers with respect to their knowledge about improved wheat cultivation technologies

Practices	Trained Farmers	Untrained Farmers
	Mean Score (MS)	Mean Score (MS)
Field Preparation	0.82	0.70
Sowing Technique	0.81	0.73
Irrigation and Fertilization	0.77	0.71
Pesticides and Weedicides	0.89	0.77
Harvesting and Storage	0.79	0.55

It is clear that the farmers of trained category possess higher extent of knowledge than farmers of untrained category regarding above five practice of improved wheat cultivation technologies according to their mean score. Farmers of trained category also showed higher extent of knowledge. This could be due to the exposure of the trained farmers to knowledge through on-farm trail conducted by ATMA. The untrained farmer lacked this opportunity and hence, they showed lower extent of knowledge of these technologies.

The finding of the study were in line with the findings of Dubey and Srivastava (2007), Kirar and Mehta (2009), Chaoudhary and Yadav (2012) and Meena et al. (2014).

Table 2: Relationship between independent variables with knowledge about improved wheat cultivation technology of trained farmers.

Independent Variables	Trained Farmers	Untrained Farmers
	Correlation value 'r'	Correlation value 'r'
Education (x_1)	0.373**	0.202*
Family Type (x_2)	0.033	0.012
Family Size (x_3)	0.158*	0.153
Housing Pattern (x_4)	0.201*	0.159
Land Holding (x_5)	0.094	0.025
Farm Power (x_6)	0.232*	0.195*
Farming Experiences (X_7)	0.259**	0.198*
Occupation (x_8)	0.004	0.254**
Annual Income (x_9)	0.066	0.196*
Social Participation (x_{10})	0.289**	0.072
SIUP (x_{11})	0.198*	0.103
Communication Behaviour (x_{12})	0.215*	0.136
Economic Motivation (x_{13})	0.261**	0.198*
Achievement Motivation (x_{14})	0.343**	0.215*

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

The results of correlation analysis in table 2 between independent variable and knowledge level of trained farmers revealed the characteristics namely education (x1), farming experiences (x7), social participation (x10), economic motivation (x13), achievement motivation (x14) were positively and significantly correlated at 0.01 level with knowledge level. And the family size (x3), housing pattern (x4), farm power (x6), communication behaviour (x12), SIUP (x11) were positively and significantly correlated at 0.05 level related to knowledge level respectively. The remaining variable namely family size (x3), housing pattern (x4), farm power (x6), communication behaviour (x12) were found having non-significant relationship with knowledge level of trained farmers.

In case of untrained farmers correlation analysis revealed that characteristic namely occupation (X8) was positively and significantly correlated at 0.01 level and education (x1), farm power (x6), farming experiences (x7), annual income (x9), economic motivation (x13), achievement motivation (x14) were positively and significantly correlated at 0.05 percent level with knowledge level.

The other variable namely family type (x2), family size (x3), housing pattern (x4), land holding (x5), social participation (x10), SIUP (x11), communication behaviour (x12) were found having non-significant relationship with knowledge level of untrained

farmers. In order to study the relative influence of socio-economic characteristics of trained farmers on their overall knowledge level in regards to wheat cultivation technology, the value of multiple regression (b-values) were calculated and presented in table 3.

Table 4: Multiple regression analysis of independent variables with knowledge level of trained and untrained farmers about improved wheat cultivation technology

Independent Variables	Trained Farmers			Untrained Farmers		
	S.E. of b-values	b-values	t-values	b-values	S.E. of b-values	t-values
Education (x_1)	0.234	0.339	4.445**	0.356	0.190	3.871**
Family Type (x_2)	0.828	0.560	1.677	0.341	0.630	1.870*
Family Size (x_3)	0.611	0.265	0.433	0.154	0.453	0.340
Housing Pattern (x_4)	1.091	0.741	2.901**	0.295	0.549	1.900*
Land Holding (x_5)	0.630	0.770	1.789*	0.176	0.540	0.726
Farm Power (x_6)	0.099	0.100	1.914*	0.138	0.086	1.594
Farming Experiences (x_7)	0.061	0.012	0.200	0.017	0.030	0.563
Occupation (x_8)	0.256	0.152	0.593	0.642	0.203	3.158**
Annual Income (x_9)	0.057	0.152	2.501**	0.512	0.013	0.307
Social Participation (x_{10})	0.142	0.091	2.641**	0.124	0.121	1.025
IUP (x_{11})	0.019	0.006	2.918**	0.009	0.015	1.909*
Communication Behaviour (x_{12})	0.023	0.002	1.883*	0.014	0.023	0.983
Economic Motivation (X_{13})	0.183	0.195	0.765	0.185	0.136	1.368
Achievement Motivation (x_{14})	0.130	0.086	3.511**	0.066	0.127	1.989*

*Significant at 0.05 level of probability; **Significant at 0.01 level of probability.
Multiple regression (R2) = 0.5421; F value = 6.787**.

Table 3 depicts the result of regression analysis is administered to isolate the knowledge of trained farmers regarding improved wheat cultivation technologies and the amount of variability to be explained by them towards the extent of knowledge. At a glance over the beta coefficient and their corresponding t-value indicate varying level of contribution of variable under study. The variables namely education (x1), housing pattern (x4), annual income (x9), social participation (x10), SIUP (x11), achievement motivation (x14) were significant at 0.1 level of significant and land holding (x5), farm power (x6), communication behaviour (x12) were significant at 0.5 level of significant were found to be positive and significant contribution towards extent of knowledge which were predictors of knowledge. While the remaining variable namely family type (x2), family size (x3), farming experiences (x7), occupation (x8), economic motivation (x13), which were fitted to regression analysis did not yield any tangible effect because all the t-values were found to be statistically non-significant. When data were put to multiple regression analysis for asserting R-square value, then all the fourteen independent variables taken together explained 54.81 per cent of the variation for knowledge. Thus, the respective 'F' value 6.787 was significant at 1 percent level of probability. The finding is in line with the findings of Jana and Verma (2004), Prakash and De (2005), Kumar *et al.* (2012) and Singh *et al*. (2014).

Table 3 further depicts the result of regression analysis is administered to isolate the knowledge of untrained farmers regarding improved wheat cultivation technologies and the amount of variability to be explained by them towards the extent of knowledge. At a glance

over the beta coefficient and their corresponding t-value indicate varying level of contribution of variable under study. When data were put to multiple regression analysis for asserting R-squire value, then all the fourteen independent variables taken together explained 42.95 per cent of the variation for knowledge. Thus, the respective 'F' value 5.787 was significant at 1 percent level of probability. The finding is in line with the findings of Kumar *et al.* (2012), Meena *et al.* (2012) and Singh et al. (2014).

CONCLUSION

The study leads to the conclusion that trained farmers had more knowledge than untrained farmers about improved wheat cultivation technology. The trained and untrained farmers had possessed more knowledge about practices like pesticides and weedicides sowing techniques and harvesting and storage. This study gives an indication to the planner and policy-makers for a serious attention on the knowledge component of the farmers along with the technology transfer and input supply.

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