

**Research Article**

## **IDENTIFY FACTORS AFFECTING TECHNICAL KNOWLEDGE OF WHEAT FARMER MEMBERS OF THE AGRICULTURAL GUILD SYSTEM IN SHOUSTAR TOWNSHIP**

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### **ABSTRACT**

The purpose of this research was identifying factors affecting technical knowledge of wheat farmer members of the agricultural guild system in Shoushtar Township, Khouzestan province, Iran. The population of this study included wheat farmer members of the agricultural guild system. The total number of members was 2530 person. The sample size was obtained through a simple random sampling. The sample size according to the Cochran formula was 180 ( $n=180$ ). Questionnaire reliability was estimated by calculating Cronbach's alpha and it was appropriate for this study. Data were analyzed using the Statistical Package for the Social Sciences (SPSS). To reach the research objectives, appropriate statistical procedures for description were used. Data analysis was carried out through data description and data inferential analysis. The results of research showed the correlation between received credit, relationship rate of wheat farmers with extension educators, participation in education practices and technical knowledge of farmers was significant. The result of regression analysis by stepwise method indicated that participation in education practices, credits and age may well explain for 47.1% changes in technical knowledge of farmers.

**Keywords:** *Technical Knowledge, Wheat Farmers, Agricultural Guild System*

### **INTRODUCTION**

Farmer's guild system is essential tools for full realization of farmers' participation in the political processes in relation to agriculture. These organizations should be developed as legitimate voice for farmers, to pursue economic, social and political objectives of farmers towards rural and agricultural development (Eliasi *et al.*, 2009). There are hundreds of millions of farmers in the world but the farmers' voice will not be heard without agricultural organizations (Perteve, 1994). Results of various studies indicate that success of an organization is strongly related to its member's participation (Rajaei *et al.*, 2014). The majorities of NGOs are small and horizontally structured with short lines of communication and are therefore capable of responding flexibly and rapidly to clients' needs and to changing circumstances. They are also characterized by a work ethic conducive to generating sustainable processes and impacts. NGOs' concern with the rural poor means that they often maintain a field presence in remote locations, where it is difficult to keep government staff in post. One of NGOs' main concerns has been to identify the needs of the rural poor in sustainable agricultural development. They have therefore pioneered a wide range of participatory methods for diagnosis and, in some contexts, have developed and introduced systems approaches for testing new technology (Farrington, 1997; Sotomayor, 1991). The numbers of NGOs have grown dramatically, and they have become a powerful player in global politics, facilitated in part by the increasing funding by public and private grants (McGann and Johnstone, 2006). Manevska-Tasevska (2013) suggests that farmers' knowledge attributes have the potential to influence farm economic performance. Non-formal knowledge sources, such as seminars, and competence-based learning appeared to be key to achieving higher technical efficiency. One of the most effective ways for reaching to a successful agriculture development pattern and finally, realizing the large-scale objectives of development is to organize people in groups known as agricultural production cooperatives. Hereby, economical growth, production increase and fair distribution of incomes can be achieved in addition to the practical cooperation of rural population in various civil and social activities. Indeed, these

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cooperatives pave the way for boosting the production and fair distribution of interests by providing a favorable ground for institutionalizing the cooperation of rural population (Mohammadi *et al.*, 2012 quoted of Le, 1983).

## MATERIALS AND METHODS

The population of this study included wheat farmer members of the agricultural guild system in Shoushtar Township, Khuzestan province, Iran. The total number of members was 2530 person. The sample was obtained through a simple random sampling. The sample size according to the Cochran equation was 180. Questionnaire reliability was estimated by calculating Cronbach's alpha and it was appropriate for this study. The questionnaire consisted of two main parts; the first part was related to personal and socio-economic characteristics of the sample individuals. The second part was related to technical knowledge of farmers. A five-point Likert-type scale was used as the instrument to gather data in order to measure the knowledge of wheat farmers. Data were analyzed using the Statistical Package for the Social Sciences (SPSS). To reach the research objectives, appropriate statistical procedures for description were used. Data analysis was carried out through data description and data inferential analysis. Statistics, such as frequencies, percentages, cumulative percentages, standard deviations, means and medians were used in the descriptive section. An inferential analysis, assigning a numerical value to each potential choice was used and a mean figure for all the responses was computed. Correlations were run between selected variables.

## RESULTS AND DISCUSSION

### Demographic Profile

**Table 1: Demographic profile of wheat farmers**

Variables	Frequenc y	Percentage	Cumulative Percentage	
Age				
20-30	41	22.8	22.8	
31-40	47	26.1	48.9	Mean=41.8
41-50	49	27.2	76.1	Sd= 11.39
51-60	34	18.9	95	Min=20
61-70	9	5	100	Max=70
Educational level				
Illiterate	8	4.4	4.4	
Initial	34	18.9	23.3	
Guidance school	33	18.3	41.7	
High school	35	19.4	61.1	
Diploma and upper	70	38.9	100	
Crop yield				
1.1-2	4	2.2	2.2	
2.1-3	54	30	32.2	Mean=4.13
3.1-4	60	33.3	65.6	Sd=1.2
4.1-5	54	30	95.6	
5.1-6	3	1.7	97.2	
6.1<	5	2.8	100	
Income (Million Rials)				
10-100	77	42.8	42.8	
110-200	38	21.1	63.9	
201-300	14	7.8	71.7	Mean=24.8
301-400	5	2.8	74.4	Sd=11.2
401-500	10	5.6	80	
501-600	21	11.7	91.6	
600<	15	8.4	100	

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Table 1 shows the demographic profile and the descriptive statistics for some characteristics of the wheat farmers. The results of the demographic information of the participant farmers indicated that the age of 27.2% of farmers was between 41-50 years. The minimum age of participant was 20 years and the maximum age was 70 years. Based on educational levels, a greater proportion (38.9%) of them had diploma and upper educational level. Based on the crop yield, 33.3% of them had 3.1 to 4 ton/ha. The maximum and minimum of their income were 90 and 4 million rials.

### Technical Knowledge of Wheat Farmers

In this study, for analyzing technical knowledge of wheat farmers, the Likert scale was used. The ratings on the Likert scale were from one to three, with one being “incorrect”, two being “relatively correct” and three being “correct”. The final computed score represented the overall level of technical knowledge. The Table 2 revealed the answer of wheat farmers to each item of technical knowledge and Table 3 identified the level of overall technical knowledge of wheat farmers after computing 9 items of technical knowledge.

**Table 2: Answer of wheat farmers to each item of technical knowledge**

Items	Correct		Relatively correct		Incorrect	
	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%
How to use of crop rotation	202	92.7	10	4.6	6	2.8
How to use of Manure	172	78.9	32	14.8	14	6.4
How to use of green manure	98	45	94	43.1	26	11.9
How to plowing perpendicular to the slope	154	70.6	41	18.8	23	10.6
How to reduce soil erosion by planting strip	124	56.9	45	20.6	49	22.5
How to use of legumes	138	63.3	53	24.3	27	12.4
How to use of cover crops	162	90	11	6.1	7	3.9
How to residue of product	161	89.4	14	7.8	5	2.8
How to application of biological manure	107	59.4	56	3.1	17	9.4

**Table 3: Identified the level of overall technical knowledge of wheat farmers**

Technical Knowledge	Frequency	Percent	Cumulative percent
Low	17	4.9	9.4
Moderate	21	11.7	21.1
High	142	78.9	100
Total	180	100	

### Correlation Study

Spearman correlation coefficients to test hypotheses was used, the results of this test are as follows (Table 4):

The results of table 4 showed the correlation ( $r=0.150$ ) between received credit and technical knowledge of farmers at the level of 0.05 was significant. Therefore, the null hypothesis is rejected. It means that with 95% of confidence, we can conclude that farmers with high credits had high technical knowledge.

Also the results of table 4 showed, the correlation ( $r=0.151$ ) between relationship rate of wheat farmers with extension educators and technical knowledge at 0.05 was significant. Therefore, the null hypothesis is rejected. It means that with 95% of confidence, we can conclude that farmers with high relationship rate with extension educators had high technical knowledge.

Based on the results of table 4, the correlation ( $r=0.253$ ) between participation in education practices and technical knowledge at the level of 0.01 was significant. It means that with 99% of confidence, we can conclude that farmers with high participation in education practices had high technical knowledge.

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**Table 4: Relationship between performance and independent variables**

Independent variable	Dependent variable	r	p
Social participation	Technical	0.005	0.949
Leadership	knowledge	0.020	0.794
Internet access		0.008	0.914
Social awareness		0.245	0.087
Crop yields		0.126	0.114
Credits		0.150	0.045
Income		0.142	0.056
Relationship rate of wheat farmers with extension educators		0.151	0.043
Quality of education		0.141	0.083
Age		-0.149	0.046
Participation in education practices		0.253	0.001
Educational level		0.073	0.328
Creativity		0.037	0.621

## Regression Analysis

Table 5 shows the result for regression analysis by stepwise method. Liner regression was used to predict changes in technical knowledge by different variables. Participation in education practices, credits and age may well explain for 47.1% changes ( $R^2 = 0.471$ ) in technical knowledge of farmers.

$$Y = 10.495 + 0.290x_1 + 0.011x_2 - 0.0250x_3$$

**Table 4: Multivariate regression analysis**

Independent variable	B	Beta	T	Sig
Participation in education practices	0.290	0.222	3.090	0.002
credits	0.011	0.162	2.242	0.026
age	-0.025	0.157	2.167	0.032
Constant	10.495	----	14.237	0.000

$$R^2 = 0.471 \quad F = 6.417, \quad Sig = 0.000$$

## Conclusion

The results of research showed the correlation between received credit and technical knowledge of farmers at the level of 0.05 was significant. Therefore, we can conclude that farmers with high credits had high technical knowledge. Also the correlation between relationship rate of wheat farmers with extension educators and technical knowledge at 0.05 was significant.

Therefore we can conclude that farmers with high relationship rate with extension educators had high technical knowledge. In addition, based on the results the correlation between participation in education practices and technical knowledge at the level of 0.01 was significant. It means that with 99% of confidence, we can conclude that farmers with high participation in education practices had high technical knowledge. The result of regression analysis by stepwise method indicated participation in education practices, credits and age may well explain for 47.1% changes in technical knowledge of farmers.

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