TECHNICAL KNOWLEDGE OF RICE FARMERS ABOUT CONSOLIDATION OF LAND IN THE MEYDAVOUDI OF BAGHMALEK TOWNSHIP

Soraya Zanganeh[1] and *Ahmad Reza Ommani[2]
[1]*Department of Agricultural Extension, Shoushtar Branch, Islamic Azad University, Shoushtar, Iran*
[2]*Department of Agricultural Management, Shoushtar Branch, Islamic Azad University, Shoushtar, Iran*
*Author for Correspondence

ABSTRACT
The purpose of this research was analyzing technical knowledge of rice farmers about consolidation of land in the Meydavoudi county of Baghmalek township, Khouzestan Province, Iran. The population of this study included rice farmers of Meydavoudi County of Baghmalek Township. Based on Kerejci and Morgan table the sample size was (n=317). 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 attitude of farmers, access to information sources, tendency of rice farmers about consolidation of land, social participation, social trust, social status, income, educational level and technical knowledge of rice farmers about consolidation of land was significant. Therefore, we can conclude that farmers with high level of attitude of farmers, access to information sources, tendency of rice farmers about consolidation of land, social participation, social trust, social status, income, educational level had high technical knowledge of rice farmers about consolidation of land. The result of regression analysis by stepwise method indicated attitude of farmers, access to information sources, tendency of rice farmers about consolidation of land, social participation, social trust, social status, income, educational level may well explain for 57.1% changes ($R^2 = 0.571$) in technical knowledge of rice farmers about consolidation of land. Therefore, to development of the technical knowledge of rice farmers about consolidation of land, considering variables of attitude of farmers, access to information sources, tendency of rice farmers about consolidation of land, social participation, social trust, social status, income, educational level are essential. This should be considered by agricultural managers and planners.

Keywords: Technical Knowledge, Rice Farmers, Consolidation of Land

INTRODUCTION
Land consolidation can be described as the planned readjustment of the pattern of the ownership of land parcels with the aim of forming larger and more rational land holdings (Pasakarnis & Maliene, 2010). Vosughi and Faraji (2006) believe that land consolidation is land integration and redistribution in one region with the aim of decreasing the number of plots.
Lindenmaier *et al.,* (2003) consider land consolidation as a process which includes structural changes in farm land and providing the required infrastructures including irrigation system, drainage network and roads for agricultural development.
Common wisdom argues that consolidation of small disjointed parcels into contiguous holdings is preferred by farmers and landowners. This kind of consolidation should reduce production costs and improve net income for a farm of given size.
Land consolidation that produces larger farms (keeping the number of parcels fixed) is also believed to be beneficial, as it should reduce the ratio of fixed costs per unit of land, allow more efficient use of technology, and ultimately increase productivity and efficiency (Lerman and Cimpoieş, 2006).
Ahmadi and Amini (2008) indicated that in Kermanshah land consolidation improves the technology, farm management and land more than other production factors. In Lenjanat it improves technology and

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farm management in comparison with other factors. In both regions the applicant villages of the projects have a larger ownership and more fragmented parcels than other villages. Moreover they have younger exploiters, more educated and less in number.

It is also noteworthy that these regions obtain more extension education, are nearer to agricultural offices, and have closer relation with extension agents.

Abdollahzadeh *et al.,* (2012) showed that increasing production input costs (labor, fuel, and machinery) is the most severe predicament caused by farmland fragmentation. Landholders believed that partial inheritance system, population increases and lack of job opportunity in off-farm interrelated together are main determinants of farmland fragmentation.

Also reduction of land in the process of consolidation operates as a key restraint factor against farmland fragmentation. Physical investments by government and access to credit and loan operate as promoter factors of farmland fragmentation according to landholders' view.

Their most preferred options of farmland fragmentation are the government sponsored farming in rural production cooperative units including traditional cooperatives and informal peasantry societies to facilitate voluntary land consolidation.

Land consolidation can lead to improvements in agriculture. Allowing farmers to acquire farms with fewer parcels that are larger and better shaped and to expand the size of their holdings enables them to become more competitive (FAO, 2003).

Therefore, land consolidation is a very important tool for rural development (Akkaya *et al.,* 2007, Mirandaa *et al.,* 2007). The main objective of land consolidation is to improve the land holdings of farmers by concentrating their farms in as few plots as possible and to support the farms with roads and infrastructure, when needed (Lisec & Pintar, 2005).

Land consolidation can promote improved management of natural resources. Rationalising the tenure structure can facilitate environmental protection and can support better land use planning and land management.

As a consequence of economic development, increasing amounts of agricultural land are identified for industrial and housing purposes, highways and other projects. Land consolidation can help in addressing potential conflicts over changes to the use of land (FAO, 2003).

MATERIALS AND METHODS
The population of this study included rice farmers of Meydavoudi County of Baghmalek Township. Based on Kerejci and Morgan table the sample size was (n=317). 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.

RESULTS AND DISCUSSION
Results
Demographic Profile
Table 1 shows the demographic profile and the descriptive statistics for some characteristics of the rice farmers. The results of the demographic information of the rice farmers indicated that the age of 33.4% of rice farmers was between 44-53 years.

The minimum age of participant was 23 years and the maximum age was 83 years. Based on educational levels, a greater proportion (28%) of them had elementary educational level. Based on the income, 23.3% of them had 70-140 million rial in year.

The minimum income of participant was 10 million rial and the maximum income was 520 million rial in year.

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Table 1: Demographic profile of rice farmers

variables	Frequency	Percentage	Cumulative Percentage	
Age				
23-33	39	12.3	12.3	Mean=48.11
34-43	73	23	35.3	Sd= 12.55
44-53	106	33.4	68.8	Min=23
54-63	63	19.9	88.6	Max=83
64-73	23	7.3	95.9	
74-83	13	4.1	100	
Educational level				
illiterate	78	24.6	24.6	24.6
elementary	89	28.1	28.1	52.7
Guidance school	54	17	17	69.7
High school	19	6	6	75.7
Diploma	49	15.5	15.5	91.2
BSc	28	8.8	8.8	100
Income (Million Rials in year)				
10-70	73	23	23	
70-140	74	23.3	46.4	
140-210	59	18.6	65	Mean=190.05
210-290	49	15.5	80.4	Sd=100.09
290$\leq$	62	19.6	100	

Technical Knowledge of Rice Farmers about Consolidation of Land
In this study, for analyzing technical knowledge of rice farmers about consolidation of land, the Likert scale was used. The ratings on the Likert scale were from one to three (1. no, 2. Somewhat, 3. yes). The final computed score represented the overall level of technical knowledge. The Table 2 revealed the answer of farmers to each item of technical knowledge and Table 3 identified the level of overall technical knowledge toward consolidation of land after computing 10 items of technical knowledge.

Table 2: Frequency of rice farmers based on technical knowledge level about consolidation of land

Items	3	2	1	Mean	sd	CV
Do you know the process and the implementation of consolidation land?	122	107	88	1.89	0.808	0.427
Are you aware of the disadvantages of land consolidation?	130	93	94	1.89	0.824	0.441
Is the consolidation of land to increase the area under cultivation and increase the performance?	158	101	58	1.67	0.764	0.454
Is the consolidation of land reduces the cost of production?	159	99	59	1.68	0.768	0.457
Do you know the benefits of land consolidation for farming?	170	85	62	1.66	0.786	0.473
Is the consolidation of land reduces additional routes exist?	183	82	52	1.59	0.757	0.476
Is the consolidation of agricultural lands makes use of technology and the use of machinery in the land?	184	81	52	1.58	0.757	0.479
Is the consolidation of agricultural lands, saves water consumption and increase the efficiency of irrigation?	194	70	53	1.56	0.764	0.489
Is the consolidation of agricultural land in the village is an improvement in the employment situation?	168	92	57	1.65	0.767	0.491
Are you aware of the concept of consolidation of land?	199	70	58	1.59	0.781	0.491

1. Strongly Disagree, 2. Disagree, 3. No opinion, 4. Agree, 5. Strongly agree

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Table 3: Level of overall technical knowledge of rice farmers about consolidation of land

Technical knowledge	Frequency	Percent	Cumulative percent
High	188	59.3	59.3
Moderate	83	26.2	85.5
Low	46	14.5	100
Total	317	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=0.651) between level of attitude of rice farmers about consolidation of land and technical knowledge of rice farmers about consolidation of land at the level of 0.01 was significant. Therefore, the null hypothesis is rejected. It means that with 99% of confidence, we can conclude that farmers with high level of attitude of rice farmers about consolidation of land had high technical knowledge.
The results of table 4 showed the correlation (r=0.516) between level of access to information sources and technical knowledge of rice farmers about consolidation of land at the level of 0.01 was significant. Therefore, the null hypothesis is rejected. It means that with 99% of confidence, we can conclude that farmers with high level of access to information sources had high technical knowledge.
The results of table 4 showed the correlation (r=0.331) between tendency to consolidation of land and technical knowledge of rice farmers about consolidation of land at the level of 0.01 was significant. Therefore, the null hypothesis is rejected. It means that with 99% of confidence, we can conclude that farmers with high level of tendency to consolidation of land had high technical knowledge.
The results of table 4 showed the correlation (r=0.369) between level of social participation and technical knowledge of rice farmers about consolidation of land at the level of 0.01 was significant. Therefore, the null hypothesis is rejected. It means that with 99% of confidence, we can conclude that farmers with high level of social participation had high technical knowledge.
The results of table 4 showed the correlation (r=0.189) between level of social trust and technical knowledge of rice farmers about consolidation of land 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 level of social trust had high technical knowledge.
The results of table 4 showed the correlation (r=0.178) between level of social status and technical knowledge of rice farmers about consolidation of land 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 level of social status had high technical knowledge.

Table 4: Relationship between technical knowledge of rice farmers about consolidation of land and independent variables

Independent variable	Dependent variable	r	p
Attitude	technical knowledge of	0.651	0.000
Access to Information Sources	rice farmers about	0.516	0.000
Tendency	consolidation of land	0.331	0.000
Social Participation		0.369	0.000
Social Trust		0.189	0.023
Social Status		0.178	0.031
Income		0.480	0.000
Educational Level		0.473	0.000

The results of table 4 showed the correlation (r=0.480) between level of income and technical knowledge of rice farmers about consolidation of land at the level of 0.01 was significant. Therefore, the null

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hypothesis is rejected. It means that with 99% of confidence, we can conclude that farmers with high level of income had high technical knowledge.

The results of table 4 showed the correlation (r=0.473) between level of education and technical knowledge of rice farmers about consolidation of land at the level of 0.01 was significant. Therefore, the null hypothesis is rejected.

It means that with 99% of confidence, we can conclude that farmers with high level of education had high technical knowledge.

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. Attitude, access to information sources, tendency of rice farmers about consolidation of land, social participation, social trust, social status, income, educational level may well explain for 57.1% changes ($R^2 = 0.571$) in technical knowledge of rice farmers about consolidation of land.

$Y = 6.490 + 0.712x_1 + 0.749x_2 + 0.294x_3 + 0.480x_4 + 0.512x_5 + 0.457x_6 + 0.473x_7 + 0.585x_8$

Table 5: Multivariate regression analysis

Independent variable	B	Beta	T	Sig
Attitude	0.712	0.384	2.639	0.000
Access to Information Sources	0.749	1.450	3.167	0.000
Tendency	0.294	0.982	3.092	0.000
Social Participation	0.480	0.619	2.901	0.000
Social Trust	0.512	0.591	3.619	0.000
Social Status	0.457	0.792	3.781	0.000
Income	0.473	0.712	2.016	0.000
Educational Level	0.585	0.491	3.817	0.000
Constant	9.183	----	2.455	0.000

$R^2 = 0.571$ F=4.872, Sig= 0.000

Conclusion

The results of research showed the correlation between attitude of farmers, access to information sources, tendency of rice farmers about consolidation of land, social participation, social trust, social status, income, educational level and technical knowledge of rice farmers about consolidation of land was significant.

Therefore, we can conclude that farmers with high level of attitude of farmers, access to information sources, tendency of rice farmers about consolidation of land, social participation, social trust, social status, income, educational level had high technical knowledge of rice farmers about consolidation of land.

The result of regression analysis by stepwise method indicated attitude of farmers, access to information sources, tendency of rice farmers about consolidation of land, social participation, social trust, social status, income, educational level may well explain for 57.1% changes ($R^2 = 0.571$) in technical knowledge of rice farmers about consolidation of land. Therefore, to development of the technical knowledge of rice farmers about consolidation of land, considering variables of attitude of farmers, access to information sources, tendency of rice farmers about consolidation of land, social participation, social trust, social status, income, educational level are essential. This should be considered by agricultural managers and planners.

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