Factors Influencing the Sustainability of Wheat Production in Iran, A Case Study: Showt County.

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ABSTRACT: Sustainable utilization of wheat system depends on many factors such as ecological, economic, and social factors which recognition of these factors could play a role in the formulation of policies and strategies for sustainable agriculture. Accordingly, the aim of this study was to investigate the factors affecting the sustainability of wheat cultivation system in the county is Showt. The statistical populations of this survey are the wheat cultivators of Showt County, West Azerbaijan involving 2,000 people. Of this survey population, 179 randomly selected as statistical sample survey and questionnaires were completed by 200 to enhance the reliability of the survey and 170 questionnaires were ascertainable. The sample size was determined based on the Cochran formula. Collection tools were a questionnaire investigating its validity was confirmed by several professors. The population was initially tested in the same region and with the data obtained using a special formula Cronbach alpha using the software SPSS, the reliability of the questionnaire was 84.15 percent, which is acceptable. The results showed that except for the distribution of land, there was a significant positive relationship among all variables and stability of wheat cultivation. The results of analysis of variance showed that 18% of the variance factors affecting the sustainability of cropping system were explained by variable farming, sustainable agricultural knowledge, the impact of class, education and promotion and membership in the cooperative firms. Finally, according to the research results, practical suggestions are provided.

Keywords: Sustainable Agriculture, Agricultural Development, the Cultivation of wheat, Showt County, Iran

INTRODUCTION

Conducted surveys show that too much emphasis on the use of agricultural technology transfer has had adverse consequences on natural resources and the environment. These studies also show that the past performances of all technology diffusion are based on current needs are not coordinated. On the other hand, in response to the mentioned challenges in recent decades, especially in the last years, a new outlook regarding the correct operation, proper and stable base resource is formed. Such an approach based on principles of environmental protection, to understand the complex relationship between the biological characteristics of the communities in which is referred to as sustainable development and covers all the social, economic, cultural, and natural aspects. (Nasiri, 2014). Agriculture is one of the most important sectors in the economy which is influenced by the flow of sustainable development. Human was the lone challenger, in his war with nature, in the form of the Industrial Revolution, and with the indiscriminate use of chemical fertilizers (Small, 2008), chemical pesticides, high yielding varieties with higher water consumption and agricultural expansion into marginal lands (Soltani, 2013), and various other items, has caused destruction in resource, water pollution, environmental degradation, forgotten science and technology, Indigenous and many other social and economic consequences. Because of this the
world, parallel with pursuing sustainable development has given particular attention to sustainable agriculture. In fact, sustainable agriculture is environmental considerations and military interests of various social groups (Ikerd, 1993). In addition, sustainable agriculture has been suggested versus a major problem that exists in conventional farming, and it says that conventional farming is unsustainable. Given current concerns we to provide setup to move towards sustainable agricultural systems. Sustainable system of agriculture is in fact the result of a management strategy that can choose the correct farmer cultivated varieties and varieties, soil fertility, implementation of appropriate methods of tillage; proper placement of plants in sequence to reduce the costs of used factors, to minimize adverse effects on the environment, sustainability can help in producing profit (Karami, 2009). In this regard, it should be noted that the issue of sustainability in agriculture depends on several, ecological, social and economic factors (Kuchaki, Khiabani, 2012).

Further understanding and reciprocal effects of these factors can be important in the stabilization of Farming Systems. Several studies in Iran and the world has been carried out, about economic factors that influence the sustainability of wheat cultivation that some of the most important results are mentioned below. The results of Arabioon and colleagues (2012) as “a measure of the sustainability of wheat cultivation in Fars Province and its influencing factors” showed that 61% of the variance in sustainable farming systems by technical variables, mechanization, and benefit of supportive services, training and promotion and distribution of educational lands were explained. Results of Ammani and Chizari (2013) about the stability analysis of system for wheat growers shows that the level of education, knowledge, knowledge of sustainable agriculture, the amount of cultivated land irrigated and rain fed land, the total land owned, land cultivated in wheat, income, social status, social participation and the amount of utilization of the communication channel have a significant positive relationship with the stability of farming systems. In the village study (2012) stability analysis of corn growers have been considered and the results show that the technical knowledge, product performance, service provided by the Center for Agriculture and farming systems has significant positive correlation with the stability system of the corn growers.

Hayati (2014) has reported a significant relationship among technical variables and variables in sustainable agricultural knowledge and yield of wheat in a unit and has not seen significant relationship between sustainable agricultural knowledge and sustainability of farming systems. Krkeh Abadi (2013) in their study entitled “Factors influencing the adoption of sustainable farming in wheat farmers in Semnan County” came to the conclusion that there is a significant positive relationship among the level of education, the wheat farmers use of green manure, social participation, level of outreach, promotional activities and farmers attitudes towards sustainable agriculture (Heidari, Sareban, 2011). On the other hand, West Azerbaijan province, especially Showt County as a hub for agriculture and wheat production and the special place of various aspects of system utilization and cultivation, and the vast extent of land allocated to wheat production, efforts of the agricultural sector officials to produce more and better products with regard to the sustainability of farming systems, the necessity of attention to the stable condition operation system of the wheat cultivation has of utmost importance. In this regard, the current study sought to examine the social and economic factors affecting the sustainability of wheat production in the County Showt. Thus, this study seeks to answer the question about is there a significant correlation between stability of the wheat cultivation and the social and economic factors?

Materials and Methods

This study is a practical type and descriptive and co relational. The statistical populations of wheat growers that make up this survey in the County of Showt in West Azerbaijan are included 2000 people. Of this population, 179 people were selected with the random sampling method of study in the County Showt as a statistical sample which to enhance the reliability of the survey 200 questionnaires were completed of which 170 questionnaires were ascertainable. The sample size was determined based on the formula of Cochran. Instrument for collecting survey questionnaire has roasted its validity was confirmed by several professors. The population was initially tested in the same region and with the data obtained using a special formula alpha using the software SPSS, the reliability of the questionnaire was 84.15 percent, respectively, which is acceptable. Dependent variable and the independent variables in this study are formed of the stability of wheat farming history, distance from the center of the field of agriculture, wheat level of performance, extent of use of communication channels, sustainable agricultural knowledge, attitude in sustainable agriculture, the impact of promotional and educational classes, the use of agricultural machinery, membership in cooperatives, agricultural systems, mechanization of agriculture, livestock keeping and use of agricultural livestock in relation to wheat. To measure the dependent variable of 20 questions with multiple choice answers, two choices and open answer, was designed according to a dependent variable was
estimated. For data analysis, inferential statistics included Pearson correlation and multiple regressions were used and all data analysis was carried out by the SPSS software.

**Analysis of data**

In order to determine the relationship between the independent and dependent variables, the Pearson correlation coefficient and to study the influence of one or more variables multi variable regression method with stepwise method was used. And as the results of the Pearson correlation coefficients in Table 1 indicate, except the variable distribution of agricultural lands, among all variables of survey there are positive and significant correlation with the stability of wheat cultivation.

<table>
<thead>
<tr>
<th>Variable name</th>
<th>The Coefficient</th>
<th>The significance level</th>
</tr>
</thead>
<tbody>
<tr>
<td>History of Agriculture</td>
<td>0.862</td>
<td>-0.018</td>
</tr>
<tr>
<td>The Farm distance from the center of agricultural services</td>
<td>0.194</td>
<td>0.01</td>
</tr>
<tr>
<td>Wheat level of performance</td>
<td>0.356</td>
<td>0.000</td>
</tr>
<tr>
<td>The use of communication channels</td>
<td>0.502</td>
<td>0.000</td>
</tr>
<tr>
<td>Sustainable agricultural knowledge</td>
<td>0.675</td>
<td>0.025</td>
</tr>
<tr>
<td>Sustainable agricultural attitude</td>
<td>0.526</td>
<td>0.000</td>
</tr>
<tr>
<td>The impact of training promoting classes</td>
<td>0.385</td>
<td>0.000</td>
</tr>
<tr>
<td>Amount of using agricultural machinery and equipment</td>
<td>0.149</td>
<td>0.049</td>
</tr>
<tr>
<td>Age</td>
<td>0.298</td>
<td>0.02</td>
</tr>
<tr>
<td>The cooperative membership</td>
<td>0.354</td>
<td>0.000</td>
</tr>
<tr>
<td>Type of farming system</td>
<td>0.325</td>
<td>0.000</td>
</tr>
<tr>
<td>Agricultural mechanization</td>
<td>0.994</td>
<td>-0.007</td>
</tr>
<tr>
<td>Distribution of agricultural lands</td>
<td>0.089</td>
<td>0.235</td>
</tr>
<tr>
<td>The use of livestock in relation to wheat</td>
<td>0.345</td>
<td>0.000</td>
</tr>
</tbody>
</table>

Source: research findings, 2015.

Furthermore, the results in Table 2 show that in order to investigate the factors affecting the sustainability of wheat cultivation system the stepwise with multiple regressions were used. Four independent variables and the dependent variable (the sustainability of wheat) were significantly correlated with level \( p = 0.05 \). Therefore, four variables were used to predict the dependent variable. It was the first step in the history of agriculture in the equation. Multiple correlation coefficient (R) equal to 0.18 and the coefficient determination equal to 0.053 were obtained ,i.e., 0.035 of the variability of dependent variable is explained by this variable. In the second step the variable of between sustainable agricultural knowledge entered the equation .This variable increased multiple correlation coefficients to 0.32 and the coefficient of determination as much as 0.106 .In the third step, the multiple correlation coefficients are equal to 0.39 and the coefficient determinations equal to 0.15 were obtained, and the net contribution of this variable is 5% .Also, In the fourth model, when the membership in the cooperative entered in the equation, amount of R increases to 0.42 and the amount of \( R^2 \) increases to 0.18% and a increase and the net contribution this variable is 3%.
Conclusion and Recommendations

In this article the factors affecting the sustainability of wheat production in the County of Showt West Azarbaijan of functions has been discussed. And the results showed that except for the variable Dispersion of agricultural lands among all the variables, there is a significant relationship with sustainability of wheat cultivation. The findings of the study (Siddiqui, 2013; AND Maghsoodi et al 2012) are in agreement. Also, the results of research by testing hypotheses, stepwise multiple regression revealed four factors examined in this study were able to explain, respectively, 0.03, 0.10, 0.15 and 0.18 of the variability i.e. stability of wheat cultivation system. These studies are in agreement with (Zoghi, 2010; Karami and Hayati, 2012; Iravani and Darbane Astaneh, 2013, and Mahboubi, 2014) findings. Finally, according to the results of research should be given priority in national and provincial officials, staff, policies and strategies for agricultural sustainability based on social, cultural, economic, ecological and political, can be effective. Finally, according to the results of research the attention of national and provincial officials, should be given to the priority of stability-oriented policies and strategies for agricultural based on social, cultural, economic, ecological and political. In this context, the mass media, education and extension classes, scientific visits and print media appropriate to audience’s ability could be used. The results show that agricultural mechanization has a positive impact on the sustainability of wheat cultivation, hence technology-based strategies, meanwhile improves the level of mechanized utilization of the area which is based on providing briefing training for farmers, mechanization services and funding to improve access and necessary facilities. Obviously, the success of these activities depends on the agricultural sectors serious effort by policymakers and executive. The results show that the distribution of agricultural land has had a negative effect on the sustainability of wheat cultivation. Given that the variable has a negative effect on the level of mechanization, thus adoption of policies based on organization and integration of agricultural lands is necessary. Also, creating collective cooperative cultivation, equipping and modernization of the land, planting plans, and integrated farm management and incentive policies in order to integrated utilization such insurance and group reliability is useful.

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