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DETERMINE THE BARRIERS OF ORGANIC AGRICULTURE IMPLEMENTATION IN JORDAN

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Abstract

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The main purpose of this study was to determine the barriers of organic agriculture implementation in Jordan, by using Likert scale. In this regard, the statistical population of the study was 32 experts of Ministry of Agricultural and the Faculties of Agriculture at university of Jordan and Mu′ta University. The results showed that there was a high cost of producing organic crops regarding economic barriers, while regarding social – cultural barriers there was a poor participation of the farmers. From legal and managing perspective, there was a lack of knowledge of some managers and politicians with organic agriculture. Therefore, financial support to farmer for producing organic crops, and organized and special training workshops on organic agriculture farming is needed.

Key words: barriers, organic agriculture, Likert scale

Introduction

One of the basic needs for people is the requirement of food security. Governments worldwide are trying to meet that needs and to achieve food security by using agricultural production in different ways, but one of the main problems of providing safe food is the world's growing population, the unlimited use of fertilizers, and chemical pesticides used which causing health and environmental problems for communities (Jafari et al., 2007)

Agriculture is essential to human existence and societal development. With worldwide human population growth and economic development, increasing demand for agricultural goods has placed substantial pressures on natural resources; this in turn has caused environmental pollution and ecological degradation (Hosseini and Ajoudani, 2012).

Sustainable agriculture has been the subject of growing interest in Jordan due to the degradation of natural resources for realizing extensive farming (Alzaidi et al., 2013). Traditional agriculture greatly relies on inadvisable pumping of water resources, application of high rates of fertilizers, and pesticides and other chemicals that pose adverse impacts on the ecosystem health and the human life (SPAR, 2012).

According to IFOAM, Organic Agriculture is a production system that sustains the health of soils, ecosystems and people. It depends on ecological processes, biodiversity, and cycles adapted to local conditions, rather than the use of inputs with adverse effects. Organic agriculture combines tradition, innovation and science to benefit the shared environment and promote fair relationships and a good quality of life for all involved. According Hartmann et al. (2012), organic agriculture is a production management system that promotes the sustainability of agricultural ecosystems and ensures the production of safe healthy foods. And the organic agriculture is a new production system which avoids the use of artificial fertilizers, pesticides, growth regulators and livestock feed additives (Stolze and Lampkin, 2009).

Organic agriculture has the potential to solve some of the problems that modern agriculture can provide, also, this type of farming affects acutely on environmental issues of rural communities (Holt and Reed, 2006). Stolze et al. (2000), have studied organic farming and found that it achieves higher biodiversity than conventional agriculture, due to the bans on pesticide, higher habitat heterogeneity and more extensive land use overall. Furthermore, organic farming generally decreases soil erosion, and conserves soil fertility and soil sys-

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tem stability to a higher degree than conventional farming (Samian et al., 2012)

Many researchers have been carried out many studies in Jordan and other parts of the world regarding the importance organic agriculture, and for the ease of understanding, some of them are mentioned below. Abu (2014) have examined the most important social and economic factors affecting farmers decision to implement organic agriculture similar to assessed feasibility studies concerning on orchard trees. Through an organic farmers survey in Jordan, education, land ownership size, and having alternative income appeared to be the most important factors related to the decision making to transfer to organic agriculture. By making studies related to olive, citrus, almonds, grapes and dates, the result of the survey showed that profitability was higher in traditional agriculture than that of the organic agriculture. With the exception of grapes crops which showed net profit amounting to 7390 JD/ ha in organic agriculture vis-à-vis 6610 JD/ hectare in traditional agriculture. The study showed that all crops plants in organic system had financial profitability and the highest IRR were from citrus and almonds amounting to 47.2% and 46.3% respectively.

Samian et al (2012) examined educational, social, and economical barriers of organic agriculture implementation. The results showed that, there was a lack of governmental support regarding economic barriers; while regarding social - cultural barriers, there was a lack of consumption culture of organic products and regarding the political and administrative barriers a lack of clear policies and legislation in the field of organic farming are found and were the main obstacles. Weakness in the education system for the production and consumption of organic products was also among the highest priorities in educational barriers. Education and culturalization in the field of organic agriculture and appointing special organization for this purpose seems to be essential. Also Khaledi et al. (2010) compare the barriers of converting of agriculture to organic agriculture in Canada. The results of the study indicated that farmers lack any conventional information about many areas of organic agriculture. Related institutions to organic agriculture may play an important role in providing useful information for organic farmers. Lack of knowledge and skills to manage an organic farm, and lack of market opportunities for organic products might be the most important barriers for using this type of farming.

Alzaidi et al. (2013) did an investigation into farmers' attitudes towards organic farming in Riyadh region – Kingdom of Saudi Arabia. Their study focused on identifying the relationships of personal, social and economic characteristics of the farmers and their attitudes toward organic farming. A simple random and well-represented sample, consisting of 300 farmers was drawn. The study revealed that the majority of farmers (65.7%) were with positive attitudes; about 34.3% farmers were with neutral or negative attitudes. The average standard deviation for the attitudes of the farmers on Likert Scale was about 0.59 with an average mean of 3.92. The study illustrated a direct positive correlation for the factor, like level of education with the attitudes of the farmers towards organic farming. However, an inverse relationship exists for the parameters like total area of the farm and area being utilized for the agricultural activities and for the attitudes of the farmers towards organic agriculture. The study suggested for the change of the attitudes of the farming community, farm workers and the extension professionals by launching the extension education, training, and capacity building programs for promoting organic agriculture in the Kingdom.

In another article, Souza et al (1993) in their study in West Virginia in America, have examined the factors influencing the adoption of sustainable farming practices. The results of their research indicated that there was a negative significant relationship between the adoption of sustainable farming practices by farmers of West Virginia and with the farmers' age and cooperation. There was a positive significant relationship between the adoption of sustainable farming practices by farmers of West Virginia and the farmers' level of education. Rezvanfa et al (2011) concluded some factors that associated with the adoption of organic agriculture among small farmers in Iran. Findings of the study points out that farmers' attitude was significantly and positively correlated with some of the adoption variables that was prevention of detrimental factors to farms, mechanical-physical control and cultural control. Other findings suggested that farmers' motivation and perceptions about organic farming, social attitude, ecological attitude and participation in extension activities were the main determinants of adoption of organic farming among small farmers.

Radwan et al. (2011) have examined the determinants of the adaption of organic agriculture in Egypt, using a duration analysis technique. Their results suggested that the maximum hazard of adopting organic agriculture takes place during the first few years after the construction of the farm, and manager characteristics such as farmer education level, and risk behavior together with the farm size seem to be the most significant factors affecting the likelihood of organic agriculture adoption in Egypt. These results could be helpful in designing the suitable policies and strategies to support the extension of organic agriculture within Egypt.

According to what was mentioned above, the production of organic agricultural products must be taken seriously, and in order to produce, in terms of both the quantity and the quality, there must be a careful and systematic planning.

Jordan has 28981 Donum of agricultural land (MOA, 2014). Although, organic agriculture is not implemented in production units and it is not highly welcomed among individuals. Therefore, for this reason, in this study barriers and inhibitors of organic agriculture in this province are identified and reviewed.

Despite the great potential and interest in organic agriculture in Jordan, only few studies on organic farming were available. However, studies on the barriers of organic agriculture implementation in Jordan have not been conducted so far. In this situation, it seems imperative to conduct studies on the attitudes of experts. The main purpose of this study was to determine the barriers of organic agriculture implementation in Jordan.

Materials and Methods

This study discusses the barriers of the organic agriculture in Jordan by using Likert scale (5 grade) (Likert, 1932). In this regard, the statistical population of the study was 32 experts of Ministry of Agricultural and Faculties of Agricultural at University of Jordan, and Mu′ta University. The population was selected based on targeted sampling method. In the first phase, some open questions were handed to the respondents, and their opinions about identifying barriers and inhibitors of organic farming in this province These barriers are categorized into four groups: economic, social-cultural, managing, and educational barriers. Then, after prioritizing and identifying these barriers, questionnaires were designed based on the mentioned barriers. The validity of the questionnaire was approved some members of ministry of Agricultural and by the Faculties of Agricultural at University of Jordan and Mu′ta University to estimate reliability. Fifteen questionnaires were distributed out of statistical population, and then the collected data were analyzed by using SPSS software. The Cronbach's alpha coefficient of the questionnaire was more than 0.81 which shows that the questionnaire has high reliability.

Results and Discussion

In Table 1, the descriptive analysis of the demographic characteristics of the respondents showed that the age mean of the respondents is about 49 and the standard deviation was about 9.43 years. Regarding respondents' level of education, the degree of 10 people (19.2%) was Bachelor of Science, and 3 people (5.8%) were Master of Science and 39 people (75%) were PhD. Most of the respondents were male (about 86.5%), and 13.5% of them were female.

As it can be seen in Table 2, regarding the economic barriers, the following items are the main priorities: High costs of producing organic crops (C.V = 0.14), the higher performance of non-organic products than organic ones (C.V = 0.15), and Lack of financial capacity of the farmers and their needs to more products (C.V = 0.16).

The Reason for the high cost of producing organic crops might be the elevated cost of the chemicals, synthetic pesticides. There are some factors contributing to the high price of organic food, such as, higher cost of fertilizer for organic crops, crop rotation, post-harvest handling cost, organic certification and cost of covering higher loss. One the other hand, weak financial capacity of farmers was referred to the absence of a specific market for organic products, and the presence of brokers whom share profits with those farmers.

Table 3 emphases the social – cultural barriers and showed that the following items were the main priorities: Weak par-

Table 1
Frequency distribution of respondents according to demographic characteristics

Variable	Levels of variable	Frequency	Percentage, %	Mean	SD
Age	Age	52	100	49	9.43
Level of Education	BS	10	19.2		
	MS	3	5.8		
	PhD	39	75.0		
	Total	52	100		
Gender	Male	45	86.5		
	Female	7	13.5		
	Total	52	100		
Experience	Less than 5 years	8	15.4		
	More than 5 years	44	84.6		
	Total	52	100		

ticipation of farmers (C.V = 0.11). The farmers' consideration of the quantity rather than the quality and more inappropriate appearance of organic products (C.V = 0.16), lack of necessity to produce organic products (C.V = 0.17).

The farmers' weak participation in organic farming system can be traced to the little use of organic agriculture law and the weak marketing system that is being used in Jordanian agricultural markets. In addition, farmers found a difficulty for obtaining quality certificate for organic products, and government did not providing financial incentives for them.

Moreover, the lack of producing organic products can be attributed, from experts point of view, to the nature of Jordanian society in terms to the low monthly income of the consumers and their inability to buy organic products that has higher price compared to the normal product.

The results in Table 4 suggests that the following items were the main priorities regarding political and managing barriers; Lack of knowledge of some of the managers and politicians with organic agriculture (C.V= 0.11), Lack of adequate coordination between policy departments and exten-

Table 2
Prioritizing economic barriers to the implementation of organic agriculture

No	Economic barriers	Mean	SD	CV	Priority
1	Low governmental supports (loans and bank credits)	4.00	0.74	0.19	5
2	The higher performance of non-organic products than organic ones	4.26	0.62	0.15	2
3	Lack of financial capacity of the farmers and their needs to more products	4.15	0.66	0.16	3
4	Organic products in the market are unfavorable	4.01	0.89	0.22	4
5	Increase in unemployment and migration due to organic cropping	3.40	0.74	0.22	6
6	Not-providing proper tools and infrastructure for organic agriculture	3.75	0.76	0.20	7
7	High costs of producing organic crops	4.44	0.63	0.14	1

Table 3
Prioritizing social - cultural barriers of the implementation of organic agriculture

Social - cultural barriers	Mean	SD	CV	Priority
Lack of consumer awareness of organic products	4.09	0.74	0.18	4
The farmers' consideration of the quantity rather than the quality	3.94	0.63	0.16	6
Uncertainty over higher quality of organic products	3.82	0.90	0.24	7
Lack of necessity to produce organic products	4.15	0.72	0.17	2
Lack of necessity to consume organic products	4.03	0.68	0.17	5
More inappropriate appearance of organic products	4.11	0.64	0.16	3
Weak participation of farmers	4.50	0.50	0.11	1
Difficult to be understood agricultural technology by farmers	3.57	0.49	0.18	8

Table 4
Prioritizing legal and managing barriers of the implementation of organic agriculture

Legal and Managing barriers	Mean	SD	CV	Priority
Weak of determined policy and legislation in the field of organic agriculture	3.78	0.84	0.22	6
Weak of specific sponsorship in Agriculture Departments for organic agriculture	4.00	0.76	0.19	5
The absence of proper planning	4.03	0.73	0.18	4
Lack of knowledge of some of the managers and politicians with organic agriculture	4.40	0.49	0.11	1
Lack of adequate coordination between policy Departments and extension centers	4.13	0.62	0.15	3
The existence of some annoying rules	4.34	0.68	0.16	2

Table 5
Prioritizing educational barriers of the implementation of organic agriculture

Educational barriers	Mean	SD	CV	Priority
Weaknesses of the schools and educational books to distribute the culture and awareness in the production and consumption of organic products	4.17	0.75	0.18	5
The farmers' limited environmental knowledge	4.01	0.67	0.17	7
Weaknesses of media for extending the culture of using organic products	4.09	0.66	0.16	6
Weakness of extensional system in informing farmers about organic agriculture	4.25	0.68	0.16	4
Limited awareness about organic products	4.26	0.62	0.15	3
Weak of knowledge about the hazards of pesticides and chemicals	4.27	0.52	0.12	2
The low level of education in the community	4.32	0.47	0.11	1

sion centers (C.V= 0.15) and the existence of some annoying rules C.V= 0.16).

The weakness of knowledge managers and politicians had towards organic farming was mainly referred to the lack of real and actual knowledge and experience in this type of farming. The number of organic farms in Jordan was found to be 54 ranches which is a small number when compared to the world in general. Moreover, some aspects regarding organic farming couldn't be fulfilled by farmers such as the lack to a success reform of agricultural policies because of the poor infrastructure for transportation, warehousing and manufacturing. Also, the lack of having quality standards and specifications, weak competitiveness of Arab agricultural products, and the low number of specialists found in agricultural marketing.

Table 5 shows that regarding the educational barriers, the following items were the main priorities: The low level of education in the community (C.V= 0.11), weak of knowledge about the hazards of pesticides and chemicals (C.V= 0.12), Limited awareness about organic products (C.V= 0.15).

A study by Qtaishat and Ali (2012) indicated that the reason behind organic farming falling back in Jordan was the low level of education for farmers (less than high school), most farmers are old and received a basic education. Moreover, the weakness of farmers' knowledge to the dangers of pesticides and chemical fertilizers referred to the low number of workshops and courses offered by agricultural counselors to them.

Conclusion

In the economic barriers, some priorities has been identified such as, high costs of producing organic crops, the lower performance of organic products than non-organic ones, and financial weaknesses of the farmers and their needs to more products.

In social – cultural barriers, the priorities were poor participation of the farmers, the farmers' consideration of the quantity rather than the quality and more inappropriate appearance of organic products, lack of necessity to produce organic products and Lack of necessity to produce organic products.

Lack of knowledge of some of the managers and politicians with organic agriculture, lack of adequate coordination between policy organizations and extension centers and, the existence of some troublesome rules were found in the legal and managing factors.

At educational factors; low level of education in the community, lack of knowledge about the hazards of pesticides and chemicals, and limited awareness about organic products were the major barriers.

Recommendations

Regarding the importance of organic agriculture and in order to removing the barriers; the following actions are recommended:

- Providing a financial support for farmer to produce organic crops.
- Inclusion organic agriculture in education curriculum.
- Creating an organization or a specific center in the community or agriculture departments which are responsible for this mode of production.
- Organize special training workshops on organic agriculture and farming for farmer.

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