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Organic Farming: From Perspective of the Students at Al -Balqa Applied University at Amman Governorate

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Abstract

Organic farming is a collection of agricultural practices that excludes the use of synthetic inputs in food production system. In Jordan, there are 54 farms adopting organic farming. Several studies had researched the status of organic farming in Jordan from farmers and experts of Ministry of Agriculture perspective. So, our study aimed to investigate organic farming from the perspective of students at Al- Balqa Applied University, where (250) students were interviewed and given a questionnaire consisted of questions about organic farming. The obtained data revealed that, most of students in the study have moderate knowledge about organic farming (3.1±0.82), while they see that organic farming is of great importance (4.2±0.61). Data also showed that, health reasons have highly motivated students' knowledge about organic farming (4.1±0.64). Moreover, students approved highly the environmental benefits of organic farming and considered that organic farming maintains natural balance to nearly a very high extent (4.7±0.78). Also obtained results for students answers showed that, they see that organic farming can maintain nutritional value of food nearly to a very high extent (4.8±0.68). Meanwhile, most of the students see that organic farming affect economy moderately. On the other hand, students find that the strong competition of conventionally produced agricultural products and high prices of organic farming products are the most threating constrains for organic farming, while conducting training workshops for farmers about organic agriculture in addition to providing financial and moral support to the farmers were the best solutions to improve of organic farming in Jordan.

Key words: Al- Balqa Applied University, Jordan, Organic farming, Students.

1. Introduction

Organic farming was defined as the integration of sustainable agricultural production systems including human, environment and economy in a way that guarantees a good quality of crop, livestock and human nutrition, proper protection from pests and disease in addition to a reasonable return to the human (Lampkin 1994; Boulay 2010). According to USDA, organic farming is defined as a production system where synthetic compounds like pesticides, fertilizers and hormones are totally avoided or excluded, while other synthetic free measures such as, crop rotations, crop residues and animal manures are applied for plant nutrition and protection (Meena et al., 2013). Moreover, FAO described organic farming as a process where a production management system which promotes agricultural production and enhances the welfare of agro-ecosystem health is applied on farm using agronomic, biological and mechanical approaches where synthetic off-farm inputs are excluded (Meena et al., 2013).
There are many useful outcomes of organic farming, as it promotes environment sustainability, retains food quality, minimizes the adverse environmental impact of agriculture, induces food security as well as, social welfare (Ullah et al, 2015; Pacifico and Paris, 2016; Eneizan. 2017).

People start practicing organic farming first in Europe in the beginning of the twentieth century fallowed by the United States Kuepper (2010). Recently, records revealed that 1.8 million farmers are practicing organic farming in 162 different countries over land area of 37 million hectares (Eneizan. 2017). The latest survey conducted by USDA about the status of certified organic farming in 2016 reported 11 to 14% increase in number of organic farms in the USA , while farms sales of organic products reaches $7.6 billion which reflects a great demands on such products (USDA, 2017).
In Jordan, agriculture is mostly conventional where synthetic inputs are extensively applied (Eneizan. 2017). This has put most of agriculture production resources under serious jeopardy due to pollution of soil, air and water resources. However, despite of the dominancy of the conventional agricultural system in Jordan, organic farming has found its way to this country, where 54 farms have adopted this production system (Eneizan. 2017). Meanwhile, lack of farmers proper knowledge about organic farming was one of the main constrains that prevent Jordanian farmers from adopting organic farming (Al-Oun et al., 2008; Al-Tarawneh, 2016; Eneizan. 2017).

Several studies had researched the status of organic farming in Jordan from farmers and experts of Ministry of Agriculture point of view (Al-Oun et al., 2008; Al-Tarawneh, 2016; Eneizan. 2017). Meanwhile, no previous studies were conducted on organic farming from the prospective of Jordanian universities students. So, the aim of this study was to investigate organic farming from the prospective of students from two university colleges belonging to Al- Balqa Applied University at Amman Governorate in terms of general knowledge, environmental, nutritional and economic benefits of organic farming, in addition to obstacles that encounter such production system and solutions that might improve organic farming in Jordan from their point of view.

2. Materials and Methods

The sample of the study was an appropriate random sample of (250) students studying different majors at Princess Alia and Amman University Colleges belonging to Al- Balqa Applied University, Amman, where students were interviewed and given a questionnaire consisted of questions about organic farming.
The degree of student approval to the paragraphs included in the questionnaire was estimated as follows: 1 = non, 2 = limited, 3 = moderate, 4 = excellent, 5 = very excellent.

2.1 The Study Questionnaire

The study questionnaire was distributed to a sample of students from Princess Alia and Amman University Colleges - Al-Balqa Applied University, Amman. The questionnaire consisted of paragraphs covering the following domains:
1- Student's general knowledge about organic farming.

2- Environmental benefits of organic farming.

3- Nutritional benefits of organic farming.

4- Economic benefits of organic farming.

5- Constrains that encounter organic farming in Jordan.

6- Solutions that might contribute to the improvement of organic farming in Jordan.

2.2 Reliability of the study tool

Reliability of the study tool was confirmed using Cronbach's reliability test where reliability degree was (0.85).

2.3 Fields of study

1- The spatial field: The members of the study are students from the governorate of Amman studying at Princess Alia and Amman University Colleges - Al-Balqa Applied University, Amman Jordan.
2- Human Field: 250 students from Princess Alia and Amman University Colleges - Al-Balqa Applied University), Amman, Jordan.
3. Age range: Students aged 18 years and above.
4. Time domain: The study was conducted between 1/4/2017 and 15/11/2017.

2.4 Statistical analysis:

Data were analyzed according to SPSS, where means of students answers were extracted and standard deviations (SD) were determined.

3. Results and Discussions

3.1 The extent of student's general knowledge about organic farming

According to students' responses to the questions in this part of the questioner, it was found that their level of knowledge about organic farming was moderate (3.1±0.82). Moreover, data showed that most of students in the study sample see that organic farming is of great importance (4.2±0.61) (Table 1) and health reasons have highly motivated their knowledge about organic farming (4.1±0.64) (Table 1). Health was repeatedly described as the the primary motive for consumers to by organic food products (Bordeleau et al 2002; Sirieix et al 2007). Meanwhile, our results showed that the students in the sample use the internet highly for seeking information about organic farming (4.3±0.56), while they use university library limitedly (2.3±0.49) for such information (Table 1). Using internet as a source of information by the students in the study sample instead of university library might be due to ease of access and availability of information. On the other hand, our results indicated that, the extent to which local media provide knowledge about organic farming is limited (2.1±0.37).
Moreover, student in our study described their knowledge about the benefits of organic farming as moderate

(3.4±0.72), while their information about the terms and conditions of organic farming is limited (Table 1). In other related studies, consumers were found to be unaware of the beneficial outcomes of organic farming (Hughner et al., 2007; Boulay, 2010). Meanwhile, most of students of our study have no information about organic farming in Jordan (1.4 ±0.31).

Table 1: The extent of student's approval on the paragraphs about general knowledge about organic farming

Number	Paragraph	Mean	SD
1	The level of your knowledge about organic farming is	3.1	0.82
	The extent you think that organic farming is important	4.2	0.61
2	Your knowledge about organic farming are for health reasons	4.1	0.64
3	The extent to which you use the Internet to obtain knowledge about organic farming is	4.3	0.56
5	The extent to which you use the is university library to obtain knowledge about organic farming is	2.3	0.49
6	The extent to which local media provide knowledge about organic farming is	2.1	0.37
7	Your knowledge about the benefits of organic farming is	3.4	0.72
8	Your knowledge about organic farming terms and conditions is	2.2	0.16
9	Your knowledge about organic farming in Jordan is	1.4	0.31

The degree of students approval of the paragraphs included in the questionnaire was estimated as follows: 1 = none, 2 = limited, 3 = moderate, 4 = high, 5 = very high

3.2 The extent of student's approval on the paragraphs about the environmental benefits of organic farming

Obtained data revealed that, students in the study sample see that organic farming have great positive impacts on environment, as the see that it improves soil quality, and prevents pollution of soil, air and water resources to a high extent (Table 2). Moreover, the students reported that organic farming can maintain natural balance to nearly very high extent (4.7±0.78) (Table 2). Organic agriculture was reported to maintain health of soil, plant, animal, human as healthy crops usually come from healthy soils which will be directly reflected on health of animals and people (Meena et al, 2013). Moreover, one of the major environmental goods of organic farming measures is minimizing the adverse environmental impacts of agriculture on food chain and to conserve the natural essence of food (Pacifico and Paris, 2016; Eneizan, 2017).

Table 2: The extent of student's approval on the paragraphs about the environmental benefits of organic farming

Number	Paragraph	Mean	SD
1	The extent to which organic farming can maintain or improve soil quality is	4.2	0.32
2	The extent to which organic farming can prevent soil pollution is	4.4	0.64
3	The extent to which organic farming can prevent air pollution is	4.3	0.61
4	The extent to which organic farming can maintain beneficial soil microorganisms	4.1	0.43
5	The extent to which organic farming can prevent pollution of water resources is	4.4	0.52
6	The extent to which organic farming can maintain natural balance	4.7	0.78

The degree of students approval of the paragraphs included in the questionnaire was estimated as follows: 1 = none, 2 = limited, 3 = moderate, 4 = high, 5 = very high

3.3 The extent of student's approval on the paragraphs about nutritional benefits of organic farming

The obtained results for students answers showed that, they consider that organic farming has many nutritional benefits, as they see that organic farming can maintain nutritional value of plant and animal products and prevent pollution of food products to nearly a very high extent (4.8, 4.6, 4.8) (Table 3). Similarly, students see that

organic farming can reduce diseases caused by food chain and enhance food security in terms of enabling individuals to access healthy food to a very high extent as well (4.9, 4.8) (Table 3). Organic food has attracted the attention of the consumers due to the high quality, healthy and natural essence of the products compared to conventionally produced food (Boulay, 2010). Many studies have proved the superior nutritional benefits of food products of organic farming. For example,

It was found that organic dairy contain 10-60 % more healthy fatty acids thant hose found in conventionally produced products (Butler et al., 2008, Meena et al., 2013), while organic crops possessed (5-90%) more vitamin C ranges than conventionally produced ones (Huber and Vijver, 2009). Also, a decline in growth of cancer cells was reported when grown in organic strawberries extracts (Olsson et al., 2006 Meena et al., 2013).

Table 3: The extent of student's approval on the paragraphs about the nutritional benefits of organic farming

Number	Paragraph	Mean	SD
1	The extent to which organic agriculture can maintain the nutritional value of plant products	4.8	0.68
2	The extent to which organic agriculture can maintain the nutritional value of animal products	4.6	0.49
3	The extent to which organic farming can prevent pollution of food products is	4.8	0.66
4	The extent to which organic farming can reduce diseases caused by food chain	4.9	0.83
5	The extent to which organic agriculture can enhance food security in terms of enabling individuals to access healthy food	4.8	0.56

The degree of students approval of the paragraphs included in the questionnaire was estimated as follows: 1 = none, 2 = limited, 3 = moderate, 4 = high, 5 = very high

3.4 The extent of student's approval on the paragraphs about the economic benefits of organic farming

Means of student's answers showed that, they recognize that organic farming has beneficial impacts on economy, but most of the students evaluate these benefits as moderate in their point of view (Table 4). Organic farming systems was reported to use lower inputs and labor requirements compared to conventional agriculture (National Research Council, 2010, Munasib and Jordan, 2011)). Meanwhile, most of students in the sample see that organic agriculture introduce limitedly job vacancies for the unemployed (2.3±0.35) (Table 4)

Table 4: The extent of student's approval on the paragraphs about the economic benefits of organic farming

Number	Paragraph	Mean	SD
1	The extent to which organic agriculture can improve farmers income	3.3	0.47
2	The extent to which organic agriculture can allow production of new and competitive agricultural products to the market	3.1	0.92
3	The extent to which organic agriculture can participate in finding new market for the farmers products	3.2	0.56
4	The extent to which organic agriculture can introduce job vacancies for the unemployed	2.3	0.35
5	The extent to which organic agriculture can reduce production cost	3.6	0.72
6	The extent to which organic agriculture can improve national income	3.2	0.81

The degree of students approval of the paragraphs included in the questionnaire was estimated as follows: 1 = none, 2 = limited, 3 = moderate, 4 = high, 5 = very high

3.5 Constrains that encounter organic farming in Jordan

Answers of the students in the study sample revealed that, the suggested constrains included in the questionnaire were estimated to influence organic adversely from high to nearly very high extent (Table 5). However, the most threating constrains facing organic agriculture from students point of view were the strong competition of conventionally produced agricultural products and high prices of organic farming products, respectively (Table 5). This agrees with Al- Tarawneh , 2016) who reported high prices as the main barrier facing organic agriculture in Jordan from the prospective of experts of Ministry of Agricultural in addition to academics from

the Faculties of Agriculture from university of Jordan and Mu′ta University. Moreover, the lack of knowledge about organic farming came in the second place (4.8±0.36) as a barrier to organic farming in Jordan according to the students of our study (Table 5), which agrees with (Briz and Ward 2009) study on consumer awareness of organic products in Spain.

Table 5: The extent of student's approval on the paragraphs about constrains that encounter organic farming in Jordan

Number	Paragraph	Mean	SD
1	Lack of knowledge about organic farming	4.8	0.36
2	Lack of proper training	4.7	0.31
3	Lack of financial support for organic agriculture farmers	4.2	0.53
4	Strong competition of conventionally produced agricultural products	4.9	0.37
5	High prices of organic farming products	4.9	0.49
6	Lack of markets specialized in organic agriculture products	4.3	0.71
7	Lack of sufficient publicity for consumers about organic farming products	4.2	0.64
8	Undesired formal defects of horticultural products of organic farming	4.4	0.53
9	Consumers are not convinced with such products	4.6	0.61

The degree of students approval of the paragraphs included in the questionnaire was estimated as follows: 1 = none, 2 = limited, 3 = moderate, 4 = high, 5 = very high

3.6 Solutions that might contribute to the improvement of organic farming

Students evaluation for the suggested solutions that might improve of organic farming ranged from moderate to very high (Table 6). Conducting training workshops for farmers about organic agriculture in addition to providing financial and moral support to farmers who are practicing organic farming were found to be the best options to improve of organic farming in Jordan (Table 6). This agrees with (Munasib and Jordan , 2011) findings in their study in Georgia State rural areas (USA), where they reported that adopting policies promoting organic agricultural practices would promote social engagement in sustainable agricultural practices including organic farming. In another study, AL- Oun et al. (2008) have proposed an action plan for improving the sector of organic farming in Jordan , where they suggested developing new governmental policies to establish sustainable organic farming systems in Jordan.

Table 6: The extent of student's approval on the paragraphs about solutions that might contribute to the improvement of organic farming in Jordan

Number	Paragraph	Mean	SD
1	Introducing elective courses for students from all majors in universities and schools on organic agriculture	4.1	0.42
2	Conducting training workshops for farmers about organic agriculture	4.9	0.73
3	Providing financial and moral support to farmers who practice organic farming	4.9	0.69
4	Activating the role of the media to improve citizens awareness about organic agriculture	4.3	0.51
5	Encourage unemployed youth to practice organic farming to obtain a good source of income	3.6	0.21
6	Creating specialized markets for organic farming products	4.4	0.82

The degree of students approval of the paragraphs included in the questionnaire was estimated as follows: 1 = none, 2 = limited, 3 = moderate, 4 = high, 5 = very high

4. Conclusions

Our results indicated that the student who responded to our questioner have a moderate general knowledge about organic farming. Also, our data revealed that students of our study sample see that organic farming offers environmental and nutritional benefits to a high extent, in addition to moderate economic benefits. However, the strong competition of conventionally produced agricultural products and high prices of organic farming products were the strongest contains facing organic farming in Jordan from students point of view. On the other hand, the students see that conducting training workshops for farmers about organic agriculture in addition to providing

them with financial and moral support were the best options to improve of organic farming in Jordan.

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