

WHAT ARE THE BARRIERS TO THE DEVELOPMENT OF ORGANIC FARMING?

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Abstract

The main purpose of this study was to investigate the main barriers to development of organic farming system in Kermanshah Province, Iran. Statistical population in this study consisted of all farmers in Kermanshah province, Iran. Applying stratified random sampling method, 137 farmers were selected as a sample. The main instrument in this study was questionnaire which its validity was confirmed by the panel of experts and its reliability was established by Cronbach's Alpha coefficient. Data was analyzed by SPSSWin16 software. Principal component analysis was used as main statistical technique to analyze the data. The results of factor analysis revealed that 4 factors including "Infrastructural", "technical-managerial", "economic-financial" and "educational" explained 42.36 percent of the variance. Results of this study have applications for agriculture development policy-makers for development of organic farming in Iran.

Key words: Iran, organic farming, sustainable agriculture, sustainable development

INTRODUCTION

Rapid development of science and new technologies such as genetic engineering and biotechnology, high yielding crop varieties and indiscriminate use of chemical fertilizers and pesticides have substantially increased agricultural productions and many developed and developing countries overcome the problem of food production, but this increase in production has always been incurred by many environmental problems such as pollution of soil and water resources, occurrence of new pests and plant diseases and malnutrition and disease due to reducing quality of the food production [1]. Today, all these factors lead to consider environmental conservation and food health and security as important challenges and international communities seek appropriate strategies to solve these problems and achieve sustainable agricultural systems [2]. As an innovative approach versus conventional farming system, organic farming system is an important strategy [3], and increasingly being accepted

in many countries and different international organizations throughout the world. In other words, due to environmental and human health considerations, different countries are even more interested to organic farming and consumption of organic products [4]. In this regard, many experts believe that organic farming is a new paradigm [5, 6, 7, 8 & 9] to deal with the destructive effects of conventional farming system.

Organic farming is one of sustainable farming systems based on minimal use of external and expensive inputs of chemical fertilizers and pesticides [10]. In other words, organic farming is a modern and scientific approach to conventional agriculture [11]. Many practices applied in organic farming, such as minimum tillage, use of nitrogen-fixing plants, take agricultural residues back into the soil and use of cover crops that increase the carbon back into the soil and its storage and conservation [12]. Despite the benefits of organic farming systems, extant evidence suggests that during the years 1950 to 1996 fertilizers consumption worldwide has been increased to more than

two times [13]. In Iran country, about 4.1 million tons chemical fertilizers and pesticides have been distributed among farmers in the years 2004-2005 [14].

In this regard, different studies show that the development of organic farming have been faced by many problems, such as lack of knowledge and skill to manage an organic farm, lack of market opportunities for organic products and lack of positive attitude toward organic farming [15], low income of farmers, lack of extension education and lack of market opportunities and required inputs [16], lack of confidence in the production process of organic yields, lack of market information, production problems and lack of information about organic production [17], lack of information and experience on organic productions and their markets [18], and little knowledge of farmers, their limited motivation to learn more about organic farming [19, 20]. Hence, with the importance of organic farming and global developments in this area, the development of organic farming systems is necessary. For the same purpose, Kermanshah Province, with having good privileges of the agricultural development, can play a significant role in the economic development of Iran as an important hub for future agriculture. An essential strategy for development of sustainable agriculture in Iran can be formulated sound platforms for agricultural development in this Province [21]. As a result; the development of organic agriculture among farmers in Kermanshah Province should be placed as top priority in the programs of agricultural development. But as mentioned earlier, despite many benefits of organic farming systems, extant evidence suggests the lack of development of organic farming among farmers in developing countries, like Iran. Accordingly, the present study aimed to assess barriers to the development of organic farming system from the perspective of farmers in Kermanshah Province, Iran.

MATERIALS AND METHODS

The present study was carried out in Kermanshah province, Iran to identify main

Barriers to development of organic farming from the viewpoints of Farmers. Using Cochran's sampling formula, 137 farmers were selected as a sample. Respondents were selected by using Stratified random sampling method. The data were collected through a structured questionnaire. Validity of the questionnaire was assessed through panel of expert in department of agricultural extension and education faculty members. Reliability of the main scales of the questionnaire was also computed by Cronbach's Alpha method. The coefficient of Cranbach's was equal to 0.86 which was appropriate for the study. Factor analysis was applied as main statistical technique to analyze the data.

RESULTS AND DISCUSSIONS

In this study exploratory factor analysis (EFA) with data reduction approach was employed. The main objective of this technique is to classify a large number of variables into a small number of factors based on relationships among variables. For this purpose 18 variables were selected for the analysis. To determine the appropriateness of data and measure the homogeneity of variables on organic farming system barriers from the viewpoints of farmers, the Kaiser-Meyer-Olkin (KMO) and Bartlett's test measures were applied. These statistics show the extent to which the indicators of a construct belong to each other.

Table 1. KOM measure and Bartlett's test to assess appropriateness of data for factor analysis

	Bartlett's test	
KMO	Approx. chi-square	Sig.
0.856	3945.8184	0.000

KMO and Bartlett's test obtained for these variables show that the data are appropriate for factor analysis as indicated in Table (1).

In present study, the total variables were significantly loaded into four factors. These factors explained 42.36 percent of total variance of components of organic farming system barriers. However, the Kaiser criterion was utilized to arrive at a specific number of factors to extract. Based on this criterion, only

factors with eigenvalues greater than one were retained. Accordingly, four factors with eigenvalues over one were extracted. The eigenvalues and percentage of variance explained by each factor are shown in Table (2).

Table 2: Number of extracted factors, eigenvalue and variances explained by each factor

Factors	Eigenvalue	% of variance	Cumulative % of variance
1	4.08	11.67	11.67
2	3.89	11.14	22.81
3	3.46	9.88	32.69
4	3.38	9.67	42.36

Eigenvalues drive the variances explained by each factor. Sum of squares of factor's loadings (eigenvalue) indicates the relative importance of each factor in accounting for the variance associated with the set of variables being analyzed. According to Table (2) eigenvalues for factor 1 through 4 are 4.08, 3.89, 3.46 and 3.38, respectively.

The percentage of trace (variance explained by each of the four factors) is also shown in Table (2). The traces for factor 1 through 4 are 11.67, 11.14, 9.88 and 9.67, respectively. The total percentage of the trace indicates how well a particular factor solution accounts for what all the variables together represent. This index for the present solution shows that 42.36 percent of the total variance is represented by the variables contained in the factor matrix. The VARIMAX rotated factor analysis is shown in table 3. In determining factors lodgings greater than 0.50 were considered as to be significant. As anticipated, the first factor accounts for 11.67 percent of variance and 4 variables were loaded significantly. These variables were presented in table 3. A relevant name for this on loading's pattern is "Infrastructural barriers". Eigen value of this factor is 4.08, which is placed at the first priority among the barriers of organic farming system in Kermanshah province, Iran. The second factor is associated mostly with the variables related to technical-managerial barriers. Thus this factor can be named as "technical-managerial barriers". The Eigen value for this factor is 3.89 which

explain 11.14 percent of the total variance (table 3).

Table 3: Variables loaded in the factors using VARIMAX rotated factor analysis

Name of factor	Variables loaded in the factor	Factor loadings
Infrastructural barriers	Lack of adequate market for the sale	0.816
	Lack of storage Location	0.841
	Lack of equipment needed to transport	0.839
	Lack of government support	0.794
technical-managerial barriers	Low awareness level about managerial skills	0.657
	Weed control problems	0.511
	Disease and pest control problems	0.726
	Skilled Manpower Shortage	0.661
economic-financial barriers	Reduce production	0.633
	Lack of financial capital	0.705
	Loss of income	0.671
	Low prices for organic products	0.694
educational barriers	Far distance of plots from education services	0.719
	Low coverage of extension education programs	0.536
	Low awareness level about organic farming	0.712
	Lack of extensional magazines	0.634
	Low access to agricultural extension experts	0.517
	Illiterate farmers	0.575

The name assigned to the third factor is "economic- financial barriers". This factor with eigenvalue of 3.46 explains 9.88 percent of total variance of Barriers to development of organic farming (table 3). The fourth factor contains 6 variables relating to "educational barriers". This factor with eigenvalue of 3.38 explains 9.68 percent of total variance (table 3).

CONCLUSIONS

Due to environmental problems of conventional agriculture in many countries, most agricultural policy makers are considered organic farming system as a new approach of environmental protection to achieve food security and sustainable agricultural development. In this regard, extant evidence suggests that in many countries, especially in developing countries, the adoption of organic farming has been limited. Accordingly, in the first stage, it is essential to identify barriers to the development of organic farming systems from the perspective of farmers. Therefore, the

present study was conducted to examine barriers concerning the development of organic farming system in Kermanshah Province, yielded following results:

Findings showed that the main obstacle to the development of organic farming is infrastructure issues. Therefore, it is necessary that agricultural policy makers consider infrastructure problems such as establishment of appropriate market for the sale of organic products, convenient place to store these products and support organic producers to grow organic crops to make possible the development of organic farming in Kermanshah Province. Technical and management barriers are another obstacle faced by farmers to grow organic products. This means that farmers have not the necessary technical and managerial skills in the field of organic farming system. Thus, it is essential that farmers should be equipped with the technical and managerial skills in order to developing organic farming systems in Kermanshah Province. The third obstacle faced by the farmers in the field of producing organic crops is economic- financial barriers. This means that farmers can't afford the financial and economic issues related to produce these organic crops. As a result, supporting farmers in the fields of finance and economics can facilitate the development of organic farming systems in Kermanshah Province. The last obstacle to the development of organic farming is training issues. In this case, farmers have not the suitable knowledge about organic farming systems. Moreover, as related to training issues, there are not necessary experts knowledgeable to the field of organic farming. Hence, to tackle these training issues of the development of organic farming in Kermanshah Province, agricultural development's policy makers should take measures to set up training- extension sessions.

REFERENCES

[1]Kiyani, G.H., Liyaghati, H., 2007, Analysis of economic conditions current agricultural conversion to

organic farming by using dynamic linear programming model. 2th National Congress of Ecological agriculture, Gorgan, Iran.

[2]Mafi, H., 2008, Organic Farming. Available at: www.crop.blogeky.com

[3]King, D., Ilbery, B., 2012, Farmers' attitudes towards organic and conventional agriculture: a behavioural perspective. *Organic Food and Agriculture - New Trends and Developments in the Social Sciences*, Dr Matthew Reed (Ed.), ISBN: 978-953-307-764-2, In Tech, Available from: <http://www.intechopen.com/books/organic-food-and-agriculture-new-trends-and-developments-in-the-socialsciences/farmers-attitudes-towards-organic-and-conventional-agriculture-a-behavioural-perspective>.

[4]Grossman, M., 1972, On the concept of health capital and the demand for health. *Journal of Political Economy*, 80 (2): 223-255.

[5]Dimara, E., Petrou A., Skuras, D., 2003, The socio-economics of niche market creation: A social ecology paradigm for the adoption of organic cultivation in Greece. *International Journal of Social Economics*, 30 (3): 219-235.

[6]Abaidoo, S., Dickinson, H., 2002, Alternative and conventional agricultural paradigms: Evidence from farming in southwest Saskatchewan. *Rural Sociology*, 67 (1): 114-131.

[7]Wynen, E., 1996, Research implications of a paradigm shift in agriculture: the case of organic farming. *Resource and Environmental Studies*, No. 12, Centre for Resource and Environmental Studies, ANU.

[8]Beus, C., Dunlap, R.E., 1990, Conventional versus alternative agriculture: the paradigmatic roots of the debate. *Rural Sociology*, 55 (4): 590-616.

[9]Dahlberg, K.A., 1986, *New Directions for Agriculture and Agricultural Research: Neglected Dimensions and Emerging Alternatives*. Rowman & Allanheld Publishers, New Jersey.

[10]Ramesh, P., Singh, M., Subba Rao, A., 2005, Organic farming: Its relevance to the Indian context. *Current Science*, 88: 561-568.

[11]Abdollahi, S., 2008, Study of Perspective of development of organic forming. *Planning and Agricultural Economics Research Institute*, No. 51, pp. 24-35.

[12]Chaghmaghi Yazdi, M., Moradi, A., 2007, Organic Farming, way of Human salvation. Available at: <http://plantdiseases.blogfa.com/cat-91.aspx>

[13]Akbari, M., Asadi, A., 2005, Some of the modern agriculture in soil and environments. *Proceedings of soil, Karaj*.

[14]Babaakbari, M., Movahedian, M., 2006, Improvement fertilizer consumption with regard to country budget laws. *Proceedings of the 10th soil science in Iran, Karaj*.

[15] Khaledi, M., Gray, R. Weseen, S., Sawyer, E., 2007, Assessing the barriers to conversion to organic farming: an institutional analysis. Submitted to: *Advancing Canadian Agriculture and Agri-Food Saskatchewan (ACAAFS)*.

- [16]Salazar, R. C., 2005, Social and institutional opportunities and constraints of organic agriculture in the Philipines. Stuttgat-Hohenheim, October 11-13.
- [17] Sterrett, S, Groover, G. E, Taylor, D. B, Mundy, K., 2005, Describing Organic Agriculture Production in Virginia Results of the 2004 Farm Survey Virginia's Rural Economic Analysis Program, Department of Agricultural and Applied Economics, College of Agriculture and Life Sciences, Virginia Tech.
- [18]Waltz, E., 1999, Final results of the Third National Organic Farmer^s Survey. Organic Farming Research Foundation. 126pp.
- [19]Fairweather, J. R., 1999, Understanding how farmers choose between organic and conventional production: results from New Zealand and policy implications. *Agriculture and Human Values* 1651- 63.
- [20]De Buck, A. J, Rijn, I. V, Roling, N. G, Wossink, A. A., 2001, Farmers reasons for changing or not changing to more sustainable practices: an exploratory study of arable farmers in the Netherlands. *The Journal for agricultural Extension and Education* 7 (3), 153-166.
- [21] Pourjavid, S. Alibaygi, A., Zarafshani, K., 2011, Predictors of teaching efficacy secondary vocational agricultural schools teachers in Kermanshah province. *Agricultural education admistraion research*, No. 17, 67- 80.

