

ASSESSING EFFECTIVE FACTORS IN DEVELOPMENT OF ORGANIC AGRICULTURE IN ARDABIL PROVINCE

Leila KARPISHE^{1*}, Mehdi ALIYARI², Mohammad CHIZARI³

¹Department of Agriculture, Parsabad Moghan Branch, Islamic Azad University, parsabad Moghan, Iran,

²Academic centre for education, Culture and Research, Occupation Cooperative Organization of Academic Graduates, Tehran, Iran.

³Department of Agricultural Extension and Education, Tarbiat Modares University, Tehran, Iran
(Corresponding author: karpisheh2003@yahoo.com)

Abstract

Organic Agriculture (OA) is a sustainable system of economical, social and ecological that is considered as one of the strategies to reduce negative impacts of industrial agriculture in many countries. The purpose of this study was identifying factors affecting the development of organic agriculture in Ardabil province. A descriptive–correlation survey approach was used in this study. The study population consists of agricultural specialists of Jihad-Keshavarzi Organization in the province of Ardabil-Iran (N=313). Research samples was selected using randomly stratified method with using Cochran formula ($n=126$). Reliability of instruments was determined by pilot test and calculating Cronbach alpha coefficient. Cronbach alpha values were 0.81. Validity of instrument was determined by investigating the attitudes of agricultural specialists in universities of Tehran and Ardabil. The results showed that almost of specialists' perception (56.7%) toward organic agriculture development was in agreed level. Results also demonstrated that from the perspective of specialists the most important factors in developing organic agriculture are: governmental and policy, infrastructure, extension and education, and economic factors. The results of bivariate correlation test showed that there was a positive and significant correlation ($p=.05$) between variables such as: age, job background, barriers, infrastructures and the specialists' perception toward organic agriculture.

Keywords: *organic agriculture, Effective Factors, specialists, perception.*

Introduction

Many writers argue that conventional agriculture is not sustainable and that radical changes will be needed. Although the extent of the necessary changes may be questioned, there is a general consensus about society's desire to internalize some of the externalities of agriculture. Different parties suggest that agriculture: organic as a silver bullet may provide solutions to the current problems in conventional agriculture. The goal of OA is to give priority to long-term ecological health, such as biodiversity and soil quality, rather than short-term productivity gains. A question many scholars ask is whether OA is a pre-modern technology or a technology for today's world. Proponents argue that it is both, being an innovation that opposes some forms of modernity, with visions of returning farming to certain pre-modern structures, as well as an innovation that provides solutions to current agricultural problems (ie Pretty 1995). Although authors such as Macilwain and Gewin (2004), Mäder et al (2002), Stolze et al (2000) and O'Riordan and Cobb (2001) have detailed scientific evidence on the environmental, economic and health benefits of organics, many professionals

still question OA's financial viability, environmental credentials and overall efficiency and productivity, and reject it as an alternative farming system (ie Avery 1995). Increasingly, writers are referring to OA as a "new paradigm" in agriculture (Dimara et al 2003, Abaidoo & Dickinson 2002, Beus & Dunlap 1990, Dahlberg 1986) challenging the status quo of conventional agriculture¹.

Studies such as Fuglie and Kascak (2001), Marsh et al (2000), Kromm and White (1991), Van den Ban and Hawkins (1988) and Feder and Slade (1984) have illustrated quantitatively the positive role that extension officers play in diffusing agricultural innovations. Agricultural research also plays a critical role in creating and further developing new innovations for farmer adoption..

More specifically, acceptance of an agricultural innovation can occur at different levels, namely research, extension, farmer and community. The development and acceptance of any innovation is not a purely rational process, but one that involves conflicting beliefs, values, perceptions and social interaction.

Organic farming must be accepted as an innovation in the four broad contexts namely research, extension, farmers and consumers. Thus, agricultural specialists play an important role to develop organic farming. The review of related literatures shows that various factors affect the experts' views toward the development of organic farming. The studies of Stobbelaar and his colleagues (2006) revealed that the specialists' attitudes toward the environment are positively related to their attitudes regarding the development of organic farming. Lavik (2002) in his(her) research found that people's concerns regarding environmental problems is the most important factor in acquiring more knowledge about a sustainable agricultural system which is less harmful to the environment. The study of Traversi & Nijkam (2005) represented the effect of the variable agricultural experience on the knowledge of experts regarding organic farming.

This study was designed to identify factors affecting the development of organic agriculture in Ardabil province. Results of another study about factors influencing in development of organic agriculture in others areas in Iran indicated that the factors were categorized into seven groups, namely research, social and cultural, political, education, extension, economical and, medias.

Materials and methods

The methodological approach of this study employed an analytical method (correlation study). Agricultural specialists of Jihad-Keshavarzi Organization in Ardabil province, Iran are the target population that have been selected by using stratified randomization method (n=126). From review of literature, a questionnaire was developed to collect data. Content

and face validity of instrument were established by investigating the attitudes of agriculture specialists in universities of Tehran and Ardabil. A pilot study was conducted with 25 respondents. Questionnaire reliability was estimated by calculating Cronbach's Alpha. Reliability for the overall instrument was estimated at 0.81. The final questionnaire covered three areas: 1) demographic characteristics such as age, sex, level education ...2) Attitude toward organic agriculture development which were measured on a five-point Likert-Type attitude scale which ranged from 1(Strongly disagree) to 5 (Strongly agree). 3) Factors strengthening the organic agriculture in Ardabil province which were measured on a five-

¹ Conventional agriculture is defined here as standard practice utilized by the majority of Australian farmers. The term 'paradigm' derives from Kuhn (1970) and is often used to mean a way of looking at things: a set of shared assumptions, beliefs, dogmas, conventions, and theories and is closely linked to 'normal science'.

point scale. Data collected were analyzed using the Statistical Package for the Social Sciences (SPSS16). Appropriate statistical procedures for description (frequencies, percent, means, and standard deviations) and inference (bivariate correlation test) were used.

Results and discussion

Descriptive statistics

Agricultural specialists who participated in the study ranged in age from 32 to 65 years. The mean age of respondents was 35.9 years. 82% of them were male and 18% were female. In terms of education level, 69.3 percent of the respondents had a BS degree, 21.5 percent had a M.S and only 9.2 percent PhD degree.

Attitude toward organic agriculture development

Attitude toward organic agriculture development was measured using a five-item, Likert-Type attitude scale (Table 3). All item means are above the median score of 3. These findings show that specialist' attitudes about the development of organic agriculture are positive.

Table 1. Attitude toward organic agriculture development: *n*, *N* = 126.

Statement	Mean	S.D.	CV
Development of organic farming should be considered along with the human cultural, economic and, political development.	4.34	0.63	1
Development of organic farming is a powerful tool to achieve for achieving of a sustainable development	3.99	.65	2
Developing the organic farming will improve farmers' economic status.	4.03	0.69	3
Development of organic farming will result in conserving the national and natural resources.	4.16	0.75	4
Food security can be achieved by developing the organic farming.	4.06	0.76	5
Development of organic farming increases agro ecosystem health considering biodiversity, soil microbial and biological activities	4.11	0.80	6
Development of organic farming produces crops which characterized as higher quality and better taste products	3.83	0.94	7
Development of organic farming reduces agricultural wastes due use of them in preparing compost.	3.81	1.00	8
Development of organic farming improve the quality and taste of products	3.68	1.08	9
Development of organic farming improves farmers' income	3.51	1.1	10
Development of organic farming is one of the solutions which help to take advantage from indigenous knowledge during the production process.	3.57	1.14	11
By developing organic farming, labor forces will be more useful in agriculture.	3.31	1.15	12

Responses weighted 1–5 from strongly disagree to strongly agree.

Factors affecting the development of organic agriculture

Factors enhance the development of organic were measured with 29 questions (were classified into four factors) through five levels Likert range(see Appendix 1). The results is shown in Table 2.

Table 2. Factors affecting the development of organic agriculture

Factors	Mean.	SD	C.V.
Governmental and policy	3.42	0.65	1
Infrastructure	3.29	0.68	2
Extension and education,	3.27	0.65	3
Economic	3.24	0/80	4

Scale: 1) Very little..... 5) Very much

As indicated in Table 2, the respondents rated all the factors studied more than 3. This finding means that from the perspective of agricultural specialist's all the above factors are effective in strengthening organic agriculture.

Relationship between specialists' attitudes toward organic agriculture development and selected variables

In order to investigate the relationship between specialists' attitudes and selection variables, considering the scale of variables and normal distribution of data, Pearson correlation coefficient was used. The results are presented in Table 3.

Table 3. Correlation between specialists' attitudes and selected variables

Variables	r	P
Agricultural experience	0.154	0.009
Job background	0.080	0.201
Attitude towards environment	0.207	0.001
Attitude towards health	0.188	0.003
Attitude towards nutrition	0.222	0.000
Knowledge about organic agriculture	0.252	0.000
Barriers of strengthening organic agriculture	0.217	0.007
education level	0.089	0.154
Age	0.152	0.161

As Table 3 shows, among the 9 scale (measurement level) variables selected as factors, six variables had a positive and significant relationship ($P < 0.05$) with specialist' attitudes toward organic agriculture development. (Table 3). Knowledge about organic agriculture showed the highest correlation with specialists' attitudes toward organic agriculture development.

Results indicate that the following variables: Agricultural experience, Job background, education level and age did not show any significant correlation with specialists' attitudes toward organic agriculture development.

Conclusion

This paper has reviewed effective factors in development of organic agriculture in Ardabil province. These findings show that specialist' attitudes about the development of organic agriculture are positive. Studies about organic agriculture in other areas such Maleksaeedi, et al (2009) have been confirm this finding. According to the result of research on factors affecting organic agriculture strengthening (governmental and policy, infrastructure, extension and education, economic) should be emphasis. Also, Knowledge about organic agriculture showed the highest correlation with specialists' attitudes toward organic agriculture development, therefore providing public and specialized training for specialists of agricultural is recommended.

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Appendix 1. Factors and variables affecting the development of organic agriculture

Factors	Variables	
Governmental and policy	- Providing urgent facilities and possibilities to develop and launch research projects on organic farming	
	- Recognition and analyzing the weaknesses of organic farming methods in our country in order to eliminate them	
	-Extensive, comprehensive and long-term Planning	
	-Providing Long-term loans with low interest to farmers	
	- Developing necessary policies and legal framework on organic farming to improve international markets	
	- Emphasizing on organic farming into the developmental macro plans	
	- Investing in infrastructural development of organic farming by government	
	- Developing cooperation between the related organizations (e.g. Customs department, Ministry of Commerce, International Trade Committee) in order to implement initiate the export of organic products	
	Infrastructure	- Establishing the cultural centres to improve the people's acceptance rate of organic crops (farming etc.)
		- Creating Information and Marketing Centres
- Creating specific insurance centres for organic products		
- Creating specific custom districts		
- Creating standard and criteria-setting centers for issuing organic products certificates		
- Establishing field farmer schools		
Extension and education	- Establishing science and technology parks	
	- Reflecting the farmers' needs of farmers to country's research domain	
	- Dissemination of studies' results and research achievements regarding organic farming	
	- Training progressives farmers and early adopter farmers to accept (or use) and develop the organic farming	
	- Notification and dissemination of information about on organic farming	
	- Informing farmers and public regarding (or about) the importance of consuming healthy foods which are free of chemical matters	
	- Informing farmers and public regarding (or about) the disadvantageous of using pesticides and chemical fertilizers in production of agricultural crops	
	- Publication of specialized journals in the field of agriculture and organic products	
	- Holding exhibition regarding organic crops at the province level.	
	- Holding workshops for farmers on the benefits of consuming organic products	
Economic	- Providing enough financial sources) for doing research studies in the field of organic farming at farm level	
	- Providing convenient and adequate credits to produce organic crops by farmers - Providing appropriate financial incentives such as subsidies for farmers in order to produce organic crops	
	- Establishing and developing international and national markets for organic products	

Scale: 1) Very little..... 5) Very much