

## **The Analysis of Effective Factors on Non-Accepting of Organic Agriculture Products From the Viewpoint of Agricultural Experts (Case Study: Alborz province)**

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### **ABSTRACT**

Today, all over the world, we see the scientists, thinkers, politicians, consumers, producers and ecologists (who support the environment) protest against the method of agriculture, because trying to increase the crop outcome to its maximum rate per hectare through the irregular use of chemical input in industrial agriculture leads to a disaster in human life which will endanger the whole life on the earth in the future. Therefore, the general purpose of this research is the analysis of effective factors on not accepting organic agriculture. This research is an applied one and the method used is descriptive and is a survey. The statistical population includes all the agricultural experts who work in Jihad keshavarzi of Alborz province (N=110). Based on Morgan's table we selected 100 people as the sample. The tool of research is a questionnaire whose content & surface validity was approved by the professors of Tehran university and its reliability was verified by doing a guide study of Cronbach's Alpha (between 0.71 and 0.78). In order to analyze the data, SPSS was used. The results of the research show that most of the agriculture experts have a positive attitude toward organic agriculture (62 %) and they believe that it is necessary for the realization of sustainable development in agriculture. From the experts' point of view, the most important reasons for not accepting organic agriculture include: making no distinction between organic products and other products, inability in producing ideal production if the fertilizers aren't used, inability in controlling weeds and pests when pesticides are not used and the lack of farmers' level of education.

**Key word:** Organic Agriculture, Agriculture Experts, Attitude, Barriers of Acceptance, Alborz Province.

## INTRODUCTION

During the green revolution in Iran, which took place in 1950s by support of Traomen's fourth principle, Propagating the extensive use of highly productive crops leads to the use of pesticides and fertilizers caused a lot of problems (including the destruction of environment and resources and damage to them, damage to ecology. The more the environmental irregular use of fertilizers and pests, the more the amount of waste crops, etc (Malekzadeh et al., 2010). Generally, in this way, in order to control pests and insects, and fertilize the soil, more than 300 kinds of dangerous and artificial chemical components such as pesticides, herbicides and fertilizers are used in traditional and ordinary agriculture. The remains of these materials can cause a lot of problems when they get into our body (Ghorbani et al., 2009). The official calculations and figures presented by researchers about the condition of natural resources and environment in Iran are very disappointing. Based on what was mentioned, organic agriculture, as one of the most important substituted systems for agriculture, is taken into account since it produces healthy food and the food which lacks any kind of chemical material (Sharma, 2005). Organic agriculture, as one of substitute for ordinary and customary agriculture, was accepted by European Union and FAO (Polat, et al, 2008). At present, organic agriculture is conducted in more than 120 countries in the world. And the regions managed by organic agriculture and the exporting market of these crops are continuously increasing. As a result, the areas managed through organic agriculture principles were increased from 11 million hectares in 1999 to 37 hectares in 2009 (Willer, 2011). The factors which made the organic agriculture turn to have a universal approach and follow a rapid growth in the societies are being economic, understanding the importance of ecology and preserving the soil and environment. In our countries, because of the arid climate and the availability of labor force, producing organic crops seems more economic and easier compared to other regions. In the world, (Moradi et al., 2011). The present pattern (model) of agriculture didn't have any success in supplying the needed food and preserving the environment. It means that we do not take into account the large attempts done in developing agriculture but we mean it is necessary to change the present pattern in order to supply food security and also change the international situation based on the internal situation in our country especially at the time when it is more difficult to develop exporting the crops. How can accept the performing of organic agriculture? Taking those patterns into account and making use of especial climate features and native techniques and knowledge in agriculture in Iran and also based on new technologies and compatible native operations, we can gain practical ways and methods (Mahmodi et al, 2008). We referred to several benefits and necessities of performing organic agriculture in Iran but, based on the international statistics on the crops produced through organic agriculture, we find out that in our country we have very few areas cultivated through organic agriculture. Based on the latest figures, there is only 2 percent of the land under the approved organic agriculture (Tayefe soltankhani, 2011). Based on the universal statistics (the figures published in the world of organic agriculture report in 2006), the countries which produce the most crops through organic agriculture are: Australia 12 million hectares, China 3.5 million hectares, Argentina 2.8 million hectares, Iran with 200 hectares has the rank of 105 in the world (Abdollahi, 2008). In general, the reason why agriculture approach moves towards the organic cultivation is because of the fact that in organic agriculture, negative effects of Green Revolution are minimize and that's because of taking the small groups of farmers and consumer's needs into account and its environmental effects, little use of manure and fertilizer and the importance of fertility of soil. On

the other hand, undesirable effects of traditional cultivation which includes low income of producer and low production of food stuff are eliminating. During the recent years, foreign and domestic researchers have had a lot of studies on organic agriculture and the barriers to perform this kind of farming, in the following refer to some of the cases: In a study done by (Markou & Stylianides, 2009) under the title of "A plan for the success of organic agriculture in the Cypriot market", the researches came to the conclusion that both the producers and sellers claim that the consumers are unaware of organic crops. In addition, because of not being supported by the government, the producers of organic crops are unwilling to income their products. The producers believe that the main weakness to produce organic crops successfully is the lack of a marking organization. (Mader et al., 2007) in a research done for 21 years about "the correlation between what productions in an organic condition" concluded that in organic condition there was 14 percent decrease in the operation. (Stobbelaar et al., 2006) showed a positive relationship between accessibility to environmental- agricultural information and knowledge of organic agriculture. Angulo et al. concluded that the customers' lack of assurance of the organic products has been the main barrier in accepting them. In another research, the field size has been the most important and effective factor on accepting the environmental-agricultural programs and organic agriculture (Diederer et al., 2003). In his study, (lavik, 2002) concluded that the individuals concern about environmental problems is the main factor for getting more knowledge of an agriculture stable system which is less dangerous for environment. In a study named "the producers' viewpoint toward organic agriculture", concluded that the unnatural factors, politics and marketplaces demand are the most important factors for changing agriculture to organic agriculture. In another research, being a member of production organizations, the rate of benefits from direct sale and teaching agriculture has a remarkable positive impact on continuing of production in organic way (Kirner & Schneeberger, 2000). In a research, (Gil et al. 2000 ; Richman & Dimitri, 2000) revealed that the barriers in accepting and using organic productions are their high prices and lack of accessibility to them in comparison with nonorganic ones. Among domestic studies about the role of promotion of organic agriculture development, Norozi & Shahbazi (2010) did a research and concluded that having an organic and stable agriculture requires using a comprehensive promotable system. In his research about estimation of virtual function of wheat in the condition of organic production, (Ghorbani et al. 2009) concluded that if the Chemical entities are omitted from Production process, the amount of wheat function will be decreased about 18/95%. In his study, (Sharifi et al., 2009) showed that the main barriers in accepting the organic agriculture are productive, natural, economical, sub-structural and institutional ones and viewpoint and knowledge about this issue. Examining the study of (MolkeSaeidi et al. 2009) about the effective factors on the Khuzestan province agriculture experts' knowledge of organic agriculture, the researchers concluded that the accessibility to environmental- agricultural information and CV has had a positive and significant impact on experts' knowledge of organic agriculture. In a study about effective factors on accepting organic productions by customers, (Baba Akbarisari et al., 2008) revealed four effective factor on this issue including teaching and informing, protective- service, super-visional and economic once. Generally, according to the review of literature, the most important reasons for non-accepting the organic agriculture are customers' lack of information from organic productions, the government's lack of support from organic cultivation, lack of suitable marketplaces, reduction of production because of using no chemical fertilizers and sprays, customers' lack of assurance from organic productions, their high prices and lack of accessibility to them in comparison with non-organic productions. The main purpose of this research is the analysis of effective factors on non-accepting the organic agriculture and its especial goals are:

- 1) Investigating the Agriculture Experts' Attitude about Organic Agriculture;
- 2) Identification of Effective Factors on NoN-Accepting Organic Agriculture.

## **METHODS**

The main strategy used in this research was a kind of cross-sectional survey. The population was the experts of agricultural Jihad Organization of Alborz province including the counties of Karaj, Savojbolagh, Nazarabad and Taleghan (N=110) among which 100 people were selected according to Morgan table in accordance with the population of experts of every counties. For collecting the field data (first handed), a questionnaire, and for collecting the second handed one, the internet resources and libraries were used. The tools of this researcher-made questionnaire include the following parts: The first one includes some questions about the experts' personal and professional information; the second includes 17 items for assessment of agriculture experts' of organic agriculture and the third has 33 items for investigating the reasons of non-accepting organic agriculture. Face content validity of the questionnaire were approved by the professors of agricultural development and management of Tehran University. For estimation of the questionnaire reliability, the Cronbach's Alpha correlation for different parts of the questionnaire was equal to 71% to 78% using SPSS. Processing the research data in two descriptive and analytical parts was done with SPSS.

## **Findings and discussion**

The age mean of respondents is 36, most of them are between 30 and 40. 52% are male and 48 female. 9% has diploma, 13% Associate Degree, 60 % BA and 18% MA. The mean of individuals' CV in organizations related to agriculture is 13 years. 28% of respondents work in cultivation, 27% in horticulture, 22% in Livestock, 16% in machinery and 7% in promotion unit.

### **The respondents' Attitude about organic agriculture**

As table 1 shows, for assessment of agriculture experts' Attitude, 17 items were selected as assessment indexes for Attitude which were introduced with Likert's five-choice-spectrum (1= I disagree very much, 2= I disagree, 3= I have no idea, 4= I agree, 5= I agree very much) in order to the respondents declare their ideas about every statements. Prioritizing the experts' Attitude, the first priority is related to people's health betterment using organic agriculture and the second to their satisfaction from organic productions. The findings show that most experts believe that the usual agriculture is harmful for human health and leads to destroying the production resource

**Table 1:** The Agriculture Experts' Attitude About Organic Agriculture (N= 100)

items	Complete ly agree%	Agree %	No idea %	Disagree %	Complete ly disagree %	Mean %	SD	CV	ran k
Organic agriculture is useful for health betterment	66	34	-	-	-	4/66	0/4 6	0/1 0	1
I'm satisfied with organic products more than other ones	52	42	3	-	3	4/40	0/6 6	0/1 5	2
Organic agriculture leads to soil fertility	53	36	9	2	-	4/40	0/7 4	0/1 7	3
Chemical fertilizers and pesticides damage to nature and human	50	40	10	-	-	4/38	0/7 7	0/1 8	4
Organic agriculture leads to keeping the animal health	53	31	16	-	-	4/37	0/7 4	0/1 7	5
Organic products are healthier than other ones	36	59	5	-	-	4/31	0/7 7	0/1 8	6
We should be responsible for environment (soil, water, ...)	44	42	14	-	-	4/30	0/8 1	0/1 9	7
Organic agriculture is very compatible with our environment and nature	34	58	8	-	-	4/26	0/8 0	0/1 9	8
Organic agriculture is useful for farm in a long term	37	53	8	2	-	4/25	0/8 5	0/2 0	9
Organic agriculture leads to the development of stable agriculture	44	36	14	6	-	4/18	0/8 7	0/2 1	10
Chemical fertilizers are harmful for human and animal health	41	31	28	-	-	4/13	0/9 5	0/2 3	11
Organic agriculture can guarantee the agriculture for future	27	59	12	-	2	4/09	1/0 2	0/2 5	12
Organic agriculture can reduce the soil erosion	27	48	22	3	-	3/99	1/0 3	0/2 6	13

Organic agriculture can increase our income in a long term	27	44	19	6	4	3/91	1/0 7	0/2 7	14
Organic agriculture can keep the Plant and animal diversity	28	33	39	-	-	3/89	1/1 6	0/3 0	15
Organic agriculture has less costs than usual agriculture	22	48	25	5	-	3/87	1/2 7	0/3 3	16
Organic agriculture can decrease the underground water contamination	27	31	36	6	-	3/79	1/2 5	0/3 3	17
Total mean						4/17			

### Distribution of experts' Attitude about organic agriculture

According to table (2), in order to classify the experts' Attitude, the scores of statements were summed and the total score was obtained. Then, according to the highest (85) and the lowest score (17), the scores of any respondents were recoded and for examination of experts' viewpoint, 3 classes (positive, Average, negative) were considered.

**Table 2:** Distribution of Experts' Attitude about Organic Agriculture

rank	Attitude	Frequency	Percent
1	Negative (Mark <51)	3	3
2	Average(51<Mark <68)	35	35
3	Positive(68<Mark)	62	62
Total		100	100

**SD: 6/05**

**Mean: 70/89**

Considering table (2), it is shown that most experts have positive Attitude (62%), around 35% has meant Attitude and just 3% has negative Attitude about organic agriculture.

### Ranking the effective factors on non-accepting organic agriculture

For ranking and identifying of importance and role of every variables as effective factors for non-accepting of organic agriculture, the variables were prepared according to review of literature and polling from agriculture experts. As it can be seen in table (3), the most important reason for non-cultivating in an organic form is that there is no distinction between organic and non-organic products (in accordance with Angulo et al research results), because organic cultivation leads to reduction of productions (Ghorbani et al., 2009), and just increasing the prices can justify this kind of agriculture economically. But because there are no centres for issuing licence for these products, it is impossible to make a no distinction between them and non-organic products and it leads to lack of economic justification and, as a result, organic cultivation. The next variables are inability in appropriate production while using no chemical fertilizer, inability in controlling weeds and pests while using no pesticides respectively. The small variables and dispersion of fields have lowest rank.

**Table 3:** ranking the reasons for non-accepting organic agriculture

Rank	Effective factors	mean	SD	CV
1	Making no distinction between organic and non-organic products	4/68	0/58	0/12
2	Inability in appropriate while using no chemical fertilizers	4/56	0/81	0/17
3	Inability in controlling weeds and rests while using no pesticides	4/53	0/83	0/18
4	Lack of farmers' knowledge	4/50	0/90	0/20
5	Lack of centers for issuing license for organic products	4/49	0/72	0/18
6	Lack of government's support from farmers	4/48	0/88	0/20
7	Having conservative behavior and fearing from changing usual agriculture between farmers	4/39	0/98	0/22
8	Producing organic products is time consuming	4/25	1/06	0/24
9	Consumers' lack of assurance from being organic	4/22	0/98	0/24
10	Farmers' reduction of income	4/19	0/99	0/24
11	Farmers' lack of relationship with outdoor and relational canals	4/17	1/04	0/25
12	The farmers' aging	4/17	1/08	0/26
13	Lack of specified standards for producing organic products	4/15	1/16	0/28
14	Lack of informational resources for getting information about organic agriculture	4/13	1/23	0/30
15	Inability in changing the farmers' viewpoints	4/11	1/27	0/31
16	Farmers' lack of awareness from ways of organic cultivation	4/09	1/26	0/31
17	Farmers and people's lack of awareness from detriments of chemical fertilizers and pesticides	4/08	1/30	0/32
18	Lack of skilled propagator and experts in organic agriculture	4/01	1/36	0/34
19	Preciosity of organic products and lack of people's tendency for paying more money	4/00	1/40	0/35
20	Lack of exhibition field related to organic agriculture	3/98	1/47	0/37
21	Farmers and people's lack of awareness from advantages of organic agriculture	3/77	1/49	0/39
22	Reduction of soil quality as a result of obligation in using chemical fertilizers	3/56	1/45	0/41

23	Lack of suitable and adequate market places for organic agriculture	3/44	1/41	0/41
24	Lack of incentive and interest between farmers and for organic agriculture	3/24	1/36	0/42
25	Lack of teaching-extension classes about organic agriculture	3/18	1/39	0/44
26	Lack of skilled laborers for organic agriculture	3/14	1/41	0/45
27	Needing a lot of laborers	3/11	1/46	0/47
28	Complexity and difficulty of organic agriculture	3/08	1/50	0/49
29	Lack of required institutions for organic agriculture	3/01	1/50	0/50
30	Lack of insurance for organic-products producer	2/92	1/51	0/52
31	Organic agriculture is expensive	2/78	1/44	0/52
32	Dispersion of fields	2/71	1/43	0/53
33	Smallness of fields	2/68	1/50	0/56

## Factor Analysis

### *Analysis of Respondents' Viewpoints About Reasons for Non-Accepting Organic Agriculture*

In this research, for recognition and classifying 'the effective factors on non-accepting organic agriculture' and identifying the specified variance by every variable in forms of classified factors, the factor analysis was used. For recognizing the appropriateness of data related to the under-analysis set of variables, the Bartlett test and KMO index were used. The significance of Bartlett test in assurance level of 99% and suitable amount of KMO (table 4) indicated the correlation and appropriateness of the variables for factor analysis.

**Table 4:** KMO, Bartlett

Factor analysis	KMO	Bartlett's test	sig
The effective factors on non-accepting organic agriculture	0/782	975/569	0.000

The extracted factors along with special amount, variance percent and accumulated percent are shown in table (5). According to the amounts of table (5), the data were summarized in 8 factors that specify around 73% of variance of total factors. 27% is related to the factors that were not recognized in operant analysis. So, around 73% of effective factors on non-accepting the organic agriculture is identified. The first factor named 'barriers of marketing' with special amount of 4/55 specified 13/02 % of the total variance. The second one- technical barriers- with special amount of 4/04 specified 11/55% of variance. The third one- teaching- informing barriers- with special amount of 3/27 specified 95% of variance. The fourth one 'governmental-supportive barriers' with special amount of 3/23 specified 9/24% of variance. The next factors are 'supervisional, individual-cultural, economical and Physical-structural barriers' which specify 8/98%, 8/47%, 6/62%, 6/31% of variance respectively.



**Table 5:** Extracted Factors with Eigenvalue, Percentage Variance and Cumulative Percentage of Variance

rank	Factors	Eigenvalues	% of Variance	Cumulative
1	Marketing	4/55	13/02	13/02
2	Technical	4/04	11/55	24/57
3	Teaching- informing	3/27	9/35	33/92
4	Governmental- supportive	3/23	9/24	43/16
5	Super-visional	3/16	8/98	52/14
6	Individual-cultural	2/96	8/47	60/61
7	Economical	2/31	6/62	67/23
8	Physical-structural	2/21	6/31	73/54

The situation of placing variables set related to barriers of accepting organic agriculture according to the extracted factors assuming that the variables having factor load is  $> 0/5$  after rolling the factors to Verimax method and naming the factors is presented in table (6).

**Table 6:** characteristics of extracted factors of Factor Analysis

Factor	variable	factor loading
Marketing	Making no distinction between organic and non-organic products	0/867
	Consumers' lack of assurance from being organic	0/702
	Preciosity of organic products and lack of people's tendency for paying more money	0/655
	Lack of suitable and adequate market places for organic agriculture	0/611
Technical	Inability in appropriate while using no chemical fertilizers	0/795
	Inability in controlling weeds and rests while using no pesticides	0/721
	Lack of skilled laborers for organic agriculture	0/706
	Lack of exhibition field related to organic agriculture	0/690
	Needing a lot of laborers	0/550
	Lack of skilled propagator and experts in organic agriculture	0/512
Teaching- informing	Farmers' lack of awareness from ways of organic cultivation	0/800
	Farmers and people's lack of awareness from detriments of chemical fertilizers and pesticides	0/747

	Farmers and people's lack of awareness from detriments of chemical fertilizers and pesticides	0/669
	Lack of teaching-extension classes about organic agriculture	0/553
Governmental-supportive	Lack of required institutions for organic agriculture	0/839
	Lack of insurance for organic-products producer	0/773
	Lack of government's support from farmers	0/593
Super-visional	Lack of centers for issuing license for organic products	0/785
	Lack of specified standards for producing organic products	0/685
Individual-cultural	Lack of farmers' knowledge	0/764
	The farmers' aging	0/733
	Having conservative behavior and fearing from changing usual agriculture between farmers	0/508
	Inability in changing the farmers' viewpoints	0/500
Economical	Organic agriculture is expensive	0/722
	Farmers' reduction of income	0/710
Physical-structural	Dispersion of fields	0/805
	Reduction of soil quality as a result of obligation in using chemical fertilizers	0/791

## CONCLUSION AND RECOMMENDATIONS

The findings showed that all of agriculture experts have positive and agreeable Attitude about organic agriculture. It indicates that the experts are aware of detriments of usual agriculture and recognize the necessity of organic cultivation which is a good advantage itself, because it is one of the important steps for promoting an innovation and modifying the usual procedure of changing Attitude, especially those of agriculture experts who are the Agents of change in societies. But, considering to this issue, we see that, because of problems and disorders in organic cultivation, agriculture continues in usual ways and chemical fertilizers and pests are used and just a little of fields has organic cultivation. According to the findings, some recommendations can be suggested for accepting organic agriculture. The main recommendations are as followings:

- According to the findings, the most important reason for non-accepting the organic agriculture is making no distinction between organic and non-organic products. It is recommended that an organization is founded to determine the specified standards for organic products and issue the licenses and labels for recognition and distinction of organic and non-organic products which leads to increasing the assurance of customers from organic products and demands for them. So, the farmers' motivation for organic cultivation will be increased.
- Since one of other important reasons for non-accepting organic agriculture is reduction of production and inability in controlling the weeds and pests and decreasing the income because of using no chemical fertilizers and Toxins, it is recommended that alternative methods for increasing production and controlling the pests and weeds, which are in accordance with standards of organic cultivation, are taught to farmers practically in educational workshop; because accepting organic agriculture is considered as a kind of

innovation itself, and one of the most important effective factor on accepting innovation is its relative advantage.

- According to the findings, one of other important reasons for non-accepting organic agriculture is the farmers' fear of risk taking. It is recommended that for lessening the farmers' fear, the exhibition farms are established and the organic farms are insured.
- Developing the public culture and recognition toward advantages of organic agriculture and products and environmental and hygiene drawbacks of chemical fertilizers and toxics using mass media specially Televisions for better understanding of the necessity of changing usual agriculture and growing marketing of organic products.
- For making the farmers sure and encouraging them to organic cultivation, it is recommended that at first the local Elites, Leaders and trustees are interacted and justified because of their impact on farmers.
- Since of effective factors on non-accepting organic agriculture is lack of skilled experts, it is recommended that before promoting and developing organic agriculture in a region, the agriculture experts are justified and taught; otherwise, it will be failed and the farmers will be pessimistic to organic agriculture.
- According to the findings, one of other important barriers of organic agriculture is the expensive prices of organic products. It is recommended that, using experiences of countries like Australia, the USA and France, at first the products are supplied with 5% to 10% Price increase in order to people be encouraged to use organic products.

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