



# Analysis of the Relationship between "Agricultural Information System Members' Viewpoint towards Organic Products" and "their Environmental Attitude": the Case of the Central District of Boyer-ahmad County

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## Abstract

The aim of this research was to investigate this research was to investigate the relationship between Agricultural Information System (AIS) members' viewpoint towards organic products and their environmental in central District of Boyer-Ahmad County. The research population included researchers, extension agents and contact farmers of the study area and based on this population numbers, the sample sizes were determined 62, 55 and 60 persons respectively using Krejcie and Morgan sampling table. The main tool for collecting data about the respondent's viewpoints towards organic products was a pre-designed questionnaire which its validity was confirmed by rural development experts and its reliability also confirmed by using Cronbach-Alpha coefficient (0.76-0.94). Moreover, the environmental attitude of the respondents was measured using Dunlap & Van Liere's New Ecological Paradigm (NEP) scale. The results showed that researchers, extension agents and farmers had a moderate environmental attitude. Furthermore, researchers and extension agents had above average viewpoint towards organic products. However, farmers had a fairly favorable viewpoint. In addition, the relationship between Agricultural Information System members' viewpoint towards organic products and their environmental attitude was positive and significant which indicated that the more favorable environmental attitude they have, the more tendencies towards organic products they have. As a result, improving environmental attitude should be given priority in order to produce healthy products and preserve the environment.

### Keywords:

Organic products, NEP, Researchers, Extension agents, Farmers

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## INTRODUCTION

Nowadays environmental pollution has become controversial. Most environmental experts believe that solving environmental problems is due to improving and changing people's attitude towards natural resources and environment (Motamedinia *et al.*, 2013). The relationship between human and the environment has had many ups and downs during human life. Nature has sometimes been considered as a source of spiritual inspiration and sometimes as a source of material needs and has stimulated many wonders, both hope and fear in human existence. With the advent of the first environmental crisis, it was revealed that indiscriminate use of the environment has disrupted the network of life and endangered survival of animals and humans (Banifatemeh *et al.*, 2013). Conventional development approaches, by using modern technology, not only have not resulted in food security, but also, especially in developing countries, have caused unfavorable ecological, technical, economic and social outcomes (Mahdavi Damghani *et al.*, 2004). These crises have also caused intensifying environmental and ecological problems (Malekzadeh *et al.*, 2010). In fact, the origin of these crises is hidden in attitude, ideology, interaction and human behavior to environment. Environment has never been safe from degradation of agricultural sector. Documented some of the negative consequences associated with agrichemical use, gave rise to environmental consciousness and a focus on organic agriculture (Klonsky *et al.*, 1998).

The concept of organic agriculture builds on the efficient use of locally available resources, and the use of adapted technologies (e.g. soil fertility management, closing of nutrient cycles, control of pests and diseases by means of natural antagonists) (Kilcher, 2007). The development of organic agriculture especially in developing countries is a special challenge and poses considerable concerns (Mahmoudi *et al.*, 2014). The current evidence indicates the role of organic products in preserving the environment and improving food quality. Recent studies (Budak *et al.*, 2005; Ahmadvand and Nooripoor, 2010; Nooripoor and Ahmadvand, 2011) show that people's en-

vironmental attitude has important effect on their approach to environment and its degradation. Indeed, environmental attitude means a person's general opinion about environmental problems of society and the concern about these problems (Vogel, 1994). Thus, people's environmental attitude could be a criterion for analyzing their attention or inattention to approaches such as organic products. In the other words, generally stated the more people believe in preserving the environment, the more they tend to approaches such as organic products. Central District of Boyer-Ahmad County is a fertile region and prone to producing organic products as in this region pesticides and chemical fertilizers are used less than current situation in Iran (Safaeenia *et al.*, 2010).

Therefore, this study aimed to investigate the relationship between AIS (researchers, extension agents and farmers) members' viewpoint towards organic products and their environmental attitude in Central District of Boyer-Ahmad County. The following objectives were also considered.

- To explain the viewpoint of AIS members towards organic products.
- To explain environmental attitude of AIS members.
- To investigate the relationship between individual characteristics and the viewpoint of AIS members towards organic products.
- To investigate the relationship between individual characteristics and environmental attitude of AIS members.

## Review of literature

Lots of researches have been carried out in the field of environmental attitude and the viewpoint of AIS members towards organic products. In the following section, some of them are mentioned.

Banifatemeh *et al.* (2013) investigated the environmental attitude of Tabriz citizens based on the New Ecological Paradigm. The results showed that the mean score of the citizens' attitude towards protecting the environment is moderate. Findings of Alavimoghadam *et al.* (2013) showed that environmental information of Amirkabir University of Technology students is less than 50% and environmental problems are the least

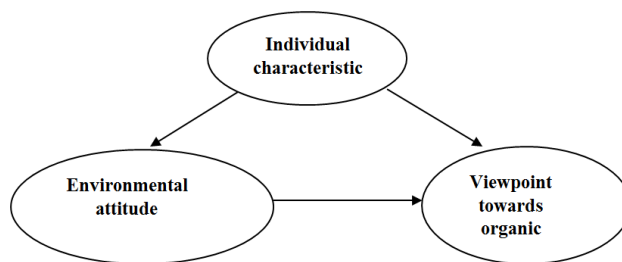


Figure 1. The conceptual framework of the study (designed by the researchers)

important issues for them. The research of [Ferdosi et al. \(2007\)](#) indicated that the students who pass environmental courses have more environmental conservation behavior than those who do not pass such courses. In addition, comparison of agricultural students' environmental attitude in Turkey indicates that female students have more favorable attitude than male ones. In the other words, female students' attitude is more pro-environmental orientation ([Budak et al., 2005](#)). [Chiou \(1998\)](#) expressed that small producers gain access to less resources so they are risk averse. They are not patient enough to deal with pest infestations and prefer to solve their problem quickly.

[Ghadimi et al. \(2013\)](#) studied the effective factors on attitudes of farmers towards organic farming in Fereidan area. The results showed that the majority of the respondents had positive attitude towards organic farming. [Bagheri and Shahpasand \(2011\)](#) investigated the attitudes of potato farmers towards sustainable agricultural practices. The results revealed that there was a favorable attitude towards such general principles and practices of sustainability. Thus, the necessity of soil and water conservation, diminishing the negative effects of chemical inputs, decreases the negative impacts of excessive agricultural practices on environment and the necessity of environmental preservation as a main priority, among respondents. However, their attitude towards the necessity of reduced usage of modern agricultural technologies, lower the usage of agrochemicals and practice of low tillage was negative. Regarding other sustainable practices, the respondents showed moderate attitudes. The research of [Chizari et al. \(1999\)](#) showed that extension experts had stronger agreement to the definition of sustainable agriculture

according to environmental concepts and decreasing chemical consumption. Their tendency to sustainable agriculture was positive and favorable and younger experts had more favorable tendency towards sustainable agriculture.

[Alipour et al. \(2009\)](#) studied the attitude of agricultural research, education and extension organization researchers towards sustainable agriculture. Their findings indicated positive attitude of the supposed researchers towards sustainable agriculture. [Davoodi and Maghsoudi \(2012\)](#) conducted a study between potato farmers in Shushtar Township. The results indicated that farmers have moderate attitude towards sustainable agriculture and the majority of the respondents reported a medium level of sustainability in their farming system.

Based on the above reviewed literature, this study was to identify whether the AIS members who have favorable attitude towards environment, will also have favorable viewpoint towards organic products in Central District of Boyer-Ahmad County and whether individual characteristic of AIS members have any effect on their environmental attitude and viewpoint towards organic products or not. Therefore, conceptual framework of the research is shown in figure 1.

## MATERIALS AND METHODS

Boyer-Ahmad County is account of the Kohgiluyeh and Boyer-Ahmad Province, located in the South western of Iran. The central District of Boyer-Ahmad County has five townships named Kakan, Sepidar, Sarrod Shomali, Sarrod Jonobi and Dashetroom. This study was a survey and descriptive-correlation research. Statistical population was three subsystems of AIS members in central District of Boyer-Ahmad County: researchers, extension agents and farmers who

were 77, 68 and 72 respectively. Sample size was determined 62, 55 and 60 respectively using Krejcie and Morgan sampling table and stratified random sampling with proportional allocation technique. The main tool for collecting data in the phase of investigating respondents' viewpoint towards organic products was a research-made questionnaire which its validity confirmed by rural development experts and its reliability also confirmed calculating Cronbach-Alpha coefficient (0.76-0.94) obtained from a pilot study. Moreover, the environmental attitudes of AIS members were measured using Dunlap & Van Liere's New Ecological Paradigm (NEP) scale (Dunlap *et al.*, 2000). The respondents were given 15 questions on a 5 point Likert rating scale, ranging from 1 (strongly disagree) to 5 (strongly agree). SPSS20 software was used to analyze data. The first dimension was balance of nature in which balance between human and nature is known as a guarantee of human and earth survival. The second dimension measured limits to growth. This dimension noted limiting human activities as a solution to environmental problems. The third dimension referred to anthropocentrism which indicated human dominated his surround environment and other creatures have been created to serve human. The fourth dimension was environmental orientation. This aspect unlike anthropocentrism gave priority to environment and suggested human as part of nature and therefore dominant of part to total would be impossible. The fifth dimension was eco-crisis. From this point of view, nature is too unsustainable and eco-crisis would threaten the earth. The total possible score in this test would be 75 which indicated eco-crisis orientation and the least score would be 15 which referred to anthropocentric orientation (Dunlap *et al.*, 2000).

## RESULTS

The descriptive results of the study indicated that average score of the age of researchers, extension agents and farmers were 40.5, 41.53 and 42.38 respectively. According to educational level, all researchers (100 percent) had a bachelor's degree and above. 60 percent of extension agents had an associate degree and 40 percent had a bachelor's degree. Farmers' educational level

showed that 26.9 percent were illiterate, 15.4 percent had rudimentary education, 19.2 percent had diploma, 26.9 percent had an associate degree and 11.5 percent had a bachelor's degree.

Table 1 shows that the average score of researchers', extension agents' and farmers' viewpoint towards organic products is 3.66, 3.63 and 3.78 from 5 respectively which indicated that researchers and extension agents have an "above average" viewpoint towards organic products. However, farmers have a fairly favorable viewpoint.

The findings of Table 2 indicate that researchers have quite favorable environmental attitude with mean score 3.52 of 5, whereas extension agents and farmers have a moderate environmental attitude with the mean scores 3.35, 3.30 of 5 respectively (Table 2). The more the mean score of environmental attitude is, the more the environmental orientation it is. According to environmental orientation, human is considered as part of nature and therefore dominant of part to total would be impossible. In fact, environmental orientation unlike anthropocentrism gave priority to environment. In this study, researchers had more environmental orientation (Table 2).

Table 3 shows the correlation between environmental attitude of AIS members and their viewpoint towards organic products. The results show that this relationship is positive and significant for all three groups (researchers, extension agents and farmers). However, it is regarded as low correlation.

Table 4 shows that there is a positive and significant relationship between farmer's income and their viewpoint towards organic products at the 0.05 level. The higher income they earn the more favorable viewpoint towards organic products they have. However, this relationship is not significant for researchers and extension agents. Furthermore, there is a positive and significant relationship between researchers' and farmer's age and their viewpoints towards organic products at the 0.05 level. Nevertheless, there is no significant relationship between extension agents' age and their viewpoint towards organic products. In addition, no significant relationship was found between researchers', extension agents' and farmer's educational level and their viewpoint

Table1: AIS members' attitude towards organic products

Statements	Researcher				Extension agent				Farmer			
M=Mean, SD=Standard Deviation, CV= Coefficient variation, R=Rank	M	SD	CV	R	M	SD	CV	R	M	SD	CV	R
1) Production resources will be preserved for future generation by producing organic products.	4	0.65	0.16	3	4.47	0.54	0.12	1	4.27	0.71	0.16	3
2) Successive planting, which is common these days, will cause damage to product.	3.95	0.83	0.21	6	4.18	0.61	0.14	5	4.40	0.57	0.13	1
3) Producing organic products have no negative effect on the environment.	3.66	1.13	0.28	11	3.29	1.23	0.37	14	3.62	1.31	0.36	13
4) Even though planting organic products lead to a reduction in products, organic products must be produced for preserving resources.	3.76	0.74	0.19	5	3.96	0.83	0.2	8	3.64	1.2	0.32	10
5) Producing organic products lead to maintaining plant residues and water and soil conservation.	4.24	0.63	0.14	2	4.13	0.78	0.18	7	4.42	0.69	0.16	2
6) The fertilizers and pesticides which are used these days have negative effect on human and animal health.	4.53	0.59	0.13	1	4.64	0.6	0.13	2	4.42	0.8	0.18	4
7) Soil fertilizing will increase in producing organic products due to using less mechanization.	3.61	0.86	0.24	9	3.53	0.94	0.26	10	3.84	0.97	0.25	7
8) Agricultural development is only possible by producing organic products, not by modern technologies.	2.51	0.95	0.38	14	2.34	0.77	0.33	13	2.25	0.93	0.41	15
9) An increase in organic products prices in comparison with conventional products is not a matter.	3.41	0.95	0.27	10	3.64	1.17	0.32	11	3.28	1.32	0.40	14
10) Farmers' income will be increased by producing organic products.	2.95	1.03	0.34	13	3.24	1.06	0.33	12	3.15	1.1	0.34	12
11) Using organic products will lead to human health.	4.38	0.78	0.17	4	4.47	0.58	0.13	3	4.12	1.06	0.25	6
12) Organic products are better than conventional products in term of favor and health.	4.21	0.98	0.23	8	4.43	0.62	0.14	4	3.85	1.24	0.32	9
13) Organic products have imperfect shape and appearance in comparison with non-organic products. Therefore, I have less tendency to use organic products.	2.13	1.18	0.55	15	2.38	1.26	0.52	15	2.96	0.99	0.33	11
14) A successful farmer is someone who produces healthy products without using any pesticides.	3.77	0.83	0.22	7	3.52	0.5	0.14	6	4.27	1.02	0.23	5
15) According to the way of producing organic products, nutritional values, healthy and quality of organic products are more than non-organic products.	4.13	0.86	0.3	12	4.49	1.03	0.22	9	4.12	1.19	0.28	8
Sum.	3.66				3.63				3.78	08		

Likert rating scale ranging from 1 =strongly disagree to 5=strongly agree

Table 2: Environmental attitude of AIS members

Statements	Researcher				Extension agent				Farmer			
	M	SD	CV	R	M	SD	CV	R	M	SD	CV	R
M=Mean, SD=Standard Deviation, CV= Coefficient variation, R=Rank												
1) We are approaching the limit of the number of people the earth can support	2.65	1.1	0.41	11	2.78	1.1	0.39	12	3.12	1.13	0.36	9
2) Human have the right to modify the natural environment to suit their needs	2.71	1.15	0.42	12	2.96	1.34	0.45	14	2.23	1.23	0.38	10
3) When humans interfere with nature it often produces disastrous consequences	3.92	0.81	0.2	4	3.93	1.07	0.27	7	4.20	0.85	0.2	4
4) Human ingenuity will insure that we do NOT make the earth unlivable	4.13	0.69	0.16	3	4.33	0.73	0.16	2	4.25	0.66	0.15	2
5) Human are severely abusing the environment	4.11	0.6	0.14	2	4.13	0.81	0.19	3	4.23	0.64	0.15	3
6) The earth has plenty of natural resources if we just learn how to develop them	4.24	0.48	0.11	1	3.96	0.92	0.23	6	4.33	0.55	0.12	1
7) Plants and animals have as much right as humans to exist	4.16	1.04	0.25	7	4.40	0.88	0.2	4	4.20	0.99	0.23	5
8) The balance of nature is strong enough to cope with the impacts of modern industrial nations	2.21	0.95	0.42	14	1.73	0.81	0.46	15	2.44	1.34	0.54	14
9) Despite our special abilities humans are still subject to the laws of nature	2.97	0.99	0.33	9	2.79	1.05	0.37	11	3.08	1.31	0.42	12
10) The so-called ecological crisis facing humankind has been greatly exaggerated	2.21	0.99	0.44	15	2.25	1.03	0.31	10	2.60	1.3	0.5	13
11) The earth is like a spaceship with very limited room and resources	3.11	1.07	0.34	10	3.60	1.07	0.29	8	3.65	1.21	0.33	8
12) Human were meant to rule over the rest of nature	2.43	1.03	0.42	13	2.49	1	0.4	13	2.65	1.62	0.61	15
13) The balance of nature is very delicate and easily upset	3.81	0.9	0.23	6	4.16	0.53	0.12	1	4.23	1.05	0.24	6
14) Human will eventually learn enough about how nature works to be able to control it	3.66	0.74	0.2	5	3.36	1.02	0.3	9	3.08	1.27	0.41	11
15) If things continue on their present course, we will soon experience a major ecological catastrophe	3.84	1.18	0.3	8	3.96	0.85	0.21	5	4	1.28	0.32	7
Sum	3.52	0.41	-	3.35	0.47	-	3.30	0.38	-			

Likert rating scale ranging from 1 =strongly disagree to 5=strongly agree

Table3: Correlation between environmental attitude of AIS members and their viewpoint towards organic products

Subsystem	Dependent variable	Independent variable	Pearson correlation	p-value	Correlation description <sup>a</sup>
Researcher	viewpoint towards organic products	environmental attitude	0.201	0.009**	low
Extension agent			0.189	0.016*	low
Farmer			0.186	0.016*	low

\*p &lt; 0.05

\*\*p &lt; 0.01

<sup>a</sup> Correlation description is based on Davis<sup>1</sup> pattern (1971)<sup>1</sup> According to Davis (1971), correlation coefficient values are: partial (0.01- 0.09), low (0.10- 0.29), moderate (0.30- 0.49), high (0.50- 0.69), very high (0.70- 0.99) and full (1.00)

Table 4: Correlation between independent variables and AIS members' viewpoint towards organic products

Independent variables	Subsystem	Pearson correlation	p-value	Correlation description <sup>a</sup>
Age	Researcher	0.154	0.047*	low
	Extension agent	0.054	0.500	-
	Farmer	0.142	0.050*	low
Income	Researcher	0.131	0.158	-
	Extension agent	0.095	0.317	-
	Farmer	0.161	0.050*	low
Education**	Researcher	0.002	0.970	-
	Extension agent	-0.052	0.510	-
	Farmer	0.025	0.740	-

\* p &lt; 0.05

\*\*Spearman's correlation coefficient

<sup>a</sup> Correlation description is based on Davis pattern (1971)

Table 5: Correlation between independent variables and AIS members' environmental attitude

Independent variables	Subsystem	Pearson correlation	p-value	Correlation description <sup>a</sup>
Age	Researcher	0.23	0.049*	low
	Extension agent	0.6	0.000**	High
	Farmer	0.04	0.760	-
Income	Researcher	0.131	0.158	-
	Extension agent	0.095	0.317	-
	Farmer	0.36	0.043*	low
Education**	Researcher	0.002	0.970	-
	Extension agent	0.25	0.090	-
	Farmer	0.000	1.000	-

\* p &lt; 0.05

\*\*Spearman's correlation coefficient

<sup>a</sup> Correlation description is based on Davis pattern (1971)

towards organic products.

The results of correlation between independent variables and AIS members' environmental attitude show that there is a positive and significant relationship between researchers' and extension agents' age and their environmental attitude as the older they are, the better attitude they have. However, there is no significant relationship between farmers' age and their environmental attitude. Moreover, no significant relationship was found between researchers' and extension agents' income and their environmental attitude, but there was positive and significant relationship between farmers' income and their environmental attitude. Finally, there were no relationships between researchers', extension agents' and farmers' educational level and environmental attitude (Table 5).

## DISCUSSION AND RECOMMENDATIONS

The aim of this research was to investigate the relationship between AIS members' viewpoint

towards organic products and their environmental attitude. The result showed that farmers' viewpoint towards organic products are slightly more favorable than researchers' and extension agents' viewpoint. This difference might be due to farmers' relative familiarity with organic products and their awareness of disadvantages of conventional agriculture as they have direct contact with chemicals.

In spite of researchers', extension agents' and farmers' agreement on the term: "Production resources will be preserved for future generation by producing organic products", they disagree with the term "Agricultural development is only possible by producing organic products, not by modern technologies". Thus, they believe in modern technologies as a factor to develop organic products. It is known that even though the technologies which have been used so far lead to mass food production, they have not preserved production resources and the damages of these technologies to environment are obvious. There-

fore, the above terms draw two contradictory ideas. The technologies that are not incongruent with economic, social and environmental benefits and preserve benefits for future generation (sustainable development) is not possible or it has been used in such a way that has not followed sustainable development goals. Extension agents' duty is to promulgate innovations and diffuse them between farmers. In recent years, extension agents' duty faced a dichotomy. In such a way that extension agents introduced and even distributed technologies such as high yield varieties and pesticides some years ago (However, the distribution of these materials is not stopped), whereas they talk about organic products and correct methods to exploit resources instead of using chemicals nowadays. Therefore, this dichotomy affected their viewpoint towards the terms. About farmers' viewpoint, it could be said that farmers trade off benefits and costs before accepting any technologies and apply to any activity. Therefore, the farmers who gained benefits of conventional agriculture are sure that producing conventional products is beneficial and its risk is reduced, whereas they do not have an assurance of organic products and its benefits as they believe in it as a traditional agriculture and retrospect to the old methods. Thus, applying extension programs to promote awareness and encourage individuals would be essential.

The finding showed that even though AIS members all had a moderate environmental attitude, researchers had more favorable environmental attitude than extension agents and farmers. This indicates that researchers have more environmental orientation. Thus, researchers give priority to environment and believe in human as part of nature and therefore dominant of part to total would be impossible.

The results of the correlation between environmental attitude and viewpoint towards organic products was positive and significant for all three groups which implied that the more favorable environmental attitude AIS members have, the more favorable viewpoint towards organic products they have. In such a way that it will lead to better behavior to preserving the environment. As a result, improving environmental attitude should be given priority in order

to produce healthy products, preserve the environment and reduce pollutions.

The positive and significant relationship between farmer's income and their viewpoint towards organic products implies that the higher income they earn the more favorable viewpoint towards organic products they have. It shows that farmers with more income have more tendencies towards organic products. Since the production quantity in an organic production system could be less than conventional agriculture, the poor farmers may prefer conventional agriculture to organic one. Thus, increasing the price of organic products could increase the poor farmers' tendency towards organic products. Of course, it is also recommended for policy makers to develop and to present more advertising programs to establish a cultural climate in the society so that the customers willing to pay more for organic products. Moreover, based on the multi-functional agriculture approach and local potentials, it is recommended to provide more opportunities for farmers to increase their income via other income generating jobs such as Eco-tourism.

Furthermore, no relationship was found between researchers', extension agents' and farmers' educational level and environmental attitude. This indicates that the training that they received may not lead to environmental attitude. Thus, paying more attention to teaching environmental issues and courses should be considered in education system.

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