

*Full Length Research Paper*

## **Attitudes of Iranian consumers' towards agricultural organic products (AOP)**

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**The present study investigates attitudes of consumers towards agricultural organic products (AOP) in Iran. A questionnaire was used as the main research instrument to collect data. The result of the study showed that the most important factors influencing the perceptions of consumers about AOP were awareness about disadvantages of pesticides and other chemicals used in the process of agricultural productions. The results also showed that TV, radio and newspapers were the most important sources of awareness for consumers about AOP. In addition, four factors including educational, supportive, monitoring and economical, influenced on the AOP diffusion. These four factors extracted by exploratory factor analysis determined 69.76% of variations in the diffusion of AOP: educational (23.54%), supportive (19.48%), monitoring (15.34%) and economical (11.40%).**

**Key words:** Agricultural organic products, attitudes, consumers.

### **INTRODUCTION**

For almost all product innovations, more knowledge about the contents and procedures leads to more acceptance of the novel product. Novel foods or alterations of food are hard to accept, particularly when these alterations cannot be judged from the appearance of the products (Michaut, 2004). However, the more people know about organic foods, the more their acceptance seems to grow (Gaskell et al., 1998). Environmental and health protection issues have become popular in Europe since the mid-1980s, while in the USA such matters had been worrying consumers since the 1960s (Greenan et al., 1997; Klonsky and Tourte, 1998). Environment and health address the question of "consumerism" and its influence on human health and on the long-term maintenance of the planet's resources (Silverstone, 1993). In agriculture, the basic question is the link between intensive mass production and its environmental influences (Zilberman et al., 1999). Most of the time, stricter environmental regulations are judged

negatively by producers who complain about cost increases, income reduction and product competitiveness in the new global environment (Zilberman et al., 1999; Kyriakopoulos and Oude, 1997). On the other hand, consumers who claim to be environmentally conscious stimulate the adoption of additional standards on manufacturers, distributors, retailers and policy makers.

Several studies have been undertaken in North America and Europe to assess consumer perceptions about organic foods (Ott, 1990; Misra et al., 1991; Jolly, 1991; Goldman and Clancy, 1991; Ekelund, 1990; Baker and Crosbie, 1993; Swanson and Carol, 1993; Byrne et al., 1994; Oystein et al., 2001; Packer, 2001; Demeritt, 2002; Wolf, 2002; Cunningham, 2002). Most of these studies concluded that consumers purchase organic foods because of a perception that such products are safer, healthier and more environmental friendly than conventionally produced alternatives. Also, there have been many studies conducted on the demand for organic goods (Krissof, 1998). Various studies concerning consumer behavior vis-a-vis organic products have been conducted in many countries. Most of them rely upon consumers to self report their preferences and purchasing behavior through surveys and questionnaires

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(Roddy, 1996; Hutchins and Greenhalgh, 1997; Kyriakopoulos and Oude, 1997; Thompson, 1998; Thompson and Kidwell, 1998). To portray an accurate description of the demand for organic goods in the United States, one must piece together a complex set of independent studies (Thompson, 1998).

In a nationwide study, 50% of consumer's perceived chemicals to be one of the greatest threat to the safety of the food they purchase (NFO, 1989). A second nationwide study by the Food Marketing Institute (FMI, 1989) found that 77% of respondents perceived pesticide residues in food as a serious health hazard. Additionally, 32% indicated food additives and preservatives, and 26% specified coloring agents as serious health hazards. Consumers will avoid purchases of products that they deem risky which include products perceived to have pesticide residues. This demand for pesticide residue-free food products has resulted in the billion dollar organic industry (Food Marketing Institute, 1989). In the majority of studies, many consumers (33 to 61%) declared that they have a preference for and an interest in organically produced foods (Wilkins et al., 1994; Misra et al., 1991). Yet, the proportion of consumers who purchase organic foods regularly is low (Roddy et al., 1996; Von Alvensleben, 1998; Grunert and Kristensen, 1995). Findings from three German consumer surveys in 1984, 1989 and 1994 showed that the proportion of frequent buyers of organic foods have increased from 1984 (5%) to 1994 (15%) (Von Alvensleben, 1998). Recently, 33 indicated that around 20% of consumers in a few large Swedish cities stated that they bought organic vegetables regularly.

Environmental concern is apparently not as strong a motive as health. Thompson (1998) provides a thorough summary of the findings of these studies. Income seems to be the most influential factor to demand for organic good, although there are significant exceptions from households of certain types of individuals that have strong personal ideologies enforcing commitments to organic products. Thompson (1998) showed that at the national level studies, households with higher incomes were more likely to purchase organic foods. TNS (2003) found a higher prevalence of vegetarians among organic consumers than in the general population. Furthermore, it was assumed that health and environmental considerations would be the most important factors in deciding to purchase organic food, as research among adults pointed in that direction.

### **Willingness to pay (WTP)**

In the international literature, one can find a large body of research regarding consumers' willingness to pay for environmental friendliness and/or quality/safety in food production as well as for non-food products and services (Vlosky et al., 1999; Tse, 2001). The key findings from selected studies including details of the premiums

consumers WTP are summarized. Jolly (1991) found that consumers were willing to pay a 37% price premium for organic products in the US by comparison, Goldman and Clancy (1991) reported that a third of respondents in a New York survey were willing to pay a 100% price premium for a residue free product. Ekelund (1990) found that about 55% of respondents in Sweden were willing to pay 25% above a regular, conventionally grown product price, with another 26% of organic buyers willing to pay 50% more. But overall, most consumers are not willing to pay a price premium higher than 10 to 20% (Turco, 2002).

### **Communicative channel**

Zhou and Chen (2007) studied about the channels through which consumers heard about the organic food. According to the results of the study, 56% of the respondents had heard about organic food from TV, 47% learned about organic food from magazines, 23% through internet, 16% got the information from supermarket, 10% had the knowledge from friends and 5% got the organic food information from other channels, respectively.

### **Organic products**

The findings from some studies provide useful information for future consumer and policy research. For example, Jolly et al. (1989) reported in a study in three California counties that the most frequently purchased organic foods in decreasing order of magnitude were fruits, vegetables and beef products. According to Hay (1989), Canadians tended to buy more organic fruits and vegetables than any other category of organic products. Similarly, O'Donovan and McCarthy (2002) also found that vegetables were the most popular types of organic food purchased in Ireland, where 53% of respondents reported consuming organic vegetables compared to 45% for organic fruits.

### **Socio-economic demographics**

Consumer's attitudes may be influenced by a customer's age, gender, marital status, education, household size and income (Thompson, 1998; Thompson and Kidwell, 1998). Some researchers anticipated a more positive attitude from the country dwellers in addition to, expected differences between the attitudes of boys and girls, in that 'soft values' (for instance, eco-friendliness) seem to better fit female perspectives (Casimir and Dutilh, 2003). Also, women are generally more concerned about health and healthy food than are men (Moerbeek and Casimir, 2005). Girls also seem to have a stronger influence on the buying behavior of their parents than the boys (Wilson and Wood, 2004). The Packer (2001, 2002) found

**Table 1.** Five states under study and frequency distribution of respondents.

Province	Frequency (f)	Percentage (%)
Tehran	167	40.1
Fars	63	15.1
Isfahan	56	12.5
Kermanshah	60	14.4
East Azerbaijan	70	16.8
Total	416	100

found that region was a strong factor associated with organic purchasers; 50% of those living in the West as opposed to approximately 30% in other regions of the US purchased organic foods. These differences in findings could be due to differences in sampling methods, changes in attitudes or behavior over time, where and when the studies took place, or how questions were asked, but they do point to the need for further investigation. Iran not exempted from this scenario and yearly, pesticides and other chemical materials are increasing. Statistical data showed that as many as 4.1 million tons chemical material from 2006 to 2007 distributed among farmers and consumers have become more concerned about the health and quality of food they eat as their income increase. The demand for organic food is bigger and bigger. In this saturated market environment, distribution channels, marketing activities, diversification strategies and food quality are increasingly important. However, there are no research on the consumer attitudes and preferences of AOP in Iran yet.

There is little knowledge about whether the consumer in Iran know the AOP or not and what image consumer have on organic food. Therefore, the aim of the current study was to obtain attitudes of Iranian consumers about AOP.

### Purpose and objectives

The main purpose of the study is to describe attitudes of Iranian consumers towards AOP. Specific objectives were to:

- i) Describe attitudes of consumers' attitudes of AOP attributes.
- ii) Likelihood of future purchases of AOP as reported by respondents.
- iii) Identify important AOP delivery method(s) and place(s) to supply organic products, and,
- iv) Identify factors affecting the AOP diffusion.

### METHODOLOGY

The study was carried out through a survey research design. The statistical population of the study consisted of all Iranian consumers living in Tehran, Fars, Esfahan, Kermanshah and East Azerbaijan

provinces. Following the distribution of the questionnaire, 416 out of all questionnaires were returned; representing a response rate of 59%. Applying stratified random sampling technique, 416 consumers from five provinces were selected (Table 1).

### Instrument

To collect the data on consumers' attitudes towards AOP, a questionnaire was designed. The questionnaire contained several groups of questions including demographic characteristics, concept of agricultural organic products, channels to obtain information of AOP, knowledge of AOP attributes, appropriate places and methods to supply AOP and finally general questions about consumers' attitudes towards AOP. Scale statements were measured on a five-point, Likert-type scale that ranged from 1 = "strongly disagree", 2 = "disagree", 3 = "no opinion", 4 = "agree" to 5 = "strongly agree". Content validity of questionnaire was through panel of experts. The initial questionnaire was pilot tested on 30 respondents. Questionnaire reliability was tested using Cronbach alpha. The results indicated that the reliability coefficient was acceptable ( $\alpha = 0.78$ ). Data analysis was carried out in two sections consisting data description and data inferential analysis. Descriptive statistics such as frequencies, percentage and cumulative percentage were used in the descriptive section. Correlation analysis methods, CV, compartmental analyses such as F-test, T- test and factor analysis were used in the inferential analysis section".

## RESULTS AND DISCUSSION

### Characteristics of respondents

In the survey, respondents' age ranged from 23 to 75 years with an average of 32. 70.1% of respondents were male and 29.9% were female. 55% of the respondents stated that they earned US 300\$ or less per month, 33.2% among 300 to 600 per month while for the remaining 11.1%, the household monthly income was above US 600\$. 3.5% of the respondents were illiterate, 40% had completed high school and, 56.5% of the respondents held graduate or postgraduate degrees.

### *Respondents' attitudes toward paying more money for AOP*

The majority of respondents (74%) demonstrated positive attitudes toward paying a price premium for organic

**Table 2.** Attitudes towards paying more money for buying AOP compared to agricultural conventional products.

More money* (%)	Frequency (f)	Percentage (%)
Less than 10	74	25.5
10-30	135	45.5
30-50	60	20.1
Above 50	12	4
Missing values	20	6.9

\*Dollar; Mean = 26.16; min = 5 and max = 80.

**Table 3.** Consumers' attitudes toward important attributes of agricultural organic products (AOP).

Attribute	Frequency	Important		Neither important nor unimportant		Unimportant	
		Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
Flavor	407	395	97.1	11	2.7	1	0.2
Safety	407	391	96.1	14	3.4	1	0.4
Availability	408	361	88.5	39	9.6	7	1.9
Appearance	408	318	77.9	83	20.3	7	1.7
Color	404	303	75	97	24	4	1
Price	306	293	73.3	105	25.9	7	1.7
Size	208	223	54.7	173	32.6	11	3.7

**Table 4.** Likelihood of future purchases of organic food.

Products	Frequency	Mean	S.D.	Rank
Vegetable	302	2.72	1.351	1
Animal products	368	2.53	1.331	2
Fruits	398	2.51	1.302	3
Cereals (wheat, ...)	397	2.36	1.576	4

products compared to conventional products, only 26% claimed not to be willing to pay more money for AOPs (Table 2).

#### **Consumers' knowledge of chemical products and AOP**

197 respondents (47.5%) rated their chemical products knowledge level as "high", 68 respondents (16.5%) rated their knowledge level as "low" and respondents with "intermediate" knowledge level of chemical products were 139 consumers (36%). Meanwhile, respondents knowledge level of AOP was "low" (181 respondents/8.4%), "intermediate" (174 respondents /42.1%) or "high" (61 respondents/24.2%).

#### **Consumers' attitudes toward important attributes of AOP**

The consumers were asked about important attributes of AOP (Table 3). The results showed that flavor and safety

of the AOP were the most important attributes in the views of the consumers. In the literature, the existing price difference is indicated as a major obstacle to the purchase of AOP (Grunert and Kristensen, 1995; Mathisson and Schollin, 1994) but the results showed that in our sample prices of the products were only ranked as the sixth most important criterion. This finding is in line with the results reported by Jolly (2001), Demeritt (2002), Wolf (2002) and Cunningham (2002).

#### **Likelihood of future purchases of AOP**

Table 4 shows likelihood of future purchases of AOP as reported by respondents. Respondents were more likely to purchase organic vegetable and animal products in the future. This finding is consistent with studies conducted by Jolly et al. (1989), Hay (1989) and O'Donovan and McCarthy (2002). This may be as a result of recent activities implemented by Iranian Agricultural ministry to promote use of organically produced foods.

**Table 5.** Mean rank distribution of respondents (based on communicative channel).

Information delivery methods	Frequency	Mean	S.D	Rank
TV and radio	401	4.81	0.596	1
Newspaper	396	3.87	1.66	2
Internal contact	389	3.74	1.11	3
Poster and tracts	394	3.73	1.08	4
Workshop	392	3.38	1.15	5
Magazine	391	3.33	1.04	6
Web-based information	388	3.26	1.18	7

**Table 6.** Frequency distribution of consumers about appropriate method and place for supplying organic products.

Rank	Method	Frequency	Mean	S.D	C.V
1	Special labels	372	4.33	0.91	0.21
2	Special packages	395	4.08	0.94	0.23
	<b>Place</b>				
1	Identified special markets	403	3.95	1.04	0.26
2	Selling AOP at the same place compared to conventional products	395	3.74	1.1	0.29
3	Farmers markets	399	3.54	1.2	0.33
4	Roadside stand (mass supply)	392	3.02	1.26	0.41
5	Chain supermarkets	402	4.32	2.96	0.68

### Types of AOP information delivery methods

Results showed that 52% of respondents (who were aware of AOP) used TV and radio for obtaining AOP information, and contribution of books, web-based information, colleagues and friends, magazine and other information delivery methods was 16, 9, 11, and 10% of total used information delivery methods, respectively.

### Preferred AOP information delivery methods

The respondents were asked to express their views on the importance of different information delivery methods about AOP. Table 5 shows TV, radio and newspapers were considered as the most important AOP delivery methods. Meanwhile, web-based information and magazine were determined as the least important AOP delivery methods.

### AOP delivery

The respondents were asked to express their views on the importance of different AOP delivery methods. Table 6 shows using special labels and packages for AOP were selected as the most important AOP delivery methods. On the other hand, it identified special markets and selling AOP at the same place compared to conventional products was determined as the most important AOP

delivery places.

### Comparison between attitude and education, income and different nations

The results of ANOVA showed that there were significant differences between education and consumer attitude. But there was no significant difference between group with different income and attitude. These results opposite with finding of Grunert and Kristensen (1995), Mathisson and Schollin (1994), Jolly (1991) and Roddy et al. (1996). The result of Duncan test had been showed difference between groups with university student with post graduate and Diploma. These results were in consistence with findings of Byrne et al. (1991) and Thompson and Kidwell (1998). In addition, not only between groups with different nations were significant relations in attitudes but also among different nation was significant relation to WTP for AOP (Table 8).

### Respondents' attitude, gender, marital status and residential place

The result of chi-square between men and women showed that there were significant different with WTP for AOP. These results are opposite with findings of Casimir and Dutilh (2003) and Moerbeek and Casimir (2005). In this research, men were more WTP for AOP. These result are opposite with

**Table 7.** Effective factors on AOP diffusion.

Factor name		Factor loads
Educational	Developing awareness of disadvantages use too much pesticides, fertilizers and other chemical materials	0.849
	Improvement of consummation culture	0.842
Supportive	Organizing of AOP supply in markets and supermarkets	0.756
	Increasing of cooperatives role in AOP	0.731
	Increasing of facilities (such as markets and subsidy to production)	0.629
Monitoring	The use of public sector for services of AOP	0.878
	Direct monitoring in supply of AOP	0.831
Economical	Being economical of AOP	0.889

**Table 8.** Comparison between attitude and education, income and ethnicity.

Significant	F	Mean	Group	Variable
0.001	4.51	367.551 81.43	Between group Within group	Education
0.295	1.224	107.81 88.1	Between group Within group	Income
0.001	4.33	385.17 82.60	Between group Within group	Province

finding of Thompson (1998). In addition, the results had showed that although they were significant between center and country dwellers in attitudes but in WTP were not significantly different.

### Factors affecting the AOP diffusion

A series of exploratory factor analyses were conducted to explore factors affecting the AOP diffusion using the 15 variables with Varimax as a rotation method and Eigen values greater than 1 as a cut-off point for the number of factors extracted. The analyses eventually resulted in the selection of a four-factor solution based on 9 of the 15 initial variables. These factors accounted for a total of 69.76% of the total variance explained by the model. Data in Table 7 shows that educational, supportive, monitoring and economical have been evaluated as of high importance by the studied consumers. Effective factors and their factor loads are shown in Table 7.

### CONCLUSION AND RECOMMENDATIONS

This study investigated attitudes of Iranian consumers towards AOP. This study provides some insights and

directions for further investigations into the role of knowledge and attitudes of consumers towards AOP purchases. The results of the study showed that flavor and safety of the AOP were the most important attributes of AOP purchases in the view of Iranian consumers. Prices of the AOP are ranked as the sixth level of importance. In addition, the results show that TV and radio are found to be the major sources of awareness of AOP for consumers. Also, a majority of the consumers stated that special labels and special packages are the main appropriate methods to distinguish AOP. In addition, they believe that special markets and farmer markets are the most appropriate places for selling AOP. As the results of factor analysis eventually extracted four-factor solution which explained 69.76% of the total variance. Only a small proportion of Iranian consumers purchase organic varieties of the chosen target products. Also, intentions to buy AOP were expressed only by a small number of consumers. Nevertheless, the majority have positive attitudes towards buying them. When compared with the most important purchase criteria for the target AOP like taste, healthiness and quality, the criterion of being organically produced was of much less importance.

Our findings of a small proportion of regular buyers correspond well with the results of several Northern

European consumer surveys such as Grunert and Kristensen (1995) and Roddy (1996). There is more information needed on the hazard of chemical material and pesticides as well as on the intake of food-processing and food-packaging chemicals that is preferentially used in the AOP system. Therefore health organization and mass media such as a radio and particularly TV, offering these programs help to the presentation of these products to people (Zhou and Chen, 2007). It seems that the price of AOP was a chief major but not the only obstacle to purchasing AOP but observation of researcher showed that lack of fundamental and infrastructures and food habits of consumers were the most important obstacles. Therefore, policy makers should establish infrastructure and markets for marketing AOP.

The result of factor analysis showed that educational factor was the first factor to diffuse AOP; therefore, potential consumers must be informed regarding disadvantages of chemical materials and pesticides. The results demonstrate that the most important purchase criteria (taste, health, and quality aspects) and the most common beliefs about organic foods (more expensive and healthier) do not match very well. This might be one reason why the proportion of Iranian consumer in AOP is very low at present but as a whole, they were willing to pay more money for these products.

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