Analyzing Perception and Technical Knowledge of Wheat Farmers Regarding Organic Farming Products

Azadeh N. Noorivandi

Assistant Professors of Agricultural Extension and Education Department, Shoushtar Branch, Islamic Azad University, Shoushtar, Iran.

E mail: a.noorivandi@iau-shoushtar.ac.ir

Abstract

The purpose of this research was to analyzing the perception and technical knowledge of wheat farmers in shoushtar township, Khouzestan province, Iran regarding organic farming products. The research method employed was correlative-descriptive. The population consisted of wheat farmers in Shoushtar township Khuzestan Province of Iran. A random sample of wheat farmers (n = 163) was selected. The questionnaire was developed to collect data. Content and face validity were established by a panel of experts. Questionnaire reliability was estimated by calculating Cronbach,'s alpha. Reliability of the overall instrument was estimated at 0.84. Data collected were analyzed using the statistical package for the social sciences (SPSS). Appropriate statistical procedures for description (frequencies, percent, means, and standard deviations) were used. Based on the results, 89.56% of respondents had moderate to very high level of perception and 44.79 of farmers had moderate to very high level technical knowledge. Liner regression was used to predict changes in perception and technical knowledge of wheat farmers. Participation in extension courses, rate of using communication channels, level of education, income, social participation, social status, job satisfaction may well explain for 64.9% changes ($R^2 = 0.649$) in perception and technical knowledge of wheat farmers regarding organic farming products. **[Azadeh N. Noorivandi. Analyzing Perception and Technical Knowledge of Wheat Farmers Regarding Organic Farming Products. International Journal of Agricultural Science, Research and Technology in Extension and Education Systems, 2012; 2(4):181-186].**

Keywords: Perception, Technical Knowledge, Organic Farming.

1. Introduction

Many writers argue that conventional agriculture is not sustainable and that radical changes will be needed (Wheeler, 2005; Ruttan,1999; Sarudi et al 2003; Ramesh et al 2005, Sciallaba and Hattam, 2002). Organic agriculture is conservational and environmentally friendly production system that offers developing countries a wide range of economic, environmental, social and Cultural benefit (UNEP-UNCTAD, 2008). Organic agriculture systems are highly dynamic socio-ecological systems. They are subject to constant change, particularly in light of the prevailing global megatrends such as climate change, natural resource degradation, population growth, and urbanisation. Social adaptation and innovation that harness knowledge and learning are key competences of organic farmers to build resilient farming systems. (Kummer et al, 2010). The evidence is clear about the success of organic farming in terms of human health, prosperity, the benefits to soil and water, to birds and bees, and the ability of organic farming to mitigate damage from global climate change (OFERF, 2011). In developing countries, evidence from research and from this study shows that agricultural yields in organic systems do not fall (UNEP-UNCTAD, 2008).

Organic farming is gaining popularity all over the world as it can diversify agricultural production system toward attaining improved productivity, farm income as well as food safety (Assis and Mohd Ismail, 2011). Organic farming practices improve soil quality and water quality and retention. Using biological forms of fertilizer such as compost, animal manures, and legume cover crops builds soil organic matter in organically managed soils, even when routine tillage is used for weed control (OFERF, 2011). A number of studies have shown that under drought conditions, crops in organic agriculture systems produce significantly higher yields than comparable conventional agricultural crops (Ramesh et al 2005). The clear scientific evidence of the success of organic farming in terms of human health, economic health and the environment must guide the development and implementation of twenty-first century policies. Such policies must create a food and farming system that provides enhanced societal benefits in addition to production of food, fiber, and fuel. Reforming agriculture policies toward investment in organic systems is a necessary evolution (OFERF, 2011).

Diffusion of organic farming as an innovation in Iran requires to cooperation of

agricultural professionals. Indeed, agricultural professionals play a key role in creating and developing agricultural innovations, informing and influencing farmers' adoption of technologies, and informing or providing information to the public (Wheeler, 2008). Whereas every new policy to diffusion of organic farming will mean demands on knowledge of agricultural professionals, it is important to understand their knowledge. This paper reports the nature and extent of Iranian agricultural professionals' knowledge on organic farming and key factors influencing their knowledge.

Based on the results of multiple researches, organic farming tends to be increased. Based on these researches, several variables are involved in the development of its application. Develop and promote educational activities, develop knowledge and skills and attention to economic issues are important variables.

The table 1 describe different researches with variable and results of themes about perception, knowledge and adoption of organic practices.

Table 1. Results and variables of different researches

Title	researchers	Results	Independent variable
Affective Factors in Adopting Organic Farming in Iran	Hosseini and Ajoudani (2012)	Economic factor were as an important factor to adopt the organic agriculture.	Adopting Organic Farming
Investigating Effective Factors on Attitude of Paddy Growers Towards Organic Farming: A Case Study in Babol County in Iran	Sadati, Fami, Kalantari, Mohamadi and Asakere(2010)	Participation in extension courses, access to extension communication channels and level of literacy and landholding were the effective factors on farmers' attitude toward organic farming	Attitude Towards Organic Farming
Iranian agricultural professionals' knowledge on organic farming	Malek-Saeidi, Rezaei-Moghaddam and Ajili (2011)	The results showed that age and access to information on agriculture and environment were two important variables that had a positive and direct effect on the organic knowledge.	Organic knowledge
Factors Affecting Adoption of Organic Vegetable Farming in Chitwan District, Nepal	*Kafle* (2011)	Farmers' participation in organic farming related trainings and visits, farm size and compatibility of organic farming to their situations as the main determinants of adoption of organic farming among farmers	Adoption of organic farming
Barriers to conversion to organic farming: A case study in Babol County in Iran	Sharifi et al (2010)	The result showed that major barriers to adoption of organic farming between farmers were:productive, natural, attitude and knowledge, infrastructural, institutional and economical barriers.	Adoption of organic farming
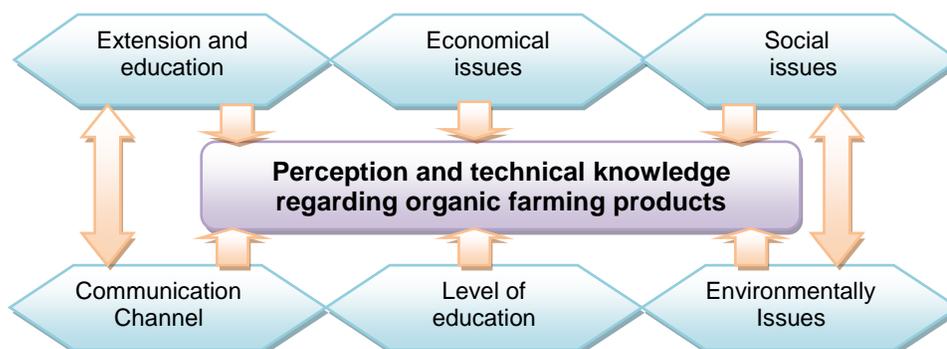
Fig 1. Theoretical framework
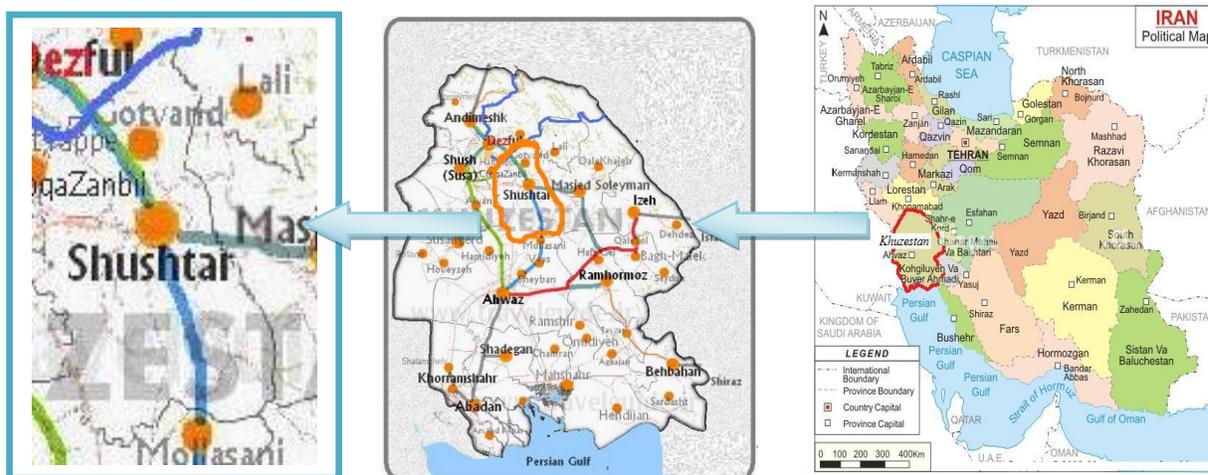
Fig 2. Site of study

2. Materials and methods

This study was carried out by survey during July and August 2010. The research method employed was correlative-descriptive. The population consisted of wheat farmers in Shoushtar township of Iran. A random sample of wheat farmers in shoushtar township, Khouzestan province, Iran (n = 163) was selected. The dependent variablea were the perception and technical knowledge of wheat farmers regarding organic farming. The questionnaire was developed to collect data. Content and face validity were established by a panel of experts. A pilot test was conducted.

Questionnaire reliability was estimated by calculating Cronbach,'s alpha. Reliability for the overall instrument was estimated at 0.84. Data collected were analyzed using the statistical package for the social sciences (SPSS). Appropriate statistical procedures for description (frequencies, percent, means, and standard deviations) were used.

3. Results and discussion

Different items were used for assessment perception of wheat farmers regarding organic farming products. For example based on the results in Table 2, the perception of wheat farmers regarding role of organic farming in food security was between unsure and high level (Mean = 3.24, Sd = 0.97).

Based on compute of responses and using of mean and standard deviation, farmers divided to 5 groups:

A= Very high perception: A> mean+3sd/2

B= High perception: mean+3sd/2 $\geq$B> mean+sd/2

C=Moderate perception: mean+sd/2$\geq$C$\geq$mean-sd/2

D=Low perception: mean-sd/2>B$\geq$ mean-3sd/2

E=Very low perception: E< mean-3sd/2

Based on Table 3, 89.56% of respondents had moderate to very high level of perception regarding of organic farming. Also different items were used for assessment technical knowledge of wheat farmers regarding organic farming products. For example based on the results in Table 4, the technical knowledge of wheat farmers regarding crop rotation was between unsure and high level (Mean = 3.26, Sd = 0.86).

Based on compute of responses and using of mean and standard deviation, farmers divided to 5 groups:

A= Very high knowledge: A> mean+3sd/2

B= High knowledge: mean+3sd/2 $\geq$B> mean+sd/2

C=Moderate knowledge: mean+sd/2$\geq$C$\geq$mean-sd/2

D=Low knowledge: mean-sd/2>B$\geq$ mean-3sd/2

E=Very low knowledge: E< mean-3sd/2

Based on Table 5, 44.79% of respondents had moderate to very high level of technical knowledge regarding of organic farming.

The relationship between some selected respondents' characteristics with perception regarding organic farming products is shown in Table 6.

There was a significant relationship between the participation in extension courses, rate of using communication channels, level of education, income, social participation, social status, and job satisfaction with perception regarding organic farming products.

The relationship between some selected respondents' characteristics with technical knowledge

regarding organic farming products is shown in Table 6.

There was a significant relationship between the participation in extension courses, rate of using communication channels, level of education, income, social participation, social status, and job satisfaction with technical knowledge regarding organic farming products.

Linear regression was used for predicting changes in perception regarding organic farming products (Table 8). Participation in extension courses, rate of using communication channels, level of education, income, social participation, social status, and job satisfaction may well explain for 67.9% changes (R^2 = 0.679) in perception regarding organic farming products. This relationship is described in the following formula:

$$Y = 6.364 + 0.644x_1\ 0.436\ x_2 + 0.654x_3 + 0.675x_4 + 0.446x_5 + 0.455x_6 + 0.536x_7$$

Table 2. Perception of wheat farmers regarding organic farming products items.

Items	Mean	Sd
Lead to food security	4.24	0.97
Increase revenue in the long term	3.67	0.99
Protection of environmental resources will lead	4.09	0.79
Human health is to follow	3.96	1.02
Production can be sustained.	4.33	1.11
Viable alternative to the current situation.	4.34	1.20
Reduce dependence on chemical inputs is the following	3.99	0.88
Socially acceptable to be	4.34	0.92
Economically it is acceptable	3.98	1.06
I tend to use it	3.56	1.09

1 = Very disagree, 2 = Disagree, 3 = Unsure, 4 = Agree, 5 = Very agree.

Table 3. Level of Perception regarding organic farming products

Level of perception	f	percent	Cumulative percent
Very high	67	41.10	41.10
High	45	27.61	68.71
Moderate	34	20.85	89.56
Low	10	6.13	95.69
Very low	7	4.30	100
Total	163	100	

Scale: 5 = Very high; 4 = high; 3 = moderate; 2 = Disagree; 1 = Very disagree; Mean= 4.07 sd= 1.08

Table 4. Technical knowledge of wheat farmers regarding organic farming products items

Items	Mean score	Sd
Crop rotation	3.26	0.86
Green manures	3.20	0.91
Compost	2.06	0.97
Biological pest control	2.34	1.09
Mechanical cultivation	2.34	1.10

1=very weak, 2 = weak, 3 = moderate, 4 = good, 5=very good

Table 5. Level of Technical knowledge regarding organic farming products

Level of knowledge	f	percent	Cumulative percent
Very high	33	15.95	15.95
High	45	13.50	29.45
Moderate	54	15.34	44.79
Low	45	28.22	73.01
Very low	7	26.99	100.00
Total	163	100	

Scale: 5 = Very agree; 4 = Agree; 3 = Unsure; 2 = Disagree; 1 = Very disagree.

Table 6. Correlation between independent variables with perception regarding organic farming products

Variable	r	p
Level of education	0.765	0.000***
Social participation	0.683	0.000***
Income	0.643	0.000***
Age	0.087	0.61
Rate of using communication channels	0.832	0.000***
Social status	0.376	0.000***
Job satisfaction	0.370	0.000***
Participation in extension courses	0.462	0.000***

*: $p < 0.05$;   **: $p < 0.01$;   ***: $p < 0.001$.

Table 7. Correlation between independent variables with technical knowledge regarding organic farming

Variable	r	p
Level of education	0.727	0.000***
Social participation	0.664	0.000***
Income	0.745	0.000***
Age	0.054	0.61
rate of using communication channels	0.642	0.000***
social status	0.443	0.000***
job satisfaction	0.476	0.000***
Participation in extension courses	0.445	0.000***

*: $p < 0.05$;   **: $p < 0.01$;   ***: $p < 0.001$.

Table 8. Linear regression used for predicting changes in perception with respect to organic farming.

Variable	B	SE B	Beta	T	Tsig
Level of education	0.644	0.754	0.447	3.943	0.000
Social participation	0.436	0.563	0.545	3.548	0.000
Income	0.654	0.754	0.554	4.538	0.000
Rate of using communication channels	0.675	0.453	0.347	4.263	0.000
Social status	0.446	0.734	0.465	4.288	0.000
job satisfaction	0.455	0.234	0.475	2.458	0.000
Participation in extension courses	0.536	0.409	0.278	4.456	0.000
Constant	6.364	0.453	-	4.645	0.000

$F = 12.375$, Signif $F = 0.000$; $R^2 = 0.679$

4. Conclusion and Recommendations

This study has analyzed perception and technical knowledge of wheat farmers in Shoushtar township, Khouzastan province, Iran regarding organic farming products. Based on the results, 89.56% of respondents had moderate to very high level of perception and 44.79 of farmers had moderate to very high level technical knowledge. Liner regression was used to predict changes in perception and technical knowledge of wheat farmers. Participation in extension courses, rate of using communication channels, level of education, income, social participation, social status, job satisfaction may well explain for 64.9% changes (R^2 = 0.649) in perception and technical knowledge of wheat farmers regarding organic farming products.

Based on the results, training classes based on the needs of farmers, development of communication channels, social development and increasing farmers' income should be considered by planners.

References
1. Assis, K and Mohd Ismail, H. A. (2011). Knowledge, Attitude And Practices Of Farmers Towards Organic Farming. Int. J. Eco. Res., 2011 2(3), 1-6.
2. Hosseini, J. F and Ajoudani, Z. (2012). Affective Factors in Adopting Organic Farming in Iran, Annals of Biological Research, 3 (1):601-608
3. Kafle, B. (2011). Factors Affecting Adoption of Organic Vegetable Farming in Chitwan District, Nepal, World Journal of Agricultural Sciences 7 (5): 604-606.

4. Kummer, S., Lisa Aigelsperger, L., Milestad, R., Chowdhury, A., Vogl, C. R. (2010). Knowledge systems, innovations and social learning in organic farming – An overview. 9th European IFSA Symposium, 4-7 July 2010, Vienna (Austria).

5. Malek-Saeidi, H., Rezaei-Moghaddam, K and Ajili, A. (2011). Iranian agricultural professionals' knowledge on organic farming, African Journal of Agricultural Research. 6(2): 907-915

6. OFERF (2011). Organic Farming for Health and Prosperity. Organic Farming Research Foundation. P.O. Box 440, Santa Cruz, CA 95061.

7. Ramesh, P., Singh, M and Rao, S. (2005).Organic farming: Its relevance to the Indian. Context. Current Science, Vol. 88, NO. 4, 561-568.

8. Ruttan, V. (1999). The transition to agricultural sustainability. Proc Natl Acad Sci 96, 5960-5967.

9. Sadati, A., Fami, H., Kalantari,K., Mohamadi, Y and Asakere, A. (2010). Investigating Effective Factors on Attitude of Paddy Growers Towards Organic Farming: A Case Study in Babol County in Iran, Research Journal of Applied Sciences, Engineering and Technology. 3(4): 362-367.

10. Sarudi C, Szakály Z, Máthé V, Szente V (2003). The Role of Organic Agriculture in Rural Development. Agriculturae Conspectus Scientificus, Vol. 68 (3). 197-202.

11. Sciallaba, N and Hattam, C. (2002). Organic agriculture. Environmental and Food Security, FAO, Rome

12. Sharifi, O., Sadati, A., Rostami, F., Sadati, A., Mohamadi, Y and Taher Tolou Del, P. (2010). Barriers to conversion to organic farming: A case study in Babol County in Iran. African Journal of Agricultural Research . 5(16): 2260-2267, 18 August, 2010

13. UNEP-UNCTAD. (2008). Organic Agriculture and Food Security in Africa. United Nations New York and Geneva, 2008

14. Wheeler, A. S. (2008). What influences agricultural professionals' views towards organic agriculture? Ecol. Econ., 65:145-154.

15. Wheeler, S. (2005). Factors Influencing Agricultural Professionals' Attitudes Towards Organic Agriculture and Biotechnology. Centre for Regulation and Market Analysis, University of South Australia.