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Conventional and Organic farmers in Iran: A comparison study on perceptions, socio-economic and demographic characteristics

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Abstract

Organic farming in Iran has great potential for contribution in sustainable agriculture. In order to support the implementation of organic farming, policy makers need to have better understanding of farmers. The purpose of this study is to analyse the socio-economic characteristics of organic versus conventional farmers. In addition, we aim to investigate farmer's perception and attitude towards organic farming. The sample included 141 pioneer farmers (organic and non-organic farmers) in five provinces in Iran (Kerman, Golestan, Khorasan Razavi, Kermanshah and Fars). These regions have the highest number of organic farmers in the country. For conducting the analysis, we used Mann-Whitney Test, Chi-Square Test and Discriminant Analysis.

The results of Mann-Whitney Test show that perceptions of farmers about environmental risks and human health effects of chemical fertilizers and pesticides were significantly different among organic and conventional farmers. In addition, our results indicate that more than 60 percent of farmers in the sample had very limited or no knowledge about organic farming. With respect to educational program, 77.3 % of respondents reported that they never enrolled in organic educational courses. Concerning the organic certification, our results show that 77.3 of farmers were unfamiliar with the process of certification. Regarding organic market, almost all farmers (93.6 %) reported very limited or no knowledge about the available markets. Respecting demographic factors, our findings revealed that, organic farmers were more socially active and relatively younger than the conventional farmers. However, regarding the educational level, we did not observe significant difference between two groups. Using discriminant analysis in SPSS software, we analysed the differences between organic and conventional farmers. Four discriminating factors include having experience of organic agriculture, engagement in social activities, the experience of IPM methods on their own farm, and attending the sustainable agriculture courses were entered in discriminant function of organic farmers' characteristics. The results of our study suggest that in order to support the development of organic farming in Iran, policy makers, experts and extension agents' efforts should focus on extensional, informational and market-oriented plans.

Key words: sustainable agriculture, organic agriculture development, organic farmers, conventional farmers, policy makers.

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Introduction

The information about the use of chemical fertilizers and pesticides in Iran show that 230 thousand hectares (125 thousand hectare of horticultures and 105 thousand hectares of farmlands) have never used chemical materials and about 800 thousand of plant production lands in Iran (about 254 thousand hectare of horticultures and 554 thousand hectare of farmlands) didn't have used the pesticides. (Rezapanah, 2010) on the other hand, researches show that there is a great potential for organic markets in Iran, so that a high percent of consumers (28.1 percent) have willingness to pay more (50% or higher) price for organic products and foods than conventional products (Babajani, 2014). Despite these potentials there is rare organic farms, which have been certified (Mahmoudi et al, 2009), because of perceptions of farmers about chemical fertilizers and pesticides, lack of access to organic certification/ not knowing what to do, deprived farmers from organic market and its associated benefits. These situation makes a defective cycle of organic agriculture development in Iran.

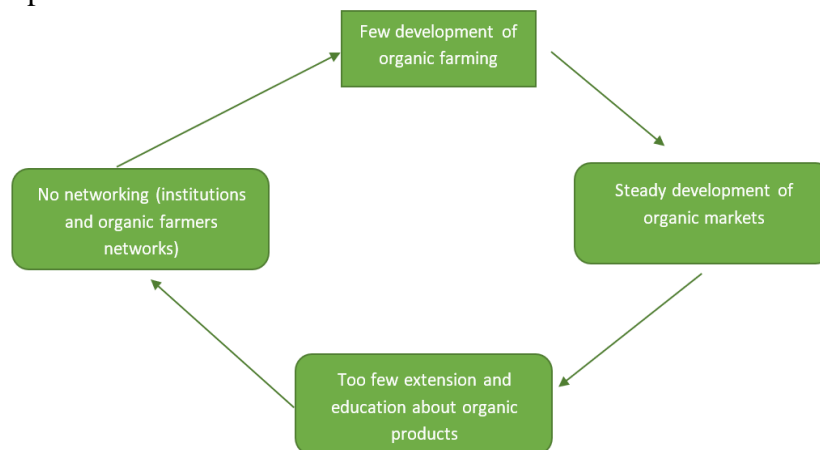


Fig. 1- The defective cycle of organic agriculture development in Iran

Several studies have shown relations between perceptions, knowledge, social and demographic characteristics of farmers (Panneerselvam et al., 2011; Kourouxou et al., 2010) and using organic farming methods by them in company of economic variables such as financial benefits and marketing factors (Asadollahpour et al, 2014). A number of these studies introduce some factors e.g. “tendency to become the members offarmers’ organizations” and “participating in different events workshops” (Tuncer and Boz, 2017). Extension education and informational support, which are investigated in the studies of Panneerselvam et al., 2011; Thapa & Rattanasuteerakul, 2010; Flaten et al., 2010; and Egri, 1999 are the other determining factors.

The purpose of this study is to analyze the socio-economic characteristics of organic versus conventional farmers. In addition, we aim to investigate farmer’s perception and attitude towards organic farming.

Material and Methods

The sample included 141 pioneer farmers (organic and non-organic farmers) in five provinces in Iran (Kerman, Golestan, Khorasan Razavi, Kermanshah and Fars). We asked agricultural experts of agricultural ministry, to determine the regions, who have the highest number of organic farmers, and found 5 most active provinces in organic farming in Iran. Doing a survey with a sample of whole beneficiaries was not logic, thus we should use a purposive sampling method, and in any of five provinces we recognized two groups (include pioneer farmers and organic farmers) by using statistical reports of their organic organizations.

The population size was 336 people and the sample size were estimated by using Cochran formula, which was equal to 141 Farmers include both pioneers and organic farmers. Then the stratified sampling method was used, to find the number of samples in each province.

The data gathering method was survey and the research tool was a researcher-made questionnaire, whose validity was verified by a panel of experts in field of organic agriculture; to check its reliability, a Cronbach's alpha coefficient was calculated equal to 0.86.

Results and Discussion

Demographic and individual characteristics of farmers in the sample

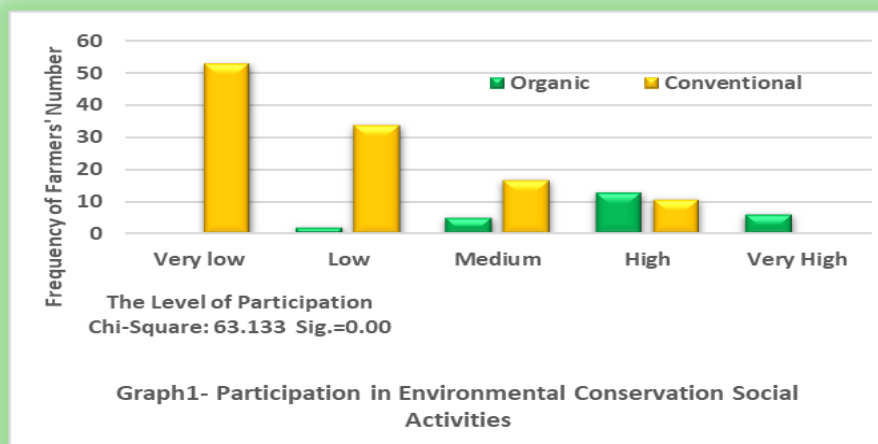
The mean of age of the farmers was 46.7 years old, so that about 60% of them were between 41-60 years old. Most of them were male (94.3%) and more than 48% of them had elementary school or less education, and more than 30 % had college or university degrees.

In this sample the main job of most farmers (83.7%) was farming and the rest had another job as the main profession. The mean rate of farming experience of the farmers in the sample was 25 year, and a considerable group of them have said that they were active in this job more than 30 years. Most of farmers (78%) had no experience in organic farming and a big group of the organic farmers in this sample (70%) had newly (1-3 years) started to use this kind of farming methods.

Investigation the social parameter differences between organic and non-organic farmers

To distinguish the differences between organic and non-organic farmers in personality and occupational characteristics the chi-square test was used. The results show that there is no significant difference between organic and conventional farmers in educational levels, but organic and conventional farmers in farming experiences are significantly different (Chi-square: 56.761, Sig.: 0.005), so that most organic farmers have less experiences in these field.

The level of participation in environmental conservation social activities is significantly different between organic farmers and conventional pioneer farmers. (Graph1)



Awareness level of organic farming methods among pioneer farmers

Due to purposive sampling we cannot generalize our results to the entire farmers, but it helps to understand how the best group of them are aware of organic farming methods and its possibilities in Iran. The results reveal that 62.4 % have no idea or too few information about organic farming. Only 12.8 % thought, they know enough about it. 73.8 % of farmers in the sample never have been in a course about organic farming and 77.3 have no idea about the certification process. Almost all the farmers in this sample 93.6% have no idea about organic product markets in Iran.

The attitude gaps of organic and non-organic farmers in the sample about pesticides and fertilizers

Most framers think that pesticides and chemical fertilizers have no danger for farmers' health. Farmers assume that the residual of pesticide and fertilizers are not dangerous for the consumers. According to the result of Mann-Whitney Test to recognize the differences between organic and conventional farmers attitudes, the phrases about pesticide and fertilizers' danger for environment and the pesticides and fertilizers 'residues have no bad effect on health of consumers, have a

significant amounts in 95 and 99 percent levels, and that means that there is a gap in attitudes of organic and conventional farmers.

Investigating the effective factors on using organic farming methods

Discriminant analysis used to determine the variables, that influence using organic farming methods. According to the results, in this phase, the amount of canonical correlation was 0.802, and the square of it was 0.643, that shows about 64% of variance of dependent variable (using or don't using the organic farming methods) is explained with the four independent variables in this study. The discriminant function shows that the following variables, had the most influence in adoption of organic methods:

Having organic experiment; High rate of social activities; Experience of using the IPM methods; Participation in environmental conservatory methods extension courses

Conclusions and Outlook

- Agricultural extension sector in Iran has very important role in organic farming development.
- There is a remarkable lack of knowledge regarding the adverse effects of chemical inputs in farming system. We suggest that agricultural extensions and media should address this issue as one of their priorities.
- Very limited or no access to information and support is the most important barrier for pioneer farmers to adopt organic farming practices and policy makers should consider this challenge as their priority.

References

1. Asadollahpour, A., Najafabadi, M. O., and Hosseini, S. J. (2014). Factors Affecting the Conversion to Organic Farming in Iran: A Case Study of Mazandaran Rice Products, *Science International (Lahore)*, 26(4):1665-1670.
2. Babajani, A. (2014). Designing a Model for Organic Farming Development in Iran, Doctoral Dissertation in Agricultural Development, Faculty of Agricultural Economics and Development, University of Tehran, Tehran, Iran.
3. Egri, C. P. (1999). Attitudes, Backgrounds, and Information Preferences of Canadian Organic and Conventional Farmers: Implications for Organic Farming Advocates and Extension. *Journal of Sustainable Agriculture* 13(3): 45-73.
4. Flaten, O., Liena, G., Koesling, M., and Løes, A.K. (2010). Norwegian farmers ceasing certified organic production: Characteristics and reasons, *Journal of Environmental Management*, 91 (12): 2717-2726.
5. Keshavarz, S., Mousavi, S. N. (2018). Study of the problems and factors affecting the development of organic farming Case Study: kitchen garden city Marvdasht, *Journal of Agricultural Economics Research*, 10 (39): 151-172.
6. Kourouxou, M., Siardos, G., Iakovidou, O. & Kalburtji, K. (2008). Organic farmers in islands: Agricultural management and attitude towards the environment, *International Journal of Sustainable Development & World Ecology*, 15(6): 553-564.
7. Mahmoudi, H. (2009). Mahdavi Damghani, A., and Liaghati, H., *An Introduction to Organic Farming*, Jihad Daneshgahi Mashhad Publication, Mashhad, Iran.
8. Panneerselvam, P., Halberg, N., Vaarst, M. and Hermanse, J. E. (2011). Indian farmers' experience with and perceptions of organic farming, *Renewable Agriculture and Food Systems*, 27 (2):157-169.
9. Rezapana, M. (2010). An Analysis of Organic Agriculture Development of Iran, Conference of Iranian Organic Agriculture (Oct. 14th, 2010), The Academy of Science of Iran, Tehran.
10. Thapa, G. B., Rattanasuteerakul, K. (2011). Adoption and extent of organic vegetable farming in Mahasarakham province, Thailand, *Applied Geograp*, 31 (1): 201-209.
11. Tuncer, A. G.; and Boz, I. (2017). Comparison of Conventional and Organic Farmers on their Socioeconomic Characteristics and Communication Behaviors, *International Journal of Scientific Research and Management (IJSRM)*, 5(06): 5354-5262.