

Investigating Effective Factors on Attitude of Paddy Growers Towards Organic Farming: A Case Study in Babol County in Iran

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Abstract: The main purpose of this study was to investigate effective factors on the attitude of paddy growers towards organic farming in Babol County in Iran. A sample size of 150 farmers was selected for this research by using simple random sampling method. Result of regression analysis showed that 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 that explained 42% of variance in the attitude index.

Key words: Babol county, Iran, organic farming, paddy growers

INTRODUCTION

Organic farming has expanded rapidly in recent years and is seen as a sustainable alternative to chemical-based agricultural systems (Stockdale *et al.*, 2001; Biao *et al.*, 2003; Avery, 2007). Its annual growth rate has been about 20% for the last decade, accounting for over 31 million hectares (ha) and generating over 26 billion US dollars in annual trade worldwide (Yussefi, 2006). It is reasonable to assume that uncertified organic farming is practiced in even more countries (Yussefi and Willer, 2007); about 50% of those are developing countries (Willer and Yussefi, 2000).

There are many definitions of organic farming, which is also known as ecological agriculture (Gosling *et al.*, 2006) or biodynamic agriculture (Lampkin, 2002). Some have considered organic farming and sustainable agriculture synonymous, because they are both based on sustainability of agroecological systems. IFOAM (2000) has defined organic agriculture as "a process that develops a viable and sustainable agro ecosystem". In practical terms, organic farming is a form of agriculture that shies away from synthetic inputs such as pesticides and fertilizers (because of their negative effects on the ecological balance) but uses agricultural practices such as crop rotation, proper spacing between plants, incorporation of organic matter into the soil, and composting (Kuo *et al.*, 2004).

Organic farming systems differ from conventional systems in several aspects. In the first place, no artificial pesticides or fertilizers are used on organic farms, leading

to greater food availability in terms of both invertebrates and plant matter (Bengtsson *et al.*, 2005; Hole *et al.*, 2005). Secondly, organic arable farms generally have a wider crop rotation scheme, resulting in greater crop diversity (McCann *et al.*, 1997; Levin, 2007). Finally, organic farms generally have larger areas of non-crop habitats (Gibson *et al.*, 2007; Levin, 2007). The absence of soluble chemical fertilizers and the limited use of natural biocides in organic agriculture mean that it is largely dependent on biological processes for the supply of nutrients (e.g., N₂ fixation), and for protection of crops from pests and disease (Gosling *et al.*, 2006).

The analyses of factors that influence farmers' adoption of innovations, as well as analyses of the differences between organic and conventional farming have started in late 90ies when the participation of farmers in the EU member states in agrienvironmental programmes became more widespread (Udovc and Perpar, 2007). Various studies have investigated the factors influencing farmers' motivations for participation in agri-environmental schemes in general, and adoption of organic farming in particular. (Schulze, 1994; Häfliger and Maurer, 1996; Freyer, 1998; Burton *et al.*, 1999; Drake *et al.*, 1999; Hollenberg *et al.*, 1999; Kirner and Schneeberger, 2000; Rämisch, 2001; Schneeberger and Kirner, 2001; Schneider, 2001; Schneeberger *et al.*, 2002). Results of some showed that decision to convert to organic production as farm business-related, rather than associated with ideology and a change in lifestyle. Farmers with low and moderate input use were more likely to consider conversion (Duram, 1999).

Result of other study showed that the main motivations were described as demand and the opportunity to access premium prices; the particular pressure exercised by one multiple retailer with dominance in the produce market; the availability of direct payments in mountain regions; and on environmental grounds in areas where extensive agriculture is dominant. A favourable social acceptance of organic farming was also described as important in regions with extensive production (FIBL, 1997). Membership in a producer organisation, turnover from direct sales, and the education of the farmer all had a significant positive impact in continue in organic production after membership (Kirner, 1999; Weber, 2000).

Farmers in regions with extensive production were more receptive towards organic farming, whereas in the regions with more intensive arable and horticultural holdings producers were sceptical Loibl (1999). There is some indication that gender is a factor in conventional farmers' attitude towards organic horticultural production Burton *et al.*'s (1997). A logit analysis of the survey data identified a higher probability of conversion if the farmer was female, was concerned about environmental issues, was a member of an environmental organisation, obtained information mainly from other farmers, aimed for higher self-sufficiency or believed that organic farming could satisfy society's need for food and fibre (Burton *et al.*, 1997; Burton *et al.*, 1999). Furthermore the education, the proportion of income from agriculture and some beliefs on the effect of farm size on the environment were found to be explanatory variables, but were not confirmed in the statistical analysis. However, given the importance of farm type on some attitudinal variables, these results from horticultural producers cannot be generalised for the agricultural sector as a whole.

In one of the earlier analyses Wilson (1997) grouped factors influencing the adoption of certain agri-environmental scheme in "scheme factors" (e.g., payments) and "farmer factors" (e.g., age of farmer). In his analysis, he proved that the strongest factor influencing the decision for adopting a certain scheme/s is farm size, where the medium size farms were most interested to adopt. That the farm size is one of the most important factors also indicated the analysis of Diederer *et al.* (2003) and Chaves (2001). On the other hand, Burton in his analysis (2003) found farm size as insignificant factor. Other factors which also showed some influence on adoption of either organic farming or certain agri-environmental schemes are: education, farmer's attitude towards environment, sources of information and income situation of the farm (Wilson, 1997; Burton 1999, 2003; McCann and Sullivan, 1997). The objectives of the study were as follows:

- To measure farmers attitude toward organic farming,
- To describe the socio-economic characteristics of the farmers
- To determine the extent to which selected factors influence the importance the farmers' attitude toward organic farming.

MATERIALS AND METHODS

This research was done from April of 2009 to February of 2010 in Babol County from Mazandaran Province in Iran. The main source of data for the study was a questionnaire developed and completed by 150 respondents who were practicing rice farming in Babol County. The simple random sampling method was used for data collection. The target population was the paddy growers of Babol County.

Data collection was completed by administering a two-sectioned instrument. The first section of the questionnaire consisted of questions that refer to the information on the socio-economic characteristics of farmers. The socio-economic characteristics were as follows: the farming system, age, education, income, farm size, extent of irrigated land, landholding, use of credit, and membership to a cooperative society. The second section was related to assess the farmers' attitude, comprised a list of 18 items. All the items were assumed to be useful for assessment of attitude towards organic farming, use of agricultural lands and the state-owned but publicly utilized natural resources in rural areas. The respondents were asked to rank each item on a 5-point Likert-type scale: 1 = completely disagree, 2 = disagree, 3 = no-opinion, 4 = agree and 5 = completely agree.

A panel of experts judgment validated the instrument. The questionnaire was pretested and revised to establish its reliability. To confirm the reliability for the Likert-type items in the index, Cronbach's Alpha internal consistency coefficient was calculated. The value of the coefficient was 0.74. In addition, SPSS version 11.5 was used for data analysis.

RESULTS AND DISCUSSION

Identification of the respondent's characteristics: Some characteristics of the respondents in this research were as follows.

Individual characteristics: Based on the research findings, majority of farmers were men and lived in rural areas and the average of their age was 52 years that showed that we have an old paddy grower's society. The educational level of majorities (30%) of farmers was primary and their average of farming experience was over than 30 years old. In terms of economic status, their average income was about 15500 \$ per year and majority of them had income between 555 and 1500 \$. Average

number of family size of farmers was five people and they had distance about 6 km with service center, 2 km from cooperative, and 0.6 km from asphalted road and 8 km from the nearest city away averagely.

Farming characteristics: The average size of farm to each farmer was equal to 3.8 ha, average of irrigated land was 3.3 and 2.9 ha of their lands were under rice cultivation. Farmers mostly had three and less than 3 pieces of land, but the average number of pieces for the farmers under this study was 3 pieces. Majority of farmers were landowner and dominant farming system was sole cropping in this region, and only 2% of farmers had mixed farming system (agronomy and animal husbandry) and mostly have alternative cropping and they used of labor for their agricultural activities. Interesting finding for this study was that none of the farmers had received any loan for organic farming.

Social characteristics: Based on the research findings, majority of farmers was member in rural institutions and cooperatives but only 12% of them were member in Islamic Council. Only one of farmer among of others in this study was selected as a model farmer and one of them was extension worker.

Extension indicators: Majority of farmers (64.7%) had not participated in any of the extension courses, and so most of people (80%) also were not visited any demonstration farms related to organic farming. About 98% of farmers so far were not visited of any agricultural fair related to organic farming and the majority of them had not participated in visiting of any outside the village fields related to organic farming.

Classification of farmers according to their attitude toward organic farming: For describing dispersion of farmer's attitude toward organic farming, Interval of Standard Deviation from Mean (ISDM) index was used and they were classified into four groups as indicated in Table 1.

Table 1 shows the classification of farmers' attitude toward organic farming indicating that majority of farmers had a moderate attitude (no positive no negative) toward organic farming but percent of farmers with negative attitude is so more than percent of farmers with positive attitude toward organic farming.

Correlation analysis of farmer's attitude with some variables: Pearson correlation was used to test the relationship between farmer's attitude and other variables. According to Table 2 there are negative correlation between age and experience in agricultural activities with attitude toward organic farming. Also there are positive significant relationships between attitudes toward organic farming with variables such as: Income, literacy,

Table 1: Classification of farmers according to their attitude toward organic farming

| Attitude | Frequency | Percent | Cumulative (%) |
|---------------------|-----------|---------|----------------|
| Negative (A) | 32 | 21.3 | 21.3 |
| Partly negative (B) | 55 | 36.7 | 58.0 |
| Partly positive (C) | 43 | 28.7 | 86.7 |
| Positive (D) | 20 | 13.3 | 100 |
| Total | 150 | 100 | |

Table 2: Correlation between attitude toward organic farming and other variables

| Variables | Farmers attitude to organic farming | |
|---|-------------------------------------|---------|
| | Correlation | p-value |
| Age | -0.192* | 0.043 |
| Experience in agriculture activities | -0.198* | 0.015 |
| Income | 0.170* | 0.032 |
| Agrarian land | 0.052 | 0.530 |
| Irrigated land under cultivate | 0.054 | 0.514 |
| Literacy | 0.404** | 0.000 |
| Distance to services center | 0.084 | 0.308 |
| Number of land pieces | -0.056 | 0.494 |
| Participation in extension courses | 0.428** | 0.000 |
| Partnership in visit of demonstration farms | 0.351** | 0.000 |
| Visit of agricultural fair | 0.160* | 0.050 |
| Extension contacts | 0.415** | 0.000 |

participation in extension classes, participation in visiting of demonstration farms about organic farming and use the extension contacts for access to information about organic farming. Other variables did not show any significant correlation with the main scale of this research.

Mean comparison of farmer's attitude toward organic farming between both personal and crop-sharing ownership of land: Results of t-test revealed that there is a significant difference between two types of farm ownership. According to this result the farmers with personal ownership of land had a more positive attitude toward organic farming (Table 3).

Identifying the effective factors on farmer's attitude toward organic farming: Table 4 presents the selected variables influence the farmer's attitude toward organic farming. This objective was accomplished using multiple regression analysis. Among 13 variables that entered into model only 4 variables was significant influential on farmer's attitude toward organic farming and these variables together explained 42% of the variance of farmers attitude toward organic farming in the region selected for the study.

According to Table 4 demonstrated this regression equal for farmer's attitude toward organic farming in this region:

$$Y = 53.100 + 0.828 x_2 + 0.998 x_9 + 1.548 x_{10} + 0.304 x_{13}$$

Y = Attitude to organic farming
 X_2 = Level of literacy

Table 3: T-test for Mean comparison of farmer's attitude toward organic farming between both personal and crop-sharing ownership of land

| Dependent variable | Categorical variable | Categories | No. | Mean (M) | SD | t-test | p-value |
|---|-------------------------|-----------------------|--------|-------------|-------------|---------|---------|
| Farmers attitude toward organic farming | Types of farm ownership | agrarian lease holder | 102 33 | 68.17 62.47 | 5.873 6.385 | 3.301** | 0.001 |

** : p-value ≥ 0.01

Table 4: Results of multiple regression analysis

| Variable | B | SE | β | t-test |
|---|---------|--------------|------------------------|-----------------------|
| | 53.100 | 6.379 | ----- | 8.324** |
| X ₁ : farmers age | - 0.035 | 0.090 | - 0.058 | 0.393 ^{ns} |
| X ₂ : level of literacy | 0.828 | 0.445 | 0.187 | 1.862* |
| X ₃ : annual income | 0.023 | 0.011 | 0.082 | 0.291 ^{ns} |
| X ₄ : agriculture experience | - 0.051 | 0.082 | - 0.095 | - 0.626 ^{ns} |
| X ₅ : distance to extension services center | 0.631 | 0.513 | - 0.093 | 1.231 ^{ns} |
| X ₆ : amount of agrarian land | - 7.010 | 6.063 | - 4.889 | - 1.156 ^{ns} |
| X ₇ : amount of Irrigated land | 6.763 | 6.084 | 4.719 | 1.112 |
| X ₈ : Number of land pieces | - 0.323 | 0.394 | - 0.064 | - 0.818 ^{ns} |
| X ₉ : farm owning status | 0.998 | 0.551 | 0.141 | 1.812* |
| X ₁₀ : participation in extensional classes | 1.548 | 0.776 | 0.226 | 1.996* |
| X ₁₁ : participation in visit of demonstration farmers | 0.190 | 0.941 | 0.024 | 0.202 |
| X ₁₂ : visit of agricultural fair | 1.049 | 2.770 | 0.033 | 0.397 |
| X ₁₃ : level of use the extension contacts | 0.304 | 0.138 | 0.215 | 2.199* |
| | DF: 13 | F = 6.0690** | R ² = 0.425 | R = 0.642\ |

*: p-value ≥ 0, **: p-value ≥ 0.01, SE = Standard Error

X₉ = Farm owning status

X₁₀ = Participation in extensional classes

X₁₃ = Level of use the extension contacts

According to the equation and Table 4, variable of 'level of participation in extension courses' with 0.226 β coefficient, was recognized as the most important factor on improvement of attitude toward organic farming. The next variables such as: 'level of use of extension contacts' with 0.215 β coefficient, 'Level of literacy' with 0.187 β coefficient and 'farm ownership' with 0.141 β coefficient, respectively were recognized as the other important factors on improvement of attitude toward organic farming.

Based on the research findings, age of farmers under study is high and they have high level of experience in agriculture activities, but they have low literacy level. Accordingly due to the low literacy level and age, the majority of farmers were not participated in extension courses, visited demonstration farms, agricultural fairs but this lack of participation also can be for long distances services, road asphalt and nearest city of farmers. Therefore, it seems that there is not positive attitude toward organic farming between farmers in this region due to lack of participation in the extension courses and demonstration farms related organic Farming. Results of farmer's attitude classification showed that percent of farmers who had positive attitude towards organic agriculture were less than percent that had negative attitude that indicated that there is little knowledge about organic agriculture between farmers.

Results of correlation test showed that young farmers with less experience had more positive attitude towards

organic farming and whatever their age and experience were increased, their attitude became more negative and therefore there are a negative relationship between age and experience with the attitude toward organic farming. This result was supported by Caswell *et al.* (2001) and Tjornhom (1995) researches. They found that there is a negative relationship between age and acceptance of innovation. In addition, correlation test showed that farmers attitude toward organic farming have been more positive when the level of literacy is increased.

In general, feasibility analysis of goals and benefits of innovations will be increased when attitude toward organic farming will be more positive and more knowledge-based. Other important factors that have positive correlation with farmer's attitude are participation in extension courses, visiting demonstration farms and agricultural fair. In addition, farmers with more access to extension channels had more positive attitude toward organic farming. Thus it can be concluded that participating in extension classes and courses will be effective in improving attitude towards organic farming.

There is a difference between different groups of farmer's categorized based on types of farm ownership in the term of attitude toward organic farming. Results of t- test showed that the farmers with personal lands had more positive attitude toward organic farming than other farmers. The farmers with personal land ownership had more agreement with sustainability and conservation of natural resources, but farm sharing cultivation lands had only economic motivation and believed that organic farming is a risk in income-generation and denied it.

Also Survey the affective factors on attitude toward organic farming showed that participation in extension

courses related organic farming was the most effective factor in improving attitude towards organic farming and access to extension channels are in the next order. In addition, impact of the extension factors in improving the attitude was confirmed by regression model. Other effective factors that recognized in this study were level of literacy and ownership status. According to the findings of this research, the average of farmer age and their experience is high while their level of literacy is low. In other hand age, experience and level of literacy have had negative significant correlation with improving attitude toward organic farming. That is why majority of farmers have negative attitude towards organic farming. Of course, other reasons for this unfavorable attitude of farmer are due to lack of their participation in extension courses, visit of demonstration farms, farm fairs and low access to extension channels. In addition, based on regression analysis, participation in extension courses was the most effective factor on improving attitude to organic farming and access to extension channels and level of literacy are the other effective factors. Therefore, it is recommended that for improving farmer's attitude towards organic farming the following measures should be taken into consideration:

- Increasing and promoting farmers participation in extension education courses,
- Considering the long distances between farmers and service centers, so extension courses should be held in villages to reduce the existing gap.
- According to low level of literacy between farmers, suitable educational courses should be held for farmers according to level of their literacy.
- In this research it was known that young farmers with low level of experience have more positive attitude toward organic farming, so it is recommended that in order to promote organic farming young farmers are used as pioneer farmers.

REFERENCES

- Avery, A., 2007. Going organic crops and soils. *Am. Soc. Agron. Madison, WI USA*, 40(1): 8-12.
- Bengtsson, J., J. Ahnstrom and A. Weibull, 2005. The effects of organic agriculture on biodiversity and abundance: a meta-analysis. *J. Appl. Ecol.*, 42: 261-269.
- Biao, X., X. Wang, Z. Ding and Y. Yang. 2003. Critical impact assessment of organic agriculture. *J. Agr. Environ. Ethics*, 16: 297-311.
- Burton, M., D. Rigby and T. Young, 1997. Sustainable agriculture technologies: A quantitative analysis of adoption. Paper presented at the 'Agricultural Economics Society Annual Conference', Edinburgh.
- Burton, M., D. Rigby and T. Young, 1999. Analysis of the determinants of adoption of organic horticultural techniques in the UK. *J. Agr. Econ.*, 50(1): 47-63.
- Burton, M., D. Rigby and T. Young, 2003. Modelling the adoption of organic horticultural technology in the UK using duration analysis. *Aust. J. Agr. Resour. Ec.*, 47(1): 29-54.
- Caswell, M., K. Fuglie, C. Ingram, S. Jans and C. Kascak, 2001. Adoption of agricultural production practices: Lessons learned from the US. Department of Agriculture Area Studies Project. Washington DC. US Department of Agriculture Resource Economics Division, Economic Research Service, Agriculture Economic Report No.792.
- Chaves, B. and J. Riley, 2001. Determination of factors influencing integrated pest management adoption in coffee berry borer in Colombian farms. *Agr. Ecosyst. Environ.*, 87: 159-177.
- Diederer, P., H. van Meijl and A. Wolters, 2003. Modernization in agriculture: What makes a farmer adopt an innovation? *Int. J. Agr. Resour. Gov. Ecol.*, 2(3-4): 328-342.
- Drake, L., P. Bergstrom and H. Svedsater, 1999. Farmers' Attitudes and Uptake. In: van Huylbroeck, G. and M. Whitby (Eds.), *Countryside Stewardship: Farmers, Policies and Markets*. Elsevier Science Ltd., pp: 89-111.
- Duram, L.A., 1999. Factors in organic farmers' decision making: Diversity, challenge, obstacles. *Am. J. Alternative Agr.*, 14(1): 2-9.
- FIBL, 1997. *Biostatistics*. Research Institute of Organic Agriculture, Frick.
- Freyer, B., 1998. The environmentally friendly farming in the cantons Basel-country and OS survey. *Agrarforschung*, 5(7): 329-332.
- Gibson, R.H., S. Pearce, R.J. Morris, W.O.C. Symondson and J. Memmott, 2007. Plant diversity and land use under organic and conventional agriculture: A whole-farm approach. *J. Appl. Ecol.*, 44: 792-803.
- Gosling, P., A. Hodge, G. Goodlass and G.D. Bending, 2006. Arbuscular mycorrhizal fungi and organic farming. *Agr. Ecosys. Environ.*, 113: 17-35.
- Häfliger, M. and J. Maurer, 1996. Conversion to organic agriculture - motivation and obstacles. *Agrarforschung*, 3(11-12): 531-534.
- Hole, D.G., A.J. Perkins, J.D. Wilson, I.H. Alexander, P.V. Grice and A.D. Evans, 2005. Does organic farming benefit biodiversity? *Biol. Conserv.*, 122: 113-130.
- Hollenberg, K.R., Siebert and H. Kachele. 1999. Determinants for Conversion Readiness of Agricultural Manager in Brandenburg on Organic Farming. In: Hoffmann, H. and S. Muller (Eds.), *Proceedings of the 5. Scientific Meeting on the Organic Farming "from the Edge to the Center"*. February 23-25, 1999. Verlag Dr. Köster, Berlin, pp: 333-336.

- IFOAM (International Federation of Organic Agriculture Movements), 2000. IFOAM Basic Standards. International Federation of Organic Movements, Tholey-Theley, Germany.
- Kirner, L., 1999. For participation van den Opulemeasures "Organic farming field" waiver and resources (operation) from 2000. Agro Economic Institute of the University of Agricultural Sciences, Vienna.
- Kirner, L. and W. Schneeberger, 2000. Willingness of cash crop farms to convert to organic farming in Austria: Analysis of a written survey. *Die Bodenkultur*, 51(2): 135-142.
- Kuo, S., M.E. Ortiz Escobar, N.V. Hue and R.L. Hummel, 2004. Composting and Compost Utilization for Agronomic and Container Crops. In: Pandalai (Ed.), *Recent Research Development and Environmental Biology*. Research Signpost, pp: 451-513.
- Lampkin, N., 2002. *Organic Farming*. Old Pond, Ipswich.
- Levin, G., 2007. Relationships between Danish organic farming and landscape composition. *Agr. Ecosyst. Environ.*, 120: 330-344.
- Loibl, E., 1999. Beweggründe to be - conditions and causes organic farming. *Forderungsdienst*, 47(10): 344-346.
- McCann, E. and S. Sullivan, 1997. Environmental awareness, economic orientation, and farming practices: a comparison of organic and conventional farmers. *Environ. Manage.*, 21(5): 747-758.
- Rämisch, G., 2001. Regional marketing opportunities for organic products - a case study in the region around Scheyern. *Berichte über Landwirtschaft*, 79(2): 212-233.
- Schneeberger, W. and L. Kirner, 2001. Umstellung auf biologischen Landbau in osterreich (Conversion to organic farming in Austria). *Berichte über Landwirtschaft*, 79(3): 348-360.
- Schneeberger, W., I. Darnhofer and M. Eder, 2002. Barriers to the adoption of organic farming by cash crop producers in Austria. *Am. J. Alternative Agr.*, 17(1): 24-31.
- Schneider, R., 2001. Conversion of Marktfrucht holdings in the Marchfeld and Weinviertel to the organic production method - conversion barriers, conversion issues, and economics. Ph.D. Thesis, University of Natural Resources and Applied Life Sciences, Vienna.
- Schulze, P.L., 1994. Economic analysis of the conversion to organic farming. Reihe A, Heft 436, Schriftenreihe des Bundesministeriums für Ernährung, Landwirtschaft und Forsten. Münster: Landwirtschaftsverlag, pp: 312.
- Stockdale, E.A., N.H. Lampkin, M. Hovi, R. Keatinge, E.K.M. Lennartsson, D.W. Macdonald, S. Padel, F.H. Tattersall, M.S. Wolfe and C.A. Watson. 2001. Agronomic and environmental implications of organic farming systems. *Adv. Agron.*, 70: 261-325.
- Tjornhom, J.D., 1995. Assessment of policies and socio-economic factors affecting pesticide use in the Philippines. MS. Thesis, Virginia Polytechnic Institute and State University, Virginia.
- Udovc, A. and A. Perpar, 2007. The characteristics of conventional and organic farmers in Podravska region. *Acta. Agr. Slovenica*, 89-1, avgust. doi: 10.2478/v10014-007-0010-1.
- Weber, B., 2000. Dark clouds over the healing organic world. *Blick ins Land*, 35(3): 4.
- Willer, H. and M. Yusefi, 2000. *Organic Agriculture Worldwide*. Stiftung Ökologie und Landbau (SOL), Germany, pp: 87.
- Wilson, G.A., 1997. Influencing farmer participation in the environmentally sensitive areas scheme. *J. Environ. Manage.*, 50: 67-93.
- Yusefi, M., 2006. *Organic Farming Worldwide 2006. Overview and Mains Statistics*. In: Willer, H. and M. Yusefi (Eds.), *The World of Organic Agriculture. Statistics and Emerging Trends*. International Federation of Organic Agriculture Movements (IFOAM), Bonn Germany and Research Institute of Organic Agriculture (FiBL), Frick, Switzerland, pp: 23-37.
- Yusefi, M. and H. Willer, 2007. *Organic Farming Worldwide 2007: Overview and Main Statistics*. In: Willer and H.M. Yusefi (Eds.), *The world of Organic Agriculture. Statistics and Emerging Trends 2007*. 9th Edn., IFOAM, Germany and FiBL, Switzerland, pp: 9-17.