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Agricultural Researchers' Attitudes toward Sustainable Agriculture and its Determinants in ILAM Province, Iran

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ABSTRACT

The accurate planning and management for sustainable agriculture results in appropriate behaviors of individuals towards sustainability through changes happened in individuals' knowledge and attitudes of sustainability. A survey of natural resources and agricultural researchers (N = 85) was conducted in Iranian Province of ILAM to explore their attitudes of sustainable agriculture and to identify factors that influence these attitudes. Results showed that the attitude of the majority (63.2%) of researchers toward sustainable agriculture was moderate and negative. Also, there were significant differences among the researcher's attitudes towards sustainable agriculture on field of study and level of education. Based on correlation coefficients, positive and significant relationships were found between researchers' work experience, the number of refereed papers published, the number of extension papers published, the number of papers presented at national and international conferences, the number of books published , and the number of translated books and attitude towards sustainable agriculture. In addition, multiple regression analysis showed that three variables including the number of books published, the number of refereed papers published, and the number of books translated account for explaining 36 percent of variances of the dependent variable (attitude towards sustainable agriculture).

Keywords: Attitude, Sustainable agriculture, Natural Resources and Agricultural Research Organization, ILAM Province

Introduction

Rapid growth of human population and increasing demand for food over past century entails the dramatic transformation of traditional agriculture system. As a result, the development of new technologies like genetic engineering and biotechnology, planting high yielding varieties of agricultural and horticultural species, and indiscriminate use of chemical fertilizers and pesticides, increases the quantity of agricultural production and resolved the food problems in many countries especially in the developing countries. However, this increase in production faced by many environmental problems of water and soil solution, new breakout of pest diseases, malnutrition and illness because of declining quality of nutrients (Kiani *et al*. 2007; Hashemi and Damalas, 2011). For the same reason, in the recent decades, new attitudes toward sustainable and sound utilization of natural resources are formed. The main pillar of this perspective is emphasis on the principles of environmental protection, understanding the complex relationships of biological processes and using technologies appropriate and consistent with communities' characteristics. Also such perspective of sustainable agriculture encompasses all aspects of natural, economic, social and cultural issues (Omani, 2000). Sustainable agriculture is new approach and function, which constitutes an alternative to traditional and industrial agriculture. Sustainable agriculture is the approach that not only adopts proper management of resources for human needs, but also focuses on the lack of environmental degradation. Usually the sustainable system of production is economically viable, preserves natural resources and increases their quality for future generations. Unlike the modern agriculture is based on the reductionism tenet, holistic tenet dominated Sustainable agriculture concept and function and take into account the risks and the outcomes of applying natural resources. Therefore, for effective utilization of inputs and maintain sustainable agricultural production in the long term, using biological energies and cultural and social aspects will be emphasized (Aghdari, 2002). Sustainable agriculture like all technical terms, has found more or less different interpretations of the views of researchers in various fields, however, most general definition is that all aspects of economic, social and ecological components to be take in to account in the one system (SalmanZadeh, 1992). Although many proponents of sustainable agriculture considered as ecological stability, but in fact it is a vision in which different aspects of economic, social and even philosophical and cultural dimensions have equal importance over technical issues (Karami, 1999). Attitude is one of the overarching concepts of modern social psychology approach that combines three elements: cognitive, emotional and behavior (Sharifi, 2005; Shahwali and Moshafegh, 2005). There are many definitions of attitude concept in debate, for example, Parsa (2005) defined attitude as the "A stable system of positive and negative evaluations, emotional feelings and positive and negative tendencies toward social purposes". In fact, attitude is defined as a state of mind, emotion or desire and entails positive or negative things around individuals (Garret, 2006). Researchers believe that attitude is the main factor in changing behaviors and with changing attitude behavior will change (Kothari, 1990). Attitude of people in different fields is of interest for managers and executives to inform them from the ways of individual thinking about specific issues and programs designed to change their attitude. Also, attitude change will not be achieved only through education, because education is initial condition for positive attitude change (Shahwali and Moshavagh, 2005). Several studies have been taken concerning attitude toward sustainable agriculture and its determinants. Hayati *et al*. (2010) investigated the attitudes of experts of agriculture jihad research Organization of the eastern Azarbaijan toward concepts of sustainable agriculture and its related factors. The results showed that attitudes towards the concepts of sustainable agriculture located in the moderate level. Based on the results of the regression model, the type of academic degree, farming experience, career experience, study

of extension- scientific publications, the number of information resources and income have significant effects on attitudes and explain about 53 percent of changes in the experts' attitudes toward concepts of sustainable agriculture. Ali Beigi *et al.* (2006) evaluated the faculty attitudes toward sustainable agriculture in the public agricultural universities. Faculty attitudes toward sustainable agriculture was positive and variables of the number of scientific - research papers, the number of papers presented at international conferences and work experience account for 27% of the variance in their attitudes towards sustainable agriculture. Alipour *et al.* (2008) investigated the perception and knowledge of researchers of agricultural education, research and extension organization towards sustainable agriculture as positive, but their study results showed that researchers do a little research attention over farmers' participation. Allah Yari *et al*. (2008) showed that Iranian agricultural extension specialists had moderate awareness and attitudes about the concepts of sustainable agriculture and significant differences were not found between specialists' attitudes according to age, education level, experience, and organizational level. Mansourabedi and Karami (2007) with comparing the attitudes of men and women rice farmers in the villages of Kazeroon concluded that women farmers' attitudes toward sustainability is more positive than men farmers and factors such as education and access to information are effective on farmers' attitudes toward sustainable agriculture. Alhag (2007) examined the attitudes of farmers towards sustainable agriculture in the Adlam of Saudi Arabia and concluded that there is a significant relationship between age, education level and income of farmers and their attitude towards sustainable agriculture. Bagheri *et al*. (2008) showed that education level, contact with agricultural experts, and agricultural extension participation are the best predictors of rice farmers attitudes of Hazar district of the Mazandaran province toward the use of sustainable agricultural technologies. Rajanna and *et al*. (2009) examine the attitudes of rice farmers towards sustainable agricultural practices. Results of their study showed that rice farmers have favorable attitudes toward sustainable farming practices and the use of mass media, participation in training programs, have significant relationship with their attitude towards sustainable agricultural practices. Sadati *et al*. (2010) investigated the attitudes and perceptions of Iranian farmers toward concepts of sustainable agriculture. Results showed that the majority of respondents have moderate attitude towards sustainable agriculture. Also, results of their study indicated that there is the positive correlation between literacy, income and participation in the agricultural extension courses and negative correlation between age and experience in agricultural activities, household size and the amount of farmers land with farmers' attitudes towards the concepts of sustainable agriculture. Baghbani *et al*. (2011) in a study of the attitudes of agriculture jihad organization experts of Khozestan Province toward sustainable agriculture found the moderate attitude of experts. In their study, the positive and significant relationship was not found between professional characteristics of experts with their attitude toward sustainable agriculture. In Iran country, the issue of sustainable agriculture and its development has been considered by scientific and administrative circles. With proposing the concept of sustainable development, positive attitude towards this issue has been developed and integrated in the development programs. Including policies and guidelines on administrative roles, commensurate with the sustainable agriculture and the nature of working agricultural subparts, is the managerial policy of agricultural education, research and extension system. The policies of this system includes the development of educational, extension and research services and facilitating the different stages of crop production, compatibility test of appropriate technologies healthy and coordinated with environment, research on plant genetic resources and preserving them, identification of the natural predators of pests, disease-resistant plant species and the native species,

breeding of farming and gardening species, research on the application of new energies, and finally allowing farmers to participate in the various stages of research, education and extension of new experimental findings (Committee of Sustainable Agricultural Development, 2000). In this regard, increase in the capacity and efficiency of technological, scientific and applied researches requires accurate recognition of existing and potential resources and components that include a coordinated group of specialized manpower, financial and information resources. Among these components, one of the most important factors is the specialized human resources and provides appropriate conditions for their activities. In other words, to achieve sustainable agriculture, researchers of one country needs to be given an opportunity, so that with appropriate tools, flourish the country's economy and culture. This requires a change in attitude and knowledge of agricultural researchers on sustainable agriculture and it is due to their professional behaviors toward conducting researches consistent and compatible with sustainable agriculture. It needs evaluation of the current status of research system in terms of practical and intellectual insight of agricultural researchers toward sustainable agriculture. Therefore, the main purpose of this study was investigating the researchers' attitudes of Natural Resources and Agricultural Research Organization of Ilam Province towards sustainable agriculture and its determinants. In order to achieve study aim, the following specific objectives will be pursued:

1- Study of the respondent's personal and professional characteristics
2 - Evaluation of the respondents' attitudes towards sustainable agriculture by selective variables
3 - Compare respondents' attitudes towards sustainable agriculture based on selected variables
4 - Examining the relationship between selected variables with the respondents' attitudes towards sustainable agriculture and
5 - Determine the factors affecting respondents' attitudes towards sustainable agriculture.

Methods and materials

This study included all the researchers affiliated to Natural Resources and Agricultural Research Organization of ILAM Province (N = 85). Using census method, questionnaires were sent to all researchers that ultimately 76 of whom completed and returned their questionnaires. In order to gather data, comprehensive literature review conducted, and one structured questionnaire was designed and developed. Questionnaire included two parts of the personal and professional characteristics of the researchers and 30 statements applied to measure attitudes of researchers towards sustainable agriculture. Using Comments and suggestions of the faculty and doctoral students in the agricultural development and management Department of Tehran University, its content validity obtained after revision. Cronbach's alpha coefficient was used for the reliability measurement of research tool. Cronbach's alpha coefficient value was 0.94 indicating the high reliability of the questionnaire. In this study, grouping of respondents was based on the Interval of Standard Deviation from the Mean (ISDM) as follows (Gangadharappa *et al*. 2007): A<mean-$\frac{1}{2}$Sd :(Negative), mean-$\frac{1}{2}$SD<B<mean+$\frac{1}{2}$Sd: (Moderate) and C>mean+$\frac{1}{2}$Sd (Positive). It should be noted that in the above formula, Sd imply the deviation from mean. In order to analyze data, SPSS version 16 was used. Descriptive statistics included frequency, percentage, mean and standard deviation and inferential statistics included Mann Whitney U- tests, correlation and regression analysis.

Results and discussion

Personal and professional characteristics of the respondents

Results showed that among respondents, 59 (77. 6%) were males, 17 (22. 4%) female, and 64 (84. 2%) were married and 12 (15. 8 percent) single. 20 (26. 3%) of respondents were with doctoral degrees and 56 respondents (73. 7 percent) of them had a master's degree. Among all the respondents, 61 (80. 3%) were from various degrees in the field of agriculture, and 15 (19. 7 percent), were from different degrees in the fields of natural resources. Based on results, the mean age of respondents was 39.58 years with a standard deviation of 6 .53 in the range of age 26-57 years. Average work experience of the respondents was 14 .8 years with a standard deviation of 6 .96 years and range of their work experience was 2-30 years. Their average research work experience was 11.49 years with standard deviation of 6 .63 in the range 1-25 years. Results of other personal and professional characteristics of respondents showed in Table 1.

Table 1- Some descriptions of personal and professional characteristics of the respondents

Variable	Mean	Min	Max	SD
1- Number of scientific - research papers	2.39	0	30	3.76
2- Number of scientific - extension papers	1.66	0	10	2.09
3- Number of papers presented at national and international conferences	6.34	0	30	7.61
4- Number of books published	.72	0	3	1
5- Number of translated books	.5	0	3	.93

Min: minimum, Max: Maximum, SD: Standard deviation

Investigating the attitudes of respondents towards sustainable agriculture

In order to give priority to the statements related to attitude of researchers of Natural Resources and Agricultural Research Organization of ILAM Province, coefficient of variation (CV) was used. Based on the results given in Table 2, the statement "Management of natural resources without polluting and destroying them " is one of important principles of sustainable agriculture", and the statement that " To increase crop production, farmers should pay attention to indirect costs imposed to the environment" were the first and the second priority, among researchers, respectively. Also, results in Table 2 indicated that the statement that "Farmers must be involved enough in agricultural research" and the statement that "lack of systemic and holistic agricultural researches prevents the producing technologies appropriate and consistent with farmers conditions" the low priority assigned to them by researchers respectively. Accordingly, it can be stated that researchers of Natural Resources and Agricultural Research Organization of ILAM Province have more positive and favorable attitude towards the environmental component of sustainable agriculture and in fact according to their perceptions, sustainable agriculture is a farming system which prevents polluting and destroying the natural resources. However, researchers have low agreement with systemic and holistic perspective of sustainable agriculture that is one of determinants of farmers' participation in agricultural researches that may be considered as a barrier to the

producing technologies consistent and adaptable with the farmers. Alipour *et al*. (2008) indicated that agricultural researchers have little agreement with the participation of farmers involved in agricultural research which this is consistent with the results of this study.

Table2. Prioritizing the statements regarding researchers attitude toward sustainable agriculture

Statements related to sustainable agriculture	Mean	SD	CV	Rank
1. Management of natural resources without polluting and destroying them is one of important principles of sustainable agriculture	4.36	.706	16.19	1
2. Farmers for increase crop production should give attention on indirect costs caused damage to the environment	4.22	.723	17.13	2
3. In conducting agricultural researches should be given attention to maintain long-term benefits than short term profits	4.17	.737	17.67	3
4. In agricultural researches, it should be given attention to the environment along with economical aspects of crop production	4.14	.761	18.38	4
5. New agricultural technologies should entails farmers health and welfare	4.16	.801	19.25	5
6. Soil and water resources belongs to all generations and should be protected sustainability	4.38	.879	20.06	6
7. Valuing agricultural and rural communities should be one of the main agenda of agricultural researchers activities	4.05	.862	21.28	7
8. Besides the farming and research activities, having management, marketing and profitability is essential for sustainable farming systems				
9. Common and traditional activities in agricultural productions should be changed due to the harmful effects of environmental aspects	4.13	.885	21.42	8
10. Effective use of production inputs in order to maintain production in the long term is one of goals of sustainable farming systems	4.12	.894	21.69	9
11. Ultimate goal of agricultural researches should be focus on the efficiency, productivity, and economical profitability of agricultural activities	4.04	.886	21.93	10
12. Farmers should use natural fertilizers, crop rotation, compost and biological pest control practices	4.00	.879	21.97	11
13. Traditional farming system that caused major ecological problems, should be substantially modified	4.22	.932	22.08	12

14. Social participation of local communities in the agricultural research activities are essential	3.86	.860	22.27	13
15.The customs related to agriculture activities and also the rural culture should be of interest to researchers in the farming scientific researches	3.88	.894	23.04	14
16. Agricultural research activities needs team working and collaboration with other disciplines and expertises	3.95	.922	23.34	15
17. Agricultural research activities should be results in poverty reduction and increase in the farmers income	4.03	.952	23.62	16
18. Instead of off-farm inputs, especially chemical fertilizers and pesticides, on-farm resources (organic fertilizers and integrated pest management) should be used	4.11	.974	23.69	17
19. To the extent that we can, farmers should be forced to use off-farm inputs	4.07	.971	23.85	18
20. Agricultural systems must be efficient to produce adequate and safe food for the world population	3.88	.938	24.17	19
21. In conducting agricultural researches systemic and holistic perspective (all components and the relationships between them) should be considered	4.17	1.01	24.26	20
22. In formulating agricultural research projects, particular importance should be give to the development of appropriate infrastructure for small farmers	4.01	.973	24.26	20
23. It is necessary to provide the essential nutrients of the soil from organic materials application	3.75	.940	25.06	21
24. One of the most important goals of agricultural research should be promoting the subsistence conditions of agricultural and rural communities	3.99	1.01	25.31	22
25. Sustainable agriculture is more than developing and applying new agricultural technologies	3.88	.993	25.59	23
26. Lack of systemic and holistic agricultural research programs impeded the adoption of research findings by farmers				
27. Using the farmers farms in the agricultural research activities is essential	3.87	.998	25.78	24
28. In conducting agricultural researches, social and cultural acceptability of research findings should be considered	3.64	1.01	27.74	25
29. lack of systemic and holistic agricultural researches, prevents the	3.92	1.09	27.88	26

producing technologies appropriate and consistent with farmers conditions	3.88	1.11	27.84	27
30. Farmers must be involved enough in agricultural researches	3.57	1.08	30.44	28
	3.61	1.16	32.32	29

* Scale: 1- entirely disagree, 2- disagree, 3- fairly agree, 4- agree and 5- entirely agree

Researchers' answers grouped according to their attitudes towards sustainable agriculture with applying interval of standard deviation from the mean (ISDM) method. These results are shown in Table 3.

Table3. Grouping researchers attitudes toward sustainable agriculture

Attitude levels	Frequency	Percent	Cumulative percent
- Negative	27	35.5	35.5
- Moderate	21	27.6	63.2
- Positive	28	36.8	100

Mean: 120, Minimum: 74, Maximum: 150, Standard deviation: 21.05

As showed in table 3, 28 researchers (36. 8%) have a positive attitude towards sustainable agriculture, while 21 (27. 6 percent) of them have moderate attitude and 27 (35. 5%) of them has a negative attitude towards sustainable agriculture. Therefore, it can be stated that the majority of researchers do not have favorable attitudes towards sustainable agriculture, because the attitudes of 48 (63. 2%) of them were negative and moderate towards sustainable agriculture. Results of studies of Hayati *et al.* (2010), Allahyari (2008), Sadati *et al.* (2010), and Baghbani *et al*. (2011) are consistent with the this finding.

Comparison of researchers' attitude toward sustainable agriculture based on selective variables

Mann Whitney U –Test was used to compare the respondents' attitudes towards sustainable agriculture, with applying classified variables including gender, marital status, and educational level. The results of this comparison are shown in Table 4.

Table4. Comparison of researchers' attitudes in terms of selective variables

Independent variables	Categories	Frequency	Ranking Mean	U	Z	Sig
Gender	Male	59	38.64	493.500	-0.100	.921
	Female	17	38.03			
Marital status	Single	64	39.21	338.500	-.649	.517
	Married	12	34.71			
Academic field	Agriculture	61	42.64	205.000	-3.297**	.001
	Natural resources	15	21.67			
Educational level	Doctoral	20	63.83	53.500	-5.978**	.000
	Master of science	56	29.64			

** Significance at p<0.01

Based on results of Table 4, it can be observed that there is no significant difference between the researchers' attitude based on classified variables of gender and marital status. Results of Baghbani (2011) correspond with this finding. Moreover, there was significance difference between the attitude of researchers according to the classified variables of academic field and educational level. Since the ranking mean of the researchers' attitude with the academic field of agriculture was higher than of natural resources counterparts, it can be stated that the researchers with academic field of agriculture have more positive and favorable attitude toward sustainable agriculture. Also, given that the ranking mean of the researchers attitude with a doctoral degree, was higher than master degree counterparts, it can be stated that researchers with doctoral degrees are of a more positive and favorable attitude towards sustainable agriculture. Results of studies of Hayati *et al*. (2010), Bagheri *et al*. (2008) Mansour abadi and Karami (2007) and Rajanna and *et al*. (2009) are consistent with this finding. In general, we can say that the academic field and education level variables significantly influenced the dependent variable of researcher's attitude towards sustainable agriculture.

Analyzing the relationship between the selective variables with researchers' attitudes toward sustainable agriculture

Pearson correlation analysis was applied to examine the relationship between the independent variables included: age, work experience, research work experience, the number of research- scientific papers, the number of extension -scientific papers, the number of papers presented at national and international conferences, the number of books published, the number of books translated, with researchers attitudes toward sustainable agriculture. The results summarized in the table 5.

Table5. Relationship between the researchers' attitudes toward sustainable agriculture and selective variables

Independent variable	r	Sig
-Age	.147	.205
- Work experience	.034	.770
-Research work experience	.259*	.024
- The number of research- scientific papers	.316**	.005
- The number of extension -scientific papers	.273*	.017
- The number of papers presented at national and international conferences	.412**	.000
- The number of books published		
- The number of books translated	.526**	.000
	.510**	.000

* Significance at p<0.05, ** Significant at p<0.01

The results in table 5 indicate that there is positive and significance relationship between the attitudes of researchers toward sustainable agriculture with variables of age and work experience. Also, these results show that there is positive and significant relationship at 5% level between the attitude of researchers with independent variables of research work experience and the number of extension-scientific papers and positive and significant relationship at 1% level between their attitude toward sustainable agriculture with independent variables of the number of research- scientific papers, the number of papers presented at national and international conferences, the number of books compiled, and the number of books translated. Results of Alibeigi *et al*. (2006), also indicated the positive and significant relationship of variables of the number of research- scientific papers, the number of papers presented at national and international conferences and research work experience and results of Hayati *et al*. (2010) confirmed the positive and significant relationship between research work experience with dependent variable of attitude toward sustainable agriculture. Therefore, it can be stated that the more research work experience , the number of research- scientific papers, extension- scientific papers , papers presented at national and international conferences, the number of books compiled and translated the more and favorable researchers attitude were towards sustainable agriculture.

Determining the effective factors on researchers attitude toward sustainable agriculture

Stepwise multiple regressions were used to determine the factors affecting the researcher's attitudes towards sustainable agriculture. The stepwise method of regression analysis is the method in which the most powerful variables enter into the regression equation regression and this continues until the error of significance test reaches 5%. In this study, after entering the variables correlated significantly with the dependent variable (attitudes towards sustainable agriculture) the equation was processed to the three steps. The result in Table 6 show that the first independent variable entered the equation was the number of books compiled. The multiple correlation coefficient (R) was equal to 0.526 and determination coefficient (R^2) was equal to 0.277. In other words, 27.7 percent of changes in the dependent variable of attitudes of researchers towards sustainable agriculture can be explained by this variable. In the second step, variable of the number of Research - scientific papers enter into the equation. This variable increases multiple correlation

coefficient (R) to 0.567 and determination coefficient (R^2) to 0.321, in other words 4.4 percent of changes in the dependent variable of attitudes of researchers towards sustainable agriculture can be explained by this variable. Then, in the third step, variable of the number of books translated enter into the equation. This variable increase the multiple correlation coefficient (R) to 0.598 and the determination coefficient (R^2) to 0.358, therefore 3.7 percent of changes in the dependent variable of attitudes of researchers towards sustainable agriculture can be explained by this variable. Based on these findings, these three variables could explain about 36% (R^2 = 0.358) of changes in the dependent variable of researchers attitudes towards sustainable agriculture and the remaining 64 percent is related to other factors that have not been identified by authors. Research results of Ali Beigi *et al*. (2006) are consistent with this finding.

Table6. Multiple regressions on the determinants of researchers' attitude toward sustainable agriculture

Step	Variables	R	R^2	Adjusted coefficient
1	- The number of books published	.526	.277	.267
2	- The number of research -scientific papers	.567	.321	.303
3	- The number of books translated	.598	.385	.331

Table7. Effect of variables influencing researchers' attitudes towards sustainable agriculture

Variables	Unstandardized coefficient(B)	Standardized coefficient(β)	t	Sig
-Constant coefficient	109.729	-	41.646	.000
-The number of books published (X_1)	5.898	.281	2.028	.046
-The number of research-scientific papers (X_2)	1.221	.218	2.259	.027
- The number of books translated (X_3)	6.261	.277	2.027	.046

Given the above results of Table 7, the linear regression equation is shown as follows:

$$Y= 109.729 + 5.898X_1+ 1.221X_2+ 6.261X_3$$

Significant results of F and t tests indicate the regression model is valid. But the regression equation does not say anything about the relative importance of independent variables. To determine the relative importance of independent variables, Standardized coefficient (β) should be considered. This statistics shows the effect of each independent variable separately from the effects of other variables on the dependent variable of researchers' attitudes toward sustainable agriculture. Accordingly, the most influential independent variable on the dependent variable, was the number of books published with β=0.281. This means that a unit change of standard deviation of the number of books published variable, explain 0.281 of unit change in standard deviation of the dependent variable. Other important variables influencing the dependent variable were: the number of books

translated with β = 0.277 and the number of research-scientific papers with β = 0.218.

Conclusion

Sustainable agriculture as the system of integrating different components of agricultural development is more than the input- centered concept and functions to produce food and fiber, and is the knowledge-based system of sustainable management of natural resources. Therefore, a proper planning and management of agricultural sustainability also depends on accurate knowledge and positive attitudes in this area, until affect the individual behavior toward sustainability (Hayati *et al*., 2010). This study was conducted to measure the attitudes of researchers of Natural Resources and Agricultural Research Organization of ILAM Province towards sustainable agriculture and its determinants. This study yielded dissatisfactory results pertaining to the attitude toward sustainable agriculture by researchers. Results showed that researchers have most agreement with the statement that "Management of natural resources without polluting and destroying the natural resources is one of important principles of sustainable agriculture" and very low agreement with the statement that "Farmers must be involved sufficiently in the agricultural research". Therefore, it can be stated that the most of researchers agreed and indicated the more positive and favorable attitude with the environmental sustainability of agriculture. However researchers also, had low agreement with systemic and holistic perspective of sustainable agriculture that is one of determinants of farmers' participation in agricultural researches that may be considered as a barrier to the producing technologies consistent and adaptable with the farmers' characteristics. Therefore, in this regard accurate and pervasive information is needed and should be given to researchers respecting importance and benefits of farmers involved in natural research and agricultural researches. Also, results showed that researchers attitudes towards sustainable agriculture, is not in a good condition, so that the majority (63.2 percent) of them have negative and moderate attitudes towards sustainable agriculture, that undoubtedly affect their behavior in the conducting natural resources and agricultural researches. This finding could be due to the lack of comprehensive awareness and knowledge of natural resources and agriculture researchers towards sustainable agriculture. In this regard it is suggested that with holding continuing education courses related to sustainable agriculture increase the knowledge and attitudes of researchers studied towards sustainable agriculture. Results of mean comparison test showed that there is significant difference between the attitudes of researchers toward sustainable agriculture in the terms of categorized variables of academic field and education level, so that researchers who have a doctoral degree with academic agricultural of field study had more positive and favorable attitude toward sustainable agriculture. Therefore, managers and planners are recommended that courses related to sustainable agriculture to be held for researchers who study the natural resources and or have a postgraduate degree. Finally, the results showed that the variables of research work experience, the number of research-scientific papers, the number of extension-scientific papers , the number of papers presented at national and international conferences, the number of books published, and the number of books translated had positive and significant relationship with dependent variable of study (attitude toward sustainable agriculture). Moreover, the results of stepwise multiple regression analysis showed that among these variables, three variables, the number of books published, the number of research-scientific papers and the number of books translated, were capable of explain about 36% of changes in the dependent variable. In this regard, the study recommended that managers encourage researchers to study regarding new technologies of sustainable agriculture and their importance.

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