Journal of Applied Sciences

ISSN 1812-5654

science alert

ANSInet
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http://ansinet.com

Journal of Applied Sciences 8 (17): 3064-3067, 2008
ISSN 1812-5654

Ability of Extension System to Accomplish Supportive Policies of Sustainable Agriculture in Iran

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Abstract: This study was carried out to assess the ability of extension system to accomplish supportive policies of sustainable agriculture as perceived by extension experts. A sample of 87 respondents was selected through simple random sampling technique and surveyed through a pre-designed questionnaire. Descriptive and inferential were used to analyze the date for drawing conclusion. The findings show that extension experts generally had a positive perception regarding the ability of extension system for the achievement of supportive policies of sustainable agriculture in Iran context. No significant differences between overall means of professionals' perceptions toward ability of extension system to achieve supportive policies of sustainable agriculture and their age, organizational position, years of experience or educational background were found. It is concluded that extension system had a more effective role to accomplish policies regarding the supporting local groups for community action.

Key words: Agricultural extension, sustainable agriculture, supportive policies

INTRODUCTION

If agriculture is practiced in unsustainable method, vital natural and cultural resources and qualities will be lost, thus to ensure that farming practice do not damage the environment, supportive policies of sustainable agriculture must be followed. Currently most of policies encourage farming that is dependent on external inputs, technologies and knowledge (Pretty, 1995a). It is the policy frameworks that are one of the principal barriers to a more sustainable agriculture (Pretty, 1998). The transition from conventional agriculture to sustainable agriculture require an ecological knowledge system, that conducive policy frameworks, including regulations, subsides and etc are one of the most component of this system (Roling and Jiggins, 1998) which indicate importance of supportive policies. Unfortunately, most successes of sustainable agriculture are still small scale, because, in many countries there are not any favorable policy contexts, as a principal condition to accomplish sustainability (Pretty, 1995b; Khan and Nafees, 2002). There are many new policy reforms around the world that encourage the sustainability, but it should be consider that new policies must be enabling, creating the conditions for development based more on available resources and local skills and knowledge (Pretty, 1998; Roling and Pretty, 1997). There is therefore a growing tendency to see policy as a negotiated agreement resulting from interaction among citizens, in which central authorities play a facilitating role policy is only effective if it is based on a widely shared consensus. From this perspective, it is easy to see why so many environmental policies that rely on coercion, control and transfer have failed (Roling and Pretty, 1997).

Unsustainable agricultural conditions of Iran (dependency on pesticide and insecticide imports, a growing population, limited arable land, increasingly destruction of natural resources, soil erosion and degradation, water pollution and excessive use of chemical inputs), has led to search for more appropriate agricultural practices (Chizari *et al*., 1999, 2001; Allahyari and Chizari, 2008). In response to these conditions, programs, policies and strategies are developed to achieve sustainable agriculture and conservation of natural resources. Sustainability of farming system is so important that in case of disregarding to it, alarming results would be expecting Iranian people in supplying their food security. The necessity of considering sustainable agriculture in Iran could be seen in the policies made in the development plans, showing the solicitude of policy makers to achieve sustainability in agriculture. There are about 46(27%)

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articles (out of 166 articles) in the forth development plans of Iran regarding environmentally and sustainability that indicate the importance of this issues.

While agricultural policies have been formulated to address above motion issues, it is proposed that, unless the extension approach employed in Iran is radically altered, the intent of these policies will not be realized. Keeping in view the important role being played by extension system for the achievement of sustainability in agricultural sector (Ahmadvand and Karami, 2007; Karami, 1995), the present study, was designed to assess the ability of extension system to accomplish supportive policies of sustainable agriculture as perceived by Iranian extension professionals.

POPULATION AND SAMPLE

The study represented descriptive survey research. The population for this study consisted of 170 faculty members of agricultural extension education, extension head in provinces and extension specialists of deputy of agricultural extension and farming system in the Ministry of Jihad-Agriculture in Iran. The 87 of them were selected by random sample using the table for determining the sample from given population developed by Bartlett *et al.* (2001). The researchers verified the list before distribution of the survey to control for frame and selection threats to external validity.

INSTRUMENT

A mailed/e-mailed questionnaire was used to collect the data. Researchers developed this questionnaire. Questions were generated from the literature review. The survey was divided into two sections. The first section was designed to gather data on personal characteristics of extension specialists. Section two comprised information related to study objective based on study of Pretty (1995b, 1998). Extension professionals were asked to rate their viewpoints concerning the ability of extension system to accomplish supportive policies of sustainable agriculture on a five point Likert - type scale: 1 = very low, 2 = low, 3 = medium, 4 = much and 5 = very much. The 24 Likert scale items were grouped into the three areas of the supportive policies for sustainable agriculture. Eleven questionnaire items were included in the Encouraging Resource-Conserving Technologies and Practices (ERCTP), six items were in the Supporting Local Groups for Community Action (SLGCA) area and 7 items were in the Reforming External Institutions and Professional Approaches (REIPA) area. Face and content validity of the instrument was established by the panel of experts of the Department of Agricultural Extension Education, The Islamic Azad University-Tehran science and research branch and Tarbiat Modarres University. Their suggestions were incorporated in the final version of the instrument. Questionnaire reliability was estimated by calculating Cronbach's alpha. Reliability of the overall instrument was estimated at 0.95.

DATA COLLECTION AND ANALYSES

The data were collected between October 2006 and March 2007 through a questionnaire mailed or e-mailed to the 95 agricultural extension professionals. Those who failed to respond were sent a follow-up letter. Seventy nine agricultural extension professionals returned questionnaires yielding an overall response rate of 83%. An early versus late respondent comparison was made to determine if no responses was a threat to validity of the study (Lindner *et al.*, 2001). Using this procedure, no statistically significant differences between the groups were found. Therefore, findings from this study are assumed generalizable to the population from which it was drawn. Data collected were analyzed using the Statistical Package for the social sciences (SPSS, 14). Appropriate descriptive statistics such as mean scores and standard deviations were used to analyze the data generated. Inferential statistics such as nonparametric statistics (Kruskal-Wallis) were used to analysis data.

Based on the results, the ages of the respondents ranged from 25 to 63. The mean age was 38 (SD = 8.87, N = 79). The majority (39.2%, n = 31) of respondent were 31-40 years old. Most of the respondents in the study were male (93.7%) and only five persons (6.3%) were female. The years of experience of respondents ranged from 2 to 30. The mean years served in extension were 12.4 (SD = 8.75). Nearly one-third of agricultural extension professionals (29.1%) had served in extension for 1 to 5 years. 29.1% of extension specialists had a doctoral degree in agricultural extension and education discipline and sixty-tow percent (n = 49) of respondents were a masters degree holders. Only 8.9% of extension specialists had a bachelor's degree (n = 7). 35.4% of respondents (n = 28) were faculty members and 15.25% (n = 12) had a managerial post. Remain were extension experts (49.35%). 35.4% of respondents worked at universities, 27.8% (n = 22) worked at agriculture ministry. 29.1%(n = 23) of extension specialists worked in agricultural extension services at province level and remain worked at county level (6.3%).

Table 1 presents means and standard deviations for all 24 items. The mean value of the overall (summated across the 24 items) perceptions of the extension experts regarding ability of extension system to achieve supportive policies of sustainable agriculture was 4.28; the standard deviation was 0.65. This overall value indicates that the extension experts generally had a

Table 1: Means and standard deviations of respondents replies regarding the ability of extension system to accomplish supportive policies of sustainable agriculture (N = 79)

Rank	Policies that work for sustainable agriculture	Mean±SD
Supporting local groups for community action (SLGCA)		**4.33±0.66**
1	Support for farmers' training and farmer field schools	4.49±0.80
2	Encourage the formation of local groups	4.46±0.71
3	Provide incentives for on-farm employment	4.41±0.89
4	Foster rural partnership	4.37±0.85
5	Assign local responsibilities for landscape conservation	4.18±0.89
6	Permit groups to have access to credit	4.06±0.90
Reforming external institutions and professional approaches (REIPA)		**4.31±0.63**
1	Support information systems to link research, extension and farmers	4.54±0.65
2	Encourage the formal adoption of participatory methods and processes	4.40±0.78
3	Foster stronger NGO-government partnership	4.37±0.77
4	Reform teaching and training establishments	4.33±0.90
5	Develop capacity in planning for conflict resolution and mediation	4.21±0.83
6	Rethink the project culture	4.13±0.90
7	Strengthen the capacities of NGO_s-to scale up	4.12±0.93
Encouraging resources-conserving technologies and practices (ERCTP)		**4.24±0.65**
1	Provide better information for consumers and the public	4.59±0.67
2	Establish a national strategy for IPM	4.44±0.69
3	Prioritize research into sustainable agriculture	4.43±0.74
4	Promote farmer-to-farmer exchanges	4.35±0.77
5	Adopt natural resource accounting	4.24±0.85
6	Establish appropriate standards and licensing for pesticide	4.19±1.07
7	Link support payments to resource conserving practices	4.13±1.08
8	Set appropriate price (penalize polluters)with taxes and levies	4.09±1.11
9	Grant farmers appropriate property rights	4.08±0.92
10	Offer direct transitionary support to farmers	4.06±0.99
11	Direct subsides and grants towards sustainable technologies	4.05±1.04
	Overall mean	**4.28±0.65**

Scale: 1 = Very low, 2 = Low, 3 = Medium, 4 = Much and 5 = Very much

positive perception toward the ability of extension system to achieve supportive policies of sustainable agriculture. Assess the overall mean indicated that supportive policies regarding the local groups for community action (SLGCA) had the highest mean value (M = 4.33, SD = 0.66). The second highest area mean value (M = 4.31; SD = 0.63) was the Reforming External Institutions and Professional Approaches (REIPA). From extension professionals' viewpoints, the ability of extension system to achieve supportive policies regarding the encouraging resource-conserving technologies and practices (ERCTP) was in third rate. Respondents believed that among policies of SLGCA, extension system could play important role for the achievement of the policies: support for farmers' training and farmer field school (M = 4.49; SD = 0.8) encourage the formation of local groups (M = 4.46; SD = 0.71) and provide incentives for on-farm employment (M = 4.41; SD = 0.89), respectively. In REIPA area, respondents rated the ability of extension system to influence on supportive policies as follow respectively: support information systems to link research, extension and farmers (M = 4.54; SD = 0.65) and encouraging the formal adoption of participatory methods and process (M = 4.40; SD = 0.78). In addition, they reported that extension system can influence on strengthen the capacities of NGOs to scale up relatively at low level. In ERCTP area the highest mean value for an item (M = 4.59; SD = 0.67) was reported for policy: provide better information for consumers and the public. The second highest item mean value (M = 4.44; SD = 0.69) was for policy establish a national strategy for IPM. Also, the relatively lowest item mean value (M = 4.05; SD = 1.36) in this area was reported for the policy offer direct transitory support to farmers. In addition, provide better information for consumers and the public had the highest mean value ((M = 4.59; SD = 0.67) in the three policies area. Also, the relative low standard deviations for these responses indicate a relatively high level of agreement among the respondents.

Replies depicted that extension system had an effective role for the achievement of supporting local groups for community action rather than other two polices area. It revealed that the success of sustainable agriculture therefore depends not just on the motivations, skills and knowledge of individual farmers, but on action taken by groups or communities as a whole (Roling and Pretty, 1997) and extension has a key role for the reinforcement of community action. On the other hand, most items in SLGCA and REIPA are symbols for social capital (Pretty and Ward, 2001); because one of the most important roles of extension systems in next decades is to create/reinforce the social capital in communities' level (Dart, 2000), therefore, findings of this study support this role of extension system (Table 1).

Table 2: Kruskal-Wallis test of means for overall participants' perception by demographic characteristics

	Factors							
	Organizational position		Level of education		Years of experience		Age	
Policies that work for sustainable agriculture	χ^2	p	χ^2	p	χ^2	p	χ^2	p
Encouraging resources-conserving technologies and practices	0.63	0.73	0.07	0.97	3.53	0.62	1.51	0.87
Supporting local groups for community action	0.83	0.66	0.10	0.94	2.33	0.80	1.35	0.85
Reforming external institutions and professional approaches	0.57	0.75	0.76	0.70	2.76	0.74	1.04	0.90

The data in Table 2 show differences in extensionists' perception by Age, years of experience, organizational position and educational background. The findings did not show any significant differences between overall means of extensionists perceptions with respect to the ability of extension system to accomplish sustainable agriculture and their age, years of experience, organizational position and educational level in any policy area. In addition, no significant differences for these responses indicate a high level of agreement among the respondents.

The Ministry of Jihad-Agriculture strives for a system of food production, processing and distribution that is, in all stages, sustainable; but the current system does not meet these criteria and, thus, is not sustainable. One of the main reasons for this situation is lack of the powerful extension system to support conducive policy frameworks. Extension as a social mechanism has a powerful role to accomplish supportive policies, in general and supporting local groups for community action, in particular. Provide better information for consumers and the public, support information systems to link research, extension and farmers and support for farmers training and farmer field schools are the supportive policies toward sustainability that extension can play key role for the achievement of them.

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