



## THE IMPACT OF SUPPORT MECHANISM ON AGRICULTURAL EXTENSION MANAGEMENT IN EASTERN LIBYA: TOWARD REORGANIZATION FOR SUSTAINABLE AGRICULTURAL DEVELOPMENT

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### ABSTRACT

Agricultural extension as a source of information plays an important role for the achievement of sustainable agricultural development. The objective of the study was to identify the most appropriate mechanism to support of agricultural extension management that used in achieving sustainable agricultural development. A quantitative research methodology was adopted in this study. Using a questionnaire developed following an extensive literature review, a cross sectional survey was undertaken in the Eastern Libya areas from June to September 2010. A total of 46 managers and deputy directors, were approached for this study. Based on the results analysis, on the predictor variables set, educational organizations, farmers' organizations, agricultural credit organizations, had the most impact upon sustainable agricultural development. Most of respondents were believed that the important of support mechanism for achieving sustainable agricultural development as follow, Transfer of research results to farmers and agricultural extension staff (87.0 %), Participation in the reform of agricultural markets to stabilize farmers' incomes (80.4 %), Support of micro-credit institutions especially through linkages with commercial banks. (84.8 %). Finally, re-thinking in management components is mandatory and we must strive to find new functions, strategies and objectives for agricultural extension systems toward sustainable agriculture development..

**KEYWORDS:** Support mechanism, Agricultural Extension management, Sustainable Agricultural Development, Eastern Libya..

### INTRODUCTION

Suitable support mechanisms are important to develop an extension system in promoting sustainable agricultural development. Support system should include several organizations which include the education organizations, farmer's organizations and agricultural credit organizations (Figure 1). In Libya there are more than 15 intermediate (pre-university) technical agricultural institutions scattered all over the country to train assistant engineers in different agricultural fields; by addition, five agricultural colleges prepare agricultural engineers in all agricultural disciplines. The output of this specialized education is to enhance the technical capabilities in the agricultural sector. The establishment of agricultural research centre in the mid-seventies was aimed at providing the agricultural sector with the technical assistance needed in agricultural development, leading the way in research and development, utilizing all available researchers and experts and pumping new scientific and technical blood into the system (Jamahiriya, 2006a). Addition to the agricultural research centre (ARC) is the major institution of the Libyan national agricultural research systems, which implements its programme through a network of stations distributed across the country. It is directed by a Board of Directors headed by a Director General. Its research activities are coordinated by 8 central departments: soil and water, field crops, horticulture, plant

protection, animal production, forestry and range, agricultural mechanics, and agricultural economics. ARC researchers allocate around 90% of their time to research and 10% to extension and consultancies (El-Azzabi et al., 1999). Also Agricultural credit in Libya depend on the Agricultural Bank which is the main institution responsible for the provision of credit and banking services to the agricultural sector, through its branches, which are scattered throughout the country (Jamahiriya, 2006a). Long-term, intermediate and short-term loans are provided by the bank at low costs ranging between 2.5 and 5% depending on type of loan, to farmers and to public projects (Jamahiriya, 2006b). Short-term loans are provided for financing seasonal needs, such as the purchase of seeds, fertilizers, and pesticides. Medium-term loans are to purchase farm machinery, irrigation equipment, farm animals and the like; while long-term loans are given for major investments in construction, well drilling, etc. The capital resources for the bank fall short of farmers needs (Jamahiriya, 2006a). Agricultural extension management could play a key role in helping farmers for the application of Sustainable Agricultural Development. Keeping in view the importance of sustainable agricultural practices and their awareness among the farmers, it was thought necessary to analyze the agricultural extension methods presently being used by different organizations for creating awareness among the

farmers about improved agricultural technologies. In Libya farmers also benefit from the semi-governmental agricultural cooperatives/associations, whose functions are to provide (i) general services by the general agricultural cooperatives and (ii) specialized services by specialized cooperatives, including sheep producers, poultry producers, honeybee keepers, etc (Jamahiriya, 2006a).

**METHODOLOGY**

This study uses qualitative methods. The survey divided into six areas Namely of Tubruq, Derna, Al Bayda, Al Marj, Benghazi and Ajdabiya in Eastern Libya. Data collected through the use of questionnaires on a sample of population

involved in agriculture in the study area. A total 46 of Managers and Deputy Directors are involved. The questionnaire consisted of several categories of questions. The topics of the questionnaires are the following:- Part I: - Background information such as age, gender, level of education, present position in the organization, work experience. Part II: - Support Mechanisms (Farmers Organization, Education Organizations and Rural Credit Organizations). After the survey process, the data gathered then analyzed using descriptive statistics statistical package for social sciences (SPSS).

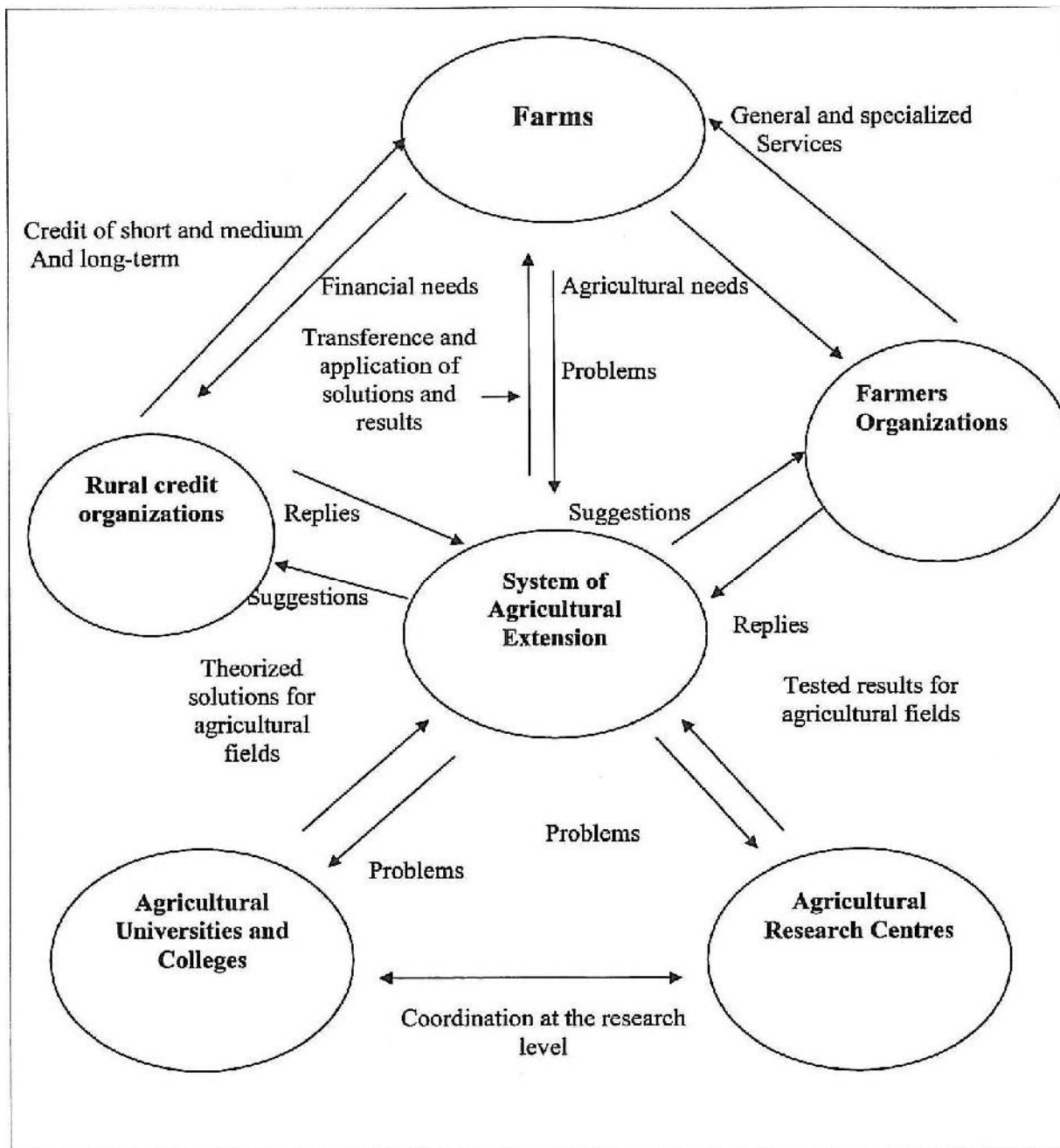


FIGURE 1: The framework support mechanism of agricultural extension

**RESULTS**

The main purpose of this study is to explore new support mechanisms in order to achieve sustainable agricultural development, as follows:

**The role of educational organizations in sustainable agricultural development**

Agricultural extension could play a key role in fostering sustainability through its educational programmes but there has been a growing realization that traditional agricultural extension models have not been sufficiently effective in promoting the adoption of sustainable agricultural development. It is clear from the results in Table (1) that the proportion of 87% (n=40) of the members of the study agreed on the importance of developing and modifying curricula that use appropriate communication strategies,

methods and media to reach farmers and share information with them, while 82.6% (n = 38) agreed on the conduction of research and the publishing of articles which document research findings on sustainable agricultural development. Also, 87% (n = 40) agreed on the transfer of research results to farmers and agricultural extension staff through farm advisory and field visits in field schools. As can be seen from Table (1), the highest mean refers to the conduction of research and publication of articles documenting research findings in sustainable agricultural development (Mean = 4.09, SD = .412) and the lowest mean refers to Develop and modify curricula that use appropriate communication strategies, methods, and media to reach farmers and share information with them (Mean = 4.04, SD = .362).

**TABLE 1:** The Role of Educational Organizations in Sustainable Agricultural Development

Item in question	Responses						Mean	SD
	SD (%)	DS (%)	N n (%)	A n(%)	SA n (%)			
1	00(00%)	00(00%)	2(4.3%)	40(87%)	4(8.7%)	4.04	.362	
2	00(00%)	00(00%)	2(4.3%)	38(82.6 %)	6(13%)	4.09	.412	
3	00(00%)	00(00%)	2(4.3%)	40(87%)	4(8.7%)	4.04	.362	

Note: SD strongly disagree; DS disagree; N neutral; A agree; and SA strongly agree

Question 1: How can educational organizations perform an important role in the development of sustainable agricultural development?

- 1- Develop and modify curricula that use appropriate communication strategies, methods, and media to reach farmers and share information with them.
- 2- The conduction of research and publication of articles documenting research findings in sustainable agricultural development.
- 3- Transfer of research results to farmers and agricultural extension staff through farm advisory and field visits in field schools.

**The role of farmer’s organizations in sustainable agricultural development**

Farmer organizations play an important role in tackling the problems of agricultural because they give farmers a legitimate voice in shaping sustainable agricultural development policies. Table (2) shows the relationships between farmers’ organizations and sustainable agricultural development. The results showed that 89.1% (n = 41) agreed on regular meetings with farmers on sustainable agricultural development programmes, while 82.6% (n = 38) of members of the study agreed on establishing regular networks to

facilitate the exchange of knowledge between farmers under the supervision of farmers’ organizations. Also, 87% (n = 40) agreed on participation in the reform of agricultural markets to stabilize farmers’ incomes. As can be seen from Table (2), the highest mean refers to Participation in the reform of agricultural markets to stabilize farmers’ incomes (Mean = 4.04, SD = .515) and the lowest mean refers to Establishing regular networks to facilitate the exchange of knowledge between farmers under the supervision of farmers' organizations (Mean = 4.00, SD = .365).

**TABLE 2:** the Role of farmers’ organizations in Sustainable Agricultural Development

Item in question	Responses						Mean	SD
	SD (%)	DS (%)	N n (%)	A n (%)	SA n (%)			
1	00(00%)	00(00%)	2(4.3%)	41(89.1%)	3(6.5%)	4.02	.333	
2	00(00%)	00(00%)	3(6.5%)	40(87%)	3(6.5%)	4.00	.365	
3	00(00%)	1(2.2%)	2(4.3%)	37(80.4%)	6(13%)	4.04	.515	

Note: SD strongly disagree; DS disagree; N neutral; A agree; and SA strongly agree

Question 2: How can farmers’ organizations play an important role in the development of sustainable agricultural development?

- 1-Regular meetings with farmers on sustainable agricultural development programmes.
- 2-Establishing regular networks to facilitate the exchange of knowledge between farmers under the supervision of farmers' organizations.
- 3-Participation in the reform of agricultural markets to stabilize farmers’ incomes

**Agricultural credit of farmers to achieve sustainable agricultural development**

The success of sustainable agricultural development depends on agricultural extension programmes and agricultural credit by different organizations and farmers. The results (see Table 3) suggest that 87% ( $n = 40$ ) agreed with the use of direct funding for national priority programmes, including the introduction of new technologies and developing production. Thirty-nine (84.8%) agreed with strengthening supervision of the use and recycling of the farmers' loans and controlling and eradicating situations of escaping debt.

Also, 84.8% ( $n = 39$ ) agreed with support of micro-credit institutions especially through linkages with commercial banks that would enhance credit delivery to farmers. As can be seen from Table (3), the highest mean refers to the use of direct funding for national priority programmes, including the introduction of new technologies and developing production (Mean = 4.04, SD = .362) and the lowest mean refers to strengthen supervision of the use and recycling of the farmers' loans and controlling and eradicating situation of escaping debt (Mean = 3.93, SD = .389).

**TABLE 3:** The agricultural of Rural Credit of Farmers in Achieving Sustainable Agricultural Development

Item in question	Responses						Mean	SD
	SD (%)	DS (%)	N n (%)	A n (%)	SA n (%)			
1	00(00%)	00(00%)	2(4.3%)	40(87%)	4(8.7%)	4.04	.362	
2	00(00%)	00(00%)	5(10.9%)	39(84.8%)	2(4.3%)	3.93	.389	
3	00(00%)	00(00%)	3(6.5%)	39(84.8%)	4(8.7%)	4.02	.394	

Note: SD strongly disagree; DS disagree; N neutral; A agree; and SA strongly agree.

Question 3: How can agricultural credit organizations play an important role in the development of sustainable agricultural development?  
 1-The use of direct funding for national priority programmes, including the introduction of new technologies and developing production.  
 2-Strengthen supervision of the use and recycling of the farmers' loans and controlling and eradicating situation of escaping debt.  
 3-Support of micro-credit institutions especially through linkages with commercial banks that would enhance credit delivery to farmers.

**DISCUSSION**

Agricultural extension can be defined as the entire set of organizations that support and facilitate people engaged in agricultural production to solve problems and to obtain information, skills, and technologies to improve their livelihoods and well-being. There is also scope for universities, researchers, and extensionists to assist with the development of farmers' analytical and record-keeping skills, with the strengthening of farmer associations, and with the training of Sustainable agricultural development workers. Field Schools used teams of scientists and graduate students to work with farmers over the course of several seasons for diffusion of knowledge and practices of sustainable agricultural development. The agricultural extension agent who can take a message to the field and provide follow-up visits is more likely to be successful. One-off messages or extension contacts with farmers are not likely to yield adoption results. Repeated contacts by agricultural extension agents over a period of time, as suggested in the Field Schools approach, are more likely to yield desired results (Erbaugh et al., 2010). Furthermore, the faculty and farm-schools should develop and modify curricula that use appropriate communication strategies, methods, and media to reach farmers and share information with them. (Lopez et al., 2002). It is necessary to form a greater linkage between agricultural extension and agricultural research to accelerate farmers' application by distributing the results of research fast, and that in ensuring assistance and author control on the transfer process of scientific achievements, and in improving the professional skill and the scientific and technical knowledge of farmers

(Kim et al., 2009). Farmer organizations should therefore be a high priority for public sector extension, because farmers need a wide range of services related to technology (production and processing), quality, access to markets, price information, and business development, and improve the ability of farmers to collectively find solutions to their problems (Van den Ban et al., 2003). The proposed organizational linkage structure is intended to promote cooperation and coordination among development organizations through involvement of the farmers, thereby providing a more structured and permanent basis for interaction between the organizations involved. Also regular meetings with farmers geared to their current levels of expertise, a process which is equally applicable to other similar agro-ecological zones (Vatta et al., 2008). Also creating the social networks for facilitating exchange of knowledge between farmers as well as between researchers and farmers (van den Ban., 2000) some facilitating measures include establishment of a revolving credit mechanism as part of extension programme. And giving tax support micro-credit institutions especially through linkage with commercial banks would enhance credit delivery to farmers (Chukwuone et al., 2006). an important financial support to farmers is necessary in this scope, direct financing will be used in the future for the realization of priority national programs including the introduction of new techniques and the development of production (Trendafilov et al. 1995). Also strengthen the rural credit system construction, and promote the formation of rural credit system through strengthening supervision of the use and recycling of the

farmers' loans and controlling and eradicating the situation of escaping debt (Tang, 2009).

### CONCLUSIONS

For the sustainable agriculture development in Eastern Libya, there is a greater need for reorientation in agricultural extension management. Also need to Participation Programs for universities, researchers, and extensionists to assist with the development of farmers' analytical and record-keeping skills, with the strengthening of farmer associations, and with the training of Sustainable agriculture development workers. In addition to Strengthen supervision of the use and recycling of the farmers' loans and controlling and eradicating situation of escaping debt. Finally, re-thinking in management components is mandatory and we must strive to find new functions, strategies and objectives for agricultural extension systems toward sustainable agriculture development.

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