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The improve of agricultural extension programs in Eastern Libya for the achievement of sustainable agricultural development

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Abstract: The specific objectives of sustainable agricultural development are to enhance food security; to increase productivity and competitiveness of the sector; to deepen linkages with other sectors; to create new sources of growth for the sector; and to conserve and utilize natural resources in a sustainable basis. The main objectives of the present study of sustainable agricultural development were to determine of agricultural extension programmes on farmers in Eastern Libya. 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 2012. A total of 46 managers and deputy directors,were approached for this study. Based on the results analysis for achieving sustainable agricultural development as follow, develop and modify curricula that use appropriate communication strategies, methods, and media to reach farmers and share information with them (87%), participation in the reform of agricultural markets to stabilise farmers' incomes (80.4%). Finally, In order to achieve these linkages there is the need to restructure new expertise and skills and a new set of operational procedures; which are less hierarchical and more flexible, to respond to the emerging needs of farmers at the local level; and to improve the cooperation among the management of agricultural extension and other organizations.

Key words: Agricultural extension programmes, Sustainable agricultural development, Eastern Libya.

INTRODUCTION

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 (Allahyari., 2008). 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 (Vatta *et al*., 2008). Worldwide, agricultural extension systems are struggling to prove their importance and relevance to sustainable agricultural development. Achievement of a well-organized extension system for efficient and effective extension delivery in all aspects of sustainable agriculture and rural development would attain food security, poverty reduction, rural empowerment and environment management. In addition, farmers also need to be convinced that achieving such production systems for future generations is crucial. It is necessary to find a way to prioritise different programmes and goals and then allocate resources towards those goals (Omar *et al*., 2012). Therefore the proposed plan recognise the importance of improving the role of extension in sustainable agricultural development to meet higher production targets and achieve higher incomes for farmers (Jamahiriya,2006a). Agricultural development plans (1972–1986). During the last thirty years water and land resources have been excessively used beyond sustainable levels (Jamahiriya, 2006b).Therefore the proposed plan recognizes the importance of improving the role of extension in sustainable agricultural development to meet higher production targets and achieve higher farmer incomes (Jamahiriya, 2006a). In 1974 Libya hosted the meeting of the Arab Deans of Agricultural Colleges, in which they discussed the extreme importance of extension services to the agricultural development efforts of all Arab states. Since then, concerted efforts have been made to improve extension services (Jamahiriya, 2006b). The rehabilitation of the agricultural sector, which requires major investments in infrastructure, capacity building (education, training, extension and research) and therefore the following is suggested: (1) Evaluation of implemented settlement schemes to assess necessary adjustments; (2) Provision of services and agricultural inputs to farmers to overcome natural resources constraints and (3) Plan also calls for linking agricultural extension offices with experimental stations of the Agricultural research center (Jamahiriya, 2006a). Libya's most important natural resources are its oil and natural gas reserves, which dominate its economy, Its other significant resources are, gypsum, limestone, marine salt, potash, and sodium carbonate (Jamahiriya, 2006a). Agriculture is the second-largest sector in the Libyan economy and the country depends on imports in most foods. Climatic conditions such as low annual rainfall and poor soils limit farm output, and domestic food production meets about 25% of demand (Jamahiriya, 2006a).

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Methods:

The survey was divided into six areas, namely Tubruq, Derna, Al Bayda, Al Marj, Benghazi and Ajdabiya in eastern Libya. Data were collected through the use of questionnaires on a sample of agricultural extension managers in the study area. A total of 46 managers and deputy directors were involved. The questionnaire consisted of several categories of questions. To indicate the level of agreement, a five-point Likert scale was used, where 1 = strongly agree, 2 = agree, 3 = neutral, 4 =disagree, and 5 = strongly disagree. Both non-parametric statistical tests and the appropriate descriptive statistics were performed using the statistical package for social sciences (SPSS®) for Windows, version 16, from June to September 2012.

Results:

The Planning And Implementation Of Agricultural Extension Programs For Sustainable Agricultural Development:

Agricultural extension plays important roles in sustainable agricultural development (Table 1). There should be promotion of participation of the low level staff in the management of agricultural extension in usual decisions and provision of an independent budget for operating expenses of which 80.4% (*n* = 37) of the respondents agreed with the perceived roles. While the thought of 65.2 % (n=30), that performance is high with transfer responsibilities and program planning, management and co-financing to agriculture sector managements in the region, and 76.1% (*n*=35) agree with encouragement on exchange of staff between agricultural extension management and other organisations. Managers and deputy directors (82.6%, *n* = 38) agreed with providing in-service training to staff on sustainable agricultural development. Of respondents, 87% (*n* = 40) agreed that one of the most important solutions is Developing and modifying curricula that use appropriate communication strategies, methods, and media to reach farmers and share information with them.

As shown in table 1, the highest means degree of responses refers to transfer responsibilities and program planning, management and co-financing to agriculture sector managements in the region (Mean = 4.07± SD 0.70) 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 = 3.74 ± SD =0.36).

Degrees of responses / Item in section	SD n (%) (1)	DS n (%) (2)	N n (%) (3)	A n(%) (4)	SA n (%) (5)	mean	SD
1	00(00%)	00(00%)	6(13%)	37(80.4%)	3(6.5%)	3.93	0.44
2	00(00%)	2(4.3%)	4(8.7%)	30(65.2%)	10(21.79%)	4.07	0.70
3	00(00%)	00(00%)	7(15.2 %)	35(76.1%)	4(8.7%)	3.93	0.49
4	00(00%)	1(2.2%)	3(6.5%)	38(82.6%)	4(8.7%)	3.98	0.49
5	00(00%)	00(00%)	2(4.3%)	40(87%)	4(8.7%)	3.74	0.36

Note: (1) SD strongly disagree; (2) DS disagree; (3) N neutral; (4) A agree; and (5) SA strongly agree.

1-The promotion and the participation of the low level staff in the management of agricultural extension in the usual decisions and providing an independent budget for operating expenses

2- Transfer responsibilities and program planning, management and co-financing to agriculture sector managements in the region.

3- Exchange of staff between agricultural extension management and other organisations.

4- Providing of in-service training programmes to staff on sustainable agricultural development.

5- Develop and modify curricula that use appropriate communication strategies, methods, and media to reach farmers and share information with them.

The Financial Resources To Agricultural Extension Programs For Sustainable Agricultural Development:

The results (see table 2) suggest that 87% (n = 40) respondents agreed with the use of direct funding for national priority programmes, including the introduction of new technologies and developing production, while 73.9% (*n* = 34) agreed with modifying the bonuses and salaries system on the basis of individual accomplishments rewards and not on the basis of the working years, and 76.1% (*n*=35) agree with collection of fees from farmers for agricultural extension services. Also, 80.4% (n = 37) agreed on contracting the private sector to provide agricultural equipment in the provision of extension services, as well as in reemployment of retrenched field staff and deployment of more better-trained and adequately remunerated. Of respondents,

80.4% (n = 37) agreed that one of the most important solutions is participation in the reform of agricultural markets to stabilise farmers' incomes. As shown in table 2, the highest means degree of responses refers to collection of fees from farmers for agricultural extension services (Mean = 4.04± SD 0.61) and the lowest mean refers to the use of direct funding for national priority programmes, including the introduction of new technologies and developing production.

(Mean = 3.85 ± SD =0.36).

Degrees of responses / Item in section	SD n (%) (1)	DS n (%) (2)	N n (%) (3)	A n(%) (4)	SA n (%) (5)	mean	SD
6	00(00%)	00(00%)	2(4.3%)	40(87%)	4(8.7%)	3.85	0.36
7	00(00%)	1(2.2%)	8(17.4%)	34(73.9%)	3(6.5%)	4.04	0.56
8	00(00%)	2(4.3%)	5(10.9%)	35(76.1%)	4(8.7%)	4.04	0.61
9	00(00%)	00(00%)	4(8.7%)	37(80.4%)	5(10.9%)	4.02	0.45
10	00(00%)	1(2.2%)	2(4.3%)	37(80.4%)	6(13%)	4.04	0.52

Note: (1) SD strongly disagree; (2) DS disagree; (3) N neutral; (4) A agree; and (5) SA strongly agree.

6 -The use of direct funding for national priority programmes, including the introduction of new technologies and developing production.

7-Modifying the bonuses and salaries system on the basis of individual accomplishments rewards and not on the basis of the working years.

8- Collection of fees from farmers for agricultural extension services.

9 - Contracting the private sector to provide agricultural equipment in the provision of extension services, as well as in reemployment of retrenched field staff and deployment of more better-trained and adequately remunerated.

10-Participation in the reform of agricultural markets to stabilise farmers' incomes.

Discussion:

Policies that are intended to increase the involvement of the private sector lead to an effective agricultural extension system that delivers appropriate agricultural information and the brought about the formation of groups to pool resources to improve farming collectively (Bardon *et al*., 2009), and that are useful to planners and policy makers as they attempt to shape future policies and restructure institutions to encourage greater participation in sustainable agricultural development includes the use of direct funding for national priority programmes, including the introduction of new technologies and development of production (Trendafilov *et al*., 1995). It was shown that changes in communication are required for the management of agricultural extension and other organizations, such exchange of staff (Agbamu., 2000). Also, participation in the reform of agricultural markets to stabilise farmers' incomes (Sulaiman *et al*., 2003). In addition, devolution can take place by transferring the responsibilities of co-financing to agricultural sector managements in the region, the promotion and participation of low level staff in the usual decisions concerned with the management of agricultural extension and the provision of an independent budget for operating expenses are very important (Okorley *et al*., (2009).

Providing adequate and stable funding for agricultural extension management in Eastern Libya through the establishment of farmers' cooperatives for the collection of fees from farmers for agricultural extension services is one of the most important of the major strategies for sustainable agricultural development (Chukwuone *et al*., 2006).

The findings suggest that there is a positive relationship between the reward system and the performance of agricultural extension, where the bonuses are modified and the salaries system is operated on the basis of rewarding individual accomplishments and not working years (Schmiesing *et al*., 2003).Therefore curricula that use appropriate communication strategies, methods, and media must be developed and modified to reach farmers and share information with them (Lopez *et al*., 2002). Also, in-service training programmes on sustainable agricultural development can be provided for staff (Movahedi *et al*., 2012).

Conclusion And Recommendations:

Agricultural extension systems in world are struggling to prove their importance and relevance to sustainable agricultural development. In order to achieve these linkages there is the need to restructure new expertise and skills and a new set of operational procedures; which are less hierarchical and more flexible, to respond to the emerging needs of farmers at the local level; and to improve the cooperation among the management of agricultural extension and other organizations. Based on the conclusions drawn from the findings, the following recommendations were made:

1. In order to increase sustainable agricultural development programmes and utilisation of a variety of agricultural extension methods, the management, in collaboration with other organisations, should allocate adequate funds and necessary equipment, tools, transport facilities, and teaching and training materials to extension personnel and farmers.
2. The agricultural extension management should see to the revision of the training programmes and adopt systematic training plans. Therefore, agricultural extension services must recognise and serve different farmer's needs, which will necessitate more highly trained, specialised and technically competent workers who also know where to obtain relevant information and problem solutions for achieving sustainable agricultural development.
3. The agricultural extension management should improve working conditions such as promotions and career advancement, and transfers to gain renewed trust in the management by the employees.

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