Review Article

The effective agricultural extension approach

ABSTRACT

This paper is a review article. It presents the definition of extension approach and reviews various types of extension approaches defined by researchers. The paper describes these extension approaches. It presents attributes of the effective agricultural extension approach and determines qualities and necessary conditions for this approach. It also reviews different methodologies used to measuring the effectiveness of agricultural extension approaches and determines determinants of the effectiveness measurement of extension approaches. Finally, the paper presents the application of extension approaches in Egypt.

Keywords: Attributes of effective extension approach, effectiveness measurement determinants, Egypt, qualities and conditions, types of extension approaches

1. INTRODUCTION

Many extension approaches have been defined by researchers. Advantages and disadvantages of these approaches were clarified and comparisons between different approaches were made. These approaches have been adopted in different countries of the world and the effectiveness of some approaches was measured. The present paper reviews the definition of extension approach and the types of extension approaches defined by researchers. It presents previous research studies on the effectiveness of some extension approaches and methods. The paper describes attributes of the effective extension approach and determines qualities and necessary conditions for this approach. It presents different methodologies used to measuring the effectiveness of some extension approaches. The paper determines determinants of effectiveness and presents the application of extension approaches in Egypt.

2. DEFINITION OF EXTENSION APPROACH

The approach is defined by Axinn [1], as the style of action within system. It's like the drummer which sets the pace for all activity of the system. Hagmann *et al.,* [2] explained an approach as a way in which different guiding principles are applied in a specific situation to fulfill different purposes. It consists of a series of procedures for planning, organizing and managing the extension institution as well as for implementing practical extension work by staff with technical and methodological qualification and using the necessary and appropriately adapted means. The approach is like a doctrine for the system, which informs, stimulates and guides such aspects of the system as its structure, its leadership, its program, its resources and its linkages [3].

3. TYPES OF EXTENSION APPROACHES

Various approaches have been defined by researchers for agricultural extension. Axinn [1] defined eight approaches. These are: General approach, Commodity specialized approach, Training and Visit approach, Participatory approach, Project approach, Farming system approach, Cost-sharing approach, and Educational institution approach. Many other approaches were defined by other researchers.

Nagel [4] classified different alternatives to organizing extension demand choices on various levels: public versus private, government versus nongovernment, top-down (bureaucratic) versus bottom-up (participatory), profit versus nonprofit, free versus cost-recovery, general versus sector, multipurpose versus single purpose, and technology driven versus need oriented. Nagel also described in details two groups of extension approaches. These are general clientele approaches and extension to selected clientele approaches.

The World Bank distinguished between profit oriented and public extension service. It also distinguished between multipurpose and specialized extension services [5]. Swanson and Rajalati [6] described different extension approaches and models under four main categories. These are: technology transfer extension models, participatory extension approaches and market – oriented extension approaches and non-formal education/extension approach. Davis [7] described a typology for types of extension which included the basic form of public-top down or government driven, participatory or demand driven, and private or supply driven.

As stated by Kaur and Kaur [3] that agricultural extension is done mainly by public sector, private sector, and public-private partnership. The public sector is normally conducted by agricultural ministries, universities, and other governmental agencies. The private extension is offered by various private agencies, and clients are expected to pay for the service. Public-private partnership describes a service which is funded and operated through a partnership of the government and one or more private sector. Since farmers are the main beneficiaries, they pay the cost of the service.

Kaur and Kaur [3] described some other extension approaches which depend on individual and group communication methods such as farmer interest group, successful groups, farmer field school, farmer to farmer communication approach, farmer field approach, and group approach. They also described other approaches which were adopted in India such as farming system approach, mass media approach, market led extension approach which focuses on providing information on agricultural production marketing, cyber extension approach which depends on Information Communication Technology, cost recovery approach, and share-cropping system.

In the general approach, extension services cover all areas of agricultural production. If these services were directed to a specific commodity, they are called commodity extension approach. If the services were directed to all people, they are called public or general clientele approach. If these services were directed to a specific group of people, they are called sector or selected clientele approach. The general and public extension approach is normally implemented and controlled by the government through agricultural ministries and educational institutions. The commodity approach may be implemented by the government or by any private organization. General or public agricultural extension services offered through governmental organizations are called governmental. When these services are offered through some nongovernmental agencies, they are called nongovernmental or private approach. While the governmental approach does not seek any profits, the non-governmental or private agricultural extension services are offered by profit achieving organizations.

Normally, in the general or public approach, extension services are offered free of charge, but if farmers contribute and pay the cost of extension services, or if these services were offered by any non-governmental organization, this approach is called cost-sharing or cost recovery approach.

In the developing countries, extension programmes are designed and planned at the central levels. This centralized approach is a non-participatory approach. If local people and village extension workers participated in programme planning, the approach is called participatory approach. The non-participatory approach is a top-down approach, and the participatory approach is a down-top approach.

In the training and visit approach, extension workers are trained to educate certain groups of farmers in a selected area on certain types of agricultural innovations concerning certain commodities. In the project approach, agricultural extension services are directed to a certain agricultural commodity or activity and normally funded by a foreign organization through a particular period. In the farming system approach agricultural extension programmes are planned for each agricultural local area according to its conditions. In the technology derived approach, extension programmes are based on the available agricultural technologies at research centres, but in the need oriented approach, extension services are based on people's needs or demand driven services.

The distinction between these types of approaches is not absolute and there are no border lines between them. They are interrelated and one can hardly finds a single approach adopted without other approaches. For instance, the participatory approach, farmer to farmer approach, farm field schools, farmer group approach, farmer friend approach, sharing cost approach are adopted under the general and commodity approaches. They are also adopted under the governmental and nongovernmental approaches and in public and private approaches. Some approaches are defined and focusing on the extension methods used whether these methods were individual and group communication methods or mass media contacts. Some other developed approaches are using ICT which may be adopted in any broader approach.

As stated by Axinn [1], an approach which is appropriate and applicable at a certain time in certain place, may not be appropriate and applicable at different times and places. Also there are some approaches which may be adopted as supportive to other approaches.
The general approach is the most common adopted approach in most countries. All other approaches have been introduced in some developing countries and funded by foreign agencies as means to improve the effectiveness of agricultural extension systems in these countries. These approaches were adopted in certain areas for certain commodities during certain periods of time to cover limited sectors of people. The success or failure of their adoption depends on the continuity of their finance. But the governments of these countries face much difficulty in providing the required financial resources to sustain the implementation of such projects.

4. ATTRIBUTES OF THE EFFECTIVE EXTENSION APPROACH

An effective extension model focuses strongly on the dissemination and facilitation of the adoption of recommended technologies and practices to achieve its objectives. It should be able to improve production and productivity. It should also be available and accessible.
Ssemakula and Mutimba [9] defined some attributes which constitute an effective extension model. They considered these attributes as determinants of effectiveness of the extension model. These are: existence of a clear and inclusive philosophy, knowledge and commitment of the extension providers, social proximity of providers and beneficiaries,

involvement of beneficiaries in the process of technology generation and dissemination, availability of the services to beneficiaries at all times, improving productivity of enterprises, and presence of supportive policies, institutions, programmes, and related enabling processes.

5. QUALITIES AND NECESSARY CONDITIONS FOR THE EFFECTIVE EXTENSION APPROACH

The effective extension approach is that approach which should be based on principles of agricultural extension. These principles were described by many researchers (see for instance: [9], [10], and [11]). Based on these principles, and some other research studies on the effectiveness of extension models and approaches (see for example: [1], [8], [12], and [13]), the following qualities and necessary conditions for the effective agricultural extension approach can be determined:

First: It should fill the gap between research and farmers and play the role of extension effectively. Extension is a two-way link. As stated by Oakley and Garforth [10], this two-way flow of ideas can occur at different stages: When the problem is being defined, when recommendations are being tested in the field, and when farmers put recommendations into practice. The effective agricultural extension should not only identify farmers' problems and needs and take these problems to research centres for solutions, but it should also go back to farmers with these solutions. In addition, the effective extension should identify appropriate new technologies and provide farmers necessary education about them and carry the consequences of their adoption to the research centres (Figure 1). The effective agricultural extension approach should have strong linkages with the research centres as well as with farmers and other related institutions.

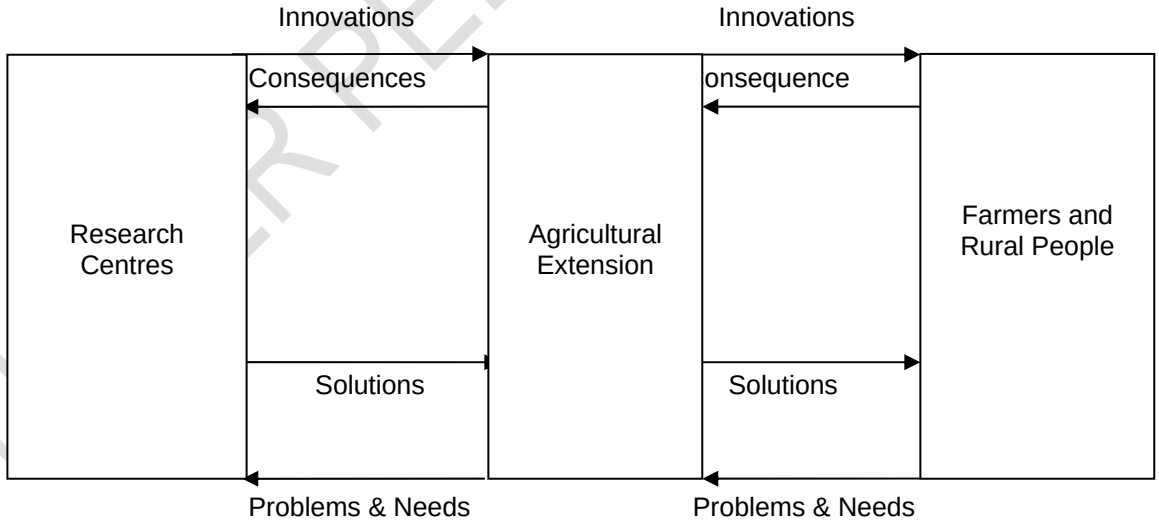

Figure 1: The role of effective agricultural extension

Second: It should fit extension programme goals. As stated by Axinn [1], the success of an agricultural extension programme tends to be directly related to the extent to which it fits the programme goals for which it was established.

Third: It should improve agricultural production and productivity through the dissemination and adoption of new technologies and practices.

Fourth: Its extension services should be available for beneficiaries at all times.

Fifth: It extension services should be accessible to beneficiaries.

Sixth: It can reach beneficiaries and offer necessary education on new technologies for them.

Seventh: It should rely on appropriate extension communication methods.

Eighth: It should be based on people's participation in generating and disseminating new technologies.

Ninth: It should be based on participation of extension staff at local levels in planning extension programmes.

Tenth: It should rely on local leaders.

Eleventh: Its extension programmes should be planned at the local levels (from down to top).

Twelfth: It should design appropriate extension programmes for each area.
These qualities and necessary conditions for the effective agricultural extension approach can be regarded as determinants for effectiveness and constitute the main components of the effective extension approach.

6. MEASURING THE EFFECTIVENESS OF EXTESION APPROACH

Different methodologies have been used by many researchers to measuring the effectiveness of some extension approaches, models, and services. Ssemakula and Mutimba [8] measured the effectiveness of farmer – to farmer approach by increased: technology uptake, production, food availability, information – sharing, and sales of commodity. Al-Sharafat *et.al.* [14] depended on olive productivity in their assessment of Jordan's agricultural extension services.

Saravanan and Veerabhadraiah [12] measured the effectiveness of public, private, and NGO's extension services by using twenty eight indicators in three levels: input, process, and outcomes. The same methodology was adopted by Debnath *et.al.* [13] to measure the effectiveness of public extension services of the department of agriculture in Tripura state, India by using twenty indicators. These indicators included nine organizational indicators, six clientele indicators and five indicators related to extension personnel. The organizational indicators are concerning total expenditure, expenditure on extension activities, frequency, adequacy and usefulness of extension activities, clientele contact, technical manpower : cultivator ratio, organizational climate, guidance and supervision, facilities and resources, and communication. The clientele indicators included their commitment, willingness to pay for the service, relevance, quality, and usefulness of extension service. The indicators related to extension personnel included organizational commitment of extension personnel, client accountability, job satisfaction, job performance, and job competence.

Lotfy and Adeeb [15] measured farmers' satisfaction and their perception of quality of extension services in Minya and BaniSuef governorates in Egypt. Agbarevo [16] used several indicators to measure farmers' perception of the effectiveness of extension personnel in Cross-River-state, Nigeria. These indicators included the level of awareness of

extension services created among farmers, number of visits made by the village extension worker, organized and held meetings with farmers, method and result demonstrations, research/extension linkage, workshops, farmer training programmes, farmers participation in OFAR, distribution of pamphlets, leaflets, …, etc., and organization of audio-visual shows.

Cerdan-Infantes, *et.al*. [17] measured the impact of the provision of agricultural extension services to grape producers in Mendoza, Argentina on its yield and quality. Akomaning, *et. al.* [18] examined the effectiveness of agricultural extension system employed by farmer based organizations (FBOs) in the central region of Ghana. Their assessment of the effectiveness of the extension systems identified was measured based on farmers' perception of the performance of various extension systems, and their perception of the effectiveness of extension approaches. The performance indicators included training workshops, research/extension linkage, input provision, credit provision, marketing outlets, provision of essential services, adoption of technology, farmer participation, and farm productivity- yield. The effectiveness of extension approaches was measured on a five point Likert-type scale ranging from very effective to not effective.

7. EFFECTIVENESS DETERMINANTS

Based on the above, it can be said that there are several determinants of the effective agricultural extension approach which should be taken into consideration in its measurement. These determinants can be stated as follows (Figure 2):

1. Organizational determinants which include the extension organization, extension/research linkage, extension/famers organizations linkage, and extension/other systems linkage.

2. Farmers determinants which includes their characteristics, their satisfaction of extension services and their perception of extension service quality and usefulness, their participation in generating and adoption of new technology as well as in planning and evaluating extension activities.

3. Extension personnel determinants including their commitment of extension services, their efforts and activities for extension services provision.

4. Economic determinants which include production, productivity, and net profits of agricultural products.

5. Marketing determinants including the provision of necessary information on marketing of agricultural products.

6. Communication channels including various types of communication channels used to disseminate knowledge and information on new technology among farmers and encourage them for their adoption.

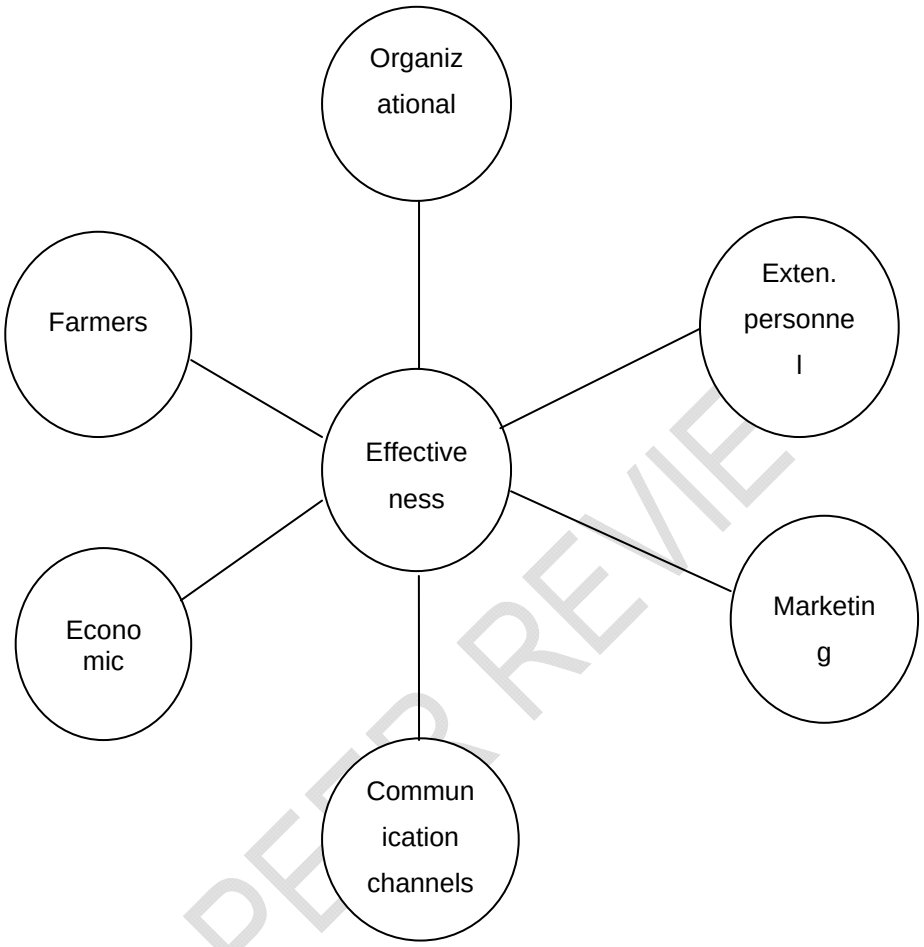

Figure 2: Effectiveness determinants

8. APPLICATION OF AGRICULTURAL EXTENSION APPROACHES IN EGYPT

Most of the defined agricultural extension approaches were adopted in Egypt. The general approach is the traditional agricultural extension approach and has been adopted through the Ministry of agriculture since the establishment of the extension organization in Egypt in 1953. The commodity approach has been implemented through certain extension projects for certain agricultural products in certain agricultural areas such as strawberry village in Qalubia governorate, cantaloupe or muskmelon project in Ismaeiliah governorate, and wheat national campaigns over all the country. Small Farmer approach, T & V approach, Farmer to farmer, Farmer Field School, and Group approach were adopted in some governorates in the country. In addition, Virtual Extension & Research Communication Network (VERCON) and The Rural and Agricultural Development Communication Network (RADCON) which are based on ICT were also adopted in some governorates funded by some foreign organizations. The continuity of these projects depends on the availability of local financial resources.

9. CONCLUSION

There are numerous agricultural extension approaches defined by researchers and some world organizations. However, there is no one approach which could be applied at all times and for all different places. Any approach in order to be effective requires the adoption of some other supportive approaches. Most approaches have been proposed to be applied in some developing countries to improve the effectiveness of their extension systems and have been introduced and adopted through some foreign funded projects. Several attributes, qualities and necessary conditions of the effective extension approach were identified. Different methodologies were used to measuring the effectiveness of some extension approaches. But each focused on certain aspects or dimensions of effectiveness. It can be concluded that all attributes, qualities and necessary conditions of the effective agricultural extension approach should be taken into consideration in measuring its effectiveness.

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