REVIEW OF EXPERIENCES AND EFFECTIVENESS OF FARMER-TO-FARMER EXTENSION APPROACH IN DEVELOPING COUNTRIES

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ABSTRACT

This paper reviewed studies on effectiveness of farmer-to-farmer extension (FtFE). Search of the relevant literature through desk study and documentation of experiences from various developing countries constitute the methodology used for accessing information for the paper. Survey of 24 organizations in Cameroon using different extension approaches revealed that FtFE approach was the most effective (scored 8 on a scale of 1-10) for effectiveness by lead farmers. In Ethiopia FtFE was effective in creating better access to seeds of improved barley varieties and positively influenced its adoption. Benefit cost ratios ranging from 7 to 1 and 14 to 1 were reported due to use of FtFE in Ghana, Malawi, and Uganda. Evidence abounds of uptake and satisfaction with FtFE by communities/organizations in Cameroon, Malawi and Kenya. In Borno state, Nigeria, use of the participatory research and extension approach (PREA) and FtFE resulted in increased adoption of technologies, improved nutrition for women and children (86.0%), income (86.0%) and food security. Among cacao farmers in Peru FtFE resulted in 13-500% rate of returns to extension with productivity rise from 340-600 kg/ha in three years. It was recommended that FtFE should be institutionalized as a matter of policy to guide information dissemination and exchange among and within the farming communities.

Keywords: Farmer-to-farmer Extension; Effectiveness; Participatory research and extension approach, Benefit-cost ratio; Developing countries.

INTRODUCTION

Agricultural Extension Services are a key investment for sustainable agriculture; it enable farmers take up innovations, improve production and protect the environment. It shows positive effect on knowledge, adoption and productivity. Farmer-to-farmer Extension (FtFE) is recognized as an existing dissemination process that has been carried out for generations in Africa and worldwide where there is scarcity of agricultural technicians working in rural areas, especially where the services of the government technical staff seldom reach such places. FtFE emerged as a reaction to the top-down transfer of technology (TOT) model which provide very little possibility for farmers participation and initiative. Moreover TOT do not address farmers needs leaving behind dis-interested farmers and de-motivated extension officers who are biased against well- to- do farmers (Nagel, 1997).

Stakeholders therefore, advocated for a more pluralistic demand driven, extension programme with emphasis on targeting women and the poor people with low literacy level to be reached and benefit from the innovative extension programmes such as the farmer-to-farmer extension approach (Davis, 2008). When farmers do not have access to formal extension, they use other sources of information like asking other farmers and input dealers for advice. Interaction between farmers themselves provide them the opportunity to exchange beneficial and useful experience (Van Dan Ben et al., 1996).

FtFE has the potential to spread innovation to many farmers, within their community (Karuhanga et al., 2012). FtFE came as a result of reduction in agricultural extension services provision in developing countries due to increasing pressure of land and other resources. Farmers are trained in new technologies using lead farmers to disseminate and pass on the technologies to their peers (Isaac and Wolf, 2012). This paper review the effectiveness of the FtFE approach in several developing countries.

CONCEPTUAL REVIEW ON FARMER-TO-FARMER EXTENSION

Franzel et al. (2015) defined FtFE as the provision of training by farmers to other farmers, often through the creation of a structure for training of farmer trainers (FT). Different names are recognized for FT in various regions/countries among which include; Lead farmers (LF), farmer promoter (FPO), community knowledge worker, contact farmer and Kamayog in Peru dialect. Surange et al. (2011) opined that FtFE approach in Agriculture is a systematic utilization of community
leadership and informal communication between the farmers to strengthen information flow and enhance agricultural production. FtFE approach differ from country to country due to conditions under which it take place, but they all have one thing in common—that is, their organizational setup and management. Farmer trainers (lead farmer) are trained by external agents, they in turn share their knowledge and skills with other farmers in the community via village meetings, market places, funeral gatherings, festivals and field days. (Ayubu et al., 2012). Selener et al. (1997) defined farmer trainer as individuals with little or no formal education who through a process of training, experimentation, learning and practice increase their knowledge and became capable of sharing it with others, functioning as an extension worker.

FtFE extension approach emerged out of the need to tackle the issue of agricultural production sustainability (Binswange, 2012). The approach focuses on farmers as the principal agents of change in their community. It is shown to be cost-effective, sustainable and effective in disseminating new technology (Karuhangha et al., 2012). It enhances learning, empowerment and increase capacity to adopt, innovate and train other farmers. It is conceived as a more viable method of technology dissemination as it is based on the conviction that farmers can disseminate innovation better than extension agent, because of the in-depth knowledge of local conditions, culture and practice and are known by other farmers. In addition, they live in the same community, speak the same language, use expression that suits their environment and instill confidence in their fellow farmers (Weinand, 2002; Mulanda et al., 1999). FtFE is based on the principle of homogeneity and ease of communication and understanding among homogenous groups with similar culture, beliefs and level of education such as small-scale farmers in developing countries.

METHODOLOGY AND DISCUSSION

The review was based on desk study of relevant secondary data and experiences of different developing countries particularly in Africa and Asia. Empirical evidence of the result of utilization of FtFE in Cameroon, Ghana, Malawi, Ethiopia, Uganda, Kenya, Nigeria, Peru and India were analyzed and lessons were derived from their experiences and presented in this paper.

Review on Effectiveness of Farmer-to-Farmer Extension

As outlined in the review the paper presents the effectiveness indicators of FtFE. The indicators of effectiveness of FtFE in the studies reviewed are hereby discussed as follows. The indicators highlighted provide the evidence of FtFE in the various developing countries within the scope of this review.

Benefit to farmers

Sygnola et al. (2014) surveyed 24 organizations in Cameroon using different extension approaches they accord the FtFE approach as the most effective method because it provides the organization with a significant multiplier effect, it gave FtFE a score of 8 (on a scale of 1-10) for effectiveness by lead farmer early access to technology and enhancement of their social status. The organizations assessed the FtFE as being beneficial because farmers find it easier to learn and try new techniques already practiced by their peers. Local non-profit organization in Cameroon (60%) were the prominent implementers and users of the FtFE extension approach. The main reason for adoption were increased outreach and greater efficiency is achieved through farmer talking to other farmers, and a perception of increased sustainability. (Sygnola et al., 2014) in another study by the authors 45% of organization interviewed in Cameroon started using the FtFE approach between 2005 and 2009 stated 29% adopted the approach before 2000 26-40% of respondents adopted the approach to increase sustainability of their action and to increase efficiency in communicating with farmer. 37-56% is to increase coverage (reach out more farmers), and 16-11% capacity building.

Franzel (2015) in a survey of 80 organizations in Kenya, Malawi and Cameroon valued the FtFE because of its low-cost, help extension services expand their reach and improve accountability to the community. Others reported that farmers command of local languages and culture helped promote uptake of new practices, promoted feedback on the new practices to research and extension and help strengthen the capacity of communities to access information. As the approach is low-cost, it is often sustainable, with government extension staff or farmer organizations taking over the backstopping of farmer trainers after the project ends. FtFE has the potential to improve feedback from farmers to extension staff. In part of Peru, the FtFE has become the main delivery vehicle for extension programmes, it reaches 90,000 poor farmers (Hellin et al., 2006). Experience with Farmer- to- Farmer Extension (FtFE) shows positive impact on productivity and income (Alston, 2000). Studies have shown 13-500% rate of returns to extension, example a programme with cacao farmers in Peru shows productivity rise from 340-600 kg/ha in three years (Alston, 2000).

Ensure and promote inclusive extension

The FtFE is effective because it is appropriate and can fit wide range of extension modalities such as the
private, government, NGO and appropriate for wide range of target groups and farmer organization including women, youth and the poor. It is useful for increasing the proportion of women access to extension services. The more extension services supervised and facilitate ownership among local institution the more sustainable will be the program. The approach is widely adapted and used in combination with many other extension approaches. Shiva (2013) based on Nepal experience reported that FtFE gained prominence in 2001 with the emergence of farmer field schools (FFSs) through the intervention of the sustainable soil management program (SSMP). The program was initiated in 12 district and running in 240 Village Development Committee (VDC) as the government extension services are less effective in reaching remote areas and mid-hills of Nepal in technology transfer and therefore the FtFE was considered as a better alternative with 755 ELPS developed, 151 ELPS provide extension services to faming household serving 900 farmer groups. The findings reveals that the approach is cost effective and sustainable service delivery mechanism for extending basic innovation technologies to rural farmers in remote areas. Further, the results indicated that even the poor, marginalized and the disadvantage groups that are often excluded from the main stream assistance have better access to extension services and information dissemination through the FtFE approach with the FtFE being rated better in terms of client orientation, accountability, sustainability and scaling up farm production compared to other conventional models (Saravanan, 2008). The VDC level so much entrusted by the people as it leads to increase and facilitate participation of local people in the planning, implementation process related to local agricultural development programmes. Suranga et al. (2011) reports on the experience with the Sirinka Agricultural Research Centre (SARC) in the Amhara region of Ethiopia which implemented a pilot programme in 2007 using the FtFE approach. The study reveals that farmer training and capacity building have been effective in technology transfer and that lead farmers (LF) have done a great role in scaling out improved agricultural technologies of three improved barley varieties.

Ensure access to inputs and technology
Tiruneh et al. (2015) in a study measuring the effectiveness of extension innovation for out scaling agricultural package in Ethiopia found that FtFE offer a viable option for tackling this development and was effective in creating better access to seeds of the improved barley varieties. It positively influences and enhance farmers understanding and perception on compatibility, comparative and risk reducing advantages of leading to favorable adoption decision on the improved technologies which ultimately influences their attitude towards the technology. FtFE therefore prove to be potent in strengthening the extension and seed distributions system in research to development continuum that are often weak links, farmers build relationship with government extension officers involved in the training. The relationship helps sustain and continuing technology transfer activities some farmers (about 2802) came to know about government extensions services (Suranga, et al., 2011).

Livestock improvement and development
The East African Dairy Development Project (EADD) started in 2008 to date in Kenya, Uganda and Rwanda through improved dairy production and marketing recruited 1000 farmer trainers to disseminate dairy technology to farmers of which one-third are women who were provided with more effective technical support (information, access to technology as well improvement of access to inputs) (Franzel et al., 2015). In the dry and central highlands of Kenya, the Social Forestry Extension Model (SOFEM) selected farmer’s groups trained in skills of tree planting as well communication to act as extension agents to the neighboring farmers who established farm forest on their own farms to act as demonstration and teaching field to their neighbors. This approach is considered one of the effective ways in addressing farmer’s needs which also encourage farmer experimentation (Sinja et al., 2004). The introduction of fodder legumes project to reduce milk production cost, by minimizing expenditure in concentrate have been successful. Dissemination of these technologies has become more effective using the FtFE extension approach. (Franzel et al., 2015; Wanyoike, 2003).

Economic impact and returns
Wellard et al. (2013) reported benefit cost ratios ranging from 7-to-1 to 14-to-1 across four sites where NGOs supported use of FtFE in Ghana, Malawi and Uganda. FtFE approach was scaled up successfully in the Malawi Ministry of Agriculture where it was implemented with more than 12,000 lead farmers (Franzel, et al, 2015). Several studies show evidence of uptake of FtFE practice and communities/organizations satisfaction with the approach as organizations using the approach in Cameroon, Malawi and Kenya adopted it during the past decade without backing of donors or international organizations. This is an evidence of its demonstrated effectiveness in use (Franzel et al., 2015). Based on evidence from the ‘Promoting Sustainable Agriculture in Borno state’ (PROSAB) project implementation (PROSAB, 2009; Gwary et al., 2009), it was apparent that communities utilizing the FtFE approach based on the participatory research and extension (PREA) strategy adopted as strategy framework of the project experienced positive
outcomes. The empirical results show increased food availability (94%), improved nutrition for women and children (86%), increased income (86%), food insecure household fell from 58% in 2004 to 44% in 2008 and poverty dropped by 18% from 67% and 49% in 2004 and 2008 respectively. FtFE ensured that considerable progress was made in addressing key problems of declining soil fertility and *striga infestation* by high rate of adoption of improved maize and soybean varieties by male and female farmers (77% and 53%) respectively. On the dissemination of market information to farmers, there was increase in income by 81% indicating potential for scaling up development and adoption of new technologies, increased women participation in crop and seed production, group farming. Animal share scheme and crop processing utilization especially soybean and groundnut.

**Challenges and Constraints of FtFE approach**

FtFE in different regions faces financial limitations to its implementation alongside with selection of motivated and committed lead farmers. In Tanzania Bernard et al. (2014) found that most of the respondents testify to lack of funds or cash to buy inputs during planting season, accessing agricultural information (like attending important workshops/ seminars, agricultural meetings/shows) and to meet the transport cost of visiting farmer fields. Karuhanga, et al. (2012) reported that in Uganda, transport cost and time forgone to undertake their own farm activities are pressing issues for farmers. Resistance to change on the part of the farmers and limited technical knowledge among the lead farmers in certain technologies are also concerns limiting FtFE activities. Therefore, farmer trainers need more training and grounding in different technologies for them to be effective. Inadequate number of lead farmers, lack of information services available in the rural areas for accessing information such as village/ward libraries, limited/lack of access to reference materials for training like posters, chart, etc. are also constraints in FtFE. Others include high expectation of farmers, family conflict and local politics. Shiva (2013) observed that due to corruption, extension support is provided mainly to elites groups and political allies.

**CONCLUSION AND RECOMMENDATIONS**

FtFE approach offers great potential for improving access to Agricultural information and dissemination among the target communities. To improve effectiveness and sustainability of the approach the following recommendations are proffered as the way forward:

- Farmer training needs to be continuous and balanced in terms of scope of subject matter for all relevant topics such as crops, livestock, management decision making and leadership skills. Training should include supervision and monitoring of the lead farmers training activities to ensure continued relevance and as source of feedback to the Trainers.

- Establishment of linkages between the lead farmers and other relevant stakeholders such as researchers, training institutions and agricultural service providers to facilitate access to new technologies and innovations.

- Adequate funding for implementation of local extension activities including farmer field Schools and provision of requisites training materials for the lead farmers responsible for to implementation of FtFE. Stakeholders should introduce improved service delivery mechanism that is responsive to farmers needs and undertake more training of lead farmers to raise their management capacities in different technical areas.

- Institutionalization and upscaling of FtFE approach into mainstream extension services of the Agricultural Development Projects (ADPs), Agricultural Training institutions and rural and Agricultural Development Projects and NGOs in Nigeria.
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