

An Evaluation of Factors that Hinder Subsistence Farmers From Diverting to Profitable Farming in Botswana: A Lesson for Extension Officers

Modibo. K., Nthoiwa, G.P. and Tselaesele, N.M.

G.P Nthoiwa, Botswana College of agriculture, Private bag 0027, Gaborone - Botswana

Email: gnthowa@bca.bw

Summary

The government of Botswana has over the years provided support programmes to farmers to subsidize agricultural inputs in order to raise the level of profitability. Despite the wide range of Agriculture support there has been very little improvement in traditional agricultural sector. The objective of the study is to identify the factors that hinder traditional farmers from transforming to profitable farming. The results show that most of the farmers did not adopt some specific types of innovation like row planting, use of fertilizers, use of improved crop varieties, crop rotation and pest control techniques. The reasons for not adopting such innovations included most importantly because extension agents don't know whom they are serving.

Introduction

Botswana is a landlocked country with a total surface area of 582 000 km². The country has a population of about 1.5 million, about half of whom live in rural areas and derive their livelihood from agriculture and other rural subsistence activities. Botswana's climate is semi-arid to arid with a mean annual rainfall of ranging from 650 mm in the extreme North east to less than 250 mm in the extreme southwest. Historically, agriculture has been the main form of economic activity for the majority of the Batswana. At the time of independence in 1966, agriculture contributed about 40% to the GDP and about 90 % of total employment opportunities in the economy. By the mid-1990s, the sector's contribution to GDP and employment had fallen to around 3.1% and 16% respectively. In 2005 the agricultural sector's contribution fell to 2.5%. Agriculture in Botswana is practiced primarily for subsistence, rather than for commercial purposes. The productivity in agriculture sector is so low that it cannot meet domestic demand.

The government has spent a lot of money through programs on arable development programs such as Arable Lands Development Program (ALDEP) and Accelerated Rainfed Arable Program (ARAP) which have not been actively utilized by farmers as expected by government. The success of these programs in transforming the sector to meet the agricultural policy objectives has been minimal, and as a result subsistence farming does not bring enough income to traditional farmers (NAMPPAAD 2000).

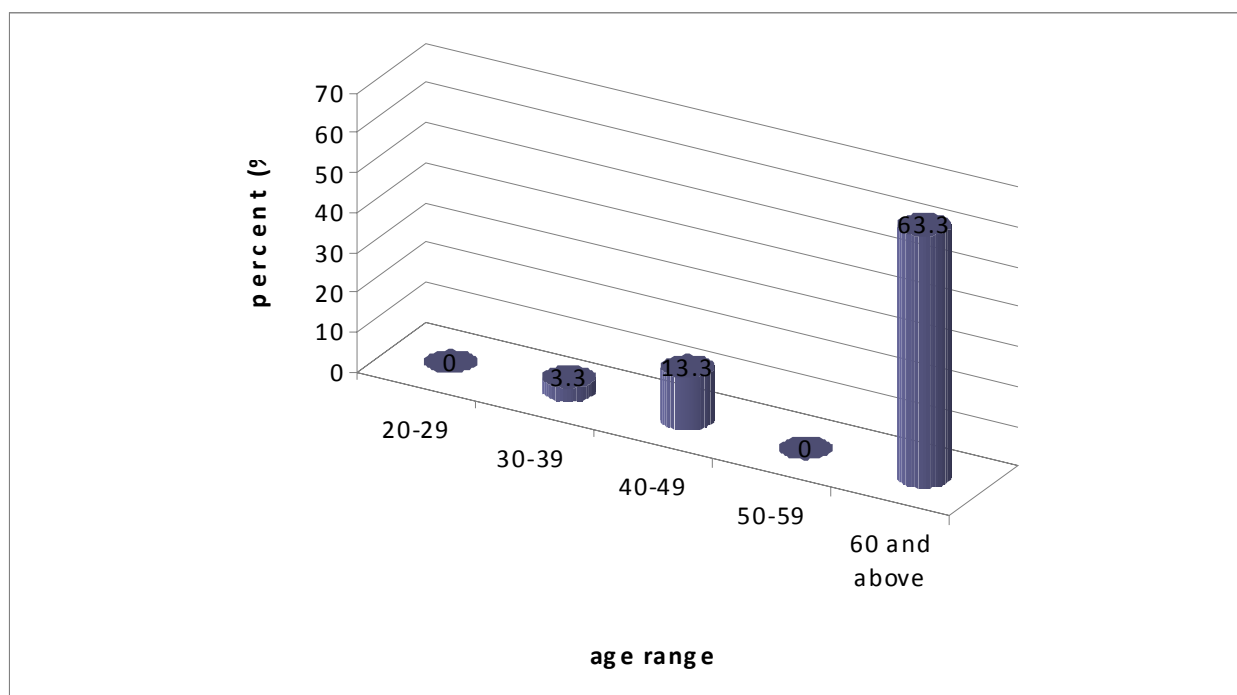
Despite all the government's efforts and well intended policies there is very ample evidence that there has been very little progress in progression and productivity of subsistence farmers. The problem therefore is: why is it that subsistence farmers do not transform to profitable farming. The main objective of this paper is to identify the reasons why subsistence farmers do not transform to profitable farming and also to find out who are this farmers in Botswana who use this government programmes without any desire results. How come they don't graduate from subsistence farming into profitable farming.

Methodology

The target population of this study was farmers in Matlhage extension area in the Kgatleng Agricultural district. The systematic sampling was used to select a limited number of farmers in Matlhage extension area. A sample size of thirty farmers was drawn from a population size of four hundred and fifty farmers in such a way that every tenth farmer is selected until the sample size of thirty farmers was obtained. A closed ended questionnaire was used to collect data . Statistical Packages for Social Scientists (SPSS) was used to analyze.

Results and Discussion

Figure 3.1: Age of respondents



The majority of farmers are aged above 60 and above and that is shown in figure 3.1 below. Those below the age of 50 years represent (16.6%) and this shows that the young and able bodied are not much involved in farming as they migrate to urban areas in search of job opportunities. The farming population particularly the household heads is aging. The average age of the farming population was found to be 57-58 years and having been in business for about 30 years, about 20% of the younger generations say they would like to give up farming. Extension officers must know how to get productivity from this aged population. Extension officers must also be able to recognize the need to come up with extension outreach programmes which are specifically made for different age groups in the farming community. The results in figure 3.2 below shows that the majority of the respondents are having primary education, followed by those who have never been to school. Since a fair majority of farmers attended primary school, their education level might influence their adoption rate and behavior. Extension workers should take into consideration the education level of the farmers in order to improve on the adoption rate of innovations.

Table 3.2: Educational level of respondents

		What proportion or size of the farm is cultivable?				Total
		1-2ha	3-4ha	5ha	6ha and above	
Educational level	Never gone to school	4	17	13	3	37
	Primary school	14	16	23		53
	Junior certificate		3	4		7
	BGCSE/OLEVEL			3		3
Total						100

The majority of the farm land is owned by those farmers who have never gone to school, so the extension officers should be aware that they are dealing with illiterate farmers so they should be given

special treatment such that they can understand the innovations introduced to them better, for all the government programs to succeed, as such farmers should be dealt with, with respect to their education level.

The results above shows that there is high association (Pearson chi square of 4.982 and a p-value of 0.836) between the number of hectares ploughed and the educational level. Therefore it is very important for the extension officer to work very closely with the never gone to school farmers if they are to increase profitability and productivity. The weak link is that those who have not gone to school make a very sizable proportion of farmers.

Conclusion

In conclusion the findings of the study show that the farmers are old and they have low level of education. The low levels of income and high risks associated with subsistence farming affect the age distribution of farmers. The farming population is aging and it is unlikely that they will be bothered very much to increase production level above subsistence and that is one of the factors that hinder traditional farmers from diverting to commercial farming. The farmers' levels of adoption of innovations are very low which means very low yields. This low level of adoption of technologies hinders them from diverting to commercial farming. It can be concluded that the reasons for not adopting some specific types of innovations by traditional farmers included expensive farm inputs, shortage of hired labour, lack of funds, low rainfall, lack of draft power, limited market outlets, infertile soils and most importantly there is poor extension workers outreach since they want to treat all farmers equally without taking into consideration farmers' personal characteristics such as educational level, age, farm size, gross income and tradition which differ from farmer to farmer..

References

- Ministry of Finance and Development Planning, (1997). District Development Plan: South East. Government Printers, Gaborone
- Ministry of and Finance Development Planning (2003). National Development Plan 9. 2003/04-2008/9, Government Printer, Gaborone
- NAMPAAD (2000). National Master Plan for Agricultural Development: Main Report, Volume 1, Tahal consulting engineers. Gaborone.

Use of Mechanized Technology in Conservation Agriculture: The case of Kotsonkoaneng Farmers in Butha-Buthe District, Lesotho.

Nchee, R. Khoalenyane, R. and Morahanye, M.

Department of Agricultural Research. P.O.Box 829, Maseru – Lesotho.

Email: morahanyeb@yahoo.co.uk

Summary

The state of Lesotho's agricultural economy is currently in shambles and requires a transition to sustainable development. The authors consider the change of mindset of different stakeholders in rural areas as well as adaptation of new technologies such as conservation agriculture (CA) as an important mechanism for the transition to sustainable agriculture. On the basis of case example in Kotsonkoaneng, the study demonstrated how changing of the mindset and the acceptance of improved farming practices can increase yields and protect the environment. Bridging the gap between research and extension with respect to CA demonstrations, field days and farmer trainings were held.

Introduction

Lesotho is considered as one of the least developed countries. A large part of the country's population derives part of its livelihood from agriculture. However, in recent years, agricultural production has declined due to land degradation and soil compaction. These alarming circumstances caused the Ministry of Agriculture and Food Security (MAFS) in collaboration with the Food and Agricultural Organisation (FAO) of the United Nations through the Department of Agricultural Research (DAR) to take immediate remedial action to alleviate this situation by introducing a new technology called Conservation Agriculture (CA). CA is defined as minimal soil disturbance, permanent soil cover, as having labour saving properties which is a potential solution to farm power shortages that is suitable to households under labour stress. It makes use of four principles that should be followed strictly. The four principles are as follows:

1. Minimal disturbance of soil: means the field may be directly seeded or looking at its conditions, it can be ripped to break the plough pan as farmers have been using mould board plough for a long time.
2. Permanent soil cover: use of crop residues or green manure as cover crops. Leaving the crop residues is very important as when the soil is covered, it is protected from direct rain impact, and even from hot sunrays and strong prevailing winds. When the rain drops on the mulch (crop residues), the cover prevents the soil from breaking up hence reducing erosion and encouraging water infiltration.
3. Multi-cropping: refers ideally to crop rotation, for example, after harvesting maize, another crop such as beans can be planted so that it can bring back the nutrients and improve the soil status disturbed by the maize crop.
4. The integration of crop and livestock production: 30% of crop residues is used to feed the animals at home and 70% left on field as soil cover.

The concept of CA is spreading fast and is practiced by commercial farmers as well as small emerging farmers. According to Reijntjes (2002), CA is challenging farmers to produce in a more sustainable, integrated and ecological friendly way by adhering to the concepts of Integrated Pest Management and Integrated Weed Management.

In 2005/2006, CA was introduced in the seven lowlands districts of Lesotho, as one of the soil management practices. This practice however, met a number of problems such as poor understanding and negative attitude of some farmers. Benites *et al* (2002) also discovered that African farmers face many constraints and challenges in conversion from conventional tillage to CA. These include free

grazing of animals, lack of information and unavailability of equipment and herbicides. On farm demonstrations, field days and trainings have helped to share this information with farmers and bridge the gap that existed between research and extension. In CA, results are not always realized in the first years and this probably led to farmers from five districts of Lesotho abandoning it. Despite low yields from CA in the first year, Kotsonkoaneng farmers in Butha-Buthe District remained optimistic that they will ultimately succeed with this practice. The benefits arising from CA in Kotsonkoaneng have caught the attention of individual farmers from neighbouring villages and local authorities. This is evidenced by more farmers who joined CA in the 2009/2010 cropping season. They have noted higher agricultural yields in the face of strong variations in climate. Acknowledging CA as crucial to the sustainable rural livelihoods of Basotho farmers and that these very same farmers are at the centre of preventing land degradation in all its forms, has many implications for increased agricultural production in Lesotho.

Objectives of CA introduction Lesotho (are to)

- Promote the empowering of Basotho farmers through information sharing and improved service delivery.
- Communicate and disseminate research results and share information with farmers to improve productivity.
- Conduct means (demonstrations, field days, trainings) of enabling easy adoption of this new farming practice.

Methodology

Awareness campaigns were used as a method of sensitizing farmers about CA where the four principles were explained in detail. DAR held these campaigns in conjunction with District Crop Officers and Agricultural Extension Officers from the participating Districts. Farmers' fields were used for demonstrations where staff from both the Districts and DAR monitored these fields from land preparation until harvest to ensure maximum yields. DAR also facilitated the securing of inputs from the FAO office in Maseru on behalf of farmers engaged in CA. FAO provided all the financial support for this project while farmers were only responsible to ensuring that all operations undertaken on their fields were done smoothly.

Results

Progress reports from the 2006/2007 to 2008/2009 cropping seasons show a fluctuation in yield, number of farmers and acreage planted. For example, in 2006/2007 cropping season, there were 19 farmers with an acreage of 18.5 hectares which was planted maize, while 10.5 hectares was for beans. The yield for this period was a low average of 114Kg/ha. For 2008/2009 planting season, the number of farmers had decreased to 11 with acreage totaling 13ha which was all allocated to maize production. Despite a decrease of the area planted a higher maize yield average of 446Kg/ha was obtained.

Discussions

As already highlighted through Ca higher yields are obtained in subsequent years. It is worth noting to indicate that a comparative economic analysis between CA and conventional tillage in Lesotho is still on going. The 2008/09 season shows an increase in yield even though the number of farmers had declined. In the same way, this requires further analysis for a number of possible factors could be owed to this. For example, it is possible that farmers who relinquished CA are those that obtained very low yields in the previous season, or that rainfall distribution was the source of this yield difference.

Acknowledgements

The progress made in this project is due to the intervention by the FAO, without whom none of these could have taken place. It is also important to note the contribution of DAR and District Agricultural Offices for their support in this. Last but not least, farmers who relentlessly showed resilience despite all challenges faced should be given credit.

References

- Benites, J. Vaneph, S., Bot. E. (2002). Planting concepts and harvesting good results. (LEISA). Vol. 18. No.3.
- Reijntjes, C. (2002). Living soil basis for conservation agriculture. Magazine on low external input and sustainable agriculture (LEISA). Volume 18. No.3.

Harmonization of Methods and Strategies in Extension Delivery System in Malawi

Chowa, C.

Agricultural Extension Services (Extension Methodologies and Systems), Department of Agricultural Extension Service, Ministry of Agriculture and Food Security, P.O. Box 30145, Lilongwe 3 Malawi.
Email: chowaclod@yahoo.co.uk

Summary

Smallholder farmers producing both cash and food crops are important drivers of the agriculture sector in Malawi. Group approach is used to increase farmers' coverage with agricultural extension messages. Variety in the methods used to disseminate information and messages on agricultural technologies provide wide choices amongst extension workers and their clientele. On farm harmonized demonstrations, field days, radio, simple publications and the mobile van are some of the methods that have proved effective in promoting some technologies. Farming clusters and Lead farmers are innovative strategies used in farmer mobilization to adopt innovative technologies for agricultural enterprises of their choices. The objective is to promote adoption of agricultural technologies and farmer innovation in order to increase productivity and production so as to meet household or market requirements. The strategy uses the village as an entry point as well as organizing, planning and implementation base for all interventions. Operating within the decentralization system, agriculture committees ensure that agricultural development agenda is prioritized in overall development agenda. The harmonization framework provides guidance to ensure inclusion of all agricultural extension service providers from public, private and civil society organizations. Farmers are more empowered and organized to mobilize resources to undertake different agricultural enterprises. Peer learning through farming clusters and Lead farmers has resulted in increased adoption of technologies that meet their agricultural production requirement. Mobilizing farmers in farming clusters and mounting of harmonized demonstrations and field days has helped to increase adopting of productivity and production by farmers.

Introduction

Malawi is one of the countries in the sub-Saharan Africa. It borders Zambia to the east, Mozambique to the south and west and Tanzania to the North. Agriculture is an important sector in Malawi considering that its economy is largely agro-based. With a population of about 13 million people, it is estimated that the sector employs about 80% of the total work force and contributes 80% of the foreign exchange earnings. The agriculture sector is subdivided into two sub-sectors; namely the smallholder and the estate or commercial sub-sector. Performance of the smallholder sector greatly influence overall social and economic performance of the country's economy because it contributes over 70% of the Gross Domestic Product (GDP). Malawi has an estimated 2.2 million hectares of arable land and 90% is cultivated as small farms. Smallholder farmers are involved in production of food crops such maize, rice, potatoes, cassava and bananas. They are also actively involved in the production and marketing of the country's major cash crops like tobacco, tea, coffee, cotton, sugarcane and macadamia. It is estimated that women farmers constitute over 60% percent of Malawians farmers.

As an agro-based economy, agriculture is one of the priority sectors whose aim is to increase food security at household and national levels and economic growth. Agricultural extension services play a pivotal role to ensure that the clientele have access to improved and proven technologies and that their concerns and needs are properly addressed by relevant service providers. Use of innovative methods and strategies to increase coverage is therefore a concern for all involved in agriculture extension and advisory services. This paper therefore discusses historical background of agricultural extension services in Malawi, highlights successful stories on methods and strategies that are used to disseminate agricultural technologies and messages. Challenges impeding out-scaling of the strategies and methods are also mentioned.

The Agricultural Extension Service in Malawi

Agricultural Extension Services in Malawi dates back to the colonial times with estates aiming to increase productivity and production. This resulted in the creation of the Department of Agriculture in 1907. Since then, agriculture extension in Malawi has gone through reforms over years in terms of approach and systems.

In the early years, Government sent out instructors to teach farmers recommended crop production practices. Coercion was considered the appropriate way to get farmers practice what they had learnt. Those who failed to implement were punished with a fine or imprisoned. Similar observations were made by Oryokot (2005)¹ that bye laws were used in Uganda during the period 1898 -1956 to ensure that farmers follow agricultural practices in soil and water conservation. Progressive farmers acted as role models and received preferential treatment from the government. Individual approach was predominantly followed in the system. With time the Individual approach was considered discriminatory as resource poor and women farmers were deemed not adequately covered.

The Master Farmer concept was later adopted by the extension service to allow innovative and better off farmers demonstrate recommended practices. These farmers received preferential treatment and support in form of inputs and extension services from the government to enable them provide quality demonstrations to fellow farmers. After independence in 1964, the Master Farmer approach was changed because it resulted in resentment from farmers who were expected to follow the Master Farmer's examples.

In order to set good examples as an exemplary farmer, the then State President Ngwazi Dr Kamuzu Banda gave himself the title of M'chikumbi No.1 meaning farmer No. 1. Any farmers doing better in terms emulating the example set by M'chikumbi No. 1 were given the title of M'chikumbi No.2. However, not many farmers emulated the Mchikumbi No.1 or 2 because it was considered to favour commercial farmers and failed short of addressing poor farmers' needs of achieving food security and it was perceived to be political. This resulted in the change approach to the use of groups which were thought to be inclusive and accommodating.

In the 1970s, **group approach** was considered as the appropriate means of reaching out to smallholder farmers with extension messages. The commissioning of major integrated projects such as the Lower Shire and Shire Highlands Development project in the south, Central region lakeshore projects and the Lilongwe Land Development Programme in the centre and Karonga-Chitipa Development Project in the north necessitated the use of groups in order to increase coverage of farmers with agricultural extension messages. These projects provided farm input loans to farmers to enable them implement promoted technologies. Groups were therefore important to facilitate management of the loans including recovery by the extension workers.

The increased number of groups created a need for proper management for them to be effective. The Ministry then adopted the Block Extension System (BES) in 1981. The BES was a modified Training and Visit System that aimed at reaching out to farmers of all gender categories. The extension workers subdivided the section into 8 blocks to be visited once in every fortnight. The system operated on a rigid straight line mode of operation that made supervision easier. Although the system is believed to have achieved some positive results by going beyond **specialized** groups of farmers, it failed to reach out to some categories of farmers especially the resource poor hence adoption did not significantly improve (Ministry of Agriculture and Irrigation 2000).² Similarly, Swanson and Mathur (2003)³ observed that the effectiveness of the T&V system in one of the regions in India was debatable as it

¹J.Oryokot (2005) Report of the sensitization workshop on rural radio for policy and decision makers in East and Southern Africa

² Ministry of Agriculture and Irrigation (2000): Agricultural Extension Policy in the New Millennium: Towards Pluralistic and Demand-Driven Services in Malawi.

³ Swanson BE and PN Mathur (2003) : Review of the Agricultural Extension System in India

encouraged hierarchical tendencies that already exist in central government. The system was blamed for denying the front line extension workers opportunity for creativity and innovativeness due to lack of flexibility in the mode of operations.

Political changes in 1990s necessitated a paradigm shift in provision of agricultural extension and advisory services. The wind of democratic change blew over Malawi resulting in the subsequent adoption of democratic principles. Decentralization policies and presence of other agricultural extension service providers necessitated the review of the agricultural extension delivery system. The current agricultural extension policy was launched in 2000 to accommodate the changes on the scene. The policy advocates for **pluralistic, demand driven, decentralized** extension services. The policy ensures that agricultural extension services are more inclusive to allow other service providers such as farmer based organization, the private sector and the civil society organizations to take active roles in the delivery of extension services. This is to give the clientele a wider choice of services from diverse service providers.

The District Agricultural Extension Services System (DAESS) was conceptualized to operationalize the agricultural extension service policy. DAESS has governance structures that provide opportunity for harmonized planning, resource mobilization, coordination and networking of players and stakeholders in agricultural extension services provision. Pictorially presented as in figure 1, the DAESS structures are part of the Local Government structures at the District Assembly.

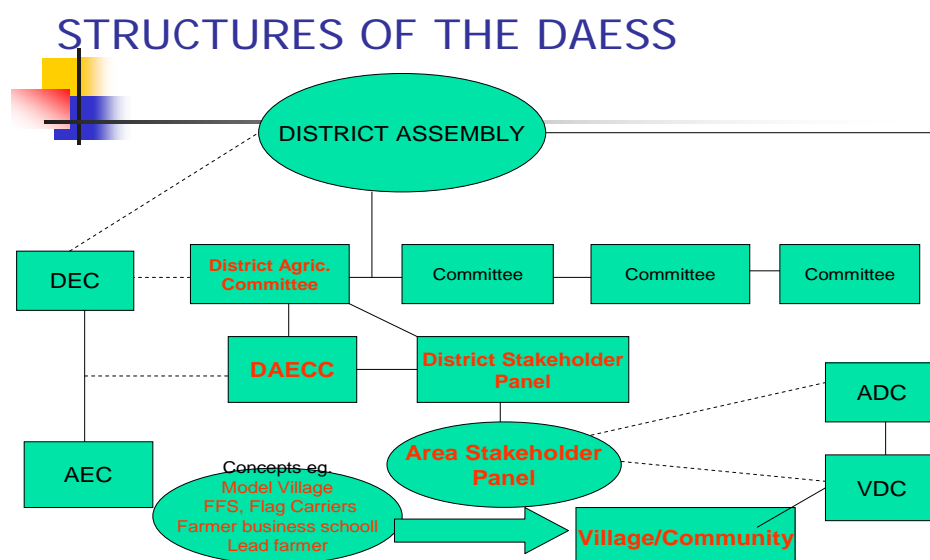


Fig 1: The Structures of District Agriculture Extension Service (GOM 2006)⁴

The entry point for the DAESS system is the village. People in Malawi live in communities known as the village which is headed by the Village Headman or Group Village Headman. The village is considered the most stable institution under Malawi setting. Traditionally Malawians give respect to the local leadership such as the Village Headmen. Any development intervention is therefore taken through the village for awareness creation and to solicit support, acceptance and ownership by the village members. The structures under DAESS therefore aim at creating conducive environment for enhancing harmonisation of programmes beyond the village/community so as to include all service providers. Also serving as a strategies to empower farmers, the system through its structures at village (Village Development Committee), Area (Area Stakeholder Panel) and district (District Stakeholder Panel) provide a mechanism for enabling farmers to envision, identify and organize agricultural needs

⁴ Government of Malawi (2006) The District Agricultural Extension Services System, Implementation Guide

for coordinated implementation and response by service providers. DAESS (GOM 2006)⁵ has four focus areas namely:

- a) Organization of farmers demands
- b) Organization of service providers' response to farmers needs
- c) Stakeholder coordination
- d) Facilitate Funding acquisition for agricultural extension services from a diverse base of resources.

Effective Agricultural Extension Methodologies

Agricultural Extension Services need to use a variety of innovative methods to facilitate access of farmers and their organizations to knowledge and information and interactions amongst stakeholders (Christapolos 2010)⁶. One of the challenges faced by the Department of Agricultural Extension Services in Malawi is shortage of agricultural extension workers to adequately reach out to farmers with messages on technologies. According to GOM 2009, staff farmer ratio was estimated to be 1:2,500 farmers against the recommended ratio of 1:750. The implication is that extension service providers need to use methods and strategies that would reduce the knowledge and information gap and ensure optimum coverage of farmers with extension service. The Department of extension therefore uses a number of methods such as village meetings, demonstrations, field days, farm radio programmes, publications (posters and leaflets), strategic extension campaigns and mobile vans.

- i) **Village meetings** –village meetings are widely used in Malawi for different purposes. As an agricultural extension methodology, village meetings are mainly used for sensitization and awareness creation. Village leadership such as chiefs and influential leaders play an important role in mobilization of farmers. As Front line agricultural extension workers enter the community through the village, local leaders are an important point of contact in the village. Any extension worker has to lobby for their support; therefore adequate sensitization is vital for their support during village meeting. Development conscious village Leaders have used village meetings to make important decisions and commitments with their subjects.
- ii) **Demonstrations** – this is one of the commonest extension methodologies used by extension workers to disseminate information and message on agricultural technologies to farmers. These demonstrations are mounted at research stations, farmers training centre and on farmers' fields. Previously, on farm demonstrations were mostly used by agricultural extension workers in the public sector and the Non Governmental Organizations (NGOs). The private sector especially the agricultural input suppliers also mount demonstrations strategically along the road sides to market their products. This is done in collaboration with the public agricultural extension officers at all levels.

On farm demonstrations are the 'classroom and chalkboard' for an extension worker. The success story about on farm demonstration is that a new dimension has been added with agricultural extension service providers creating partnership in planning and mounting of demonstrations. Some examples include the seed companies who have worked together with public sector to identify farmers to mount the demonstrations. The Cotton Development Trust has a viable platform that has facilitated joint planning and implementation of cotton demonstrations and also ensured that farmers have access to cotton inputs. In order to provide choices of technology packages, demonstrations are harmonized by ensuring that packages are formulated and demonstrated side by side. Visibility is an important issue in demonstration to inform people what is happening. Sign posts which are well labeled are displayed in the field with participating partners acknowledged. These demonstrations show both methods of implementing a technology

⁵ Government of Malawi (2006) The District Agricultural Extension Services System, Implementation Guide

⁶ I. Christapolos (2010): Mobilizing the potential of rural and agricultural extension. FAO. Rome, Italy

and the results of the technology. The climax of demonstration are the field days to showcase performance of technologies.

- iii) **Field days** – field days are important events in the department of agricultural extension services and the Ministry as a whole. In order to ensure successfully organized and conducted field days, the department of agricultural extension services backstops the lower levels offices (division, district and extension planning level) on programming of field days and encouraging frontline extension staff to conduct field days. Field days provide opportunity for interaction and learning amongst staff and farmers as farmers showcase results of the technology. Through the interaction, subject matter specialists get feedback from farmers on performance of displayed technologies.

The harmonization framework is used to improve coordination and collaboration in the planning and implementation of field days. Coordination in planning and implementing field days has proved to be cost effective. Field days attract a wide range of stakeholders who include input suppliers, donors, policy makers, projects staff, civil society and extension service providers. The field days start from the grassroots to national level. The success story about field days is that advance planning has given opportunity to partners to attend, learn and appreciate the programmes at field level. Field days especially those held at national level have been used as an advocacy tool to lobby for support for agricultural activities and programmes from District Administrators, Politicians and Traditional Leaders.

- iv) **Farm radio programmes** – farm radio programming dates back to the 1960 (GOM 1978)⁷ when the first farm radio programme was produced by the Ministry of Agriculture, Extension Aids Branch. Not until 1993, when Malawi has witnessed proliferation of FM radios stations, the Ministry of Agriculture was the sole provider of farm radio programmes. Malawi to date enjoys a network of public, private, religious and community FM radio stations. Being an agro-based country, farm radio programming is becoming an interesting field, such that the private sector and the civil society extension services have farm radio programmes. The success story about farm radio is that in order to harmonize efforts by various stakeholders in farm radio programming, a farm radio symposium has become an annual event. This is non sponsored event where participating institutions share costs. Partnerships are proving effective in farm radio programming.

Successful 6 months radio campaigns on marketing of farm produce, early maturing varieties and soil and water conservation have been conducted through partnership between Farm radio International, Ministry of Agriculture and public, community and private radio stations. The development broadcasting unit housed by the Public radio broadcaster Malawi Broadcasting Cooperation has given voice to the rural farmers by providing forum to voice out their concerns. A lot more service providers in the education, health and agriculture sectors have responded or acted on certain issues after it has been revealed through the radio.

- v) **Publications** – the Ministry has an agricultural communication branch that has survived the test of time since it was established in 1958. The communication branch is mandated to disseminate agricultural information and messages using multimedia approach. Leaflets, posters and a bimonthly magazine called *Za a Chikumbi* is produced to provide farmers with reading materials on technologies or messages trained by extension workers. These are distributed free to farmers through the network of frontline extension staff. These are produced by subject matter specialists as new messages or in response to a problem.

⁷ Government of Malawi (1978) : The Extension Aids Branch 1958-1978

vi) Strategic Extension Campaigns

Strategic extension campaigns are conducted to address agricultural problems identified through a participatory process. Practising lead farmers are involved to explain to fellow farmers the benefits and dangers of certain practices. As Adhikarya (1996)⁸ noted that farmer involvement in planning and implementation of the campaigns increase responsiveness as measured by changes in knowledge, attitudes and practices. This is attributed to the relevance of objectives, methods and messages contained in the information, communication and education materials (IEC). By definition an extension strategic campaign is a campaign conducted over a specific period to address an identified problem. The campaigns are held for specific periods. In Malawi, strategic extension campaigns have been used to promote adoption of technologies such as use of manure, soil and water conservation technologies (vetiver) and one one maize planting. One of the successful campaigns held recently was a 6 months radio strategic campaign on soil and water conservation using vetiver. In the campaign, radio stations partnered with communities to identify problems and develop campaign strategy which was successfully implemented over a 6 months period. Now one can see conserved fields with vetiver grass planted.

Mobile vans have added to the effectiveness of campaigns in Malawi. These are vehicles mostly land rovers fitted with public address and video/ film showing equipment. Mobile vans are ‘crowd pullers’ in rural communities of Malawi. When in an area, the van makes public announcements and puppet shows during the day and video shows during the night. Estimated attendance ranges from 200 – 350 adults per show. This is so because as people come to hear the message they also get some form of entertainment.

The extension methodologies cited above are not exclusive in that a combination of methods is used for complementarity. In order to ensure efficiency and effectiveness in the delivery of extension services, the department uses **innovative strategies** that ensure increased farmer coverage and active participation. Using participatory approaches; the model village, farming clusters and m’ndandanda and Lead farmers are some of the innovative strategies that are leaving a mark.

Model village _ Malawians live in villages headed by the Village Headmen and Chiefs. The decentralization policy gives power to the people to have a vision of their villages and actively participate in development interventions. The current agricultural extension policy likewise encourages extension workers to use the village as the entry point for planning and implementation of all interventions. All the extension methods described in the document are implemented at village level. The harmonization framework ensures coordinated planning and implementation of programmes, technologies, efforts and resource mobilization and utilization. Some key questions that the harmonization framework addresses are **what** are your harmonizing?, with **who** are you?, **where** are you harmonizing and **how** are you harmonizing? Six principles guide the harmonization process:

1. Policy focus and policy environment
2. Identification of gaps and issues
3. Approaches and Strategies
4. Technology packaging
5. Out-scaling technologies
6. Monitoring and Evaluation

A frontline extension worker calls for village meeting after briefing the village heads. This follows a series of meetings to strategize, plan and implement. The product of such meetings is a village action plan. The village action plan serves as a document that provides direction to the elected village committee and the extension worker in the course of implementing the activities.

⁸ R. Adhikarya (1996) Strategic Extension Campaigns: Increasing cost effectiveness and farmer participation in applying agricultural technologies. FAO SD dimension, Rome. Italy

In order to ensure that farmers collectively plan and implement agricultural programmes farming clusters and m'ndandanda are encouraged. Farming clusters are described as a group of **empowered farmers** in a catchment area or locality who are committed to work together to undertake agricultural enterprises. M'ndandanda is a stretch of well managed fields of not less than a 1 kilometer in length (DAES 2008)⁹. In both strategies, extension workers look at farming families holistically ie as producers vis-a-vis their assets eg fields, livestock and resource endowment. The holistic approach enables farmers to use the integrated farming approach. Supported by elected committees, farming clusters and M'ndandanda have proved to:

1. Increase extension coverage with extension messages
2. Improve coordination and collaboration amongst stakeholders
3. Increase farmers access to markets for farm inputs and produce
4. Availled agro-dealers a readily available market since farmers are organized
5. Make farmers voice heard to service providers

Harmonized demonstrations are strategically mounted in the farming clusters and the village. These are plots or sites on a farm, field, garden or village used to train farmers on improved or new improved technologies. Harmonized demonstrations look at issues or technology gaps holistically i.e. theme, technology, technology package, service providers and sites of the demonstrations. Considering the diversity of farmers in the villages and sites in terms of resource endowment and needs, more than 3 technology packages are demonstrations. This is in a bid to address farmers' needs and aspirations. The following is an example of a technology package.

Examples of Technology packages

Theme: Drought mitigation

1. Unimproved maize variety, compost/ animal manure, planting pit and fertilizer
2. Early maturing maize variety, compost/animal manure, planting pit and fertilizer
3. Early maturing maize variety, planting ridge, herbicide, compost and fertilizer

These technology packages are demonstrated on the same field side by side. The success story about harmonized is that farmers are given choice on different technology packages that are being demonstrated. Secondly, since the harmonization starts from planning, it gives opportunity for subject matter specialist to harmonize across programmes and disciplines. Sites for mounting harmonized demonstrations include research stations, day training, residential training centers and farmers' fields. Lead farmers host on farm demonstrations. Lead farmers are farmers who have mastered a particular technology and are willing to assist fellow farmers upon being nominated and accepted by fellow farmers in their communities. The harmonization framework has added value to the management of farming clusters in that it has helped stakeholders to see a bigger picture of how to add value to demonstration following the value chain approach. Although harmonization of agricultural extension methodologies and strategies has registered some successes it has faced some challenges.

Challenges

Although there are some success stories registered with some methodologies and strategies used in agricultural extension, some challenges impede implementation and out-scaling of technologies. These include:

1. Inadequate operational resources (human, material and financial) to fully out-scale the success stories.
2. Poor mobility means for extension staff

⁹Department of Agricultural Extension Services (2008) Guidelines for Clusters and Ulimi wa M'ndandanda for various stakeholders –revised (unpublished).

3. Inadequate capacity building opportunities for staff
4. Inadequate coordination, collaboration and networking amongst service providers
5. Weaken research extension farmers linkage

Conclusion

The role of Agricultural Extension Services in agricultural development is crucial. With resource limitations, a combination of methods and strategies in dissemination of messages and technologies helps to make an impact. Working with smallholder farmers who have low literacy levels necessitates diversity in methods and strategies to assist them get agricultural information and messages for improving livelihoods.

References

- Department of Agricultural Extension Services (2008) Guidelines for Clusters and Ulimi wa M'ndandanda for various stakeholders –revised (unpublished).
- Government of Malawi (2006) The District Agricultural Extension Services System, Implementation Guide
- Government of Malawi (1978) : The Extension Aids Branch 1958-1978
- J. Oryokot (2005) Report of the sensitization workshop on rural radio for policy and decision makers in East and Southern Africa
- Ministry of Agriculture and Irrigation (2000): Agricultural Extension Policy in the New Millennium: Towards Pluralistic and Demand-Driven Services in Malawi.
- R. Adhikarya (1996) Strategic Extension Campaigns: Increasing cost effectiveness and farmer participation in applying agricultural technologies. FAO SD dimension, Rome. Italy
- Swanson BE and PN Mathur (2003) : Review of the Agricultural Extension System in India