

The Role of Radio in Agricultural Extension and Advisory Services – Experiences and Lessons from Farm Radio Programming in Malawi –

Rex Chapota, Paul Fatch and Catherine Mthinda

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Introduction: Agriculture and Agricultural Extension in Malawi

Agriculture is currently the most important sector of the Malawi economy. It employs about 80% of the total workforce, contributes over 80% of foreign exchange earnings, accounts for 39% of gross domestic product (GDP) and contributes significantly to national and household food security. The Malawi agriculture sector is divided into the estate sub-sector, comprised of commercially oriented and leasehold land, and the smallholder sub-sector, dominated by subsistence food production on customary land (Government of Malawi, 2011). The smallholder sub-sector occupies about 80% of the land whilst the commercial sector comprises 20% (Government of Malawi, 2000).

Extension was identified as a key service to enhance agricultural productivity in colonial times. In 1903, the colonial government brought in organized agricultural extension that advised farmers on improved methods of cotton production, and later broadened out to other crops and livestock (Kabuye and Mhango, 2005). The Department of Agriculture was established in 1907. At that time, the government sent out instructors to teach crop production. Later, the concept of “master farmers” was incorporated into the mainstream of extension activities. These farmers were innovative and generally better off and received government support for inputs and extension services. They followed recommended practices, thereby providing an example to other farmers. An agricultural cooperative program was instituted in 1948 to enhance agricultural production. Through all these stages, the predominant extension approach involved individual contact and coercion. Up until 1962 this was considered appropriate. The importance of a group approach was recognized in the 1970s as a faster way of spreading messages to the farming community. In trying to enhance the group approach, the “block extension system”, a modified training and visit system, was adopted in 1981 with the aim of improving farmer coverage. The approach then went beyond specialized groups and tried to contact a wider range of farmers, including the resource poor and women. There

have been new players coming into agricultural extension services during the 1990s, including NGOs, the private sector and farmer organizations. The current agricultural extension policy, built on the principles of pluralism in extension delivery and decentralized and demand-driven planning, was launched by the government in 2000 (Government of Malawi, 2000).



The Use of Radio in Agricultural Extension and Advisory Services in Malawi

Individual, group and mass-media approaches to agricultural extension and advisory services have been used concurrently. The continuing increase in the number of farming families has led to a growing emphasis on approaches that reach more people at a time. Realizing the importance of mass media in extension, the use of radio has evolved in terms of the policies, laws, approaches and players involved.

The rationale for using radio in extension and advisory services came from an understanding that radio is an excellent, cost-effective means of sharing knowledge, building awareness, facilitating informed decision-making and supporting the adoption of new practices by small-scale farmers (Farm Radio International, 2007). The Malawi national population and household census report of 2008 indicates that nationally 64.1% of households own radios, up from 49.9% in 1998. Radio regularly reaches 70% of rural

households; it is affordable, accessible to the illiterate, can use local languages, and can give voice to end-users critical for effective agricultural extension and advisory services.

Radio, in combination with other ICT such as mobile phones, offers an inclusive, personable and multi-dimensional communication platform. With effective capacity support to radio stations and their personnel, broadcasters can produce high-impact radio programs and phone-in shows, facilitate and record community discussions and debates, document the experiences of individual farmers and other value-chain actors, put farmers' questions to subject specialists, and link sellers with buyers on air (Farm Radio International, 2011).

Relevant Institutions and Policies – Timeline

- 1958: Government-owned Agricultural Communications Branch, formerly the Public Relations Unit, was established, broadcasting radio messages through Malawi Broadcasting Corporation (Kabuye and Mhango, 2005).
- 1994: An increase in the number of radio broadcasters, especially FM stations, due to the introduction of multi-party democracy that led to liberalization of the airwaves (Government of Malawi, 1994).
- 1998: Malawi Communication Policy instituted and communications law enacted, providing the legal framework for an independent regulatory body: the Malawi Communication Regulatory Authority (MACRA) (Government of Malawi, 1998a).
- 2006: Malawi Information and Communication Technology (ICT) Policy instituted (Government of Malawi, 2006).



As a result of these features, radio is also highly effective and efficient – particularly when compared to the unit costs of face-to-face extension service. The current extension-farmer ratio is one extension worker to more than 1500 smallholder farmers (Department of Agricultural Extension Services, 2011), and with financial constraints will likely not significantly improve.

About Farm Radio International

FRI is a Canadian-based, not-for-profit organization working in direct partnership with approximately 400 radio broadcasters in 38 African countries to fight poverty and food insecurity. Its mission is to support broadcasters in developing countries to strengthen small-scale farming and rural communities. FRI was established over 35 years ago in response to the fact that farm radio broadcasts in the global South did not, for the most part, serve small-scale farmers. Rather, they were geared toward large-scale commercial farmers – an audience with very different needs from the largely subsistence farmers that make up the large majority of the population of these regions. By producing and sharing radio scripts, a weekly news and information service, and other valuable resources with radio broadcasters, FRI increases the relevance, quality and quantity of farm-radio programming of partner stations that, collectively, serve some 220 million small-scale farmers in Africa (FRI, 2007).

FRT in Malawi is a strategic partner of FRI. It is registered as a local NGO with a vision of “well informed farmers [who] are food, nutrition and income secure”, and with a mission statement to be “the center for excellence for promoting innovative radio- and ICT-based farmer advisory and extension services.” (FRT, 2011.)

The Genesis, History and Experiences of the Farm Radio Trust in Malawi

The Farm Radio Trust (FRT) evolved out of the African Farm Radio Research Initiative (AFRR-I); it grew and developed through the Farmer Voice Radio (FVR) and African Farm Radio Results Initiative-II (AFRR-II) projects.

The AFRR-I Project

The use of Participatory Radio Campaigns (PRC) in agricultural extension and advisory services was pioneered in Malawi starting in 2007 with the inception of AFRR-I project, funded by the Bill and Melinda Gates Foundation (BMGF) and implemented by Farm Radio International (FRI). At that time other regular agricultural radio broadcasts existed, such as those produced by the Department of Agricultural Extension Services (DAES) through the public broadcasting system, though they were not as focused, robust and interactive. The AFRR-I project was a multinational initiative implemented in Ghana, Malawi, Mali, Tanzania and Uganda. The project was designed to gather, implement, evaluate and share best practices for using radio-based communication strategies to enhance food security in rural Africa.

Through a series of research and capacity building activities, AFRRRI-I was geared to answer the following research questions:

1. How and in what ways is radio most effective in enabling smallholder farmers in Africa to address food security and agriculture challenges?
2. How can new technologies such as cell phones and MP3 players increase the effectiveness of radio as a sustainable, interactive development communication tool?

As its main implementation strategy, the project tested a PRC approach – defined as a “planned, radio-based activity, conducted over a specific period of time, in which a broad population of farmers is encouraged to make an informed decision about adopting a specific improvement selected by their peers, based upon the best available information, to improve the food security of their families. It then provides the adopting farmers with the information and other support they require to implement the improvement” (Ward, 2010). Impacts of the PRC approach were assessed through monitoring changes in farmer behavior in active, passive and control communities (see box below).

The PRC approach involves a number of key steps, including: carrying out rapid community appraisals to understand farmers needs and current use of radio; the selection of proven agricultural technologies around which to organize campaigns; conducting formative research to understand audience knowledge, attitudes and behaviors/practices, including listening habits and gender dimensions; the design of a four- to six-month campaign involving key stakeholders; the rollout of broadcasts at regular times, with content to support farmers in making informed decisions on whether to adopt the agricultural technology; and lastly, the solicitation of continuous feedback through community visits and use of ICT such as SMS and phone-ins to improve programming (FRI, 2011).

Testing the PRC:

Active Listening Communities (ALCs) are those actively involved in the action research process from the beginning, including participation in agricultural improvement selection, voices featured in the broadcasts, monitoring and feedback processes and evaluation.

Passive Listening Communities (PLCs) are those with similar agricultural practices as ALCs; they have no contact with the radio station and the research process but are only able to listen to the broadcasts.

Control Communities (CCs) are those that could not access the signal of the radio station and never heard the radio broadcasts in their communities.

The findings from an evaluation of 15 participatory radio campaigns under AFRRRI-I (including three from Malawi), showed that a PRC model is an effective way of informing and engaging smallholder farmers with the potential to quadruple the adoption rates of agricultural improvements (FRI, 2011).

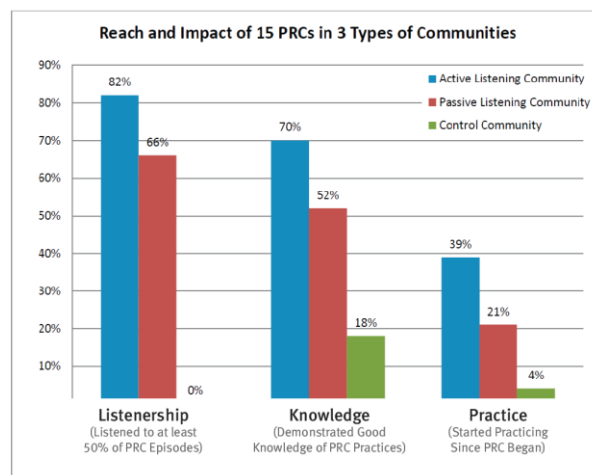


Figure 1: The impact of PRCs (FRI, 2010).

At the end of the AFRRRI-I project in 2010, a rigorous investigation revealed that participatory radio programs: a) were regularly listened to by **half of the farmers** in communities reached by the broadcasts (this includes both men and women); b) supported the uptake of detailed knowledge of specific farming practices among listeners; c) led to the adoption of new farming practices, such that on average one in five households living in the passive listening communities actually introduced a new farming practice after being engaged in a PRC – **five times the rate of adoption in areas not exposed to the radio programming**; and d) led to significant increases in knowledge of the agricultural improvement among women (<http://bit.ly/farmradioPRCbrief>).

Creation of the Farm Radio Trust

The FRT was established in 2009, built on the opportunity that arose from the successful implementation of the AFRRRI-I project to scale-up and scale-out the lessons that were being learned. The AFRRRI-I project, implemented by FRI and led by a multi-stakeholder panel of specialists from extension, agricultural research, farmer organizations and radio broadcasters and known as the National Advisory Committee (NAC), noted that the project had achieved some important milestones in farm radio programming through its partnership with radio stations, smallholder farmers, and the DAES among others. For example, the establishment of a partnership agreement between the project and the Ministry of Agriculture and Food Security (MoAFS) through DAES was pivotal in affirming the importance of radio in

agricultural extension and advisory services, since DAES is the central body in coordinating extension and advisory services in Malawi.

In the same year, the AFRRRI-I Malawi chapter – in collaboration with MoAFS – organized the first multi-stakeholder knowledge management platform in radio in extension and advisory services, known as the Annual Farm Radio Symposium. The symposium was organized around the theme “Farm Radio: An effective tool for increasing access to agricultural extension messages by small-scale farmers in Malawi”.

It revolutionized the perception of how radio and other ICT are important tools in modernizing extension and advisory services, and brought a new understanding of how partners in the agricultural value chains, including farmers, research, extension and the private sector, can start working together to take the use of radio in extension and advisory services to the next level in Malawi.

The combined influence of enthusiasm over AFRRRI-I research findings, the demand created at the national farm radio symposium, the potential for national resource mobilization and the growing evidence of impact together created a niche for a local agency to work in developing farm radio programming in Malawi.

Interestingly, there was no organization dedicated to developing the potential use of radio in extension and advisory services in Malawi; this made the new organization unique in the agricultural extension sector. A number of strategic meetings and engagement sessions between FRI the AFRRRI-I National Advisory Committee, led to the establishment of the Farm Radio Trust as means of ensuring the sustainability and scalability of using radio in support of agricultural development. The AFRRRI National Advisory Committee became the trustees of the newly created FRT. Currently FRT is registered as a trust with operational licenses as a local NGO under the new NGO law in Malawi.



Strategic thrust of the Farm Radio Trust

The strategic objectives of the FRT opened a new chapter in the way radio and ICT can enhance agricultural extension and advisory services in Malawi through:

- Provision of innovative advisory and extension services through impact radio programming and integration with other ICTs
- Capacity building and institutional strengthening for improved quality and standards of programming
- Research and knowledge management for evidence-based programming
- Advocacy for an increased role of radio and other ICT programming in agricultural extension and advisory services
- Networking and partnership development among stakeholders in farm radio

In order to meet the above objectives, the FRT adopted the tried and tested PRC model as its overall approach.

The Farmer Voice Radio Initiative

As the implementation of the AFRRRI-I was winding up and the new FRT was finding its feet, a new three-year Farmer Voice Radio initiative was launched in 2009, implemented through a consortium model, and supported by the BMGF, FRT was selected to be one of the partners alongside DAES, the Bunda College of Agriculture, the Centre for Creative and Community Mobilization, and the Centre for Alternatives for Victimized Women and Children. The consortium was led by the American Institutes for Research (AIR).

The purpose of the FVR project was to develop an alternative approach to agricultural extension and advisory services using radio. The FVR model used radio to extend the reach of traditional extension services by harnessing the voices and experience of farmers, as well as local experts. These were developed into radio programming to provide effective technology-assisted learning for smallholder farmers (AIR, 2009). The FVR model tested an alternative extension system with the key objective of developing consortiums of local partners, to work together effectively in establishing and enhancing the FVR radio-based extension model. The key radio programming principles under FVR were: (i) a systematic agenda, (ii) focused, action-oriented programming, (iii) sufficient repetition for mastery of concepts and action, and (iv) message revision based on listener feedback.

The role of FRT in the FVR consortium was to provide technical support in the area of high impact radio programming with the specific tasks of (i) advising the American Institutes for Research on the project design and implementation strategy, (ii) offering resources, ideas and technical advice and assistance for farm radio programming

that has a strong and sustainable impact on the capacity of farmers to achieve their farming and food-security objectives, and (iii) developing the skills of radio station staff and Radio Extension Officers (REO).

An independent evaluation of the FVR project showed that it had (i) created systematic agricultural extension content for broadcast that includes farmers' voices, (ii) delivered this content through radio and supplementary communication channels, and (iii) developed research feedback systems that provided near-real-time feedback from listeners and expert knowledge systems to improve agriculture programming. By institutionalizing the FVR model within the operations of the consortium the project created a foundation for sustainability and scalability of the initiative (TANGO, 2012).

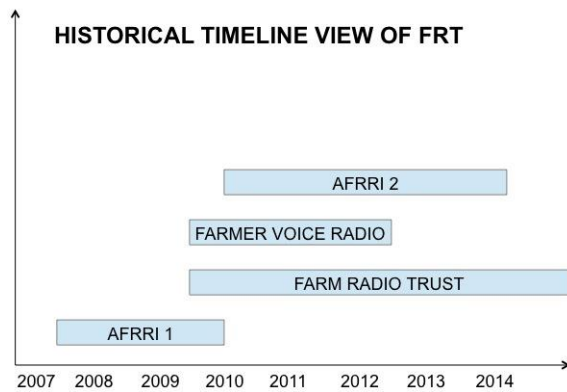


Figure 2: FRT timeline.

AFRR1-II: FRT 2012 and Beyond

In January 2011, FRT signed the partnership agreement with FRI for AFRR1-II, also supported by the BMGF. This project was aimed at scaling-up and scaling-out the achievements of AFRR1-I to help radio organizations and broadcasters in their efforts to assist smallholder farmers in Africa adopt more productive and sustainable farming practices. The rationale for the initiative was that the lessons and experiences of AFRR1-I, combined with other ICT within the extension and advisory system, had the potential to improve the reach, interactivity and cost-effectiveness of farm radio. The AFRR1-II initiative was a step towards the further fulfillment of the overarching goal of AFRR1-I that envisioned that the evidence gathered on the role of radio in agricultural development should lead to a significant increase in investments towards radio-based extension and advisory services. To date, FRT has entered into a number of partnerships to roll out the use of PRCs as a key strategy for use of radio in extension and advisory services.

These partnerships include: the Participatory Radio Campaign for Improved Groundnut Production and Marketing project, supported by the International Fund for

Agricultural Development; the Radio for Farmers Value Chain Development project, funded by the Canadian International Development Agency (CIDA) through collaboration with FRI; and the Integrating Radio and ICTs in Nutrition project, supported by CARE International.

Currently, over half the radio stations in Malawi have their own agricultural radio program as part of the impact. This includes private stations such as Joy Radio that have started new programming on agriculture, without external funding, based on what they learned from the AFRR1-I project and FRT.

Major Actors in Radio for Extension and Advisory Services in Malawi

The work of FRT revolves around various partners and operates within the existing public extension and advisory system framework in Malawi. In this work, FRT acts as a knowledge broker, bringing together all value-chain players to design and produce relevant information and messages for dissemination through different radio stations.

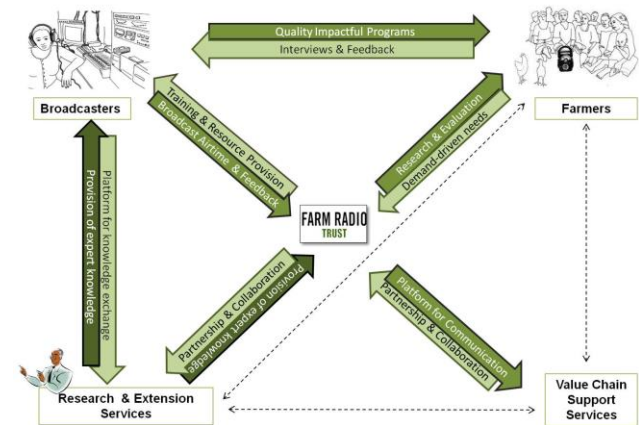


Figure 3. Diagrammatic presentation of FRT and its partners.

Smallholder farmers: Smallholder farmers, apart from being the target group of the radio-based extension and advisory services, have also been the central actors in program development through use of the PRC approach. Liznette Mgoni, of the Lavu community, says: “Even though I had some information about using manure, my practice was all wrong. But the radio program engaged us, as farmers, like a school on the airwaves, and I learnt the best way of doing it.”

In the PRCs, farmers were involved in the selection of agricultural improvements and also participated in the development of the local radio agenda. It was observed during the radio campaigns that men, women and youth all like to be consulted about the campaign and its programming, and have the opportunity to participate in

various ways. Farmers decide on the content and timing of broadcasts, and are interviewed as experts in what works for them. Farmers like to hear their voices and the voices of other farmers facing similar conditions. Whether recorded in the studio or on the telephone, in fields, at homes and villages, these voices are credible and familiar, and encourage farmers to engage. The recordings reveal the struggle each farmer undergoes as he or she works towards a decision about implementing an improvement and explain how they overcome problems. For broad impact the voices must come from all parts of the listening area.

Radio stations and broadcasters: In AFRRRI-I and AFRRRI -II and FVR experiences, radio stations provided the communication channel for messages and also served as a platform for engagement. The stations involved were public broadcasters, such as Malawi Broadcasting Corporation, private broadcasters, such as Zodiak Broadcasting Station (ZBS), and community broadcasters such as Nkhotakota Community Radio Station.

Example of a PRC at Nkhotakota Community Radio Station

Agricultural improvement: One-to-one maize planting boosts yield, cuts down on weeding requirement, and reduces soil erosion.

Radio programming formats: These included farmer and expert vox pops, mini-dramas, phone-ins, community discussions and debates, field interviews and quizzes.

Results: In communities that had no engagement beyond listening to the PRC, 53 percent of farmers listened regularly. One out of three farmers introduced one-to-one maize planting.

Adapted from Farm Radio International, 2011

Traditionally radio has been a one-way communication channel; however PRCs allowed radio to become a two-way medium of exchange that is interactive and responsive to farmers' needs. FRT selected radio stations according to signal strength and popularity. The process of selection also required the radio stations to submit expressions of interest to work with farmers in their areas. Unlike in the past where agricultural programs were pre-recorded in studios and distributed to stations for broadcast, the AFRRRI I and AFRRRI II projects used a participatory radio programming approach, where radio stations are involved in all the major steps in the selection of agricultural technologies, design of campaigns, and monitoring and evaluation. Said a ZBS broadcaster: "We have discovered that the farmer is the best researcher and producer of radio programs, and what we need to do as broadcasters is to collaborate with them

and never go with the 'I know it all' attitude, since there is a lot to learn from farmers."

Radio broadcasters underwent rigorous training sessions in how to handle farm radio programming, including the need to value the voices of farmers as participants in the production process, and not just beneficiaries or listeners. The radio stations allocated time for airing the programs through a partnership model that saw increasing time for agricultural programs – and even starting new ones that are still running today.

Government agricultural extension system: DAES is the major player in the coordination and implementation of extension and advisory services in Malawi. The department uses an extension system known as the district agricultural extension service system (DAESS) that advocates for the decentralized coordination of interventions. FRT interacted with the department from its headquarters down to local extension workers. At headquarters, the department provided technical support in ensuring that message development and dissemination was in line with approved policies, and also ensured linkages with different experts and specialists. The department's Agricultural Communication Branch has a radio studio, but no radio station. There are radio officers at national level and Agricultural Development Division level. The radio officers have programming and broadcasting skills. At the district level, the extension services facilitated coordination with ongoing interventions and community entry-points that included listeners' clubs, and in establishing agricultural radio agendas with communities. FRT has had two partnership agreements signed with the department, starting with one in 2007 under the AFRRRI-I project; the current partnership agreement signed in 2011 supports a holistic approach to the design and implementation of radio and ICT use in extension and advisory services over five years.

Research institutes and academia: Research institutes and academia have provided a critical link in the farmer-research-extension triangle to ensure upward and downward linkages of information among the key stakeholders during programming. Farmers like to hear their own voices, but they also want to hear from experts. FRT has always engaged knowledge partners, be they from academia or research institutes, as "custodians of content". The engagement of technical experts has become an imperative following the critique of other agencies disseminating information that has not been validated.

Experts can be interviewed in the studio or in the field talking to farmers. At the same time, experts who go on air with any regularity must have good radio presentation skills. Listeners have no time for experts who are boring or don't speak their language (Ward, 2009).

The key institutions that have been engaged by FRT include the Department for Agricultural Research Services, Bunda

College of Agriculture and CGIAR centres such as ICRISAT during the groundnut radio campaigns.

Other agricultural value chain stakeholders: An agricultural radio campaign is not a time for a radio station to go it alone. On the contrary, it is time to reach out to all organizations that can help the campaign be as thorough and as effective as possible. During a campaign on intercropping of legumes in maize fields, a situation occurred surrounding Nkhotakota Community Radio Station where due to knowledge gained on radio, there was huge demand for the legume seeds. Unfortunately for the FRT, the radio stations and the extension department were taken unawares and during a community meeting, farmers asked why legumes were promoted without ensuring that a seed system was in place.

This experience provided a lesson on the need to ensure collaboration with other service providers in the value-chain who can deliver what's being promoted through radio-based extension and advisory services.

Key Observations on Radio in Extension and Advisory Services

A number of key observations emerged through the AFRRRI-I, AFRRRI-II and FVR projects:

The use of radio enhanced by ICT in extension delivery can contribute to an increase in farmers' knowledge and change in practices...

One of the major findings of the AFRRRI-I project was that the use of radio in extension and advisory services is very effective in increasing farmers' knowledge, encouraging the adoption of agricultural improvements, and fostering a general change in attitude about making future changes (AFRRRI, 2010). The AFRRRI evaluation showed that there was an increase in farmers' knowledge (FRI, 2010). The percentage of farmers with "some" knowledge about the improvements was higher in ALCs compared to PLCs, and lowest in CCs. This increase in knowledge resulted in the removal of misconceptions, negative attitudes, and beliefs about the improvements that prevented farmers from adopting the practice.

In addition, there was a change in behavior, which is the core objective of agricultural extension. It was observed that 39% of all sampled farmers were practicing specific improvements in the ALCs, while 21% in PLCs had started using the improvements after the PRC, compared to 4% in non-listening communities. It was learnt that smallholder farmers are ready and willing to practice what they hear during broadcasts if the messages are in line with their interests, the agricultural calendar and if they have the resources necessary to try out the technology. In the FVR project, a self-assessment survey of listeners indicated that 61% of all farmers had tried at least one practice they heard of through FVR programs (TANGO, 2012).

"This is the first time in a number of years that we have received farmers' requests for vetiver grass like this. Actually we have assisted the government extension workers to provide planting materials for the nurseries otherwise it could have been a crisis. Indeed the radio messages have had a tremendous impact on farmers in these areas. In the past we had to encourage them to do the nurseries but now it is them demanding it from us."

Total Land Care Agricultural Officer

Use of radio in agricultural extension and advisory services is more effective when it complements and triggers demand for better performance from existing extension services and other agricultural support services...

Experiences in the AFRRRI-I project showed that once farmers became aware of the agricultural improvement and the misconceptions were removed, there was evidence for increased demand for more information and seed from extension workers. For example, a PRC on promotion of vetiver for soil conservation registered an increase in the number of nurseries as well as increased demand for planting materials. Extension workers were overwhelmed by the demand, which was not anticipated, and they sought assistance from other partners such as Total Land Care to respond (FRI, 2010).

This experience taught those in the project that apart from the lack of information, farmers are faced with many challenges in achieving food security. It was therefore necessary that supportive radio-based campaigns ensure that all critical partners providing services in line with the intervention are part of the campaigns and capable of responding to farmers' requests.

In the next PRC, all radio stations collaborated with key stakeholders at all levels, including national, district, and community, which helped farmers put into action what they heard on the radio. An effective radio campaign should start with comprehensive stakeholder analysis and networking. For example, in this case, it was necessary to bring in other extension service providers such as NGOs. Other players such as schools and private businesses that sell farming inputs could also play critical roles.

Radio broadcasters became aware of the importance of other stakeholders in the first PRC. In one of the community stations, a broadcaster noted that "whilst radio can trigger demand for other support services, it is frustrating if those services are not provided".

Radio is more effective if programs are developed with and for farmers: a "farmers first, farmers throughout and farmers last" approach...

As noted, men, women and youth liked to be consulted about the CRPs and to participate in the programming.

Production teams realised that it was important to capture the voices, opinions and knowledge of farmers. Thus farmers were given the opportunity to raise and discuss their farming experiences, success stories and problems live in the radio studio, on the telephone, in gardens and homes and during village meetings.

There were a number of documented cases where the input of farmers enriched the quality of the programs in terms of both improved content and entertainment. Farmer involvement was strongly evident in the agricultural programming under the FVR initiative. FVR programs were developed from and guided by quarterly National Agricultural Radio Agenda (NARA), an aggregate of Local Agricultural Radio Agenda (LARA). These agendas, which contain themes and topics on various aspects of agriculture value chains based on the agricultural calendar, guided FVR programming in terms of key messages and context. As the LARAs are generated by farmers, this aspect of impact radio programming demonstrated how the national demand-driven pluralistic extension policy is being operationalized in practice.

In addition, farmer involvement was evident in terms of formatting of programs. FRT promoted the use of multiple formats in its radio programming. These included magazine programs, anchor programming, audio and SMS agricultural tips (“agtips”), mini-dramas (up to three minutes), feature programs and automated weather reports (Shema, 2012).

Participants at a district-level best-practice workshop unanimously supported campaigns that combine a number of formats, including narration, expert interviews, panel discussions, phone-ins, local music and soundscapes, and where possible jingles and dramas and quizzes (Chapota, 2009; Shema, 2012). The role of entertainment in programming was important. In this regard, programmers mixed agricultural radio programs with entertainment such as local music, poetry, humour, theatre and songs in order to hold the listener’s attention.

Timing was another critical aspect of programming where farmer involvement was important. Thus, apart from generating content based on the agricultural calendar, men and women farmers’ opinions were sought in terms of the appropriate time of the day for broadcasting agricultural programs.

Systematic feedback under the FVR initiative provided opportunities for broadcasters to add, revise and repeat messages and programs to meet direct and collective needs of farmers.

Use of radio in extension and advisory services can contribute to an increase in gender awareness...

The different impact of interventions on men and women was considered during planning, implementation, monitoring and evaluation of AFRRRI-I. For example, separate focus group

discussions were held with men and women during rapid appraisal, formative research, and monitoring and evaluation.

It was discovered that women tended to shy away during participatory research activities, program recordings and feedback sessions. A special effort was needed to bring out women’s voices. But more women than men were active when they participated in-group activities like singing and dancing.

In addition, information access and listening habits for men and women were different. The timing and mix of programs became important for radio stations. To ensure that both men and women were able to listen, broadcasts (and repeats) were aired at different times. The best time for women to listen to the radio is the afternoon, as most of the household and fieldwork is done in the morning.

We also noted that more men than women own radio sets. Men usually carry their radio sets around and listen as they ride bicycles, travel on buses, play games, chat, and attend public gatherings such as sporting events and meetings. For women, it was easier to access broadcasts in radio listening clubs than in their households. In the households the balance of power between the women and their husbands makes it difficult for the women to access broadcasts in their homes.

In addition, women did not prioritize the buying of batteries for the radio. But in practice, women were more likely to try out the agricultural improvements heard on the radio.

We also learnt that more men than women participate in ICT initiatives like SMS alerts, call-ins from farmers and call-outs to experts, largely because men own more cell phones than women.

Participatory radio campaigns facilitate implementation of demand-driven and pluralistic extension policies...

Malawi has a demand-driven and pluralistic extension policy launched in 2000. The policy is based on the following seven major principles: demand-driven extension services, accountability, “those who benefit pay” or pay-for-service, natural resource sustainability, gender equality, promotion of pluralism and decentralized coordination (Government of Malawi, 2000). Experience in the AFRRRI and FVR projects demonstrated that radio-based extension enhances implementation of this policy in several ways (Likagwa and Chapota, 2012; Mthinda, 2012; Shema, 2012):

- The approaches used in the AFRRRI and FVR projects ensured that the agricultural radio agenda was demand driven. Farmers generated the local agricultural radio agenda in their communities under the FVR project, while they took the lead in identifying agricultural improvement areas that were the focus of PRCs under AFRRRI-I and II through a community rapid-appraisal, baseline study and formative research.

- FRT upheld the principle of accountability by ensuring that farmers were not only viewed as beneficiaries of extension but also as clients, sponsors and stakeholders. One of the key pillars in the AFRRRI PRC campaigns and FVR projects was ensuring active feedback processes from farmers so that they could evaluate and recommend how the delivery of the broadcasts could be improved.
- In terms of promoting equality, FRT supported the inclusion of diverse community groups through the AFRRRI-I experiment, and engaged with men and women groups separately in the FVR project. Another dimension of equality concerned equal access to information. One extension worker in Linga Extension Planning Area mentioned that the PRC approach had made them (i.e., extension workers) more cautious of what they say to farmers, as farmers were now able to validate information shared in the program.

Skills buildings for radio personnel is a precondition of effective farm radio programs...

Assessments of the needs of AFRRRI stations for equipment, technical capacity and skills were used to help procure supplies and develop face-to-face and remote training courses.

Therefore FRT developed the skills of broadcasters and extension workers in conducting community research through rapid appraisals and baseline studies. These skills were further developed as they participated in: conducting and analyzing improvement-related research; designing campaigns with community input; and monitoring and reporting on listener responses to radio programs.

The collection of information from communities prior to preparing programs had not been a standard practice for broadcasters. Getting to know listener preferences through participating in pre-broadcast needs assessments not only contributed to building broadcaster knowledge of farmers' interests but also provided a basis for developing better programming meeting the needs of agricultural communities. The ongoing research activities have enabled radio stations and extension agents to build stronger communication and information sharing channels that potentially benefit both radio programming and field extension activities. Trainings designed to build broadcasters' skills in farm radio, using a story-based approach, were very well received and has had a significant impact on the way broadcasters research, design, produce and broadcast farm radio programming. The skills developed included: understanding the characteristics of good quality farm radio programming, using a story-based approach in farm radio programming; using MP3 players to store files or record programs directly from the radio; receiving and integrating community feedback; and mentoring and sharing among different broadcasters.

To increase the effectiveness of the face-to-face training and introduce a cost-effective approach to building broadcaster's skills, AFRRRI developed and offered a unique e-learning course. Supported by trained facilitators, this distance-education course offered participants a practical way to improve their skills, although it has experienced technological challenges such as poor connectivity and computer viruses

FRT has found that radio personnel are highly responsive to training opportunities that focus on the skills needed to produce effective farm radio as part of extension and advisory services.

Use of ICT such as mobile phone and MP3 greatly enhances effectiveness of radio programs...

The use of other communication technologies, such as mobile phones in combination with radio, has transformed radio from a one-way medium to one that is interactive. The blending of media allows farmers to participate in discussions, while radio hosts can phone experts and other farmers on specific technical issues.

With limited resources for field visits to record farmers, radio staff obtained voices from different communities through phone outs. Telephones also provided the opportunity for SMS and voice calls between farmers and the radio stations. The use of ICT did not exclude traditional ways of interacting with listeners, like letters, suggestion boxes, field interviews and discussions (Chapota, 2009).

Radio stations used SMS to get feedback from farmers. In addition, farmers discussed what they heard in their listening clubs and commented on the clarity, relevance and timing of messages, programme format and what warranted repeating, and communicated this to the stations.

Radio stations used this feedback to improve the quality of their programmes. The public broadcasting system in Malawi also tried sending an SMS alert 30 minutes before programs started, which proved critical in ensuring a loyal listenership.

Lessons Learned

The observations detailed above highlight key elements that inform the use of radio in agricultural extension and advisory services. In summary:

- To achieve the desired impact, farm radio programming should include all the relevant partners and service providers engaged in responding to farmers' needs.
- Specific steps need to be taken to ensure that women and other segments of the population are not disadvantaged and that the radio content and broadcast timing are gender-responsive.
- To ensure high quality and impact, interventions promoted in radio-aided extension must be based on proven and recommended technologies; participatory

action research involving listeners is one way this can be achieved.

- Men and women farmers as well as the radio station staff and other stakeholders should be empowered through capacity building focusing on specific skills that enhance effective programming and use of the radio in extension and advisory services.
- The use of multiple programming formats, and the integration of other ICTs creates richer, more interesting and more interactive radio programs. The inclusion of farmers' perspectives and voices is particularly important.

Investments in pre-broadcast research into farmers' interests and feedback from listeners are critical for successful radio-enhanced agricultural extension



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Author Affiliation

Rex Chapota. Executive Director, Farm Radio Trust. P.O Box 30081, Lilongwe 3, Malawi

Catherine Mthinda, PhD. Senior Lecturer in Agricultural Extension, Department of Extension, Lilongwe University of

Agriculture and Natural Resources. P.O. Box 219, Lilongwe, Malawi

Paul Fatch. Principal Agriculture Training Officer, Ministry of Agriculture and Food Security, Department of Agricultural Extension Services. Box 30145, Lilongwe 3, Malawi

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Prepared by Rex Chapota, Catherine
Mthinda, and Paul Fatch

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