FARM RADIO INTERNATIONAL

Marketing on the airwaves:
Marketing information service (MIS) and radio

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Cover photo: Women selling cassava in the market in Ghana. They were supported by the Classic FM participatory radio campaign. Photo credit: Ben Fiafor.

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FARM RADIO INTERNATIONAL RADIOS RURALES INTERNATIONALES

Table of contents

Glossary of terms

AFRRI	African Farm Radio Research Initiative
ALC	Active listening community
BMGF	Bill & Melinda Gates Foundation
CC	Control community
CFA	West African franc (currency)
FADECO	Family Alliance for Development and Cooperation
FAO	Food and Agriculture Organization of the United Nations
FCFA	Malian franc (currency)
FRI	Farm Radio International
GH¢	Ghana cedi (currency)
ICT	Information and communication technology
KP	Knowledge partner
LINKS	Livestock Information Network Knowledge System
MAFS	Ministry of Agriculture and Food Security and Cooperatives
MAPRONET	Market Access Promotion Network Ghana
MDB	Marketing Development Bureau
MIS	Marketing information service
MLD	Ministry of Livestock Development
MOFA	Ministry of Food and Agriculture
MTIM	Ministry of Trade Industries and Markets
NGO	Non-governmental organization
NAADS	National Agricultural Advisory Services (Uganda)
NAC	National Advisory Committee
NERICA	New Rice for Africa
NSGRP	National Strategy for Growth and Reduction of Poverty (Tanzania)
OMA	L'Observatoire du Marche Agricole
PLC	Passive listening community
PELUM	Participatory Ecological Land Use Management (Uganda)
PRC	Participatory radio campaign
PRC1	The first participatory radio campaign
PRC2	The second participatory radio campaign
PLC	Passive listening communities
PRA	Participatory rural/rapid appraisal
SAP	Structural Adjustment Program/Policy
SCAER	Société de Crédit Agricole et d'Equipement Rural
SMS	Short message service
SNV	Netherlands Development Organization
TBC	Tanzania Broadcasting Corporation
UNDP	United Nations Development Programme
URT	United Republic of Tanzania
WUSC	World University Service of Canada

Executive summary

Report highlights: Why radio-based MIS?

- Farmers require varying marketing information, depending on their location, local market conditions, crops, production activities, and cultural practices
- Radio has the capacity to reach a large audience, and can provide an integrated approach to market information, incorporating all these elements in its programming
- Radio can help farmers link to new markets and buyers, strengthen their ability to negotiate prices and help them adapt crops to meet demand
- Private sponsorship that emerged in response to the popularity of MIS radio programs suggests a sustainable funding model is possible
- A survey of approximately 1000 household representatives living in listening communities showed that an average of 64.8% of respondents were aware of the MIS radio programs, and 84% of those who listened found the MIS radio programs to be "very useful"

Summary

An effective MIS has the potential to benefit smallholder farmers in profound ways. Regular, up-to-date prices from a range of markets can help farmers make decisions on what to grow, when to grow, and how much to grow. Information on how to increase the value of their products can enable farmers to boost their incomes with minimal investment. In the long term, by understanding market trends and national – or even international - price fluctuations, farmers can better adapt to changing supply and demand.

Farm Radio International (FRI) partnered with radio stations in four African countries to conduct a series of radio-based MIS case studies designed to respond to the unique market information needs of local farmer listeners. The case studies were part of a 42-month action research project called the African Farm Radio Research initiative (AFRRI). AFRRI was launched in 2007 and ended in September 2010. In partnership with World University Service Canada (WUSC) and with funding support from the Bill & Melinda Gates Foundation, AFRRI aimed to discover, document, and disseminate best practices for using radio-based communications to enhance food security in Africa.

The research was guided by the following two questions:

1. ***How effective is radio in enabling smallholder farmers in Africa to address food security challenges they face, with a particular focus on increasing/diversifying food production, improving land use management, and reducing post-harvest losses?***

2. ***How can new technologies, such as cell phones and MP3 players, increase the effectiveness of radio as a sustainable, interactive development communications tool?***

There were three key elements to the AFRRI project:

1. **Participatory radio campaigns (PRC)**
   AFRRI sought to test the effectiveness of a new radio campaign model developed by FRI: the participatory radio campaign (PRC). Working with radio stations in the five partner countries AFRRI created a series of farm radio programs designed to educate farms and to enable them to

improve their agricultural practices. Farmer listeners were central to the development and implementation of the radio campaigns. AFRRI's PRC model allowed farmers to participate at every level in the process. As a preliminary step, AFRRI identified active listening communities (ALCs) for each of its 25 partner radio stations. Farmers in the ALCs were surveyed about their local agricultural practices and unique needs, as well as their radio listening habits. They then became central players in the design of a series of radio programs geared to address a particular agricultural practice that farmers deemed would help to improve their livelihoods, and ultimately their food security.

2. **ICT-enhanced radio**
   AFRRI wanted to test how new information and communications technologies (ICTs) could be integrated with radio to provide better two-way communication between radio stations and their farmer listeners. To this end, each partner radio station was equipped with one of eight customized ICT packages to enhance their PRCs, which included a mix of communications media becoming increasingly accessible in Africa. Some radio stations were provided with desktop computers and internet access, for example. Other stations were offered portable digital recording and editing equipment which enabled them to interview farmers and agricultural experts on location, rather than in studio. Other technologies included wireless networks, call-in and call-out facilities, and satellite terminals (VSATs).

3. **Radio-based MIS**
   Preliminary research in 75 communities indicated that smallholder farmers required and demanded better access to market information in order to enhance their individual food security. Approximately 80 per cent of farmers engaged in early participatory rural appraisals (PRAs) identified MIS as a need. Using the PRC model and with support from the ICT enhancements, AFRRI designed its MIS pilot project to better understand how radio could enhance a traditional marketing information service (MIS). The project consisted of individual MIS radio campaigns in Mali, Uganda, Tanzania, and two in Ghana.

This paper summarizes the results of the MIS case study evaluations.

Preliminary research

As a first step in this process, FRI conducted a study of existing MIS programs in four African countries: Mali, Ghana, Uganda, and Tanzania. The preliminary study found that numerous marketing information service studies and projects have been implemented in Africa for varying purposes by governments, international organizations, and research institutes. Radio is frequently used to disseminate marketing information, through news programs, or programs specifically aimed at the agriculture sector. Services vary in the amount of information collected and shared. Some broadcast only price information; others provide information on topics such as strategies for increasing product value, targeting certain markets with specific products, and ways to link farmers directly to buyers.

With the onset of the internet, and with telecentres popping up in rural areas in the 1990s, government agencies partnered with development projects to create internet-based market services, employing the slow and intermittent connections available at the time. By the early 2000s, mobile phones had become sufficiently accessible to allow market prices to be collected and shared via short message service (SMS) and the internet.

A renewed interest in radio, combined with SMS, mobile phones and the internet, has since strengthened the communication channels for MIS. Modern technology makes the service more

efficient and, possibly, more consistent. It is still a challenge, however, to create and sustain an MIS that integrates appropriate technologies, knowledge, and skills to gather, organize, and share the information that farmers request and need.

AFRRI set out to develop a radio-based MIS model that would improve upon existing MIS. AFRRI's research design included preliminary qualitative and quantitative assessments and consultative sessions with farmers in listening communities to determine their main priorities and what market information they needed. Results from this study were integrated into the development, production, and broadcast of new radio MIS programs.

Developing a new radio-based MIS model

Following consultations with national marketing specialists, radio stations and agricultural specialists, each country team developed a unique radio-based MIS campaign that responded to locally-specific challenges faced by smallholder farmers to reaching local and regional markets. Demand-driven, interactive and engaging MIS radio programs provided farmers with more than conventional commodity price data from central markets. The resulting MIS radio programs covered the following topics:

- transportation issues
- market fluctuations
- negotiating with middle men
- improving post-harvest storage
- adding value to existing commodities

The MIS radio programs also facilitated direct connections between buyers and sellers, creating a virtual farmers' market on air.

Through the five case studies, FRI aimed to answer the following questions about radio-based MIS:

a) *In what ways can traditional MIS programs be enhanced by using radio to make them more relevant, more interactive, and more engaging for local farmers?*

b) *How will farmers respond to these enhanced MIS programs? How will broadcasters respond to the opportunity to offer new types of MIS services? What level of capacity is available, and is there sufficient institutional and personal motivation to carry out the work?*

c) *Can such programs be sustained by radio stations as an integral part of their service to listeners, or will they require ongoing donor support to continue?*

Evaluation methods

Radio broadcasters kept log books to record the different types of interactions involved in the programs, including the number of phone calls to the station and number of calls out to farmers, extension officers, and marketing specialists. Multiple communication technologies were used with radio to increase interactivity and dialogue with farmers. In Ghana, for example, an interactive voice response (IVR)[1] service was installed at Volta Star radio station and monitored. This enabled listeners to hear

[1] An IVR is a voice-based answering service which can be loaded with various pieces of audio content. Western audiences will be familiar to the concept in the form of customer service phone lines from large corporations. In the context of FRI's work the service utilizes the open source "Freedom Fone" platform.

current market prices and to leave messages that broadcasters could listen to and respond to during the program.

An outcome evaluation included semi-randomized sampled household surveys, focus group discussions, and key informant interviews. Interviews were then conducted with radio station staff involved in the MIS radio programming, participating farmers, local market specialists, buyers and sellers at markets, and extension and government officials who were interested in strengthening MIS in their countries.

Key findings revealed that radio can enhance existing MIS in the following ways:

1. *Radio has the capacity to reach and impact a large audience.*

Radio is the most widely used medium for disseminating information to rural audiences. An AFRRI survey of 4581 households in 90 rural listening communities found that approximately 76% of households own a radio. A survey of approximately 1000 household representatives living in listener communities showed that an average of 64.8% of respondents were aware of the MIS radio programs, and 84% of those who listened found the programs to be "very useful." When farmers are directly engaged in the creation and implementation of MIS radio programming, their listenership of specific programs increases. In Mali, for example, of 200 households randomly selected for an outcome survey in 2010, 68% of respondents in ALCs said they were aware of and had listened to the MIS programming on Radio Fanaka, compared to 45% of those in passive listening communities (PLCs). Of those that listened in PLCs, however, 95% claimed to find the information on the MIS radio programs "always useful."

2. *Radio programs can provide an integrated approach to MIS, by engaging farmer listeners in discussions of timely and relevant issues.*

Radio can help farmers link to new markets and buyers, strengthen their ability to negotiate prices, and help them adapt crops to meet demand. MIS radio hosts are well-positioned to provide listeners with accurate and timely information that is in the best interests of farmers.

FRI's preliminary research through AFRRI found that farmers require very different marketing information depending on their location, their local market conditions, the various crops they grow, production activities, and local cultural practices. In Mali, for example, 82% of farmer respondents from the outcome evaluation household survey cited information on local market prices as most useful to their agricultural productivity. In Ada, Ghana, 41% of farmer respondents reported that price and market information from the nearest urban centre was most useful.

MIS radio programs included price announcements from different markets, but were also designed to address more in-depth topics identified by listeners. This enabled farmers to address specific barriers to reaching new markets on-air, and in turn to earn more for their products. In Fana, Mali, for example, social and cultural taboos against walking past a cemetery had deterred many farmers from selling their chickens at a new market. Talking through these beliefs on air allowed farmers to find comfortable alternatives, such as travelling to the market in groups. In Ada, Ghana, community members had asked for more information about sources of credit to expand their production, to purchase transport equipment, and improve storage facilities. In response, a local bank representative was interviewed during the MIS radio program to discuss microcredit products and options.

AFRRI's household survey during the final outcome evaluation revealed that women are almost as interested in market information as their male counterparts and they, too, benefit from access to, and use of, radio-based market information service. In all five of the radio stations studied, an average of 83% of female respondents reported that they were aware of the programs, and 69% of those who listened found the programs "very useful." When programs targeted products specifically made and sold by women, listenership and knowledge gained was significantly higher among women than among male listeners. In Sikasso, Mali, for example, Radio Jigya's program on shea butter attracted more women listeners than men and contributed to more women trying the new techniques described on the program.

"The farming community has realized that MIS is not only a way they can access relevant and timely information on prices," says Grace Amito, host of Mega FM's marketing program in Gulu, "*but also education on how markets operate and how informed and prepared they should be in order to compete favourably in the markets."* Amito became a very popular celebrity amongst Gulu farmers, in part because of her ability to directly solve marketing challenges, using the radio to help farmers participate in finding solutions. She helped honey producers, for example, to link with larger marketing cooperatives, and she broadcast programs on honey-buyers' quality expectations, and on new products, such as beeswax candles.

3. *Private sponsorship that emerged in response to the popularity of MIS radio programs suggests that a sustainable funding model is possible.*

Although unique, Mega FM in Gulu, Uganda was able to use the popularity of its MIS radio program to attract a sponsor that is now sustaining the program through paid advertising. This demonstrates the potential for radio station managers to regard MIS radio programs not as airtime "sold" to donors, but as indispensible services that attract listeners – and therefore advertising dollars – in a competitive marketplace.

Way forward

AFRRI responded to the information needs of rural communities by developing and testing an interactive, comprehensive and engaging way to present and share market information. Based on this, it is hoped that agricultural development initiatives will create more integrated approaches to knowledge sharing that combine technical information on managing agriculture production with marketing and sales. The AFRRI MIS study shows the potential for radio to facilitate knowledge sharing in this area, specifically by linking farmers with buyers and technical specialists. FRI will build on this preliminary research and work with partner stations to strengthen programs around markets and marketing, and will explore ways to sustain programs through innovative revenue streams such as member services, sponsorships, and strategic private sector partnerships. FRI is also interested in working with donors to expand upon its success with radio-based MIS programming.

Donors and Ministries of Economic Development and Agriculture and farmers' organizations are encouraged to work together to support knowledge sharing initiatives, facilitate public-private partnerships and strengthen communication around markets at the national, regional, and international levels.

The need for such services in rural farming communities in Africa will continue to grow, and radio stations that provide good quality, entertaining and engaging MIS programs are well placed to meet this growing demand.

How to use links in this document:

This report is one in a series of publications created from the results of the African Farm Radio Research Initiative. The reports are available electronically via links.

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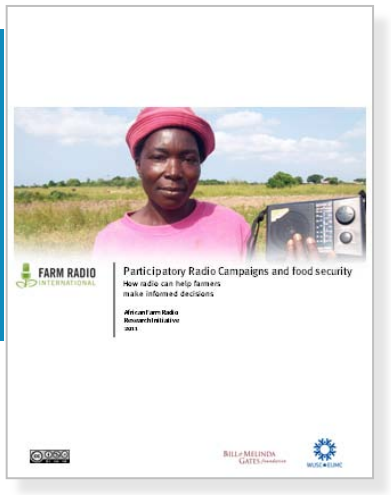
Companion reports:

This report is one in a series of publications created from the results of the African Farm Radio Research Initiative. For reference please see the other two companion papers below.

Did you know that Farm Radio has created a companion report on the full findings of AFRRI? *Participatory Radio Campaigns and food security: How radio can help farmers make informed decisions.*

http://bit.ly/farmradioprc



Did you know that Farm Radio has created a companion report on our use of ICTs in radio campaigns? *The new age of radio: How ICTs are changing rural radio in Africa.*

http://bit.ly/farmradioict

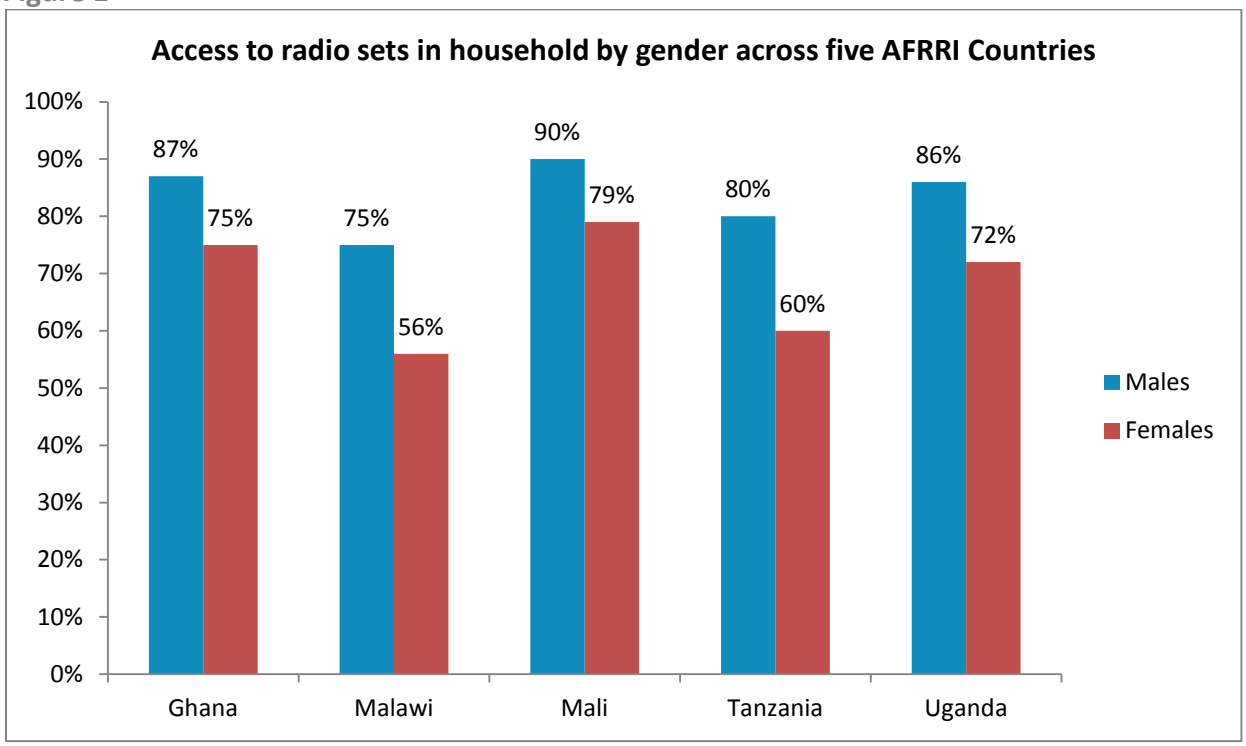
1.0 Introduction: Marketing on the airwaves

In April 2007, Farm Radio International (FRI), with funding from the Bill & Melinda Gates Foundation and in partnership with World University Service Canada (WUSC), set out to conduct a 42-month action research project – the African Farm Radio Research Initiative (AFRRI). The main objective of AFRRI was to assess the effectiveness of farm radio to meet food security objectives of rural farming households in Africa. Part of AFRRI included a pilot project with five partner radio stations to determine the reach and impact of radio-based marketing information service (MIS).

Radio in Africa

Radio is the most widely used medium for disseminating information to rural audiences across Africa. Radio can reach communities at the very end of the development road – people who live in areas without phones or electricity. Radio reaches people who cannot read or write. Even in very poor communities, radio penetration is vast. There are more than 800 million radios in developing countries. An average of one in ten people in Africa have access to a radio[2]; that translates into a major proportion of households that own radios, given that the average household size is 7.2 people. Further, an AFRRI survey of 4581 households in rural listening communities found that approximately 76% of households in its five partner countries own a radio.

Figure 1



Over the years many development initiatives have demonstrated the power of radio to reach rural audiences, both as an instructional technology, and as a participatory development medium.

[2]Farm Radio International (2007). Our approach – Radio For Development Retrieved from: http://www.farmradio.org/english/donors/about/approach.asp

Radio is the most accessible of all information and knowledge-sharing sources and instruments on the African continent; yet the potential of radio as an effective development tool is often underestimated in policy formulation. For farming communities living on the periphery of information technologies and societies, radio is often the only window to global reality.[3]

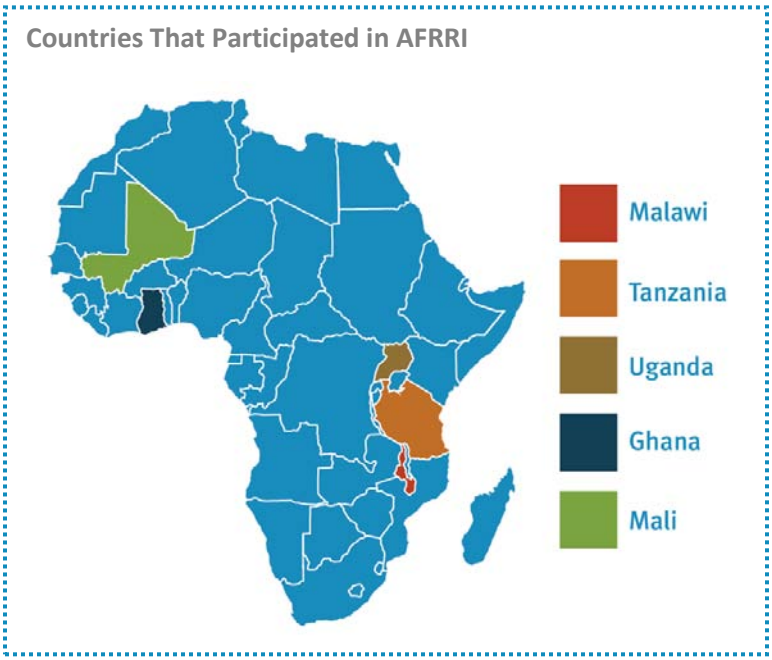
The African Farm Radio Research Initiative

A participatory, multi-stakeholder program, AFRRI aimed to discover, document and disseminate best practices for using radio-based communications to enhance food security in Africa. AFRRI partnered with 25 radio stations across five countries – Malawi, Tanzania, Uganda, Ghana, and Mali.

AFRRI's research was guided by the following two questions:

1. *How effective is radio in enabling smallholder farmers in Africa to address food security challenges they face, with a particular focus on increasing/diversifying food production, improving land use management, and reducing post-harvest losses?*

2. *How can new technologies, such as cell phones and MP3 players, increase the effectiveness of radio as a sustainable, interactive development communications tool?*



As part of AFRRI, four country teams were engaged to implement five independent MIS radio campaigns, which engaged farmer listeners in the development of radio programming designed to inform farmers about changes in markets.

The MIS case studies were one of three key elements of AFRRI:

1.1 Participatory radio campaigns (PRCs)

Working with 25 partner radio stations in the five African countries, AFRRI created a series of farm radio programs designed to educate farmers, and enable them to improve their agricultural practices. Farmer listeners were central to the development and implementation of the radio campaigns. AFRRI's new participatory radio campaign (PRC) model allowed farmers to participate at every level in the process. As a preliminary step, AFRRI identified active listening communities (ALCs) for each of its 25 partner radio stations. Farmers in the ALCs were surveyed about their local agricultural practices and unique needs, as well as their radio listening habits. They then became central players in the design of a series of radio programs geared to address a particular agricultural practice that farmers deemed would help to improve their livelihoods, and ultimately their food security. Farmers in ALCs, passive listening communities (PLCs) – those who listened without participating -- and control communities – those that did not have access

[3]Manyozo, L. (2007). *Communicating with Radio: What Do AFRRI Know?* Farm Radio International.

to the radio programming – were evaluated following each of the two 16-week campaigns to determine how effective the radio programs were in educating farmers about agricultural innovations and encouraging them to take up new agricultural practices that would improve their food security.

1.2 Information and communication technology (ICT)

AFRRI wanted to test how new information and communications technologies (ICTs) could be integrated with radio to provide better two-way communication between radio stations and their farmer listeners. To this end, each partner radio station was equipped with one of eight customized ICT packages to enhance their PRCs, which included a mix of communications media becoming increasingly accessible in Africa. Some radio stations were provided with desktop computers and internet access, for example. Other stations were offered portable digital recording and editing equipment which enabled them to interview farmers and agricultural experts on location, rather than in studio. Other technologies included wireless networks, call-in and call-out facilities, and satellite terminals (VSATs).

1.3 Marketing information service (MIS)

Five partner radio stations were selected to simultaneously participate in a pilot project using radio to enhance existing marketing information service (MIS) – one each in Mali, Uganda and Tanzania, and two in Ghana. Marketing information service, which helps farmers to understand prices, markets, and supply-and-demand, is essential to farmer security in Africa.

An effective MIS has the potential to benefit smallholder farmers in profound ways. Regular, up-to-date prices from a range of markets can help farmers make decisions on what to grow, when to grow, and how much to grow. Information on how to increase the value of their products can enable farmers to boost their incomes with minimal investment. In the long term, by understanding market trends and national – or even international -- price fluctuations, farmers can better adapt to changing supply and demand.

The role of MIS within AFRRI

AFRRI originally intended to produce three PRCs[4] on specific agricultural challenges in each of the five partner countries. During AFRRI's preliminary assessments, however, small-scale farmers identified the following as essential to their livelihoods: information on access to markets; other key market information such as commodity prices and supply-and-demand; and ideas to secure their incomes by improving agriculture productivity. AFRRI investigated the potential of improving existing MIS by using radio as a means to share and disseminate information. To this end, AFRRI operated radio-based MIS pilot projects in four of its five partner countries.

Implementing AFRRI's MIS program

Based on this preliminary review, the AFRRI team decided to focus on strengthening existing services through more effective use of radio. Each AFRRI country team hired a local marketing specialist to conduct a national study on MIS, in order to identify current MIS programs and analyze how radio could

[4] A Participatory Radio Campaign (PRC) is 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.

build a more sustainable, effective service. The specialists consulted with farmer groups, government agencies in charge of managing and administering MIS programs, suppliers, and other market specialists. Many existing MIS programs involved radio stations, and typically broadcast commodity prices. Some hosted more engaging discussions on particular products or issues, such as managing chickens or increasing farmer incomes.

AFRRI sought to create radio-based MIS with the capacity to reach and influence a vast number of farmers, and one that could be sustained by the partner radio station in the wake of the formal project. AFRRI's MIS project included regular discussions about market issues, and engaged radio stations, farmer listeners and extension experts on changes in local, district, national and international markets, and how these changes affect what farmers grow and how they distribute goods.

Five MIS Case Studies

In the preliminary country studies, farmers identified various types of market information as valuable, including the following: prices using standard measurements; price differentials between markets; methods of accessing new markets; ways to add value to existing products; and identification of new high value products. Other needs varied by country. In Mali, farmers were interested in how to generate more income to expand their existing production of livestock and grains, and to earn more income from selling their livestock in markets. In Ghana, farmers wanted better direct access to markets, bypassing middle men and women. In Uganda, farmers wanted to contact buyers directly rather than going to a market. Equipped with these findings, AFRRI developed MIS programs in collaboration with radio stations and local markets that would discuss, inform, and report on market prices, conditions and trends. MIS radio programs were launched simultaneously with the second set of PRCs conducted in each country.[5]

Table 1 summarizes five MIS programs implemented in four countries as part of the AFRRI MIS radio campaign. Almost all AFRRI partner stations originally planned to improve their existing MIS radio programs. Only one or two stations per country participated in the study, however, due to varying resources, capacity and support. Stations with existing services integrated into their radio program schedules were able to join the study more easily and were able to contribute to country-level consultations and planning. Most country teams agreed on similar themes, which each participating station adapted to their own local context. Each station identified focus topics for their MIS radio programs, determined by the main crops grown in the surrounding area.

[5] The second PRCs were broadcast between November 2009 and June 2010 and evaluated in August 2010.

Table 1: Summary of MIS programs

Country	Radio Stations Involved	MIS Programs	ICTs involved
Uganda	Mega FM	Weekly show focusing on cereals, legumes, plantain, root crops, pulses, fish, poultry and meat	Mobile phones (call-outs), emails, SMS
Ghana	Volta Star, Radio Ada	One hour weekly show	SMS, Esoko[6], call-ins and -outs, Freedom Fone[7]
Mali	Fanaka	Market prices for grains and livestock shared in weekly radio show, market price announcements, discussion on selling chickens	SMS
Tanzania	Radio Maria	Radio spots on *Heka Heka Vijijini*[8]	Call-ins/call-outs

Through the five case studies, FRI aimed to answer the following questions about radio-based MIS:

a) *In what ways can traditional MIS programs be enhanced by using radio to make them more relevant?*

b) *How will farmers respond to these enhanced MIS programs? How will broadcasters respond to the opportunity to offer new types of MIS services? What level of capacity is available and is there sufficient institutional and personal motivation to carry out the work?*

c) *Can MIS programs be sustained by radio stations as an integral part of their service to listeners, or will they require ongoing donor support to continue?*

Ultimately, the findings presented support the MIS project within AFRRI's overarching goal of improving the food security of farmers in its partner countries.

[6] Esoko is a mobile platform that delivers updates for farmers and traders through SMS and the internet.
[7] Volta Star's *Farmers Fone* is an interactive voice response system set up through Freedom Fone. See the Ghana component of section 5 for a description of Freedom Fone.
[8] *Heke Heke Vijijini* is Kiswahili for "Busy, Busy in the Village" and was the name of Radio Maria's farm radio program.

2.0 Background and context

Food insecurity in Africa

Africa is in a food security crisis. The Food and Agriculture Organization of the United Nations (FAO) defines food security as follows:

> *…when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food which meets their dietary needs and food preferences for an active and healthy life. Household food security is the application of this concept to the family level, with individuals within households as the focus of concern.*[9]

Food insecurity is when people do not have access to food as above. According to FAO's latest statistics, 239 million people in sub-Saharan Africa are hungry. Three quarters of those people live in rural areas and overwhelmingly depend on agriculture for their food. Half are farming families "surviving off marginal lands prone to natural disasters like drought or flood."[10]

Table 2, below, profiles the five AFRRI partner countries and summarizes several key indicators.

Table 2 – Key indicators for countries in this project[11]

	Ghana	Malawi	Mali	Tanzania	Uganda
Population (2010)	24.3 million	14.9 million	15.3 million	45 million	33.7 million
Official languages	English	English and Chichewa	French	English and Swahili	English and Swahili
Region	West Africa	Southern Africa	West Africa	East Africa	East Africa
% of Population Living in Rural Areas (2009)	49%	81%	67%	74%	87%
Literacy (2009)	67%	74%	26%	73%	73%
% of Land Under Agricultural Use (2008)	69%	58%	33%	40%	66%
% of People Living Below National Rural Poverty Line (2006)	39%	56%	58%	37%	27%
# of Mobile Phone Users (out of 100) (2009)	63	16	29	40	29

[9] (2003)Trade Reforms and Food Security: Conceptualizing the linkages. FAO
[10] (2011) Hunger: Who are the hungry. World Food Programme
[11] Taken from http://data.worldbank.org

AFRRI and the Participatory Radio Campaign

AFRRI tested the effectiveness of a particular approach to farm radio called "the participatory radio campaign," or PRC. The PRC method was created by Farm Radio International (FRI). Drawing on elements of adult learning and the theory of participatory communication for development, PRCs build a coherent, multi-month series of programs that feature farmers' voices, follow a dramatic progression, and use the best features of radio and related ICTs to engage farmers. Each PRC focuses on a single, farmer-selected "improvement" or innovative agricultural practice deemed to have the capacity to help farmers achieve their food security goals. The improvement becomes the central feature of a weekly series of radio programs that extend over a period of four to six months.

FRI chose to work in Ghana, Malawi, Mali, Tanzania and Uganda for a variety of reasons. It was important to have a combination of French and English speaking African countries, particularly when looking at scalability. The countries were also representative of a variety of regions, including at least one country from East, West and Southern Africa. Finally, the countries were chosen as priority countries in the context of food security in Africa.

Each partner radio station conducted two sets of PRCs, known as PRC1 and PRC2. Based on outcome evaluations conducted in June 2009, at the end of PRC1, radio partners sought to build upon and improve their reach and impact in PRC2 -- notably by introducing ICT packages to the radio stations.

Existing MIS in Africa

There have been many challenges to developing and sustaining an effective MIS in Africa. In the past, MIS has been implemented as one component of a suite of projects financed by external donors and administered through national governments. Once the overall project ends, the MIS program also, eventually, ceases to function. The detailed interactions involved in processing timely and consistent marketing information over a long period of time require training in data collection, data entry, marketing analysis and communication. This vital need for specialized training is regularly overlooked and/or under-resourced, and thereby has limited the overall effectiveness of MIS programs.

During the 1960s and '70s, government-led radio stations hosted very basic marketing programs that announced the prices of commodities considered central to current national agriculture policy. While this approach supported economic development and nation-building, it did not necessarily raise the incomes of individual farmers. Once the airwaves were liberalized and commercial and community radio stations established, market price announcements became part of government or donor-funded projects which promoted government-supported agriculture, or they became one element of projects that focused on a particular crop or species of livestock.

Communication technologies for sharing marketing information have evolved from the use of very basic tools to complex, digital, wireless-based forms. The earliest conduits for marketing information were village announcers, who would regularly proclaim commodity prices and later post them on notice boards in town centres (Sekiku, 2008). Radio came next, with regular MIS programs on the airwaves beginning in the 1960s. With the onset of the internet, and with telecentres popping up in rural areas in the 1990s, government agencies partnered with development projects to create internet-based market services, employing the slow and intermittent connections available at the time.

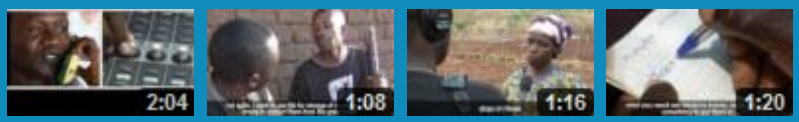
By the early 2000s, mobile phones had become sufficiently accessible to allow market prices to be collected and shared via short message service (SMS) and the internet. A renewed interest in radio, combined with SMS, mobile phones and the internet, has since strengthened the communication channels for MIS. Modern technology makes service more efficient and, possibly, more consistent. It is

still a challenge, however, to create and sustain an MIS that integrates appropriate technologies, knowledge, and skills to gather, organize, and share the information that farmers request and need. Focusing only on the compilation and sharing of market prices, for example, limits farmers' understanding of markets and restricts their understanding of the potential benefits of other types of market information, such as longer-term price fluctuations, value chain and trend analysis, and regional or international outlooks. While there are more tools to support access to basic MIS such as market prices, there are still challenges in meeting the demand for more information and farmer engagement about the information received.

MIS broadcasts also continue to be viewed by many radio stations as sold airtime rather than as a public service or a viable commercial product developed and offered by the stations to attract and serve a large audience of farmers. The result has been an ongoing reliance on either government or international donor-driven projects, with little incentive for the stations to make a long-term commitment to MIS programming. This is unfortunate because relevant information on market prices, trends, accessibility and valuation of commodities have the potential to increase farmers' income, and thereby create a direct demand for ongoing MIS programming provided by the radio station.

MIS can serve male and female farmers by collecting and sharing information on specific crops or commodities that each gender targets in the marketplace. An AFRRI survey of 4440 households found that 68% of women and 84% of men have access to a radio. At the same time, 86% of women surveyed listened to the radio at least once per week and only at specific times in the day. Increasing listenership amongst women farmers could lead to improved agriculture practices at the household and community levels. As radio shifts from a one-way to a more interactive mode of communication through the influence of the internet, email and mobile phone technology, governments and development agencies are exploring new and potentially more effective ways of sharing market information, and engaging in a dialogue that goes beyond disseminating prices. The sustainability of more complex MIS programs remains a major challenge, given the cost of air time, and the requirement for training and long-term investment on the part of the radio station and community partners – including market vendors, buyers and traders. Radio programs aimed at women must consider the timing of the programs, the number of program repeats and the availability of women farmers to be included on the show as either guests, callers or via phone interviews.

See Farm Radio in action in these example clips:



http://bit.ly/farmradiovideo3

Maasai famer listens to a farm radio program with a listening club in Morogoro, Tanzania. His mobile phone is close at hand to call into the station.
Photo Credit: Jesse Perkins

> ***Unfortunately, MIS broadcasts tend to be viewed by radio stations as sold airtime rather than as a public service or viable commerical investment developed and offered by the stations to attract and serve a large audience of farmers.***

Women at a market in Sikasso, Mali. MIS radio programs can offer farmers a link to these markets and facilitate the sale of their produce.
Photo credit: Sheila H. Rao

Description of initial inquiries

As a first step in this process, FRI conducted a study of existing MIS programs in four African countries: Mali, Ghana, Uganda, and Tanzania. The preliminary study was guided by three main objectives: i) To gain a better understanding of the state of MIS in Mali, Ghana, Uganda, Tanzania and Malawi; ii) To identify and implement ways in which radio can improve existing MIS; and, iii) To generate recommendations on how radio can best serve farmers by delivering relevant, timely and useful market information.

The study found that numerous marketing information service studies and projects have been implemented in Africa for varying purposes by governments, international organizations, and research institutes. Radio has frequently been used to disseminate marketing information, through news programs, or programs specifically aimed at the agriculture sector. Services have varied in the amount of information collected and shared. Some broadcast only price information; others provide information

on topics such as strategies for increasing product value, targeting certain markets with specific products, and ways to link farmers directly to buyers.

AFRRI further explored existing MIS by conducting a literature review of all existing and previously conducted projects in Africa, focusing on AFRRI's partner countries. The purpose of the review was to identify the main approaches used, the main outputs and outcomes, the challenges, and to ascertain whether the services were continuous and long-lasting or intermittent.

Consultants from each country team presented their findings to the AFRRI National Advisory Committee (NAC) in their respective countries. Consultants and the NACs worked together to develop recommendations on how to strengthen MIS services at AFRRI partner radio stations. In addition, each marketing specialist recommended that, because there was little information on the effectiveness of MIS radio programs for farmers, additional monitoring mechanisms should be put in place.

The preliminary research revealed that small-scale farmers have an ongoing need for MIS in order to be competitive in agricultural markets, but that MIS has had limited effect on how farmers access and use market information. Although most countries that have liberalized their food markets have operated an MIS at one time, these services have typically been almost entirely donor-financed, operated for a fixed period of time, and managed by what remained of the former marketing board or parastatal organization. After donor financing expired, the service typically withered away for lack of funding (Tollens, 2006).

Findings from each preliminary country study

Mali

After Mali won its independence from France in 1960, agricultural sector growth was prioritized. The main commodities, including cotton, peanuts, and rubber, were soon nationalized, and commercial expansion was extended to include cereals. New offices were established, including *l'Office des Produits Agricoles du Mali* and others. Although the intention was for Mali to increase revenue from agricultural production, there were several initial barriers. These included weak infrastructure and lack of equipment, inadequate rainfall monitoring, no credit system for purchasing new equipment, and lack of training for farmers. In 1980, a structural adjustment program (SAP) liberalized grain marketing and eliminated some state agencies, including *La Société de Crédit Agricole et d'Equipement Rural* (SCAER), and privatized and restructured others, including OMA (*L'Observatoire du Marché Agricole*), the national agricultural organization. It was decided that the dissemination of prices and marketing information should be the function of the government, thereby targeting all players in the agricultural sector. This service distributes a monthly information bulletin on prices in select markets across the country. Some radio stations read these bulletins as their MIS, providing basic commodity prices in major markets across the country.

Ghana

In Ghana, a lack of marketing information has been a major challenge for smallholder famers for many years. Farmers have struggled, in particular, with the high costs of transportation and the role that middle men and middle women play in markets. For farmers in remote areas, distance from markets often acts as a disincentive to sell their crops. The existing market system – in which market queens

(middle people) virtually control what is sold and for how much – deters farmers from selling their products, other than at the farm gate, where they settle for any price they can get. [12]

Ghana has several types of MIS initiatives. Some are part of government programs and involve the collection of prices for analytical purposes, while others are based in rural areas and help farmers access and utilize information for greater market access. The consumer price index (CPI) is developed by the Ghana Statistical Service. Market prices are collected by government staff, and help to inform the calculation of inflation rates, wage and salary negotiations, and bank interest rates. The Ministry of Food and Agriculture (MOFA) also gathers prices from selected markets across the country for their own analyses. A second program operated by MOFA promotes e-commerce through websites and agriculture information centres. Esoko (previously called TRADENET) is a price distribution platform that uses the internet and mobile phones. Esoko assigns each commodity a code that farmers use to track prices and post sales. Individuals must register for the service, with the cost of using the service equivalent to regular mobile SMS services or internet. The Market Access Promotion Network Ghana (MAPRONET) supports farmers' co-operatives to receive and use marketing information.

Market prices are regularly announced on several radio stations in Ghana. For example, the Ghana Broadcasting Corporation (GBC) broadcasts a number of programs that announce market prices. Volta Star (a GBC station) has a five-minute segment on its news program that provides commodity market prices. Information is sourced from the Ministry of Food and Agriculture in Ho and broadcast in a segment on the evening news. Prices for over 25 commodities are given in local languages.

> ***The existing system in markets – in which market queens (middle people) virtually control what is sold and for how much – deters farmers from selling their products, other than at the farm gate, where they settle for any price they can get.***

Uganda

MIS is not new to farmers in Uganda. FOODNET, in partnership with National Agricultural Advisory Services (NAADS), has coordinated the dissemination of market prices in some districts for the past several years. Many NGOs and research initiatives have also experimented with MIS programs, either through radio, through mobile phones, or both. All five AFRRI station partners (Voice of Teso, Kigaadi Kibale, Uganda Broadcasting Corporation, Central Broadcasting Service and Mega FM) had some type of MIS programming in place. None of the programs, however, have been very effective or long-lasting. Part of the challenge is that station management approaches MIS as a program and not as a free public service or sponsorship opportunity. Without direct revenue or other financial support, there is no incentive for stations to continue with "the program."

The Ugandan marketing specialist reported that the capacity for stations to collect, process and broadcast commodity prices is limited. While various organizations operate MIS for a limited number of

[12] 'Market queens", or 'middle women' is a term used in Ghana to describe women who buy products from farmers before they arrive at the market. Traditionally, the role is often taken by women, but men also purchase products or work together with market queens to take control of the market prices for farmers.

products, no current program has a central system for collecting and storing prices across the country, or even at the district level. According to farmers interviewed, each program focuses only on announcing market prices, and does not give them enough information to utilize these prices to their advantage.

The initial study revealed that farmers are interested in more interactive, informative and timely services, in order to compare prices from different sources, including Infotrade, Farm Grain, and FIT Uganda. This would help them understand the market more broadly, and take advantage of a range of information sources to compare markets and better target their sales.

Radio stations reported that paying for airtime has been a barrier to creating a more sustainable MIS program. NGO and donor-funded projects that focus on specific crops, such as cassava or mangoes, include market information and cover the costs of airtime. But once these projects end, the MIS program also ceases.

Tanzania

In Tanzania, MIS was introduced in the 1970s when the Marketing Development Bureau (MDB) was established under the Ministry of Agriculture. It began as a project funded by UNDP, with FAO as the implementing organization. The program focused on collecting price information for key commodities in the country. There was no clear approach to dissemination of information to farmers; rather, the project monitored commodity price fluctuations in order to further develop a national economic development strategy.

In the 1980s, SAPs further supported such initiatives in the hope of transforming the country into a market economy. The MDB became known as the Agricultural Information Service in the 1990s and the Market Information Service (MIS) in the new century. The national MIS operates under the Ministry of Industry, Trade and Marketing, and has been responsible for collection, analysis and dissemination of marketing information since 2005.

Market prices of staple crops such as maize, beans, millet and potatoes are collected from over 70 local markets across the country. Working with Vodafone, the project collects prices, then distributes them through an SMS. Several multilateral partnerships support the government initiative.

The Livestock Information Network Knowledge System (LINKS) was established in 2004 to distribute information on livestock prices throughout the country. Initially set up to operate via satellite radio, the program soon switched to using SMS because satellite radio signals were found to be inaccessible for large populations.

> ***Farmers are interested in more interactive, informative and timely services.***

Malawi

In Malawi, AFRRI conducted a preliminary study of MIS in 2009. The consultant involved in the study, however, lost the data due to a damaged computer. The data was never retrieved and the final assessment was eventually abandoned. Farm Radio Malawi will soon conduct a second study in

conjunction with FRI to plan how to build on the five year government-led MIS project that concluded in 2009.

3.0 MIS programs

In the preliminary country studies, farmers identified various types of market information as valuable, including the following: prices using standard measurements; price differentials between markets; methods of accessing new markets; ways to add value to existing products; and identification of new high value products. Other needs varied by country. In Mali, farmers were interested in how to generate more income to expand their existing production of livestock and grains, and to earn more income from selling their livestock in markets. In Ghana, farmers wanted better direct access to markets, bypassing middle men and women. In Uganda, farmers wanted to contact buyers directly rather than going to a market. Equipped with these findings, AFRRI developed MIS programs in collaboration with radio stations and local markets that would discuss, inform, and report on market prices, conditions and trends. MIS radio programs were launched simultaneously with the second set of PRCs conducted in each country.[13]

Table 1 summarizes five MIS programs implemented in four countries as part of the AFRRI MIS radio campaign. Almost all AFRRI partner stations originally planned to improve their existing MIS radio programs. Only one or two stations per country participated in the study, however, due to varying resources, capacity and support. Stations with existing services integrated into their radio program schedules were able to join the study more easily and were able to contribute to country-level consultations and planning. Most country teams agreed on similar themes, which each participating station adapted to their own local context. Each station identified focus topics for their MIS radio programs, determined by the main crops grown in the surrounding area.

Table 3: Summary of MIS programs

Country	Radio Stations Involved	MIS Programs	ICTs involved
Uganda	Mega FM	Weekly show focusing on cereals, legumes, plantain, root crops, pulses, fish, poultry and meat	Mobile phones (call-outs), emails, SMS
Ghana	Volta Star, Radio Ada	One hour weekly show	SMS, Esoko[14], call-ins and -outs, Freedom Fone[15]
Mali	Fanaka	Market prices for grains and livestock shared in weekly radio show, market price announcements, discussion on selling chickens	SMS
Tanzania	Radio Maria	Radio spots on *Heka Heka Vijijini*[16]	Call-ins/call-outs

[13] The second PRCs were broadcast between November 2009 and June 2010 and evaluated in August 2010.
[14] Esoko is a mobile platform that delivers updates for farmers and traders through SMS and the internet.
[15] Volta Star's *Farmers Fone* is an interactive voice response system set up through Freedom Fone. See the Ghana component of section 5 for a description of Freedom Fone.
[16] *Heke Heke Vijijini* is Kiswahili for "Busy, Busy in the Village" and was Radio Maria's farm radio program.

4.0 The MIS case studies: Research questions and methodology

Through the five case studies, Farm Radio International aimed to answer the following questions about radio-based MIS:

a) *In what ways can traditional MIS programs be enhanced by using radio to make them more relevant, more interactive, and more engaging for local farmers?*

b) *How will farmers respond to these enhanced MIS programs? How will broadcasters respond to the opportunity to offer new types of MIS services? What level of capacity is available, and is there sufficient institutional and personal motivation to carry out the work?*

c) *Can such programs be sustained by radio stations as an integral part of their service to listeners, or will they require ongoing donor support to continue?*

To answer these questions, AFRRI coordinated the following research and evaluation activities for the five case studies:

- Station staff kept records of the MIS programs, noting the content of broadcasts, frequency of broadcasts, levels and types of interactivity, and feedback from farmers on how campaign activities had supported them. The consultants who had conducted the initial MIS studies in each country were engaged to return to the radio stations and surrounding communities to interview broadcasters, and to visit and interview farmers who had listened to the MIS radio programs.

- The outcome evaluation activity gathered both qualitative and quantitative data around MIS from two different listening communities for each of the 15 radio stations in the five countries. “Active listening communities” (ALCs) were those who identified their MIS needs in preliminary studies, and contributed to the ongoing development and monitoring of the MIS radio campaign. Members of ALCs were targeted for interviews and had preferred access to the broadcaster during the MIS radio campaign. AFRRI also evaluated “passive listening communities” (PLCs), those who could listen into MIS radio programs but were not overtly encouraged to do so, and had no other formal contact with the radio station.

Together, these research activities revealed that enhanced, interactive, locally-adapted MIS programs were very popular, relevant and useful to small-scale farmers; that broadcasters enjoyed producing and presenting these programs; and that some farmers were able to significantly increase their income as a result of listening to them.

The study also found that challenges with sustainability remain: Most of the “enhanced” MIS radio programs reverted to their previous, scaled-down versions after the AFRRI campaign ended, despite the popularity of the AFRRI radio programs. In one instance, however, Mega FM in Gulu, Uganda was able to use the popularity of its MIS radio program to attract a sponsor that is now sustaining the program through paid advertising. This demonstrates the potential for radio station managers to regard MIS radio programs not as airtime “sold” to donors, but as indispensible services that attract listeners – and therefore advertising dollars – in a competitive marketplace.

Further experiments are required in order to determine how enhanced MIS broadcasts impact farmers’ income over a larger area. (Our case studies looked at the impact of the MIS programs on the incomes of a number of farmers, but did not include a general study of the listening population). Additional work

is also required to determine how to sustain and scale-up this improved approach to MIS radio programming.

5.0 Country case studies

MIS in Mali

Program background

Radio Fanaka, in the town of Fana, was the site of the MIS study in Mali. Fatogoma Sanogo was chosen to produce and host the program, entitled *Aw Ni Sugu*, which in literal translation means, "Thank you for being at the market." The radio program took place over six months between January and June, 2010. The host regularly visited Konobougou on Sundays and the Fana market on Wednesdays, two local markets for farmers in Fana. He interviewed traders and farmers about the products they were selling, the prices, why they were selling them, and the benefits and challenges. He recorded the interviews and broadcast them, using market sounds as background to convey the energy and ambience of the market to listeners. After the broadcast, Sanogo took calls and SMS messages from listeners who had more specific questions, about prices, for example, or the specific stalls he visited. The program was aired on the market day between 3 and 4PM and repeated the following Tuesday, between 6 and 7PM.

Before Radio Fanaka began the MIS radio program, the only source of market information available in the district had been radio commercials for local merchants, and occasional interviews with farmers.

> ***I love hosting the show. Even after the campaign ended, I continued to broadcast the program, but only from Fana, since funds for fuel to travel to all the markets are limited. I would like to become even better at reporting on marketing information with more training in the future.***
>
> **Fatogoma Sanogo, Fana, Mali**

Program content

Radio Fanaka produced 16 30-minute MIS radio programs over six months as part of the MIS radio campaign. Each was broadcast twice. Prices were calculated and announced during the program, with the help of market sellers and buyers interviewed by the host. Price announcements included market prices and bulk prices, as well as the following specific information: farm gate prices, prices for vaccinated and non-vaccinated chickens, cereal, and small animals, such as goats and lambs. The program also discussed the advantages of selling chickens at the modern market versus the traditional market, and the construction of chicken houses to improve production. The host used various sources to collect information, including word of mouth at the markets and direct phone calls to sellers, buyers and producers.

While Sanogo focused mainly on the markets in Fana and Konobougou, which were reasonably close to the station, he made occasional visits to other area markets, including Marka Counga (Tuesdays), Tingole and Falako (Fridays), Diola (Saturdays), and Djoumanzana (Sundays), that were farther away.

Style of program

The MIS radio program used a variety of formats to engage farmers, including call-outs, call-ins, short recorded interviews from the market, and in-studio interviews. There were at least ten calls to the station each time the chicken vaccinator, Tarafa Fomba, was interviewed in the studio. Because of the number of calls to the studio, little time was left during these popular segments to call out to farmers**.**

Broadcaster impressions of the program

Sanogo loved hosting the program. He enjoyed visiting the markets, taking in the energy of the markets, engaging with the producers, buyers and sellers, and discovering ways farmers could earn more money for their produce. He believes the broadcasts recorded on-location were most effective because they gave listeners an opportunity to experience being in the market themselves. Sanogo reports that he has seen a big improvement in the way market information is shared since the development of the MIS radio campaigns. Before the AFRRI program, there was little discussion of markets and market prices over the radio, other than standard price lists collected through OMA, and occasional interviews with merchants or farmers. AFRRI's MIS radio campaign enabled farmers to discuss market challenges with other farmers on-air. Many also learned about the benefits of vaccinating chickens and improving chicken housing to increase the value of their products.

Sanogo hopes to improve the capacity for the station to collect, calculate and analyze market trends, and to use trained collectors and monitors at each market to collect prices and information accurately and consistently.

Sanogo recalls a highlight of the program: He travelled to the village of Dien to interview Tarafa Fomba, a local farmer and vaccinator. Fomba explained that he helps farmers get more money for their chickens by vaccinating them. Though not a trained veterinarian, he was trained to give vaccinations, and makes this service more affordable and accessible to his fellow farmers instead of having them visit regular clinics. After Fomba's service was advertised on Sanogo's program, he became very busy and, as a result, expanded his business. He now gives vaccinations at the modern chicken market in Fana. He is certain that farmers can increase the price from 900 to 1250 FCFA per chicken by having them vaccinated.

The modern chicken market has been in existence for four years, but has only recently become popular. Many farmers had been reluctant to bring their chickens to the market because of costs associated with vaccinations and, perhaps more importantly, because the market is located beside a cemetery. Some farmers believe it is bad luck to walk past a cemetery just before selling their chickens. Instead, they tried traditional markets, where chickens are not vaccinated and prices are much lower. Sanogo talked on-air about these superstitions and tried to convince listeners that their chickens were not going to be affected but, on the contrary, that the modern market would bring them higher revenues. Farmers who called in wanted to understand how best to vaccinate their chickens, how to prevent disease, and get some idea of the costs associated with vaccinating chickens.

Not only was there an increase in the number of farmers attending the modern market after the program was broadcast, but more farmers vaccinated their chickens and earned more than they had in the past.

Sanogo feels that his show became more popular after he began visiting the markets: “I love hosting the show. Even after the campaign ended, I continued to broadcast the program, but only from Fana, since funds for fuel to travel to all the markets are limited. I would like to become even better at reporting on marketing information with more training in the future.”

> ***Before Radio Fanaka began it’s MIS radio program, the only source of market information available in the district had been radio commercials for local merchants, and occasional interviews with farmers.***

Fatogoma Sanogo records audio at the local market in Fana, Mali using a small digital recorder. These clips were often used on-air as a part of Radio Fanaka’s MIS program
Photo credit: Modibo Coulibaly

Farmer's market perspective

Mariam Traoré is one of 60 women who grow salad vegetables in their gardens - including cucumbers, lettuce, tomatoes and onions - in the Fana region of Mali. A year prior to the launch of the MIS program, she found it difficult to earn a decent income from her garden vegetables. Although her husband and children enjoyed the fruits of her labour, she wanted to earn more income by selling her good quality vegetables at market. But the costs of travelling to the market were high, as were the taxes on selling goods at market.

Farmer involvement with the program

Traoré was interviewed at her farm for Radio Fanaka's MIS program. Sanogo aired the interview as part of his weekly marketing show. The host even sampled her produce on-air during the program, describing the taste, quality and texture. Farmers started to call into the show, asking where they could buy the produce, and wanting Traore's contact information. People from Wolodo and neighbouring villages traveled to her farm to buy salad vegetables. As a result, she now earns up to 1500 CFA (US$3.30) per week – an increase from 500-750CFA ($1.10-$1.60) per week. Mme Traoré is now known around Wolodo for the high quality of her salad vegetables. Prospective consumers come to her farm to purchase her produce and are able to earn enough at the farm gate to travel to the market to sell her produce. She and the other women farmers in her village split the costs of travel and taxes, and travel to the market together.

One day in May 2010, a group of women shared the costs of transport to the market to sell their salad vegetables. En route, it began to rain. By the time they arrived at the market, it was deserted. They phoned Radio Fana and announced that they had salad vegetables for sale. On hearing this announcement, buyers soon arrived at the deserted market to purchase the vegetables. By the end of the day, the women had sold all their produce. The members of the women's group say their husbands have very little salad for dinner now, because it is all being sold. Traore jokes that perhaps husbands should also pay to have salad in the house. The neighbouring villages of Ballan and Dien know the story of Traoré and the other women, and they continue to learn a lot from them through the MIS radio programs.

Mariam Traoré is one of 60 women who grow salad vegetables in their gardens -- including cucumbers, lettuce, tomatoes and onions -- in the Fana region of Mali.
Photo credit: Modibo Coulibaly

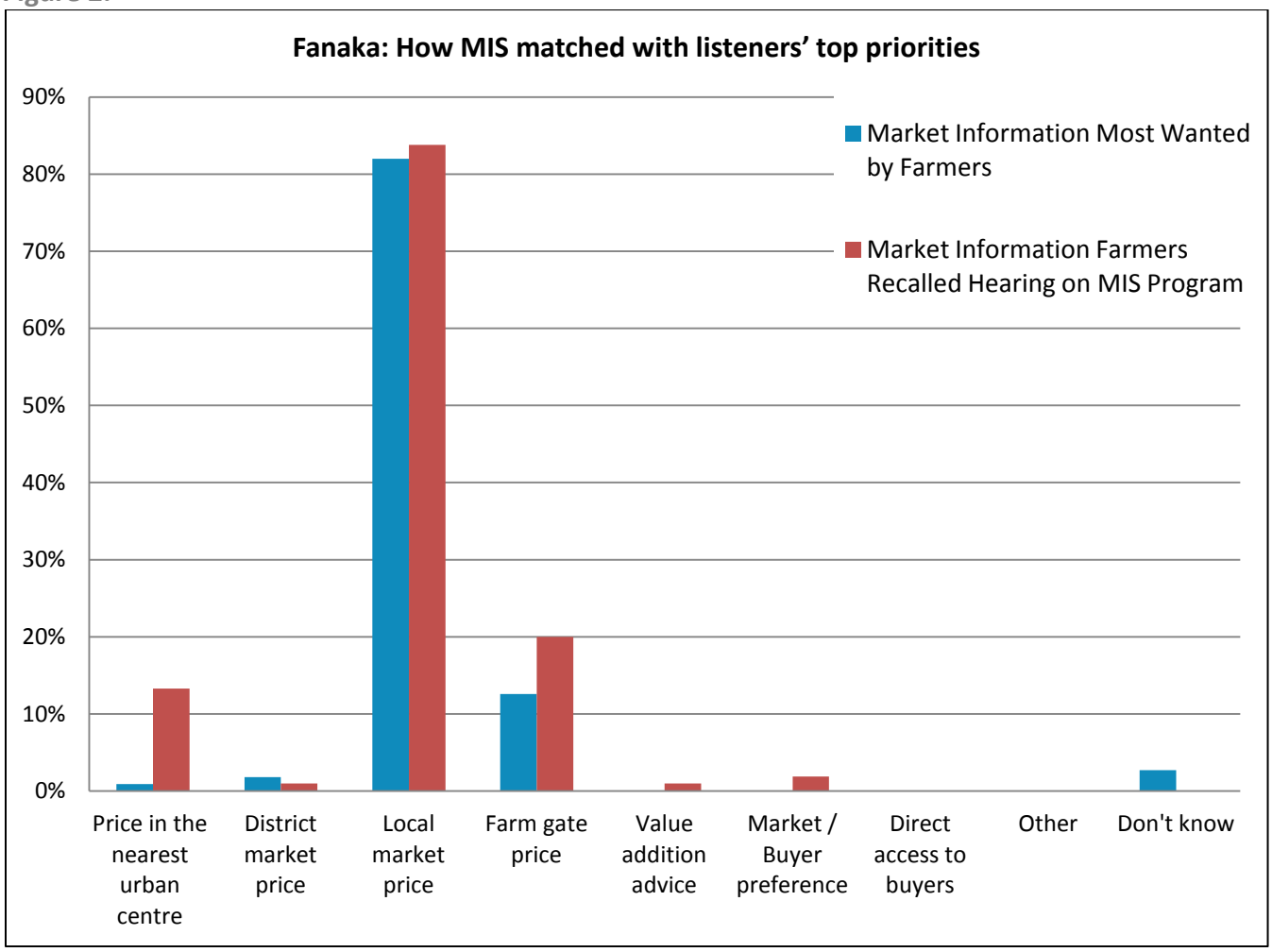
Results from outcome evaluation survey

During the August 2010 outcome evaluation, 200 randomly selected households were surveyed in four communities that had access to Radio Fana's MIS program.

The outcome evaluation survey showed that 68% of ALC members and 41% of PLC members were aware of, and had listened to, the MIS program. Of those that listened, 95% of PLC community members found the information on the MIS program "always useful."

The survey also revealed a strong alignment between the information farmers had indicated they wanted to hear on the radio and what they actually heard on Radio Fanaka's MIS: Figure 2 shows that four of every five respondents (82.9%) were most interested in local market prices, while 77% said that they actually heard local prices on the program, showing that the program provided the information that listeners most wanted to hear.

Figure 2:



Case study summary

The Radio Fanaka MIS case study evaluation leads to the following conclusions:

The MIS radio programs reached a large audience in the Fana district

Radio Fanaka's MIS program was quite well-known. Even in PLCs, where farmers had to find the program on their own without any outreach from station staff, 41% were aware of, and had listened to, the MIS radio program. Radio Fana's broadcasts reach a total audience of 350,000, about 80% of them farmers. Because the two PLCs were representative of most communities in the listening area, it is estimated that approximately 114,000 small-scale farmers were aware of, and had listened to, the MIS radio program.

Fanaka's MIS program is relevant to their listeners

The MIS radio programs directly addressed the concerns laid out by farmers in the preliminary research surveys. A program on modern chicken markets, for example, found innovative ways to link buyers and sellers. Farmers also indicated that the content of the MIS radio programs was more meaningful than traditional MIS because the information and broadcasts came directly from markets where local farmers sell their products. Ninety-five per cent of PLC survey respondents, who were aware of the MIS programs, said the information was "always useful." Most listeners surveyed also said the content of the

MIS programs corresponded well with what they most wanted needed to hear.

Radio Fanaka's MIS program improved farmer's access to and use of their local market
The host of the program observed listeners adopting new behaviours as a result of the MIS radio program. Chicken vaccinations, for example, became more common, and attendance at modern chicken markets increased. The story of Traore and her women's group demonstrate how an MIS radio program can boost income.

The AFRRI MIS program at Radio Fanaka contributed to broadcasting improved programs
The host of Radio Fanaka's MIS program continues to produce and broadcast the show. With the end of AFRRI, however, his capacity to travel to markets outside of Fana has diminished.

MIS in Ghana

Program background

Previous MIS radio programs focused on announcing prices which only benefited farmers who had access to the major markets in the country but did not address underlying challenges for farmers to reach the market themselves. The initial AFRRI MIS study found that farmers in Ghana have struggled with transportation costs and the dominant role of market queens and other middle people in the market. AFRRI's MIS radio program addressed these issues directly.

In addition, because of the frequent use of mobile phones in the Ho district surrounding Volta Star and the need for timely, convenient access to market prices, AFRRI tested an interactive voice response system called "Freedom Fone.[17]" Hosts frequently used mobile phones to call farmers during a radio broadcast and farmers also called in on their own mobile phones. Market prices were announced on the radio program directly from the market using mobile phones.

At Radio Ada, the station coordinator, Isaac Djagbletey, assembled a five-member team to develop an MIS radio program, focusing on some of the age-old marketing problems of farming communities in the Dangbe-East District of the Greater Accra Region. Host Erica Ofoe worked with a market liaison officer, a technician, and an agricultural extension officer.

Field staff interviewed farmers at the market and in their communities on issues related to their conviction that middle women were cheating them, and on the serious challenges faced by those who wanted to market and sell their produce. Based on these interviews, it was decided to create a radio campaign that would ask farmers the same question each week: "How is the market?" A thirty-minute radio program aired on Thursdays for six weeks. The program was then expanded to 60 minutes and aired for an additional seven months, from Nov. 9, 2009 to May 13, 2010.

Market enumerators sent prices from the Accra, Odumase, Assesewa and Kasseh markets. In addition, they described market situations. They would, for example, announce that there were no tomatoes at a particular market and that prices were skyrocketing, while another market had a glut of tomatoes. The

[17] Freedom Fone is a technology developed in Zimbabwe that specifically targets resource-poor areas that could benefit from low-cost recorded messages. *Farmers' phone* is the local name that was given to the technology for the Volta Star MIS radio campaign.

Esoko SMS price service was added later, providing price information from market centres in other parts of Ghana.

Volta Star, a local affiliate station with the Ghana Broadcasting Corporation had two separate MIS radio programs, one broadcast in the Akan language and another in Ewe. Kofi Nkrabea hosted the Akan version, originally from 8:30 to 9:00 pm on Tuesdays, later changed to 9:00 to 9:30 because it was found to be more convenient for farmers. The host carried out most of the information collection himself. He interviewed traders and farmers at the market, and used volunteers who provided prices from four markets in the Kete Krachi area: Abotoase, Krachi Kpeve,and Akatsi.

The Ewe version was hosted by Anane Gbadago, and assisted by Asuo Dzigbordi, an agricultural extension officer. Anane interviewed farmers on their marketing challenges. The program aired on Fridays for 30 to 45 minutes between 8:30 and 9:30 pm, from Oct. 23, 2009 to March 26, 2010. Additional marketing information was obtained from messages left on the Volta Star "Farmers' Phone" at the station. The program focused on markets in Abotoase, Kpeve, Ho, Akatsi and Aflao. The Esoko platform provided price information on other markets, including Hohoe, Techiman and Agbogbloshie through its SMS distribution service.

> ***Staff at Volta Star believe that the biggest improvement to the MIS program was the involvement of the farmers, who determined the topics to be discussed.***

Program content

The MIS program at Radio Ada focused on improving the marketing system for farmers in the district. It targeted crops and livestock, plus fish and farming inputs. The greatest attention was given to crops, namely tomatoes, pepper, watermelon, okro and onion, which are the principal crops in the area.

A wide range of subjects were covered in the program including the following:

- conflicts between farmers and middle women and middle men
- market price information
- the practice of farmers forced by lack of access to credit to take money from traders for production tasks, such as weeding and purchasing inputs;
- farmer dissatisfaction with MOFA for not making MIS more effective
- the issue of agenda boys[18]
- crop storage
- quality and variety of seeds
- market trends for goods
- business planning
- market negotiation skills

[18] *Agenda boys* are men and women who frequent the market, take goods from farmers when they arrive, and sell their produce to traders. They do not allow farmers to sell their own products, and they make a lot of profit. Farmers used the MIS program to question the need for agenda boys in the market. The eventual solution was to make people aware of goods in their own localities.

- indicators of success
- good banking
- success stories related to the use of MIS.

The Volta Star MIS radio program focused on eliminating bottlenecks in the marketing of farm produce, including a measuring system seen as unfair by farmers, and a haphazard market arrangement that made it difficult for farmers to sell their produce. Also covered was the liberation of the market from the control of market queens. Market enumerators provided prices of rice, maize, millet, beans, gari, cassava, cassava dough, dried pepper and vegetables, including tomatoes, garden eggs and okro.

The MIS program at Radio Ada focused on improving the marketing system for farmers in the district. Tomatoes were just one of the important crops addressed in the program.
Photo credit: Ben Fiafor

Topics covered on the program included the following:

- control measures in the markets[19]
- commodities available in the market
- Farmers' Day Awards
- measurement procedures for farm produce
- the importance of market centres in the marketing chain
- the role of middle men and middle women in the marketing chain
- the response of middle men and middle women to concerns raised by farmers about measurement of farm produce.

[19] This refers to arrangements made to minimize the occurrence of market gluts. Market queens typically allow certain communities to send their goods to market on particular days only, to prevent all communities going to the market with the same types of goods.

Style of program

Radio Ada's MIS program allotted 30 minutes to phone-ins, and fielded up to 12 calls during this time. The host sometimes called out to farmers, typically one farmer per broadcast, especially when she was informed about bumper harvests in a particular area. The host, Ofoe, also received calls from farmers, off the air on her mobile phone, asking questions and seeking clarification.

The Volta Star program line-up included the following: signature tune, introduction of topic to be discussed, panel discussion, short musical interlude, and opening of phone lines. The hosts recorded the voices of farmers on their farms and in the markets, and aired their concerns. Some farmers texted the station, while others left voice messages on the station's Farmers' Phone. On average, farmers submitted five MIS-related requests per week via the Farmers' Phone. Some farmers also called the program directly. On average, seven farmers called during the 15 minutes allotted for phone-ins. The host sent text messages to more than 50 farmers, alerting them to the start of the program. These farmers then relayed the message to other farmers in their communities. From time to time, the host also called farmers who had burning issues to share on-air. Enumerators described market conditions, indicating where there was a glut and where there was a scarcity of various farm produce. There were also studio interviews and panel discussions with experts in marketing, farming and post-harvest handling.

The Ghana MIS radio program focused on group marketing and the provision of price information to farmers.
Photo credit: Kevin Perkins

> ***I call Radio Ada and I inform them I have so much produce but do not have a buyer. And to my surprise, I get a call from a buyer, who comes to buy all my produce. Oh, what a joy!***
>
> **Patience Wusah, vegetable and maize farmer in Anyakpor**

Broadcaster impressions of the program

At Radio Ada, the crop prices component of the MIS program was considered more popular than the fish and trader component based on a comparison of listenership involvement (call-ins to the program) between the two topics. One of the highlights, said host Ofoe, was bringing the Ada Rural Bank on-air to respond to farmers' needs. Farmers had complained that they were never given loans, or that loan disbursements were always late. The bank's explanation and advice helped the farmers to acquire loans successfully and receive disbursements on time.

The MIS radio program is now off-air, and farmers are pressing for its return. Staff believe that AFRRI's MIS radio program was superior to the former MIS program run by the station and individual projects, because it involved farmers and traders. Although prices were mentioned in the previous MIS radio programs, it was considered not very helpful to farmers because of the limited discussion around the market prices.

Staff at Volta Star believe that the biggest improvement to the MIS in Ghana has been the involvement of farmers, who played a key role in determining the content of the MIS radio program. Host Kofi Nkrabea believes the Esoko platform benefited women traders tremendously because it offered prices in distant and previously unapproached markets, "There is, however, the need to expand the program to markets like Jasikan, Kajebi and Nkwanta, especially," he said, "because those areas constitute the food basket of the nation and the source of most food items."

"I moulded 1000 blocks, bought 30 pieces of roofing sheets, paid school fees for my four children (one son and three daughters) and saved GH¢1,200 at the bank. This is too good and should continue all the time but now we have started suffering because the program is off air."

John Pecku, farmer in Ada region of Ghana

Photo credit: Ben Fiafor

The Volta Star program is now off-air and listeners are requesting for it to be continued. In the host's opinion, AFRRI's MIS radio program was "more than 100% better" than the previous MIS program

because, unlike AFRRI program, the previous MIS program did not engage farmers and communities, and thus was out of touch with the real needs of the farmers.

According to host Kofi Nkrabea, the MIS radio program improved access to the market for farmers by building consensus between them and their buyers, eliminating suspicion and mistrust, and improving the flow of market information.

Farmer's market perspective

Radio Ada: Emelia Awakese is a farmer from Ayisa, a farming community in Dangbe-East District. John Pecku, a farmer from Anyakpo lives in the same district. Awakese cultivates 12 acres of tomatoes, 15 acres of pepper, four acres of cassava, five acres of garden eggs[20], and raises 100 fowl and 100 guinea fowl. She sells her produce at the Kasseh, Ashiaman and Mokola markets to middle women. Typically, she has been challenged by low market prices due to a glut of produce at the market. Sometimes the situation is so bad she brings her produce home and goes to another market the next day. When frustrated, Awakese even sells at a loss, with the money she receives being only enough to pay for her transport.

Pecku cultivates 10 acres of onions under irrigation. He also grows two acres of tomatoes, three acres of watermelon, an acre of okro and an acre of pepper. John sells his produce at the farm gate. Middle women purchase his products to take to the market. John laments that the middle women arrive with low prices, but that he cannot do anything about it. He says he has complained to the district authorities to no avail.

Volta Star: Christopher Kwesi Tetteh farms in Abowire, in the Biakoye District of Volta Region. He has six acres of maize, four acres of cassava, one half acre of rice, and one acre of yams. He is concerned that middle women cheat him when they purchase his produce at the farm gate and in their homes. He complains about their measuring methods: "They measure maize with body and arms supporting the measuring bowl so that it is heaped over to the sides of the bowl, where there is no bowl. But at the Abotoase and Kpeve markets we visit to sell our other farm produce and to buy other items we need, we see some of these same market women, who buy from us, selling to consumers, and they do not add even a finger. They are cheats!"

Edwin Saho farms okro and maize in Hipko, in the South Tongu District of Volta Region. Speaking also of the middle women, he laments: "It is not any better at the coast. They come with their own price to buy the okro, claiming that they don't have many places to go to sell them and risk having the okro rot."

> ***I used GH¢ 700 to purchase roofing sheets to roof my new house and I also saved GH¢ 1,000 at the bank. I am very excited.***
>
> **Emelia Awakese,**
> **farmer in Ada region of Ghana**

[20] Garden eggs are a variety of African eggplant shaped like eggs.

Farmer interaction with program

In Ada, many farmers regularly listened to the MIS program. Awakese says the program has been of great help: "I listen to the market information and go to low price areas to purchase farm produce, and then go to high price areas to sell the produce. The earnings from the sale of my own farm produce doubled because of the program. In just one season, I was able to earn GH¢ 3000, of which I used part to pay school fees for my daughter and two sons. I also used GH¢ 700 to purchase roofing sheets to roof my new house. And I also saved GH¢ 1,000 at the bank. I am very excited."

John Pecku agrees on the benefits of the program: "Before the introduction of the radio program, I only got GH¢ 500 ($322 USD) for all my produce per season. But the program enabled me to get GH¢ 6000 ($3,900 USD) in just one season and so I have started putting up a building with the money."

In Ho, where Volta Star is based, the MIS program helped Edwin Saho understand where to sell his crops, and what varieties of crops were needed to gain a better presence at the market : "Through the marketing program, we we learned that the market wanted the *labadi* and *abalavi* varieties of okro. These give higher yields, have longer shelf life, and therefore traders pay more for them rather than the *adjeral*e, yellow, *navrongo* black and *ashiew* varieties we were growing. We therefore changed our seed and as a result, we earn more money. We also changed our rice variety to grow NERICA rice, which is also hardier, has a longer shelf life and earns more at the markets. These ideas came from listening to the radio and joining in on the discussions. The MIS radio program has made farmers from Hikpo district popular. Hikpo is mentioned on-air because we have so much okro at a cheaper price and needed traders to come and buy in bulk. Through the program, I made a profit of GH¢300, which is three times what I would have earned without the program. The program is so good and must be continued."

To listen to the program, farmers gathered in groups around the community radio set. They called to outline their marketing challenges, and to inform potential buyers of the crops they had for sale. As a result of the program, some farmers travelled to higher-priced markets to sell their produce.

Middle women called the program or visited the studios to express their worries and concerns. The crux of an age-old conflict was awakened as a result: Farmers wanted to sell directly to consumers at the markets, but middle women tried to block them because they considered the market their place of livelihood. The program provided a perfect forum for farmers and middle women to discuss their concerns. Middle women often saved farmers costs associated with transportation to travel to the market. They also had direct access to buyers. It became evident that farmers needed the middle women as much as the middle women needed the farmers.

Freedom Fone and improving interactivity

A new type of communication service was tested as part of the MIS radio program. An interactive voice response system (based on the open source platform called *Freedom Fone*) allowed farmers to call in to three different phone numbers to access pre-recorded information on the specific participatory radio campaign programs, access market prices of certain crops, and to leave messages for the program host. The number to call for market prices was the most popular. A total of 4306 calls were made to the system country-wide between January 29 and May 25, 2010. Of these calls, 46% were to receive market prices.

This may suggest that farmers would like to receive market prices, and have the option to access them on their own time, rather than only depending on the radio program's fixed time announcement. There is great potential for this type of technology to support more effective MIS in Ghana.

Did you know that Farm Radio has created a companion report on our use of ICTs in radio campaigns? *The new age of radio: How ICTs are changing rural radio in Africa.*

http://bit.ly/farmradioict

Findings from the outcome evaluation

Figure 3 shows the types of marketing information farmers indicated they most wanted compared to what they recalled hearing in AFRRI's MIS radio program. In Ada, for example, 71% of respondents indicated that they wanted more information on prices from the markets at the nearest urban centre. The outcome evaluation shows that 70% of listeners recall hearing information on this during the AFRRI MIS radio campaign.

This could be because the larger district markets attract more buyers than the generally smaller local markets or simply that Ada farmers perceive urban markets more accessible than farmers from other districts. The MIS responded well to farmers' preferences. Similarly, Figure 4 shows the same comparison for Volta Star. Listeners preferred to hear local prices or the nearest district market, and that they did hear these prices on the radio.

Figure 3:

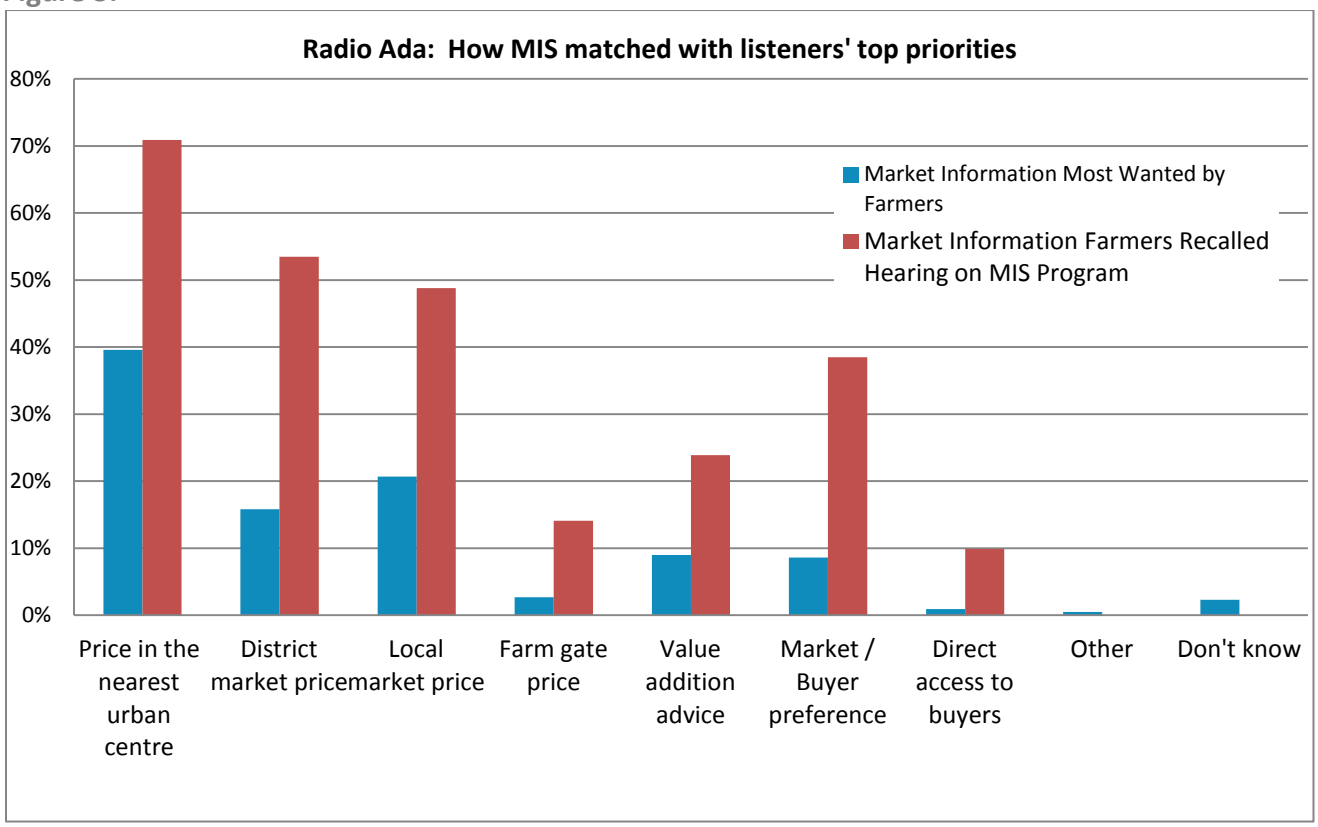
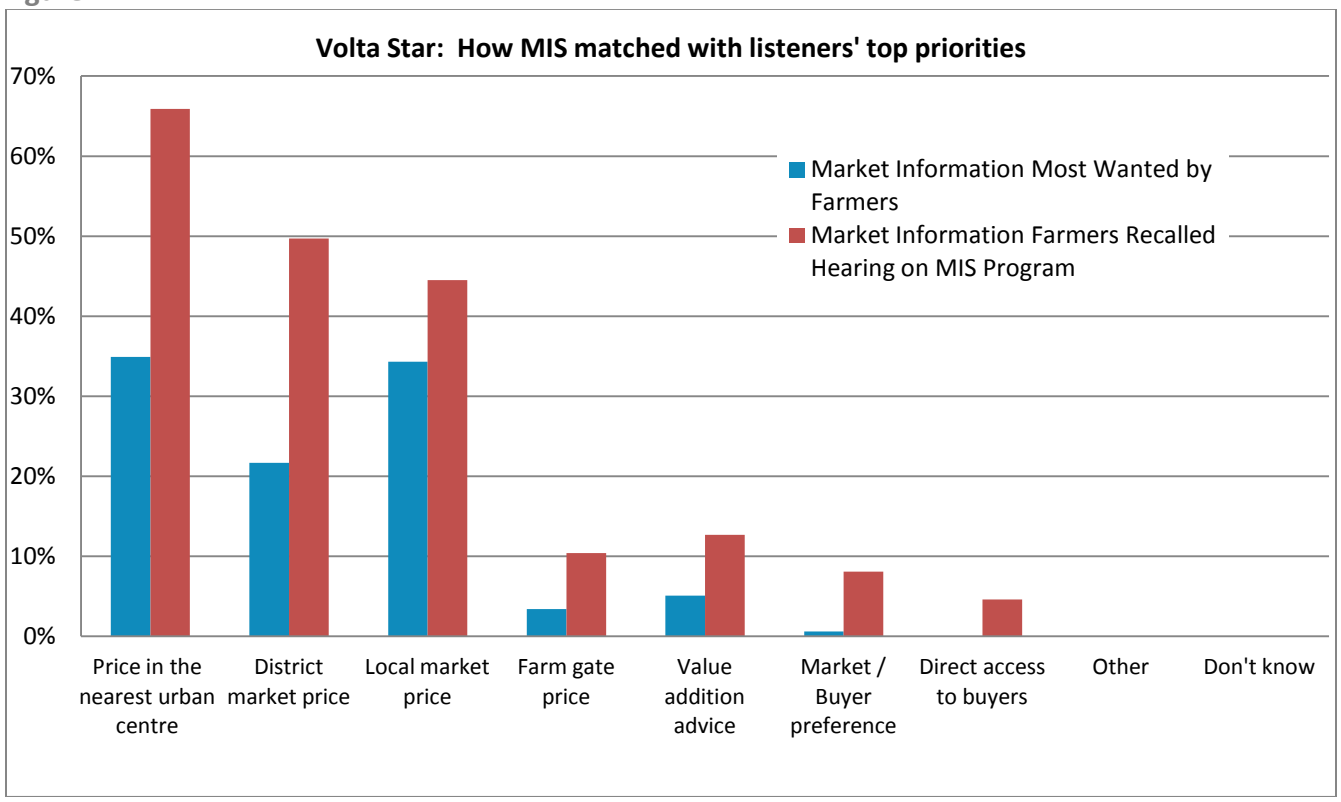


Figure 4:



Summary of case study

The Ghana MIS case study evaluation leads to the following conclusions:

The radio programs addressed issues important to Ghanaian farmers:

At both Radio Ada and Volta Star, farmers appreciated the new type of MIS because it moved beyond market price announcements to discuss, engage and deal with other challenges of transportation and middle people. By listening to discussions of market conditions directly from the markets, farmers were able to plan their transportation ahead of time, determine which markets would give the best prices for their produce and which markets would have the lowest prices for purchasing produce.

The use of new technologies enhances interactivity:

Many farmers in both Ada and Ho region own mobile phones. The use of Freedom Fone and of interactive programs allowed farmers greater access to market information and more input into the content of programs.

Both MIS radio programs in Ghana are effective:

Overall, the programs strengthened existing MIS services at both radio stations by including more farmers' voices, discussing main challenges, and giving farmers an opportunity to decide how best to sell, buy and store their produce. The evaluation showed that, for listeners of both radio stations, prices at the nearest urban centre were the most useful type of information and that listeners heard these prices on the radio. This indicates that the programs responded to listeners' needs.

Sustainability:

The programs were very popular with both listeners and broadcasters. After the programs ended, demand from listeners was so high that both stations were forced to continue broadcasting the MIS radio programs, though under financial restraints.

MIS in Uganda

Program background

The initial MIS study in Uganda revealed that farmers were interested in more interactive, informative, and timely services to help them understand the market more broadly and provide a wider range of price information. Radio stations were interested in meeting these demands, but had faced challenges in operating MIS programming on a continuous and sustainable basis.

One radio station was selected for the MIS program in Uganda. Mega FM is a community radio station located in Gulu, northern Uganda, with an audience of 8.5 million in 12 districts. Grace Amito is the host of all agricultural programs at Mega FM and hosted the MIS radio program. In her absence, David Odong and Justin Oryema assisted with production work. The preparation for the MIS program involved field recording of farmer activities, interviews with stakeholders, and studio production.

Market data was obtained from a variety of sources, including the following: emails from Farm Gain Uganda, Info Trade and Fit Uganda, all of which provide weekly wholesale and retail prices from district markets across the country; direct weekly collection of data from markets in Gulu town; information on local district markets from the district marketing officer and the district NAADS coordination office in Gulu; and market information via SMS. The SMS information covers the major national markets,

including Gulu district main market, and the main markets of 33 other towns in Uganda. The SMS system has its limitations; it costs 220 Ugandan shillings per text message of 160 characters.

Mega FM's original MIS program (before AFRRI began) aired from 2:00 to 2:15 on Mondays, Wednesdays and Saturdays, and was sponsored by PELUM Uganda and Farm Gain Africa. AFRRI's MIS program, which involved interactive discussions with farmers, expanded the Monday time slot and to a 45 minute program.

Watch Enock Kyambaddee, a farm manager for Uganda Rural Development Training Center (URDT) and extension officer, talk about AFRRI and food security.

http://bit.ly/farmradiovideo2

Content of the program

The main content of the program involved discussions around major produce that has the greatest market value and how to improve existing production to meet the growing competitive market. Crops targeted by the program included maize, beans, groundnuts, sim sim, green gram, cassava, maize and millet, which are the main crops grown in the district.

The main topics included the following: market prices from district and national markets, group marketing, adding value, understanding market prices, and farming as a business (including value chain analysis and gross margin analysis). More specifically, subjects usually addressed particular challenges farmers faced such as processing techniques, rules and regulations for farmer groups, business planning and understanding the high impact or high supply on the market. Markets covered included the major Ugandan district markets: Nakasero, Owino, Nakawa, Kisenyi, Kalerwe, Jinja, Tororo, Mbale, Soroti, Arua, Lira, Mbarara, Masindi, Busia and Masaka. The following local markets within Gulu were also covered: Gulu main market, Lacor, Cereneno, Minakulu, Ogweng, Patiko, Corner, Kamdini and Chopatuo.

A typical program

The program typically started with a signature tune mixed with market sounds, held for one minute then the host signed in, welcomed listeners, and introduced the main topic for discussion. She explained the program focus and introduced the various segments. Market news was read first, followed by an announcement of retail and wholesale prices from local and national markets. A discussion of market prices and a commercial break ended the segment on market prices. Depending on the issue, there may have been a a guest speaker, either in-studio or via telephone. Listeners were asked to contribute. If SMS messages were sent or letters or comments from phone-ins, these were handled next. In the last ten minutes, current market prices were repeated and a musical interlude draws the program to a close, with the host summarizing the program's content, giving a heads-up on future program topics, and then signing off.

A farmer in Uganda tends to his cassava crop.
Photo credit: Jesse Perkins

Style of program

Farmers were involved in AFRRI's MIS radio program in a variety of ways. During market visits, farmers were interviewed and their comments broadcast, which informed other farmers of marketing conditions and of farmers' plans for future seasons. Farmers also called the station to discuss marketing issues on-air. A total of 765 call-ins were recorded in November and December, the peak Christmas market season.

Outside of the program time slot, farmers sometimes visited the station for advice on how to organize themselves into marketing groups, brought samples of their produce in search of markets, and participated in agricultural shows organized by Mega FM. In 2010, for example, 34 farmer group representatives visited the radio to consult on guidelines for forming farmer marketing groups. In 2009, 16 farmer group representatives brought samples of honey to Mega FM in search of markets. And in July 2010, 113 farmers participated in an agricultural show at Pece Stadium in Gulu, where they exhibited and sold their produce. The show was organized by Mega FM, and sponsored by agricultural institutions that pay for airtime on Mega FM.

Grace Amito visits with farmers to discuss orange tree seedlings.

Photo credit: Emily Arayo

Grace Amito presenting on-air in the Mega FM studio.

Photo credit: Emily Arayo

Broadcaster feedback

The MIS program became one of the most popular programs on Mega FM. The show's success was partly due to its more intensive interactions with farmers – on their farms, in the markets and at agricultural shows. Staff believe that these interactions created bonds of trust and confidence.

Staff recommended several steps to improve the program. There could be more interaction with farmers, for example, and the process for collecting price data from village markets, farm gates and marketing groups in Gulu could be improved. Staff believed that training market enumerators – who collect market prices for the MIS radio program would equip them with knowledge on food quality, handling procedures, and seasonal trends in supply and demand for various types of produce in specific markets. This would enable them to better capture information from additional sources, including cross-border markets, specialized markets - such as live animal markets and abattoirs - and fish markets, as well as prices from grain millers. It would also be helpful to equip enumerators with devices, (for example, moisture content meters used to determine grain quality, and equipment for live broadcasts

from the market), and means of transport to cover the long distances between different towns. Radio stations could store prices in a central database and use a market specialist to discuss short- and long-term price trends. To realize these goals, staff require training in methods of collection, data storage and analysis, and dissemination of market information.

> ***The show's success is partly due to its more intensive interactions with farmers – on their farms, in the markets and at agricultural shows. Staff believe these interactions create bonds of trust and confidence.***

There is also a need to identify markets within the broadcast area that specialize in particular commodities. In northern Uganda, for example, Mukwano Industries is a buyer of oilseeds such as simsim and groundnuts. Information about these markets could be provided to farmers, who could then supply the markets.

The biggest improvement to MIS programming through the AFRRI radio program was the longer duration of the program. As well, different broadcasting formats were used, which captured farmers' experiences and challenges in dealing with markets. The continuous flow of marketing information has helped to build a consistent listener following. A toll-free telephone line allowed listeners to call in and provide feedback. Listeners have received message alerts on their mobile phones before broadcast.

Compared to previous MIS radio programming in Uganda, the content of the AFRRI radio programs were richer, more consistent and better-planned. Incorporating listener feedback was a big improvement over simply broadcasting price bulletins with little audience interaction. "We previously broadcast issues that were 'assumed' to be the challenges of farmers and we did not give thought to research. But through AFRRI involvement, our radio has gained a lot of learning."

Face-to-face interactions with farmers have enabled direct consultation and in-depth understanding of their concerns, cleared up misconceptions, and remedied a lack of information in many spheres of agricultural marketing. "The farming community has realized that MIS through radio is the only way they can access relevant and timely information on prices," says Grace. "But it is also a way to have an education on how markets operate, and how informed and prepared they should be in order to compete favourably in the markets."

Farmer's market perception

Nasur Odur is a farmer in Abululyec, Minakulu sub-county in Oyam district who listened to Mega FM's extended marketing program through AFRRI. Since 1990, Nasur has sold beans, maize, simsim and groundnuts. Over time, Nasur, who owns the land communally, has increased his acreage. He started with two acres and has recently expanded to six. Currently, he farms one acre of maize, two acres of beans and two acres of groundnuts. One acre will be opened for planting next season.

> ***Sometimes they want you to mention a very low price; then they mention the lowest price. But if one is aware of the current price, you bargain accordingly, because you know where you will stop and below which you cannot sell.***
>
> **Nasur Odur,**
> **farmer in Abululyec, Minakulu**
> **sub-county in Oyam district**

The main markets for Nasur's produce are the farm gate, the Thursday market in Jambia, the Saturday market in Achimi, and at Minakulu market along the Gulu-Kampala highway. Nasur also markets through the local produce store in Abululyec trading centre: "I sell simsim and beans to the store when I need quick money because the store is always open. Such produce is sold without grading or sorting but only dried." The urgent need for money does not allow Nasur time to carefully prepare the produce he sells to the store, which has resulted in very low prices.

Nasur says poor road infrastructure is a key marketing challenge, and results in very high transport costs. The lack of useful marketing information has also been a challenge, as well as fluctuating market prices. Knowing and understanding prices of distant markets is especially important.

Other challenges included adapting to extreme weather conditions, and to animals such as elephants that attack crops, and sometimes humans. The area is close to Murchison Falls National Park. The challenges related to wild animal attacks have been addressed with some success by the Uganda Wildlife Authority and the Murchison Falls National Park game reserve administration.

Nasur has been listening to Mega FM's MIS program for some years. He says that his main challenge of low prices has been addressed by regularly listening to MIS programs that provide prices at the district and national markets. Prior to AFRRI's MIS radio program, he remembered that Mega FM used to make price announcements, but that he was not keen to follow because he did not know the meaning of the prices: "When Mega FM explained the use of the price announcements and the benefit of farmers using these prices, I started following. And when I discovered that they could match with some prices in the markets, I began using the radio price announcements to help me know what the selling price is."

Despite his new knowledge of prices, Nasur continued to face some challenges with middlemen, who complained that his price was always high. But Nasur feels that having a price in mind makes him comfortable with negotiations: "Sometimes they want you to mention a very low price; then they mention the lowest price. But if one is aware of the current price, you bargain accordingly, because you know where you will stop and below which you cannot sell." The 43 year-old farmer is now a middle man too: "I have also started buying produce from farmers because sometimes I require huge amount of produce. But because I do not have enough stock, I buy from fellow farmers."

Nasur says AFRRI's MIS radio program helped him apply his knowledge of farmer group bulking and marketing, enabling his farmers' group to access more stable prices. He says that the information offered on the radio changed his mind set and gave him a better understanding of how farmers can operate in a market: "Understanding the value of sorting and grading produce, storing and selling at a

time of scarcity, contacts of buyers, and frequent updates of market prices have been a big support to farmers."

After exploring the bigger markets in Lira, Nasur realized the benefit of purchasing produce at harvest, then storing and selling when prices rise. Since 2010, he has increased his acreage, built a house, and hired labourers to work on his land. His children are educated to senior secondary level, there is an improvement in their nutrition, and he has opened a savings account in a bank.

Other local farmers have increased their investment in farming as a result of the program. Investments have included opening up new land for farming or purchase, hiring more land for production, purchasing farm inputs such as improved seeds, purchasing farming implements, and the construction of storage facilities. Farmers have also planted new kinds of crops after hearing about them in the radio program. When there is consistently high demand for a crop that has minimal production costs, farmers now introduce these crops and target specific markets.

Adong Milly is a farmer and mother of three in Abululyec village. Listening to the new MIS radio program not only made her aware of the latest commodity prices in district markets, but reawakened her knowledge of food preservation and storage.

Milly is keenly interested in all the information she receives from Mega FM regarding business and markets. It has helped her increase her income from 370,000 to 1,200,000 Ugandan shillings per year. In terms of interaction with the station, she says, "I used to call and make comments during the radio program at the time when telephone calls are received. My calls have been answered three times and I make contributions. Sometimes I ask questions or I give advice to fellow farmers." She now sells not only to the local market in Minakulu but to distant markets with better prices.

Outcomes of the MIS program:

- Both male and female farmers have added value to their produce by proper drying, sorting, bagging and pesticide use to avoid destruction of produce by rodents and other pests.
- Many male farmers have taken advantage of commodity price trends to engage in additional or more profitable enterprises, while also growing specific crops for home consumption.
- Farmers' groups are demanding standardized weights and measures to avoid being cheated by middle men, who may use manipulated weights and measures when purchasing from farmers.
- Knowing the farm gate price helps women bargain more effectively with middle men.
- A trader stated that the quality of produce has improved with farmers selling in groups, and that members of farmer groups now receive premium prices for their good quality produce.
- New crops previously restricted to home use are being introduced to markets, including "*Lapena,*" small beans, ducks, "*boo*" and "*malakwang.*"
- The District Commercial Marketing Officer noted that cash crops like cotton and coffee have returned to the markets, due to the effectiveness of MIS broadcasts.
- Some farmer groups bulk produce and invite buyers to their locations, avoiding bad roads and high transport costs.
- Farmers are directly linked to buyers through the MIS program, which broadcasts the telephone number, physical address and name of buyers. This has reduced the intervention of middle men, allowing farmers to earn more income.

> ***Farmers have implemented longer-term storage of produce based on a new understanding that demand always rises some time after harvest. This information is not only useful for increasing farmers' income, but also as a way to improve quality control.***

Findings from the outcome evaluation survey

The outcome evaluation survey conducted in July-August 2010 asked respondents a number of questions about the market information service offered by the radio station as part of AFRRI. Specifically, it asked whether they were aware of the MIS programs; whether they found the programs useful; which features of the MIS programs they remembered hearing; and, which features they found most useful.

A total of 200 randomly selected respondents in both the active and passive listening communities were asked these questions. The survey found that 94% of respondents in ALCs were aware of the MIS, compared to 90% in the PLC, indicating that, even in communities that listened but received no other engagement, farmers were aware of the MIS programs in impressive numbers.

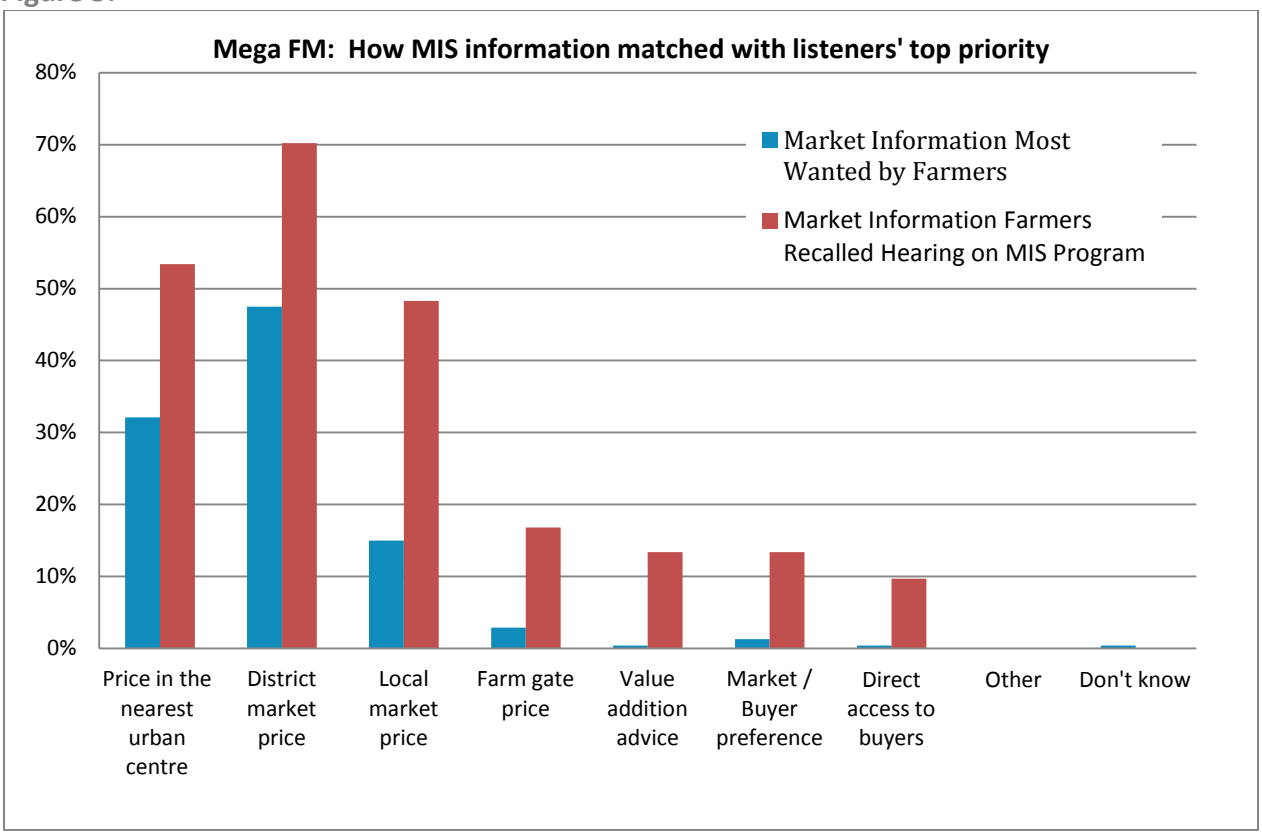
At least 63% of respondents in both types of communities agreed that Mega FM's program was "always useful." An additional 28% of ALC respondents and 36% of PLC respondents reported that the MIS program was "sometimes useful."

A common complaint about traditional MIS programs was that they featured products that local farmers do not sell or do not buy. The survey asked respondents whether the AFRRI MIS campaign was relevant to the particular products they sell or buy. Figure 8 shows that more than 80% of respondents agreed that Mega FM's MIS program was always relevant to the products they buy and sell.

Another criticism of traditional MIS programs is that they provide prices only for commodities in distant markets, and do not directly address the markets where farmers sell their goods. Also, previous MIS programs have not typically provided advice on adding value to existing produce, or helping sellers directly connect with buyers. To determine how well the AFRRI MIS radio campaign met these needs, the survey asked respondents to identify which features they remembered hearing on Mega FM's MIS programs and which they found the most useful.

Figure 4 shows that prices in district markets were the most commonly remembered feature of Mega FM's MIS programming, followed closely by prices in urban centres, and those in local markets. District market prices were also judged as the most useful feature of the program by nearly half of respondents. Interestingly, while less than 20% of respondents remembered hearing non-price features such as adding value, market preference and direct links with buyers, very few respondents identified these as the most useful feature of the MIS.

Figure 5:



Summary of case study

Radio stations play a key role in facilitating MIS

Radio stations with popular hosts are a good format for MIS because of its capacity to reach a large audience and to engage farmers. Grace Amito was able to promote agribusiness events, invite farmers to share their products, and respond to farmers' questions. Increasing the on-air time created a loyal and active listenership which has greatly benefited from the improved MIS.

MIS is relevant

Findings from the evaluation showed that the program broadcast information for district markets, and that this type of information was judged as the most useful by the majority of respondents. The program engaged farmers to become more active in seeking and contributing to markets that are accessible, diversifying their products, and gaining more knowledge on how best to leverage their production at different times of the year.

MIS is effective

Overall, the programs strengthened existing MIS services by including more farmers' voices, discussing main challenges and giving farmers an opportunity to decide how best to sell, buy and store their produce.

Radio can support more sustainable MIS

Mega FM's popularity and its emphasis on agribusiness attracted sponsors who are now supporting the continuation of the program. This is an example of a successful MIS program that managed to find a sustainable model from which other stations can learn.

MIS in Tanzania

Program background

Lilian Manyuka was the host of Radio Maria's MIS program, which aired twice a week, Saturday and Sunday, on the *Heka Heka Vijijini* (Busy busy in the village) program. The program was prepared by a reporter at the market, who used a mobile phone and Sansa recorder.[21] Information was collected by Radio Maria reporters at markets in Iringa, Morogoro, Mbeya, Dar es Salaam and from the Market Information Officer at the Ministry of Industry, Trade, and Marketing. Information was also collected from farmers in Kitete and Wami Sokoine.

Content of the program

The program focused on several areas: buying and selling crops and livestock, promoting the formation of marketing groups, market price information, and other market information, such as the number of chickens available in villages and the contacts of those who wanted to buy local chickens.

A Maasai famer listens to his wind-up radio in Morogoro, Tanzania.
Photo credit: Jesse Perkins

[21] A Sansa is a small MP3 recorder manufactured by Sandisk which was chosen after thorough research into MP3 recording technology. Many broadcasters involved in AFRRI now simply say `Sansa` when referring to any kind of portable MP3 device.

While the main focus was on local chickens, the MIS program also covered the following crops: maize, rice, beans, carrots, tomatoes, and onions. Maize and rice are staple crops, while the vegetables are mainly grown as cash crops. The program covered the following markets: the main market in Iringa, Mawenzi and the main market in Morogoro, Mwanjerwa market in Mbeya, and Temeke market in Dar es Salaam.

In Tanzania, Radio Maria's radio campaign on housing and marketing local chickens used innovative promotions such as distributing T-shirts featuring the program's title: *"Heka Heka Vijijini,"* meaning Busy Busy in the Village.

Photo credit: Margaret Kingamkono

Style of program

Farmers were involved in the program in several ways. First, farmers - including men, women and youth - were interviewed on-air about the agricultural marketing challenges they faced. There were call-outs before the program to identify farmers with products to sell. Farmers sent their contacts to the station, indicating that they wanted to be linked to buyers. Farmers were also interviewed on how they used market information that had been broadcast on the radio. In total, there were 48 call-outs from broadcasters to farmers throughout the four month program.

Broadcaster feedback

There were no MIS programs broadcast on Radio Maria before AFRRI. After AFRRI ended, the station created a 30-minute program called *Kutoka Sokoni* (From the market) in order to continue market information services and provide more details and information than were available in the 5-minute MIS segment. On this program, sellers are interviewed in markets across the country where Radio Maria has correspondents. The program is broadcast live.

Broadcasters believed that the MIS radio program was very popular with farmers, particularly the component which provided prices in distant markets. It was also useful for farmers to know the locations of the markets; this helped them negotiate when meeting with middle-men.

As a result of the MIS program, farmers were able to improve their management skills to match their production to market demand. Before the MIS campaign started, farmers reported receiving 3-5,000 TSH ($2-3.50 US) per chicken, with most selling in local markets. Because the MIS program reported on district and urban markets, farmer learned they could receive more money for their chickens in areas of higher demand. Following the MIS radio campaign, farmers reported receiving an average of 6-9,000 TSH ($4-5.50 US) for their chickens, in some cases double what they had received in the past.

Broadcasters suggested a number of possible improvements to the new MIS radio program, including improved communication linkages between farmers and other stakeholders in the value chain. Broadcasters also felt that there should be a special program devoted only to MIS to ensure adequate coverage of marketing issues. The MIS radio program accounted for a small fraction of a one-hour show. Broadcasters felt the program could also be improved by conducting more detailed interviews on the costs of transport, as well as wholesale and retail prices. It was suggested the program be supplemented by extension staff and farmer group leaders taking the market information that had been broadcast on the radio, printing it out, and distributing it in their communities.

> ***Although most respondents were aware of local market prices, focus group discussions showed that, for both men and women, distant markets offered better prices for chickens. This meant that if the farmers had the means to travel to other markets to sell their chickens, they could do so.***

Farmer`s market perception

Happytime Shilingi raises local chickens, grows rice and maize, and sells his produce at the local village market once a week. He knew that exploring other market places might increase his earnings, but did not know which ones, and when to go, without dealing with middlemen.

Shilingi was interviewed on Radio Maria's MIS broadcast, and listened to program broadcasts between March and June 2010. When he heard the prices from various markets, he stopped selling his products at such a low price, and was better equipped to bargain with middle men. He and his neighbours organized a group to pool their chickens, inspired by the MIS program. (As a result of the program, group marketing became popular, an idea new to the area). After Radio Maria broadcast the group's contact information, buyers came from Dar es Salaam, Morogoro and Iringa to buy chickens at prices

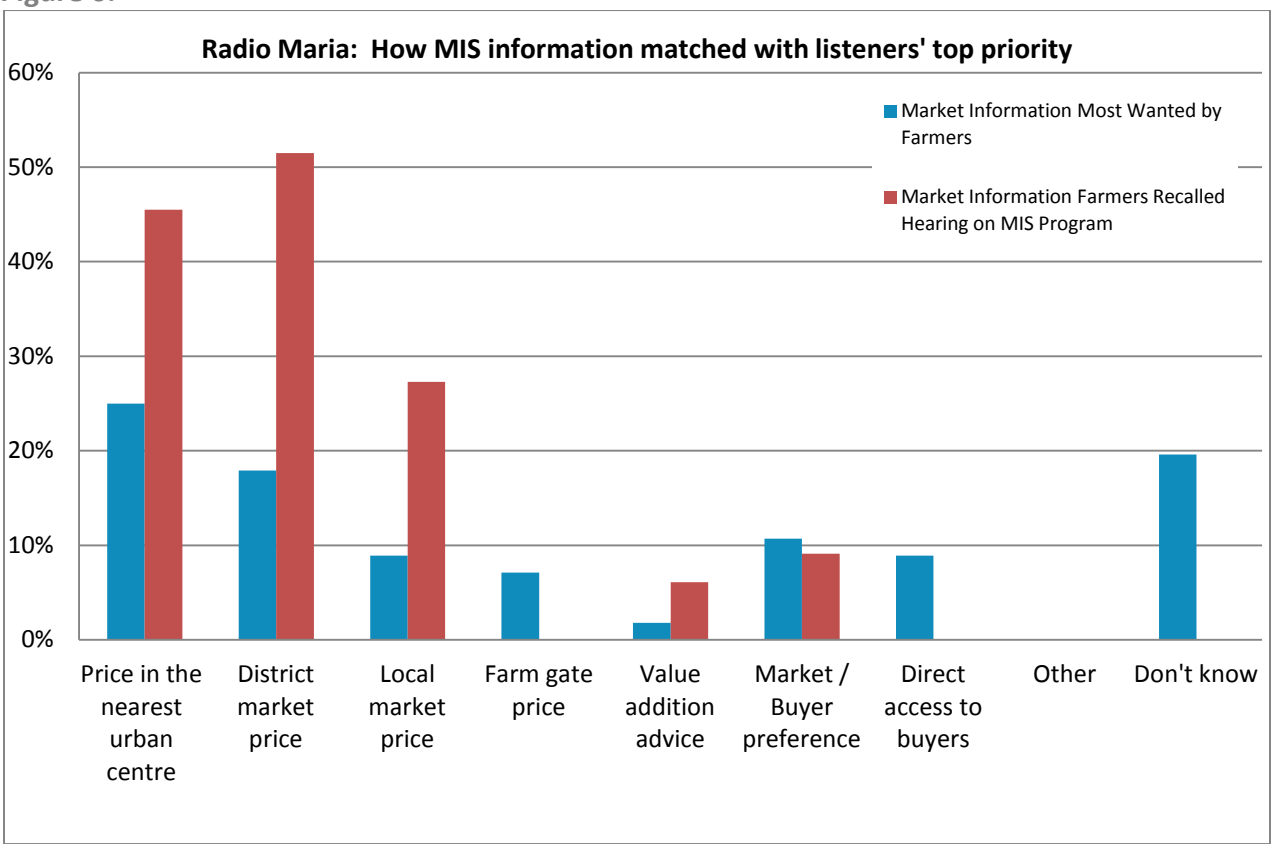
ranging from 6000 to 9000 Tanzanian shillings. Shilingi feels that, because radio is such a good source of information for the village, it's important for Radio Maria to continue with the service. He adds that, in addition to crop prices, it's very valuable for farmers to know transport costs and the price of crop chemicals.

According to AFRRI's outcome evaluation survey, 62% of respondents found the MIS campaign to be very useful in providing information on the products they were selling. Similarly, 67% of respondents found the programs useful in providing information about the produce they were buying.

Respondents named prices in the nearest urban centre as the most useful. Upon hearing market prices from more distant markets, however, they discovered that distant markets offered better prices, and, with assistance from the host, were able to organize themselves to travel to these markets and receive better prices. Figure 6 shows that more farmers recall hearing district market prices than urban prices, which suggests that the district market prices were more valuable than they had originally thought.

Focus group discussions revealed that the MIS radio spots were useful to farmers, and that most of the information presented over the 16 weeks was new to the listeners. Although most respondents were aware of local market prices prior to the MIS campaign, focus group discussions showed that, for both men and women, distant markets offered better prices for chickens. Many farmers, however, lacked the means to travel to distant markets to sell their chickens. The host promoted group marketing as a way to lessen travel costs, while at the same time increasing the number of chickens available for sale.

Figure 6:



Summary of case study

MIS is relevant

AFRRI introduced a more comprehensive approach to MIS through Radio Maria's program line-up. With a national reach, farmers from across the country were able to hear about different prices for the same commodity in different markets – a situation applicable and relevant to any region in Tanzania.

MIS is effective

Radio Maria's program integrated MIS with information on improving management of chickens. It enabled farmers to rethink their investments. Rather than focusing on buyers and middle men, farmers were able to take a broader market approach. Farmers reported earning more income as a result and being able to link with other farmers to sell higher quantities.

Radio-based MIS can be sustainable

The demand for MIS from Radio Maria's listeners allowed a new program to evolve as a result of AFRRI's initial investment. *Kutoka Sukoni* now functions as a regular MIS program, reporting from various markets across the country.

6.0 Women's interest in MIS

The AFRRI study wanted to determine if men and women had different MIS needs. In all countries, women were involved in the marketing and selling aspects of their household agricultural production. The outcome evaluation survey thus measured how useful marketing information was to both men and women farmers. Figure 7 shows that women and men were equally aware of the MIS programs, a sign that women had the interest, time, and the access to technology that allowed them to listen. (Female Volta Star respondents were slightly more aware of the programs than men). At all five radio stations, women's rankings of the importance of local prices (relative to other types of information) were slightly higher than men's rankings. Women reported comparatively less interest in information on how to increase the value of existing produce and livestock or farm gate prices. At Radio Ada and Radio Maria, women ranked market buyer preferences and access to buyers higher than men did, which may be attributable to the specific roles women play in the market chains.

The outcome evaluation also asked men and women what type of marketing information they found most useful throughout the MIS radio campaign. Figure 8 shows the average – across all five radio stations -- for each response. The following summarizes the findings:

- Both men and women cited local prices as the most useful information provided during the MIS campaign; however, slightly more women than men listed this as the information they valued most.
- Men were more likely than women to cite urban and district prices as the most useful information.
- Women reported comparatively less interest than men in information on how to increase the value of existing crops.
- Women were four times more likely than men to see direct access to buyers as the most valuable. This could be largely due to women's experience with selling produce directly from their farm. At Radio Maria, for example, 17% of female listeners said information on direct access to buyers was the most useful information they heard during the MIS radio campaign, compared to 3% of male listeners.

This preliminary information indicates that women and men have comparable access to radio MIS, and that both women and men value MIS almost equally. More studies on what women need to better engage in market access would create a better understanding of potential constraints on women around decision-making roles, technology use and adoption, and specific gender roles within the household and different villages.

Figure 7:

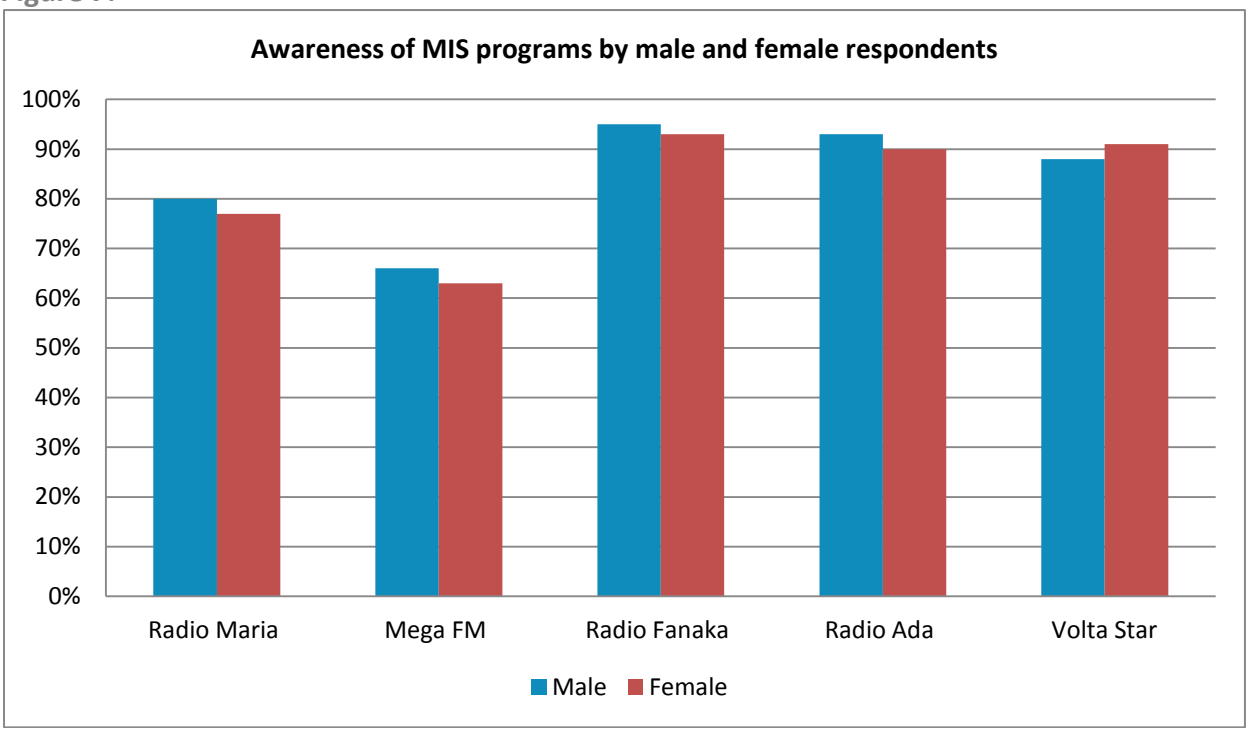
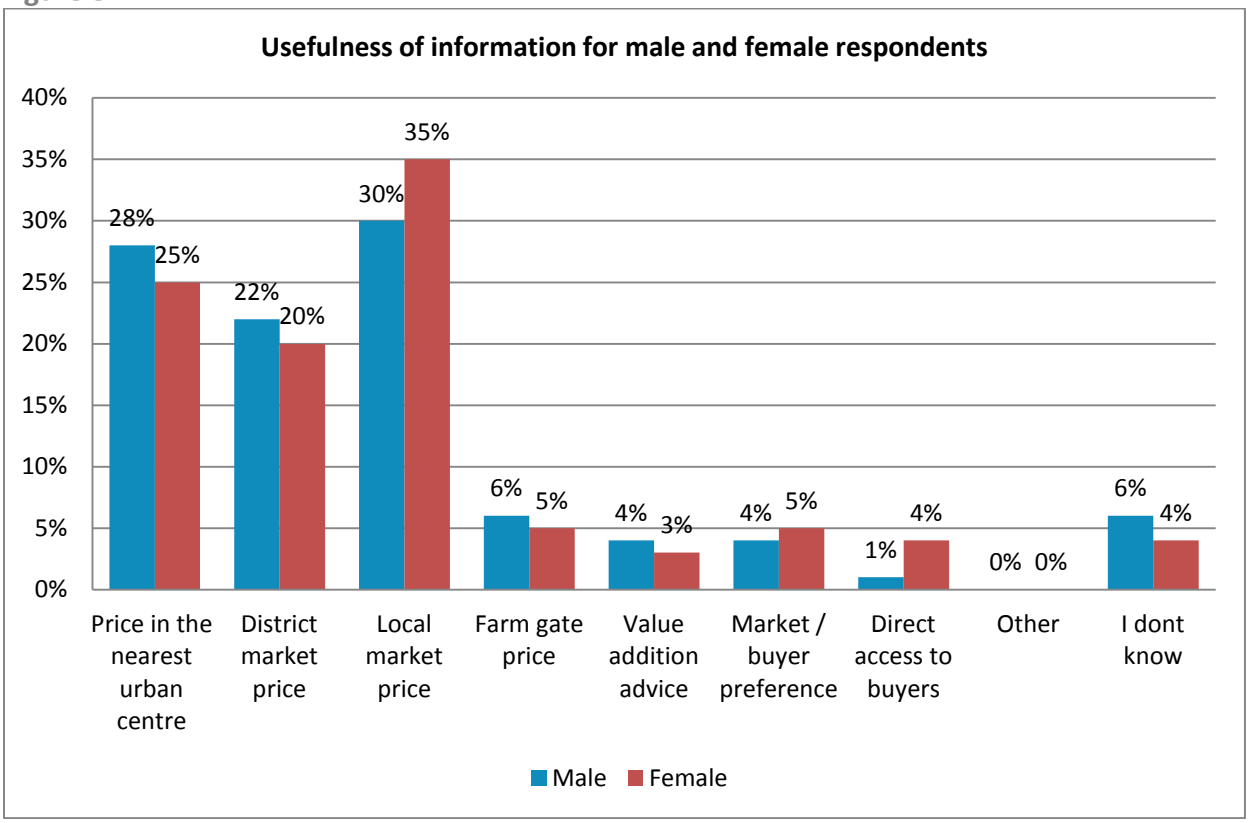


Figure 8:



7.0 Conclusion

The African Farm Radio Research Initiative provided an opportunity to research the potential of radio to broadcast more effective and sustainable market information services (MIS). Building on existing networks and market access, AFRRI's radio partners developed a comprehensive approach to address market challenges for farmers. Applying appropriate and cost-effective ICTs to radio programming enabled farmers to participate in discussions around price fluctuations, transportation barriers, dealing with middle men and increasing productivity. Hosts of MIS programs provided additional information to farmers when requested and linked them to prospective buyers.

It is hoped that future MIS programs will build on the successful approaches to the dissemination of price information and the creation of market linkages identified in this research by working with existing projects that incorporate a value chain perspective. In this way, farmers will gain a better understanding of how best to plan, manage and earn income from their crops and livestock prior to the planting season.

Radio stations that broadcast enhanced MIS programming through Farm Radio International reported an increase in popularity of programs that provided market-focused agricultural information. When the AFRRI campaigns ended, many of the radio stations continued to provide similar programming due to listener demand. There is a need for a business model that will ensure MIS on the radio becomes sustainable, perhaps through strategic partnerships between service providers and radio stations or public-private partnerships, as is the case with Mega FM. Further case studies could consider this and other business models for sustaining MIS on the radio.

Lessons learned

Drawn from country reports, feedback from farmers, radio broadcasters and Farm Radio staff, the following lessons learned should be considered in any future work on MIS for radio.

- ***MIS requires strategic partnerships to boost capacity system*:** MIS has typically been operated by the government and often poorly financed with little or no staff training on price collection and monitoring. Thus, existing radio MIS is limited in scope, often simply announcing prices, or offering brief discussions on current commodities being sold/traded. More partnerships are required to enable the regular dissemination of consistent, accurate and well-documented information to farmers.
- ***Financial support is needed to sustain long-term MIS programs:*** Radio stations are not equipped to maintain MIS programs without external funding or planned revenue. Training on the delivery of MIS programming needs to address this situation. Mega FM is a good model in this regard; investigation of other sustainable models needed.
- ***Provision of information beyond prices is necessary:*** Farmers demand more from MIS than prices. They are interested in learning how to increase their income from existing production and gaining better access to markets, both local and further afield. Ensuring that information needs of farmers are met through effective MIS can be better achieved through integrated monitoring and evaluation of services.
- ***Stations require improved monitoring and documentation systems for their market information programs:*** This will allow them to understand and share long-term marketing trends and help farmers prepare for future planting seasons.
- ***Women can benefit from greater access to market information:*** To realize this benefit, it is

necessary to focus MIS programming on issues that affect women, specifically, such as the production of shea butter or particular roles women play in certain value chains. If MIS programs target males only, women will continue to be excluded from important market and agricultural entrepreneurial opportunities.

- ***Interactive voice response systems proved to be a very popular way to share market prices:*** Farmers used the service regularly, even when they had to pay for the call. Further training and support is needed to enable radio stations to integrate this service into their programming.
- ***Further research is needed:*** Despite years of research on market access for farmers, a number of new and relevant questions remain to be answered in future research
    - What are the trends across one market versus other markets for a specific crop? How and why are they different?
    - How are women involved in the market chain? Which crops or livestock are they most likely to sell?
    - What can be done about middle men? How can farmers/sellers and buyers more effectively negotiate with them?
    - How best can MIS be monitored using mobile phone and SMS technology?
    - How can the resources required for radio-based MIS be generated and sustained?

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This report is dedicated to the memory of Dr. Martine Ngobo, Senior Researcher for the African Farm Radio Research Initiative. The impact of Martine's exemplary work to this project is immeasurable. Her dedication to her work has truly made a difference in the lives of thousands of farmers across Africa.

Thank you Martine.

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