Developing market information services in Eastern Africa

The FoodNet experience; local, national, and regional market information services

Shaun Ferris and Peter Robbins

ASARECA Monograph 9

Association for Strengthening Agricultural Research in Eastern and Central Africa

Foodnet

IITA International Institute of Tropical Agriculture

About ASARECA

The Association for Strengthening Agricultural Research in Eastern and Central Africa (ASARECA) is a nonpolitical organization of the National Agricultural Research Institutes (NARIs) of ten countries: Burundi, D.R. Congo, Eritrea, Ethiopia, Kenya, Madagascar, Rwanda, Sudan, Tanzania, and Uganda. It aims at increasing the efficiency of agricultural research in the region so as to facilitate economic growth, food security, and export competitiveness through productive and sustainable agriculture.

Background

The background to regional collaboration in agricultural research can be traced to the early 1980s when scientists from the national programs began working together. To run these networks, regional steering committees were put in place to consider and approve annual work plans. Membership was drawn from the national coordinators for research, as well as the scientists from the international research centers. With time, these early networks evolved and came to be regarded as one way of achieving economies of scale and facilitating technology spill-overs across national boundaries. It was upon this that the idea of a regional association was initiated and built on.

Given the many commodities and factors which each national system had to handle and the need for increased efficiency and effectiveness in utilizing scarce resources, it was agreed that a regional strategy for agricultural research and research-related training be implemented. So, in September 1994, the Memorandum of Agreement that established ASARECA was signed and in October, that same year, the Executive Secretariat became operational and it is based in Entebbe, Uganda. The directors of the National Agricultural Research Institutes in the ten member countries constitute the Committee of Directors, which is the highest governing body. The Committee provides policy oversight while the Executive Secretary services it and implements its decisions under the guidance of the Chairman.

Research Networks

ASARECA carries out its activities through regional research networks, programs, and projects. Twelve of these are currently operational with seven due to begin operations in the next several months. However, it is important to note that before ASARECA came into existence, there was already some collaborative research within the region. This was brought under the ambit of ASARECA when it was established and it is carried out by the first-generation networks. These are the research networks on potato and sweet potato, agroforestry, root crops, and beans. The second-generation networks are those established in 1990s; they are the research networks on banana, postharvest processing, animal agriculture, maize and wheat, highlands, technology transfer, agricultural policy analysis, and electronic connectivity. The new networks under planning are those on rice, plant genetic resources, sorghum and millet, soil and water conservation, coffee, agricultural information, and strengthening the capacity of NARIs to manage regional programs.

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Abbreviations

ACDI VOCA	Agriculture Cooperation Development International—Volunteers
ACP-EU	African, Caribbean and Pacific Countries-European Union
APSEC	Agricultural Policy Secretariat (Bank of Uganda)
ASARECA	Association for Strengthening Agricultural Research in Eastern and Central Africa
BBC	British Broadcasting Corporation
CEDO	Community Enterprise Development Organization
CGIAR	Consultative Group on International Agricultural Research
CIAT	Centro Internationale de Agriculture Tropical
CIPC	Concurrent information processing and computing
COMESA	Common Market for Eastern and Southern Africa
DDA	digital data adaptor
FAO	Food and Agriculture Organization
FEWSNET	Famine Early Warning Network
FOODNET	Marketing and Agro-enterprise Development Network for Eastern and Central Africa
IDEA	Investment in Development of Export Agriculture
IFPRI	International Food Policy Research Institute
IITA	International Institute of Tropical Agriculture
MIS	Market Information Service
MOIs	Marketing Information Officers
MTN	Mobile Telephone Network
NRI	Natural Resources Institute (UK)
MDB	Marketing Development Bureau
NAADS	National Agricultural Advisory Service
PASAR	Programme Agricole pour Securite Alimentaire du Rwanda
KACE	Kenyan Agricultural Commodity Exchange
RECOTIS	Regional Commodity Trade Information System
CTA	Technical Centre for Agricultural and Rural Cooperation
PMA	Plan for the Modernisation of Agriculture
CIPC	Commodity information processing centre
NASA	National Aeronautics and Space Administration
USGS	United States Geological Survey
NOAA	National Oceanic and Atmospheric Administration
RATES	Regional Agricultural Trade Enhancement Support Centre
RATIN	Regional Agricultural Trade Intelligence Network
REDSO	Regional Economic Development Support Office of USAID

SMS	short message service
USAID	United States Agency for International Development
UBOS	Ugandan Bureau of Statistics
WFP	World Food Program

Executive Summary

Lack of accurate and relevant market information has been identified as a major obstacle in efforts to improve the agricultural sectors of African countries yet very few African farmers have access to such information.

It has long been recognized that the process of liberalizing agricultural markets in African countries would have to be accompanied by the provision of independent market information to all stakeholders in the commercial chain in order to avoid distortions in these markets. Small-scale farmers, in particular, need to be assured that they receive a fair market price for their surplus production and to be given the necessary market signals to enable and or encourage them to produce the type and quality of goods required by consumers. Prior to liberalization, such services were not required as the Government essentially fixed a price for key food and cash crop commodities and paid farmers.

To accommodate the information needs of the emerging small-scale farming sector, virtually all structural adjustment programs developed in the 1970s onwards included a provision for marketing information and export promotion schemes. Unfortunately, history has shown that most of these state-operated market information services (MIS) failed to provide relevant and timely information to farmers and many of these services failed to attract funding and have ceased to operate. Unlike farmers in developed countries, most African farmers do not have the means to provide adequate market information for themselves and such a service, therefore, must be provided by an independent agency.

The International Institute of Tropical Agriculture (IITA) is one of the International Agricultural Research Centers that was established in the 1970s as part of the Consultative Group for International Agricultural Research (CGIAR). The aim of this agency was to find research solutions to strengthen global food security, with a particular emphasis on resource-poor farmers. Early successes in the 1970s and 1980s, including the so called "green revolution" that took place in southern Asia, were attributed to the development and introduction of new, high yielding crop varieties that led to huge increases in production. In the late 1990s it became increasingly apparent, particularly in Africa, that production-based food security solutions do not lead to growth and therefore many of the centers, including IITA, adopted a more development-based approach to their interventions and this strategy is increasingly taking on a market-led approach.

As part of this drive to engage agricultural technologies into a marketing environment and work alongside the private sector more effectively, IITA through a regional ASARECA[1] project FoodNet[2], has invested considerable time developing more effective means of providing market information to a range of actors at different scales of operation.

[1]ASARECA—Association for Strengthening Agricultural Research in Eastern and Central Africa.
[2]FoodNeT—Marketing and Agro-enterprise Regional Network www.FoodNet.cgiar.org

In Eastern Africa, three different models of market information services have been designed and implemented to service the marketing needs of traders, processors, and small-scale farmers in the agricultural sector. The services include: (i) a national market information service that provides a regular overview of the countrywide market status targeting Government, national traders, and food security agencies, (ii) a localized market information service that aims to meet the specific needs of small-scale farmers and traders at the district or cluster of districts level; and (iii) a regional market information service that aims to support the needs of the formal and informal traders involved with cross border trade of high volume staple commodities.

The marketing information services developed by FoodNet and its partners have demonstrated that an innovate approach to the use of existing and new ICT technologies, combined with streamlined management services and a focus on relevant, timely, and accurate data can be both effective and low cost. The services work alongside Government staff and agencies for data collection and with the private sector for data dissemination. Although the services at the local, national, and regional levels have been designed to operate independently, there are significant gains by integrating ideas and data flow channels. This sharing of information allows for more rapid improvements in the service received by clients and better targeting of both information and resources. The linkage of the services has also developed an opportunity to design a common, scaleable data platform for the collection, storage, packaging, and dissemination of data. This integrated platform is currently under development and this approach will lead to greater efficiencies in information management.

Developing market information services in Eastern Africa

Introduction

Lack of accurate and relevant market information has been identified as a major obstacle in efforts to improve the agricultural sectors of African countries yet very few African farmers have access to such information.

The principle objective of most African farmers is to feed themselves and their families, and to sell any surplus production to pay for household utensils, farm inputs, medicines, and education for their children. These surpluses not only feed the rest of the nation, but also represent the bulk of most African countries' export earnings. The provision of accurate, timely, and appropriate information enables stakeholders to make better decisions about what to produce and where to sell it. Anything that can be done to reduce the considerable cost and difficulties of linking producers with their ultimate customers must form a central feature of any development strategy for Africa.

It has long been recognized that the process of liberalizing agricultural markets in African countries would have to be accompanied by the provision of independent market information to all stakeholders in the commercial chain in order to avoid distortions in these markets. Small-scale farmers, in particular, need to be assured that they receive a fair market price for their surplus production and to be given the necessary market signals to encourage and enable them to produce the type and quality of goods required by consumers. Prior to liberalization, there were fewer requirements for such services as the Government essentially fixed a price for key food and cash crop commodities and paid farmers.

Impact of recent changes on African agricultural markets

Over the past two or three decades, the markets for many of Africa's most important export crops have become a great deal more competitive. Consumers in industrialized countries are demanding a wider variety of goods, higher standards of quality, and cleaner, safer foods. The widening price differential between raw products and products prepared and packed for the supermarket shelf, combined with the lowering of import barriers for processed goods from Least developed countries (LDCs), offers these countries an opportunity to gain added value for their goods. Many millions of small and medium-sized African producers might be quite capable of responding to these opportunities but will be unable to compete in this new environment unless they are well informed about changing consumer patterns in consuming markets. African populations are growing, and demand for food and other agricultural products is increasing, but produce grown by isolated African farmers often goes to waste because farmers have limited knowledge of where and how to sell their surpluses or what return they are likely to make.

Over this recent period, most African countries have been persuaded to adopt liberalized economic policies including measures to dismantle government-operated marketing boards and to encourage private-sector actors to take over the role of operating the internal and export markets of agricultural products. The assumption behind these policies was that free and competitive markets would evolve to replace the role of marketing boards. It was also recognized that private-sector market systems could not operate effectively unless all actors in the sector were able to access information about the markets of the products they produced, processed, and traded.

To accommodate the information needs of the emerging small-scale farming sector virtually all structural adjustment programs, developed in the 1970s onwards, included a provision for marketing information. These programs also recognized that, unlike farmers in developed countries, most African farmers do not have the means to provide adequate market information for themselves and, therefore, such services must be subsidized and provided by a government agency.

Unfortunately, most of these state-operated Market information services (MIS), established under these programs, became overbureaucratic and were unable to provide relevant and timely information to meet the needs of their intended beneficiaries, especially typical, small-scale producers. Many of these services failed to attract funding and have ceased to operate or have become little more than data collection services for government departments.

Requirement for a new MIS model

The problem still remains, however, that if Eastern African countries aspire to compete in, what are now, globalized agricultural markets, significant improvements in market information provision need to be made. Most African farmers are unaware of prices and other market conditions even in their nearest town which puts them in an impossibly vulnerable bargaining position with traders who are able to take advantage of their ignorance. Farmers are also unaware of the types and quality of produce being sought by national, regional, and international customers which hinders the entire nation in its efforts to earn more from exports. The lack of market information has the effect of draining resources out of rural areas where most poor people live.

Throughout the developed world, farmers regard market information provision as an essential requirement of their business. European farmers, for instance, have access to over 200 Internet sites containing information on prices, contact details for buyers and input providers, market news, yield forecasts, quality and packaging requirements, etc. on dozens of different products. A plethora of additional information is available from specialist journals, government agencies, traders, and farmers' unions.

Although almost all models of MIS in both developing and developed countries have had, as their central function, the capacity to provide stakeholders with accurate, up-to-date prices for the commodities they cover, it has been widely recognized that information about prices alone is not enough to help these actors make accurate marketing decisions. They need to know where to buy and sell goods, the quality of goods available, and the quality demanded by consumers. They need to know what quantities can be traded on any given

day at any given marketing center, what credit and transport might be available and whether there are new taxes levied on trade, whether road conditions are suitable for transport, and whether there are any other local impediments restricting them from doing business.

The advent, in recent years, of mobile telephone systems, local FM radio stations, and linked Internet/satellite services now offer the opportunity to establish MIS, which can disseminate appropriate market information to specific types of clients in a format that they can understand and use in their everyday business operations. Several programs have been initiated by different agencies to establish MIS in Africa based on new, private-sector-orientated, demand-driven models utilizing modern communications systems.

This report offers an account of one such program, centered on Uganda, which has been established principally by the International Institute of Tropical Agriculture (IITA), working closely with the Technical Centre for Agriculture and Rural Cooperation (CTA) and with the assistance of several other agencies. The report covers the entire project from the initial theoretical concept though to the background research stages to the final establishment and operation of the service.

Background

The International Institute of Tropical Agriculture (IITA), with assistance from the Technical Centre for Agricultural and Rural Cooperation ACP-EU (CTA) has designed and established a new model for a market information service in Eastern Africa to meet the marketing needs of traders, processors, and small-scale farmers in the agricultural sector. The service operates at three levels; local, national, and regional but they are highly integrated to reflect the characteristics of the markets of different commodities and to meet the varying needs of different actors along the market chain.

- A localized market information service aims to meet the specific needs of small-scale farmers and traders at the district or cluster of districts levels.
- A national market information service provides a regular overview of the countrywide market status targeting Government, national traders, and food security agencies.
- A regional market information service aims to support the needs of the formal and informal traders involved with cross border trade of high volume staple commodities.

Information from each level is processed and used at all three levels where appropriate.

The International Institute of Tropical Agriculture (IITA) is one of the International Agricultural Research Centers that was established in the 1970s as part of the Consultative Group for International Agricultural Research (CGIAR). The aim of this agency was to find research solutions to strengthen global food security, with a particular emphasis on resource-poor farmers. Early successes in agricultural development in the 1970s and 1980s including the so called "green revolution" that took place in southern Asia, were attributed to the development and introduction of new, high yielding crop varieties into the farming systems, that led to huge increases in production. In the late 1990s it became increasingly apparent, particularly in Africa, that food security solutions do not lead to growth and therefore many of the centers, including IITA, adopted a more development-based approach to their interventions and this strategy is increasingly taking on a market-led approach.

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As part of this drive to engage agricultural development tools and technologies into a market environment and work alongside the private sector more effectively, IITA through a regional ASARECA[3] project FoodNet[4], has invested considerable time and effort to develop more effective means of providing market information to a range of actors in the market chain and also exploring the opportunities for specific information models to meet the needs of particular scales of intervention, i.e., local, national, and regional levels.

CTA participation with IITA for MIS at the local level

Based in Wageningen in The Netherlands, the Technical Centre for Agricultural and Rural Cooperation ACP-EU (CTA) was established in 1983. CTA's programs are organized around three principal themes—strengthening information centers, promoting contact and exchange of experience among CTA partners in rural development, and providing information on demand.

Prior to any collaboration with IITA on MIS projects, CTA took the initiative to design a new model for the provision of market information for typical African farmers at a 1995 seminar on "The role of information for rural development in ACP countries". CTA commissioned a study of existing African MIS systems in four African countries with different production and marketing structures, which were considered to represent the wide variety of such structures in sub-Saharan Africa. These were Botswana, Ethiopia, Ghana, and Zimbabwe. This study was completed in early1999 and a report was published on its findings in 2000 (Review of market information systems in Botswana, Ethiopia, Ghana, and Zimbabwe—Peter Robbins, CTA, 2000). This study was informed significantly by a report by Andrew W. Shepherd of the FAO published in 1997 (Market information services: theory and practice—Andrew W. Shepherd, FAO, 1997). Shepherd had based his work on an exhaustive survey of the remaining government-operated MIS systems in developing countries. The findings of other recent studies in this field were also analyzed.

At the conclusion of the study, the outline of the preferred CTA MIS model was summarized in the report of the study thus:

> It should be a localised, demand-driven system serving a particular community or agricultural sector linked to and supported by local and central government and run by those groups which the system is designed to benefit.

The completion of the CTA study coincided with a contact in 1999 between CTA and Dr Shaun Ferris of IITA-FoodNet Uganda, in which Dr Ferris described his growing interest in MIS based on his work, especially in the supply chain in maize and cassava in Uganda. At that time (May 1999) the government-operated MIS in Uganda had collapsed and IITA-FoodNet had received funding from USAID, via ACDI/VOCA to develop a low-cost, national market information service that would provide market news to farmers, essential policy-based data to relevant Government ministries, and reliable, relevant information to the famine early warning agency, FEWSNET.

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[3]ASARECA—Association for Strenghtening Agricultural Research in Eastern and Central Africa.
[4]FoodNet—Marketing and Agro-enterprise Regional Network www.foodnet.cgiar.org

At that time, also, the Ugandan Government was in the process of formulating a new and comprehensive review of its agricultural policies. This review culminated in the government's *Plan for the Modernisation of Agriculture* (PMA).

As part of this process, the Government commissioned a study by the Natural Resources Institute and The Agricultural Policy Secretariat of the Ugandan Government to investigate the provision of agricultural market information. The report of this study "Community access to marketing opportunities: options for remote areas" was published in August 1999. The study included a field survey of stakeholder opinions and perceptions in five districts of Uganda. In this survey, stakeholders identified three key constraints to market access. These were, in order of importance: poor roads, lack of market information, and poor means of transportation. The report stated that: "Given the limited impact and lack of sustainability of most centrally organized market information systems, decentralized systems should be developed, involving relevant local stakeholders. A pilot project is required to identify how systems should be set up at District level."

This conclusion almost exactly coincided with the conclusion of the CTA study and gave a powerful basis for the Government of Uganda to adopt such a program in its Plan to Modernise Agriculture. The final draft of the PMA included this statement: "The need for effective market information for improving market access is absolutely crucial, PMA (1999), based on the study by NRI/APSEC (1999), a decentralized, flexible information system bringing on board all the main stakeholders will be adopted for implementation under PMA."

Recognition by government of the need ordinary, small-scale farmers had for market information was an important precondition for the project.

There were several other reasons why both agencies concluded that Uganda represented a suitable environment to proceed with this work. These included:

- A recognition by the donor community that MIS was required if the deregulation of the sector was to be successful.
- A requirement by development and food security/relief agencies for timely accurate information services that could be used in their planning, analytical, and implementation roles.
- The highly homogeneous nature of farming in Uganda, and much of Eastern Africa— consisting of several millions of small-scale farms, each producing a mixed output of crops and livestock.
- The advent of local FM radio stations and a mobile phone network.
- The ability to link different types of information systems, to reduce costs, and gain greater coverage of information flow.

Early collaboration with CTA

IITA's initial approach to the problem of market information provision had been oriented towards a national model to strengthen the private sector marketing system in Uganda. CTA's initial concept, however, was to seek a design for a new generation of MIS which would be locally based and responsive to the detailed and changing needs of the local stake-

holders that the service was designed to assist. This general model needed to be effectively applicable in all ACP countries with agricultural market information deficiencies.

The early stages of collaboration between these two agencies produced a synergy of ideas based on CTA's long experience of information dissemination and IITA's detailed understanding of information gaps and the impact of this lack of information provision in the entire marketing chain in Uganda and the East African region. This early work offered a theoretical foundation for the local level MIS model described in this report.

The most important outcome of this early work was the recognition that the entire marketing system in Uganda was severely restrained by lack of information. Different actors along the commercial chain and agricultural service providers were likely to need some types of information which others did not and, whereas information could be disseminated to some actors using one type of communication system, others needed different forms of dissemination.

At present there is a marked asymmetry of access to market information in most African countries. Government agencies, international development agencies, and the largest trading companies have the means to acquire sophisticated, modern electronic communications systems. Smaller traders, processors, consumers, and small-scale farmers must rely on word-of-mouth accounts of commodity prices and market conditions. And, whereas local farmers have no market knowledge outside their local areas, larger scale actors know very little about market conditions in each rural locality. Such is the poor quality of market monitoring and information dissemination in these countries that none of these actors are able to gain anything like the density, accuracy, and timeliness of market information available to agricultural stakeholders in developed countries.

In order to utilize MIS to increase the welfare of individual farmers, the entire marketing chain needed to be improved by attempting to fill all the information gaps along this chain. In addition, the forces within local agricultural markets in Uganda were no longer isolated from national, regional, or even international forces.

The two agencies concluded that market prices and conditions of trade could no longer be determined by the forces of supply and demand within the boundaries of a local area or even a single country. The deregulation of markets, the lowering of tariff barriers, and the convertibility of local currencies means that the price for any commodity is now affected by regional and international market forces.

The degree to which outside market forces affect the price of a product produced by a typical small-scale African farmer depends on the dimensions of the geographical area in which it can be sold and the magnitude of the flow of that same product in and out of that geographical area.

In the case of perishable goods (especially in areas where there are no temperature-controlled storage facilities), the area in which the goods can be sold and the degree of inward and outward flow of the perishable product may be very limited. In this case, the price and other market conditions for the commodity are determined almost exclusively by forces of supply and demand within that area. In the case of nonperishable goods, such as coffee, the product might be sold almost anywhere in the world and could be supplied by any one of

the 50 or so coffee producing countries. In this case, global forces of supply and demand greatly affect the price of the farmer's product.

For these reasons any market information system cannot offer an effective service to farmers if it only traces market signals within the farmers' local area. It must also be capable of monitoring these signals at the global, regional, national level.

This conclusion had fundamental implications for the design of the MIS. The service needed to gather, process, analyze, and disseminate information at these three levels.

IITA and CTA agreement

The prospects for successful collaboration between IITA and CTA were also strengthened by the fact that both agencies had arrived independently at a similar view of why a centralized, government-operated service had failed to accomplish their objectives for a number of systemic reasons:

- They tended to be orientated towards the information needs of government agencies rather than the needs of the principle private sector stakeholders—traders, consumers, processors and, especially, typical, small-scale farmers.
- They were often operated by civil servants with little knowledge or experience of the day-to-day trading needs of stakeholders and so became over bureaucratic and needlessly expensive.
- The centralized model that was used failed to offer an effective service to local, isolated actors.
- Modes of dissemination of information, typically in the form of one-language, written bulletins, could not be accessed by a multilingual population, many of whom were illiterate. In addition, the slow distribution of time-sensitive, written market information rendered such reports out-of-date at the time of receipt and, therefore, of no use to stakeholders.
- More importantly, the lack of participation and consultation with stakeholders meant that there was no machinery within the service to enable it to transform or modify its systems and output to allow it to fulfill its original objectives.

Whereas IITA's concerns were focused on Uganda, after the collapse of the Government-operated MIS, CTA's main interest was to assist partners to use its research findings and theoretical analysis to examine the feasibility of establishing localized MIS in sub-Saharan Africa. A similar analysis of the failures of the previous generation of MIS and a common approach to addressing these problems meant that further collaboration was possible.

Although CTA's remit does not normally include direct funding of agricultural development programs, they were prepared to support the pilot stages of the localized component of this project as a test-bed for the model of local MIS which had developed from their research.

Before the end of 1999, CTA and IITA/FoodNet had embarked upon an initiative to establish a pilot project of a new model for local market information provision in three districts of Uganda. This model was designed to be market-led, cost-effective, and locally

based and to provide for the maximum participation of local stakeholders. It would also be linked to IITA's new, national MIS service.

The origins and establishment of the regional market information service

As FoodNet is a regional marketing network, the supporting agency, USAID/REDSO was keen for the FoodNet team to capitalize on the successes of the work that had been undertaken in Uganda and investigate the possibility of developing a market information service to meet the needs of cross border traders and regional market opportunities.

Integrating national services within a regional platform

The idea to develop a regional sharing of marketing information was first developed in 2000 through a partnership between FoodNet, the Kenyan Agricultural Commodity Exchange (KACE), the Tanzanian Marketing Development Bureau (MDB), and the Projet d'Appui à la Sécurité Alimentaire au Rwanda (PASAR) project in Rwanda. Information from these partners was compiled by KACE and disseminated to a number of mainly larger traders on a weekly basis, via email. This process, entitled RECOTIS, was the first attempt to use regional marketing information to foster greater regional trade. The grant from FoodNet was used by KACE to build a website and initiate the process of collecting data from partners www.kacekenya.com/. Data from these partners was also held on the FoodNet website, until recently, for analysts to use as required.

The weakest link The idea of integrating national MISs onto one data platform has been discussed for sometime, however, this strategy is highly vulnerable to the capacity of the weakest partners to produce quality data on a regular basis. Many national MISs that rely only on government support are often not strong enough to provide a regular flow of accurate information. As RECOTIS was being established, it became clear that the Tanzanian MDB, was not performing well due to funding and personnel health problems. This led FoodNet to support the MDB with a full-time data monitor to assist the Ministry in data collection as required and to ensure that data was sent to the partners in a timely fashion. Although RECOTIS was a useful first step, there was some frustration that simply providing a limited amount of price information on a range of unrelated commodities was not sufficient to build market linkages across countries.

Integrating regional networks

It was not until 2002 that the regional marketing issue was again addressed with the idea of developing an integrated regional marketing service that linked national market services within a regional information platform. In 2002 a series of meetings were held between FoodNet and FEWSNET with the aim of finding a common approach to improving market-related data at the regional level. Based on the outcome of these meetings it was decided that the group would develop a concrete plan of action to investigate the prospects for regional marketing of agricultural goods. To facilitate the process, a study was undertaken to develop the framework for a process that would meet the needs of specific traders and also meet the strategic objectives of the two networks.

Defining client needs

One of the first issues was to differentiate the types of actors that are involved in cross border marketing and to determine what types of market information would be useful to a particular client group. The information in Table 1 reviews the different market information requirements of the actors and the most appropriate means of dissemination.

As revealed in Table 1, there are significant differences in the information needs of the various client groups. In general, however, as the size of transaction and distance of trade increases, information requirements also increase in timeliness, accuracy, and depth. In many cases the larger trader will have a local network for gaining information on price and in this case the MIS will have value as a guide. Information on volume of trade is considered to be of more importance and if possible this information should be linked to specific quality criteria. The most important of these being moisture content, as this is a factor that can be manipulated by larger traders through driers and is a major factor in discounting market price. However, possibly the factor quoted of most interest to the larger, formal traders was greater insight as to the future conditions of supply and demand as this information enables the trader to develop strategies for local purchasing, bulking for future sales.

For the informal cross border trader, transactions are more often back-to-back type operations, and in this case, decisions are less strategic. Information for this group is more focused on price trade flows and where commodity can be accessed.

Differences between national and regional MISs

As revealed in Table 1, there are significant differences in the client group and their data requirements between local, national, and regional clients (Table 2). National MISs tend to focus on the small farmer and often, the village trader, whereas regional MISs need to focus on the needs of exporters, both formal and informal, and to some extent major urban traders as they play a role in bulking commodities for cross border transactions. Clearly, the number of clients will also be different; the national system targeting the many millions of small transactions made by small farmers and village traders, whereas a regional service aims to service considerably fewer exporters, who are operating at higher transaction volumes, perhaps 10–30 major traders and < 5000 cross border traders per country.

The small farmers, which are the target of the local and national MISs, need price data primarily and possibly some indication of trade volumes. The regional MISs target a higher level of player who need additional information in terms of volumes and supply and demand projections. These larger players generally have quick and reliable access to price data and they can easily phone trusted contacts.

There are also differences in the speed and strategic approach to exploiting trade opportunities. Small farmers and village traders rarely have the ability to store and are often forced to market at harvest time to release cash. Therefore, the time to arrange a "deal" is short and the transaction is "opportunistic".

In contrast, the larger regional exporters and importers take longer to negotiate and conclude a deal. For example, it is necessary to recognize the opportunity, identify a trading partner, establish and confirm the other marketing partners (e.g., transport), and then negotiate the

Table 1. Information needs of the different actors in the marketing chain that could be supplied by a national or regional MIS.

	Price	Current volumes traded	Future supply/ demand	Quality	Transport tariffs & policy issues	Location & mode of data distribution
International trader	Many reputable sources of price data available	Useful	Have a network and there are many sources of information available	Important and legally bound into an agreement	Essential	Needs data for very few locations. Web-based dissemination
Regional trader/ Millers/ NCPB	May use trusted MIS as a reference and use trend data	Useful	Very important	Important but not legally binding. Most valuable info = moisture content and mold counts	Very important	Needs data for main consumption & production areas. Internet email dissemination
Informal exporter	Useful as a guide, but can get reliable data from others	Useful	Very important to make medium term decisions	Important but not able to test or change	Short term not that important, longer term very important	Needs information for few locations. Radio, SMS texting
Urban trader/ large or commercial farmer	Useful as a guide, most have other sources	Very useful	Very important	Important but not critical	Transport cost is vitally important	Need data for main consumption markets. Internet or SMS texting
Village trader/ farmer groups	Important for negotiation—few alternative sources	Very useful	Useful but can rarely take advantage	Less important, will trade whatever is available	Tariffs not important, but transport costs are	Need data for a number of local and central markets. Radio, SMS texting
Small farmer	Important for negotiation—need recent data Few other sources	Useful	Useful but can rarely take advantage	Little understanding of this concept	Tariffs not important	Need data for a number of local locations. Radio dissemination

International trader = trades mainly outside COMESA
Regional trader = trades mainly with neighboring countries and within COMESA
Informal exporter = smaller trader who avoids paying duties/tariffs etc.
Urban trader = buys at the village level and moves to larger towns
Village trader = operates at the village level— main function is as an aggregator
Small farmer = self explanatory

price and sign a contract. The process will also probably involve independent quality verification and establishing lines of credit. This process can take weeks or months to complete. It is believed that the informal exporters will be more opportunistic and short term in their reaction to business opportunities than the larger, formal traders.

In order to provide a simple structure for this report the description of these levels has been separated but it should be emphasized that there is a great deal of integration between these three levels and none function effectively in isolation within the overall model.

Table 2. Summary of key differences between national and regional MISs.

	Local MIS	National MIS	Regional MIS
Target clients	Small-scale farmers and village traders	Farmer and district level traders, development agencies, policy makers	Regional exporters and millers
Number of clients	Many thousands within a limited territory, i.e., a district	Many millions, across a country	A more limited number of large traders and cross border agents < 5000
Main information need	Price, local marketing conditions.	Price with some indication of current trade levels	Price, volume, grade of product, supply/ demand data and information on changes transport costs, tariffs and policy issues
No of products	Many > 20	Many > 20	Few < 10 probably 5
Number of data collection points	4 –5 markets within a district	Many > 20	Few < 5 points per country
Response time to trade opportunities	Rapid and opportunistic	Rapid and opportunistic	Slower and more strategic
Main dissemination tool	Radio	Email, radio, and SMS	Email, Internet/ WorldSpace based and SMS
Opportunity for cost recovery	Very limited unless funded through government sources.	Limited—information is generally regarded as a public good. Options: (i) reduce costs (ii) support radio costs through advertising slots (iii) Embed MIS information into other services (iv) SMS revenue systems	Possibilities include charging the target clients an annual fee to join the service Income through advertising revenue Income from regional government bodies

Localized MIS

As the national market information service was being developed, there was considerable debate amongst the donor and policy groups as to the effectiveness of national market information for the many millions of atomized, poor, small-scale farmers with low levels of education. The types of questions asked included: How can we measure the benefits of information on livelihoods of poor farmers? To whom do most benefits accrue along the market chain? Does a national MIS alone increase the ability of remote, small-scale farmers to raise their incomes? What are the best ways of delivering MIS? How should such a program be assessed?

The main concern was related to the effectiveness of a "one size fits all" in lifting the livelihood options for a typical, poor farmer, a person who has little understanding of the liberalized market environment, with little concept of marketing dynamics, and often working and or marketing his or her product as an individual. How can MIS be used as means to encourage this type of farmer, into a more entrepreneurial, competitive person?

Similar questions were also being asked by the Government of Uganda, and in 1998 a study was commissioned by the PMA[5] secretariat in collaboration with the NRI to evaluate farmer service needs. This detailed study came to the following conclusion:

The need for effective market information for improving market access is absolutely crucial. It is also clear that the different types of stakeholder require many different types of information on a timely basis in order to make informed decisions crucial for the success of their business operations. Based on a study by NRI/APSEC, a decentralized, flexible information system bringing on board all the major stakeholders (e.g., Local Government, private associations, nongovernmental organizations, local radio stations, etc.) will be adopted for implementation under the PMA. Government (central and local), donors, and NGOs have to acknowledge the importance of information and make the necessary resources available particularly in regard to providing information to poor farmers where such services may be viewed as a public good. The system will be demand-driven and react to the needs of the target population and start with a needs assessment of the services. Local radios could be one of the principle means of disseminating such information (Kleih et al 1999).

The debate regarding the suitability of a national MIS to support the needs of poorly educated farmers, and findings from the PMA study led to the design and implementation of a new type of localized market information service in Ugandan, i.e., a service that aimed to be tailored to the needs of specific communities of farmers, farmers working in particular agroecozones, and also farmers with little idea of how they can engage in markets most efficiently. The model developed therefore has a high degree of educational input.

The following section provides a detailed account of a new approach to the problem of rural market information provision, which is already being used as a template for a new generation of market information services. This model is about to be replicated on a wider scale in Uganda and other African countries.

[5] Plan for the Modernisation of Agriculture

Developing a new type of localized market information service

In 1999 CTA and FoodNet embarked upon an initiative to establish a pilot project of a new model for market information provision in three districts of Uganda. This model was designed to be market-led, cost-effective, and locally based and to provide for the maximum participation of local stakeholders. This service has been appreciated as useful and relevant to those farmers covered by the project and has assisted them in their negotiations with traders. It has also helped them to discover the best location in which to sell their surplus output and to guide them in their decisions as to which commodity to produce.

Costs for the pilot project

The pilot project began operating in October 2000 and continued for three years. The cost of the service has been approximately US$30 000 a year and has employed four full-time staff. Additional sites to this service cost approximately $8–10 000 per year for a field extension staff member who is equipped, trained, and able to travel in the district. There are some additional costs that can be incurred for group training and each meeting of farmers with support from the head office costing approximately $300–500 (Table 3).

To date the project has served the needs of approximately two million stakeholders. This account of the initiative explains the background to the project, preliminary research findings, the implementation of the project, and the difficulties incurred.

Table 3. Budget for establishing the pilot sites for the decentralized marketing information service.

Personnel	Year 1	Year 2	Total
One supervisor (contribution towards salary)	5000	5000	10 000
Travel costs	3000	3000	6000
Three field agents allowances and costs (part salary costs)	8000	8000	16 000
Subtotals	16 000	16 000	32 000
Logistics			
Radio costs	3000	3000	6000
Training and phone costs	3000	1500	4500
Monitoring equipment	500		500
Three motorbikes	5500		5500
Fuel insurance and maintenance	4000	4000	8000
Meetings with groups in southern districts	5000	3000	8000
Subtotals	21000	11 500	32500
Totals	37 000	27 500	64500

Background to the new Ugandan localized MIS model

CTA's studies revealed certain recurring themes concerning the nature and need for MIS.

Changing circumstances

In Africa today the liberalization and deregulation of agricultural markets and the dismantling of marketing boards has necessitated the provision of accurate and timely market information for all actors in the marketing chain. Failure to make such provision has curtailed the evolution of competitive markets.

Ignorance of free markets

There is widespread ignorance of the way competitive markets are supposed to function, especially among farmers. Many still believe that market prices are still controlled by government. Traders, especially retailers, in some countries, refuse to compete with fellow traders often because of cultural requirements to cooperate rather than to compete. This means that 100 retailers in a particular market may all sell the same commodity at the same price. From an efficiency perspective the situation described above would suggest that 99 of the retailers should leave their goods at the market and focus on other activity leaving the last person to operate a cash till at the market exit point. In many African markets strong processes of competition and division of labor are yet to be fulfilled.

Dissemination obstacles

Dissemination of information to ordinary farmers is made especially difficult due to high levels of illiteracy and the large number of languages spoken in many countries. A comparatively wide ownership of radios, however, offered an effective form of information dissemination.

Asymmetry of information

Modern communication systems have made it comparatively simple for large-scale traders, processors, and exporters to receive all the available information on the international markets in which they operate. They are also the best-informed actors in regional and local markets. Availability of information is reduced down the market chain with farmers being the least well informed. This asymmetry of information offers traders the opportunity to take advantage of farmers' ignorance of market conditions and even to collude with other traders to pay low prices to farmers. The high cost of telephone communication and the lack of telephone networks also contribute to the farmers' difficulty in accessing useful information.

Market risk

Lack of information in the market system substantially increases traders' risks. The time taken by traders to purchase goods from farmers at the farm gate or village market and sell those goods at larger market places means that it is often impossible for them to be sure of the price they will receive. This causes them to allow an extra margin for themselves to

cover the risk of a falling market price. This increases transaction costs and decreases the efficiency of the market.

Type of market information needed

All actors in the market chain express a need for information on the latest market price for commodities. Price information, however, was not considered sufficient to allow these actors to make the best decisions concerning the disposal or acquisition of these commodities. Information was also required on the place at which deals could best be transacted, what grade, quality and quantity of a particular commodity was in demand or available for sale, any information on the transport of such goods, and any other relevant information.

It is in the nature of commodity markets that prices move up and down over time according to changes in supply and demand. The markets of some agricultural commodities are less volatile than others. Demand for maize, for instance, remains fairly stable but if prices rise too much consumers will switch their diet and consume cassava. The markets of goods grown mainly for export are more volatile as wealthier, foreign buyers can afford to pay high prices for them in periods of short supply. The markets of perishable goods, such as tomatoes, also tend to be more volatile as weather and transport conditions can limit supply drastically in countries without storage facilities. Farmers with maize to sell may only need to know about market prices and conditions once every few days whereas tomato growers may need to know how the market price is changing on a daily basis.

Waste

There was also evidence that farmers would not make what is sometimes a considerable investment in bringing their surplus goods to market if they did not have at least an approximate idea of the price they would receive. This results in considerable waste. Also farmers tend to think that eventually prices will increase, and based on this premise, hoard a commodity that is then lost to postharvest pests and disease.

Political environment

Any effort to improve the efficiency of agricultural markets, including market information services, must be encouraged by both local and central government. Tolerance of market collusion, manipulation, corruption, or other malpractice will render MIS ineffective.

The CTA study also found that, where government-operated MIS had existed, the information on offer had little relevance to the farmers' needs. It was often out-of-date, inaccurate, or applied to much larger quantities of goods than they had to offer. Those who had designed these services had not sufficiently understood the farmers' and traders' day-to-day marketing problems. It was also concluded that those actors most in need of market information (not only for their own needs but in order to make the greatest improvement of the entire market chain), were ordinary farmers. These findings led CTA to conclude that a new model for MIS was urgently required. The report of the study stated, "This model implies a rejection of a centralised system remote from individual stakeholders, and to benefit the poor farmers, the authors favour the establishment of localized, demand-driven

systems serving a particular community or agricultural sector, linked to and supported by local and central government, and run by those groups which the system is designed to benefit." The report also suggested that radio represented the most obvious way to disseminate information.

Who benefits and how do they benefit from market information?

Market information services are designed to benefit farmers, traders, and consumers and the services being tested in Uganda are seeking gains in farmer sales prices and improved prices for collectively sold produce. In both cases this has been achieved via the local MIS, and informal survey data with farmers working in Rakai district claim to have received 5–15% higher returns on their sales when they are able to negotiate on known market prices, compared with farmers who simply accept prices they are offered by traders. Similarly, farmers associations in Jinja are using the local marketing agent as a link to markets and this has proven to be successful for farmers in bulking for higher value sales to larger traders.

Establishing Uganda as a test-bed for a new MIS model

In conjunction with IITA Uganda, CTA commissioned, in November 1999, a preliminary study for locally based MIS in Uganda. The study included:

- A review of the framework for agricultural market development in Uganda.
- A review of Uganda's agricultural markets.
- Farmers' access to agricultural markets.
- The role of traders in Uganda's agricultural sector.
- Existing market information systems.
- Other sources of market information.
- The use of radio for dissemination of market information.
- Other forms of communication including FM radio stations.
- Transport.
- Finance and credit.

Evidence revealed by the study included the lack of knowledge among farmers of prices and quality requirements in the main local trade centers, including Kampala and also in neighboring areas of surrounding countries—Kenya, PRC, and Rwanda. Evidence also showed that lack of such information meant that traders tended to dictate prices. Farmers were also concerned about the cost, and lack of telephone and fax connections and noted that the only source of information was available from people traveling from place to place.

In general this preliminary study showed that:

- Agricultural markets in Uganda were characterized by long chains of transactions between farm gate and consumers, lack of competitiveness between traders, and poor access to appropriate market information.
- Prices received by farmers for the sale of their goods were significantly less than the price they could have achieved if they had the means of transporting it themselves to assembly markets, after taking the cost of transport into account.

- Small-scale traders also recognized that they could improve their income if they had better means of communication with market centers. Even comparatively large-scale traders and processors complained of a lack of information about regional markets.
- Existing MIS were inadequate and did not help in the day-to-day problem of making commercial transactions in agricultural goods. It was likely, however, that any new system would be more successful if it worked closely with other market information providers. These other sources of information consisted of small-scale market surveys carried out by NGOs, the farmers union, and government departments; bulk food assessments carried out by famine early warning agencies; and the informal assessments of large-scale traders.

The preliminary study found that, although farming patterns across Uganda were very similar—typical small-scale farms with mixed crops and/or livestock—there was geographical variation in the type of crops grown and differences in the degree of association between farmers. Although there were few incidences of farmers working together in associations or cooperatives, there was evidence that showed that those associations that did exist could make use of more sophisticated market information.

Some agencies working with small-scale farmers in Uganda had concluded that there was significant potential for improving the maize market both as an export item and to improve food security in the country. The entire East African area is subject to uncertain and patchy rainfall patterns which has a serious impact on the food security of the area. Shortfalls have been made up by imports from outside the region when yields have been poor in some areas while other areas of the region have had adequate production levels. Increased regional trade in maize between areas suffering poor rainfall and areas with adequate rainfall from season to season could go someway to averting food security problems. It was, therefore, concluded that improved market information for maize could improve regional self-reliance and increase the income for farmers with surplus production.

In the west of the country beans constitute a significant proportion of the local diet and also represent a proportion of cross-border trade between DRC, Tanzania, and Uganda.

The main features of the initial pilot design

Based on the findings of the preliminary study, it was recommended that a detailed design be drawn up for a pilot project based on the agreed model. CTA and IITA concluded this work by March 2000.

Given the limited funding that was likely to be made available by CTA and IITA, it was decided to limit the number of commodities covered by the pilot micro-MIS. On the other hand, it was also decided that a single pilot study based on one district of Uganda would not be adequate to test the main variables between existing farming patterns.

At an early stage in the design process, therefore, it was decided to establish three micro-MISs each in different parts of the country; each concentrating on one commodity and each targeted at farmers at different levels of association with each other (Figure 1). This, it was thought, might help to reveal which type of farmer could make best use of the information provided.

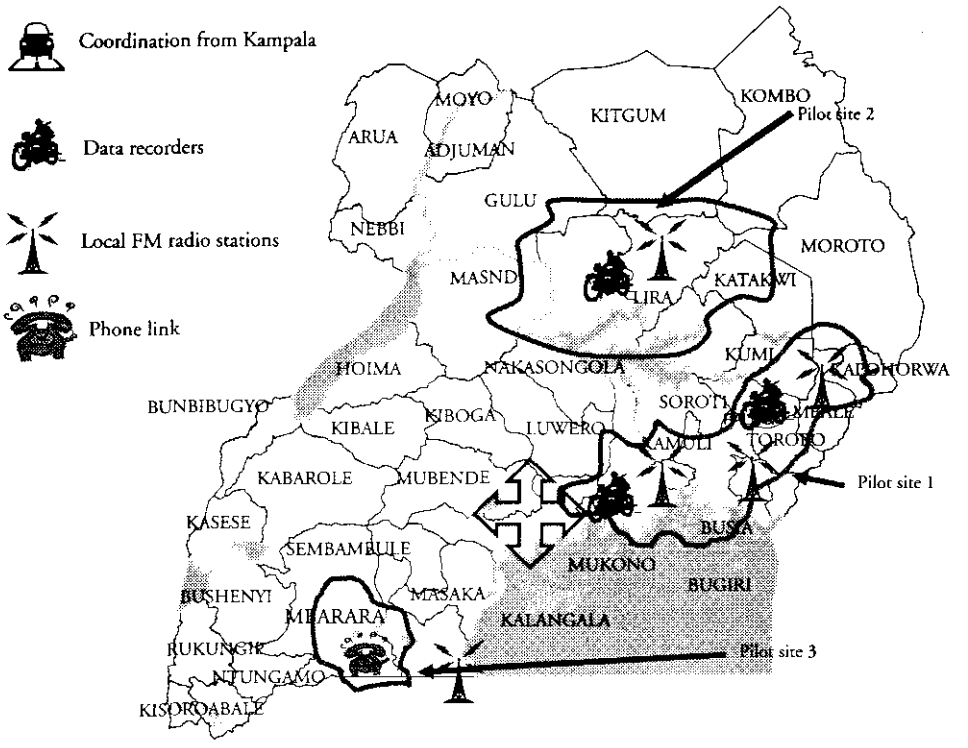


Figure 1. The locations of the pilot sites in the localized market information service.

First component

The first and largest component of the pilot project was to be based in three districts in the east of the country (Jinja, Tororo, and Mbale), one of the major maize growing areas. The service was to be targeted at over a million farmers who grew maize as well as other crops. Market information on maize would be collected from town and wholesale markets across the area. This information would be passed by e-mail, landline telephone, or by fax to IITA's Kampala office where it would be collated with relevant national market information. This processed information would then be turned into a market report. This report would then be relayed to local FM radio stations back in these eastern districts for translation into the local language before being broadcast by the radio stations to farmers in the target area.

Second component

The target for the second component was a number of farmers' associations working in two districts in western Uganda (Rakai and Masaka). These associations had been helped to organize themselves for some ten years by an Irish NGO. These groups, numbering from 30 to 100 farmers each, had developed a system of communication based around extension

officers and face-to-face communication, this was supported by an e-mail connection with the outside world. They were also receiving collective training from the NGO and were already harmonizing their farming activities. The total number of farmers involved was about 3000 and each group had already developed some collective marketing activities especially in beans and, to a lesser extent, maize.

Despite the relative organizational sophistication of these groups, their marketing activities were hampered by lack of market information in trading centers outside their immediate area and by their lack of contact with potential buyers. This second component of the pilot project was, therefore, designed to provide them with price and market information on the bean markets throughout the country by e-mail and to put them in contact with traders specializing in beans.

Third component

The third component was targeted on less organized groups of farmers in a district in the drier, northern part of the country. This area had, for many years, suffered various levels of conflict, which had displaced large sections of the population. Farming groups had been resettled with the help of many aid and development agencies including relevant government agencies. These groups were receiving help and training from these organizations and so a degree of communication was available. Cassava is an extremely important crop in this area as a staple diet and as a "starvation crop" needed in this area of fickle rainfall. The design of the project, therefore, included the provision of market information on cassava to be broadcast on a local FM radio station in the language spoken in that area.

Frequency of market reports

All three commodities chosen for these commodities are staple food products with relatively nonvolatile markets. For this reason it would not be necessary to issue market information reports every day. The goal for the service was to broadcast short, two-minute price reports once or twice a week by radio and to broadcast a more detailed ten to fifteen minute report of prices and market conditions once a week.

Links between the local and national MIS

At the time detailed designs for the local pilot MIS were being drawn up, IITA had already established a national MIS for agricultural products. This service was mainly designed to provide information needed by development agencies, government departments, food security agencies, large traders, and the more commercial farmers. The designers of the localized MIS fully appreciated the need for elements of the national MIS to be integrated with the localized MIS project. In fact, it was realized that no local MIS can offer the information needed by farmers in one particular location without also providing information about markets beyond that location. The preliminary study showed that although local market forces—local supply and demand, local weather conditions, and transport availability,

etc.—dominated the cause of price changes for some locally produced products (mainly perishable fruit and vegetables), national and even international factors dominated market changes for most others. Cross-border trade in beans and maize, for instance, was a major factor influencing these markets. International demand and supply of sesame (sim-sim) seed, for instance, was the major factor determining price in this market. The integration, then, of the local with the national MIS was an essential design feature of the localized pilot project.

Structural design

The structure of the project required the hiring and training of market information officers (MIOs) who would be provided with small, two-stroke motorbikes and a means of communicating by phone or email to an information processing center based in the IITA office in Kampala. The MIOs were given a schedule of markets to visit on a weekly basis to collect relevant market information. These were the more important assembly markets in the area but MIOs were also expected to visit smaller village markets on a longer, rolling schedule in order to monitor differences in price between larger and smaller market centers.

The MIOs had a crucial role in the design since it was they who were responsible for collecting raw data which needed to be as accurate as possible. For this reason, they would be required to be supervised and monitored regularly by more senior staff. Their main source of information were traders who had no vested interest in reporting details of their daily transactions and may even wish to distort market information to gain some trading advantage. For this reason, it was not only important for MIOs to gain the trust of the traders but to also use every means to double check the information they were given. This included trying to witness transactions taking place, talking to several different traders, and checking information with farmers, retailers, and market managers.

In the complex and rather disorderly environment of the average Ugandan assembly market, many other checks and balances needed to be incorporated into the design. For instance, many actors have not adopted standard weights and measures. In addition, the managers of the market are not required to keep accurate records of transactions nor the volumes of goods traded. In these circumstances, perfect accuracy of data cannot be achieved. Nevertheless, every effort was made in the design to achieve the maximum accuracy possible.

The information processing center was designed not only to be responsible for collating data but also for writing market reports based on the data which could be broadcast by radio. In addition, the center would be required to enter all data into databases for further processing. This means that they could produce price series over time, make comparisons between price records in one market with those in another, record price and volume trends, and compare price trends in one year with another. All this data could then be compared with records of market information collected in the main wholesale market centers collected for the macro-MIS.

Data collection

Market information officers are responsible, according to the design of the project, to collect certain fixed data from each market and other data that might be relevant to the conditions of the market.

The most important information needed was, of course, prices. (Note that the range of commodities was expanded from the single commodity first envisaged in the initial design—see below.) Every attempt needed to be made by the MIOs to observe actual traded prices. If that was not possible, buyers and sellers were to be interviewed to collect data on prices offered by buyers and prices that vendors were willing to sell at. A note also needed to be made of the volume of goods traded in each of these transactions or prospective transactions. Any difference in prices for small and larger volumes should be recorded. Careful attention should also be paid to any variation in quality or variety of any single product traded. The time taken to record all this data could take several hours but any variation in price over the period of the market day should also be recorded.

In addition to prices, MIOs were also expected to estimate the volume of all the products traded and whether there was a surplus of supply over demand or when supplies were inadequate to meet demand. Apart from this fixed data, MIOs were trained to note other phenomena that could affect market conditions. These could include evidence of a shortage of transport, the conditions of roads (roads can be made impassable in the rainy seasons), the presence of foreign traders in the market and their trading activities, any changes in quality of produce on offer, and shortages of available cash to finance transactions (almost all trade in agricultural produce in assembly markets is conducted strictly on a cash basis in Uganda.)

Design of monitoring and evaluation system

The original design incorporated a system of monitoring and evaluation. The provision of useful a MIS offers many theoretical benefits to farmers, consumers, and to the economy as a whole. These include:

- An increase in farmers' income because MIS arms the farmer with information which can be used to drive a more equitable transaction with traders.
- Lower prices to consumers because greater competition between traders lowers transaction costs.
- Increased volumes of trade because more farmers are prepared to bring their surplus crops to market if they have a better idea of the type of product in demand and the price they will receive.
- A more competitive market because the provision of market information reduces the asymmetry of information between actors in the market chain.
- Less difference between prices traded for the same product in different parts of the country because MIS reduces special arbitrage opportunities (see below).
- A better match between the quality and type of output and the quality and type of product demanded by consumers because MIS carries the signals from consumers for the type of product needed.

- An overall increase in the country's economic performance because a combination of higher volumes of output, an increased awareness of the goods required by exporters, lower transaction costs, and a more competitive market have the effect of increasing export revenue and internal market efficiency.

Unfortunately, most of these benefits are difficult to attribute quantitatively to MIS provision alone. An increase in traded volume, for instance, could be caused by favorable weather conditions. Lower transaction costs could result from a lowering of transport costs—a lower price of fuel, for instance. Likewise, increased farmer income might come from a market price increase for the particular commodity they produce.

Spatial arbitrage opportunities

The design of the project did recognize, however, the power of spatial arbitrage opportunity measurement as a true indicator of penetration and benefit of MIS. At an early stage, it was agreed that the most useful measure of the usefulness and penetration of market information would be based on changing arbitrage opportunities. Research shows that, where information is lacking in a market environment, significant differences in price will occur in different locations for the same product traded at the same time.

If, however, the provision of information improves, traders and farmers will try to sell in those markets where the price is highest and traders will try to buy in those markets where the price is lowest. This behavior is said to represent the existence of spatial arbitrage opportunities. Of course, as more and more product is sold in the high priced markets, the effect is to lower the price. Conversely, as a product is bought in low priced markets, the price rises. The prices in the two separated markets gradually come together. In a market with perfect information, the price of a given product on a given day in all markets would be the same (after taking any transport costs into account). And so, in addition to processing data for direct MIS use, the information processing center, was designed to measure changes in arbitrage opportunities over time and thus provides this powerful, quantitative tool to measure and monitor the effectiveness of its MIS output over time. The central processing center is an office that receives all of the marketing information from the localized site areas, analyses the data, and provides strategic oversight and training on a demand basis. The office is manned by a single analyst, located, in this case, in the capital city of Kampala.

The design also recognized that most other measurements for the monitoring of the system would have to be made qualitatively by surveys of the perception and opinion of various stakeholders. Since the project was designed principally to assist small-scale farmers, the opinion principally of farmers needed to be sought. The design of the service, therefore, included the requirement to establish "listeners' groups", comprised of people who listen to the radio broadcasts and provide constructive criticism on project performance in each of the three component areas. Based on sound sociological principles, a group of between twenty and thirty individuals would be identified across the target area. This sample of farmers would reflect the demographic mix of this population by age and gender and also include a smaller sample of small-scale traders, retailers, and processors. Again, according to one recognized system of opinion surveys, these individuals were not necessarily to be

typical of all farmers in that they needed to be articulate and to be opinion-gatherers in their own right. In other words, they needed to be familiar with the opinions of their fellow farmers and be capable of reflecting those views.

These individuals would be identified in their location and revisited regularly to be interviewed to gather their changing opinions as the service developed, e.g., gained wider audiences, became modified according to feedback suggestions, or failed to offer a relevant and useful service. They were not to be given any inducement to become a member of the group other than their interest in helping their fellow farmers. Each would be fully informed about the purpose of the listeners' groups and be told that the service managers wanted truthful opinions be they positive or constructively critical.

Cooperative activity

Previous research and theory indicated that farmers who worked in groups and marketed their produce collectively were much more likely to benefit from market information provision than isolated, single farmers selling just their own output. For this reason, the model made provision for training farmers to adopt collective marketing activities. This was to be achieved by conducting training sessions with embryonic farmers' groups using trainers who had experience of bringing farmers together in this way in other parts of Uganda. Radio broadcasts too would contain advice and information on how farmers should try to overcome economies of scale by bringing their surplus production together for sale so that they could achieve higher sales prices.

Late stage design modification

Before the localized MIS service was established, more surveys were made of stakeholder perceptions and opinions and the literature generated from other such surveys was studied further. In addition, a stakeholders meeting was arranged in Kampala of 50 representatives, including farmers groups, large and small-scale traders and processors, relevant government agencies (including extension services), development organizations, NGOs, donor organizations, and radio stations.

In addition, each of the component sites were visited and examined further. During these visits more local stakeholders were consulted. Information gathered from these exercises was used to modify an important feature of the initial design.

It became clear that costs would not be increased if MIOs were to gather market information for a number of commodities during their visits to markets, rather than just information on one commodity as envisaged in the initial design. Farmers also had expressed the view that they needed information on as many of the commodities they produced as possible. It was decided, therefore, that MIOs would collect information on a mix of about eight products and this mix would depend on the key commodities produced and traded in the target area concerned.

This modification meant that the project could broadcast market information on the larger range of products to both the northern and eastern target areas and provide the eastern

group of cooperatives with information not only on the market of beans but also on the other crops they wished to sell.

Another significant change had to be made to the original design when it was discovered that the target area for the third component in the north of the country was suffering continued incidents of conflict and that, in this area, no suitable radio station was available for information broadcasts. It was decided, therefore, to target farmers in the district of Lira, somewhat south of the original target area where there was little chance of disruption and where a suitable radio station was located.

Implementation and difficulties incurred

Staff

The project had little difficulty in recruiting four MIOs and one staff member. Apart from a good knowledge of the local language and culture of the areas in which they were required to work, MIOs also needed to have a good command of English. MIOs also needed to be able to get on well with other people and win their trust, but also needed to be able to question any information they were given. The staff member needed a high level of education in that they not only had to be fluent in English but also have advanced data processing and analytical and computer skills. Every new member of staff went through a period of assessment.

Funding

The main funding donor, CTA, had agreed to a project duration of three years and had agreed to fund the project for that period. Disagreements over the presentation of accounts caused delays in agreeing funding levels after the first year, which meant that the program had to be seriously reduced during that second year. IITA met these reduced costs out of its own budget until a new but barely adequate funding arrangement was renegotiated with CTA.

Given the potential unreliability of funding, the operators of the MIS approached the relevant government agencies to discover whether the funding the government had arranged to implement the Plan to Modernise Agriculture had included a provision for funding a local MIS. Since MIS provision was a central plank of the PMA, funding had indeed been envisaged for such a service. The time lag between the drawing up of the PMA and its detailed implementation, however, meant that funding was unlikely to be made available for some time. It was only in mid-2003 that government agencies made funding available for this purpose and to expand the service to several other districts.

Not unreasonably, the government needed to put such work out for tender to any other organization that had the necessary skills and background to carry it out in accordance with the requirements of the PMA. Although several other organizations showed some interest in the work, the contract to provide the service was eventually awarded to FoodNet, the ASARECA network being executed by IITA-Uganda.

Radio broadcasting costs

A year or two before the project began, the government had ruled that its own radio and television broadcasting services should be placed on a "commercial footing". The establishment of privately owned FM radio stations had only just begun and the lack of competition in the industry and a scarcity of advertising revenue meant that high rates could be charged for air-time. Several efforts were made to demonstrate to the government that high radio air-time charges could not be justified for broadcasts that were in the "public good" when the government's own Plan for Modernising Agriculture specifically called for MIS broadcasts to be made. Having commercialized government-owned radio, however, no concessions could be made.

Broadcasting costs became a significant restriction on the project for some time. Fortunately, one of the private owners who had a radio station in the northern part of the country was able to understand the significance of the broadcasts and their likely popularity with farmers who made up 90% of the station's listeners. A very close collaboration grew up between this radio station owner and IITA, the pilot MIS operators. The owner was able to convince advertisers that they should use the programs to attract buyers for their products—beer producers were one of the first advertisers to show interest. In addition, he was able, over time, to acquire another radio station in the eastern part of the country covering part of the area targeted by one of the three project components.

Radio broadcasts

Radio broadcasts in the appropriate local language consisted of two-minute broadcasts on prices on Tuesdays and Thursdays repeated on both days in the mornings and evening and a 15-minute program on Saturdays. These Saturday programs covered topics on the markets which were of interest to farmers followed by a fuller market report. In practice different radio stations (six in all) differed somewhat in the way the programs were presented. The Lira station, for instance, used the MIO to read the report and take telephone calls from interested listeners on air. Others simply broadcast prerecorded translations of the reports compiled by the information processing center. Each program contained a message detailing the time and day of further programs. In addition to these programs, occasional broadcasts were made containing training material on how to use MIS and how to begin collective marketing operations.

Farmer participation

The new CTA model for local MIS incorporated the concept of stakeholder participation. The research had shown that most state-operated MIS grew remote from the people that the service was designed to assist. It was therefore considered vital for stakeholders to be involved in all aspects of the service. This would ensure that the information provided was relevant to their needs; that, for instance, radio broadcasts were made at a time when stakeholders were not working their fields and that the service could be modified over time if information requirements changed.

This requirement of the MIS presented certain difficulties. Most typical farmers have very little understanding of the technical aspects of the service—staff management, budget control, data processing, the production of radio scripts, etc. In addition, there are logistical and cost implications in arranging meetings with representative groups of farmers living in many different locations. Although the Uganda National Farmers Union represents farmers' interests, none of the union's officials had experience in this type of MIS. Funding bodies, also, were unlikely to be confident that the service providers could control the project efficiently if inexperienced farmers were given a significant role in the management of the service.

To date, no satisfactory solution has been found to this problem. It was decided that some degree of stakeholder participation would manifest itself in the in-built monitoring system through the listener's groups. In this way they would have a regular means of assessing the service they were given and would have the opportunity to suggest modifications and improvements to the service but could not impose these ideas if the managers of the project disagreed or felt that they would cost more than could be afforded within the limited budget.

Unsatisfactory as this solution remains, there is hope that, over time, farmers will consider the service to be a vital part of their farming life and take more interest in how it is run. It might also be possible, at some future date, for farmers to participate in the funding of the service, either directly or through a small levy paid for market transactions. Such a contribution could give them the necessary degree of "ownership" of the service.

Relationship with traders

The service operators had been sensitive from the outset about the role of traders in the project. Traders are the most important source of market information and it was vital, therefore, for MIOs to retain a good working relationship with them. On the other hand, the provision of information for farmers could be said to weaken the bargaining position of traders with farmers. Several traders in interviews expressed hostility towards the project, mainly on two grounds. Firstly, they thought that it would not be made clear to farmers that the prices they were given by the service were not necessarily farm gate prices or prices for the very small quantities that most farmers had to offer. This might inflate the farmers' expectations and cause friction between the farmers and the traders. Secondly, they said that they took great risks for very small profits and that giving the farmers information about true market prices would increase their risks and lower their profit margins.

The traders' comments reinforced the service operator's resolve to make sure that every effort would be made in information broadcasts to explain the difference between bulk market prices and the prices they might expect to receive either for small quantities or in village markets.

The service operators were also encouraged by the experiences of farmers belonging to the cooperatives in the western component of the project. They too had experienced some hostility from smaller scale traders when they had sold directly to larger traders—cutting out the middleman, as it were. It should be remembered, however, that these small-scale traders

were as much a part of the community as the farmers. Many of them were, indeed, part-time farmers themselves and many of their relations were local farmers. The coops decided to employ some of them. These small-scale traders were, after all, much more experienced in conducting trading negotiations than any of the farmers and could make much better bargains with the larger traders the cooperative were now dealing with.

In practice, small-scale traders were found to appreciate the service as they too lacked information but many remained concerned that farmers sometimes were misled particularly because they failed to understand fully that the traders' costs had to be taken into account in the prices broadcast by the service.

Larger traders also appreciated the service, especially when it was able to identify geographical areas where surplus supplies were located at cheap prices.

Monitoring and evaluation

It has proved difficult to set up the formal listeners' groups as envisaged in the original design. MIOs, who were given the responsibility for identifying individual members of the groups were, perhaps, more in tune with the more informal culture of the Ugandan countryside where opinions tend to be formed by groups rather than individuals. The MIOs regularly filed reports of their interviews with stakeholders, which revealed both praise and constructive criticism of the service. The individuals interviewed, however, were not identified properly nor systematically re-interviewed over time. Opinions differed among the managers of the project as to whether this informal approach constituted a sufficiently robust feedback system and more attention needs to be given to this problem in future.

Stakeholder surveys also revealed an additional dilemma. Within the culture of the farming community, it is understood that the time taken to offer opinions on any subject should be rewarded. A typical reward might be a T-shirt, which the MIS service purchased by the dozen with the logo of the project printed on it. There was a fear among some managers that such an inducement, small as it was, would influence the opinions of the interviewees. They could easily believe that T-shirts were only available to those who found little fault with the service. Others pointed out that despite the inducement, interviewees regularly criticized the service and offered useful suggestions for improvement. Once again, the difference between local cultural norms and the practice of opinion gathering in developed countries required this compromise which is still the subject of disagreement.

Results from the first Impact assessment

A total of 400 survey questionnaires were administered in the three pilot locations: (i) Jinja and Iganga, (ii) Lira, and (iii) Rakai and Masaka. Simple statistical averages, rankings, and percentages were used in the analysis.

Access to market information Results from the survey indicated that the majority of small-scale farmers, traders/processors, and farmer groups in Busoga region (Jinja, Iganga, Kamuli, and Mayuge), Rakai, and Lira districts, accessed FoodNet market information through radios and the field technician. Considerably fewer respondents gained access

to the information via newspapers and the recently introduced cellular mobile telephone network which provides the short message service (SMS).

Radio Results from the survey show that all (100%) small-scale farmers, traders/processors, and farmer groups in Busoga region, Rakai, and Lira districts who responded to the survey, access market information through radio (Figures 2 and 3). All the radio stations mentioned by the respondents receive weekly market news from the National FoodNet market information service projects.

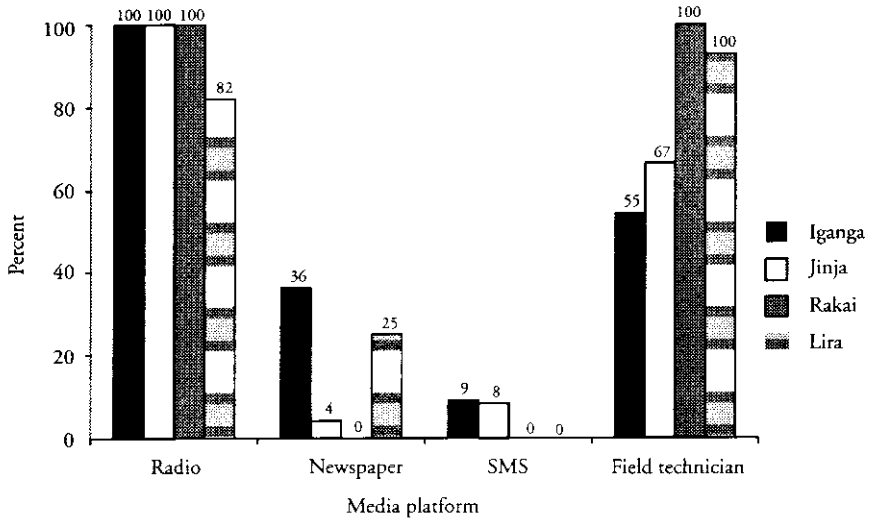


Figure 2. Medium of access of FoodNet market information by small-scale farmers.

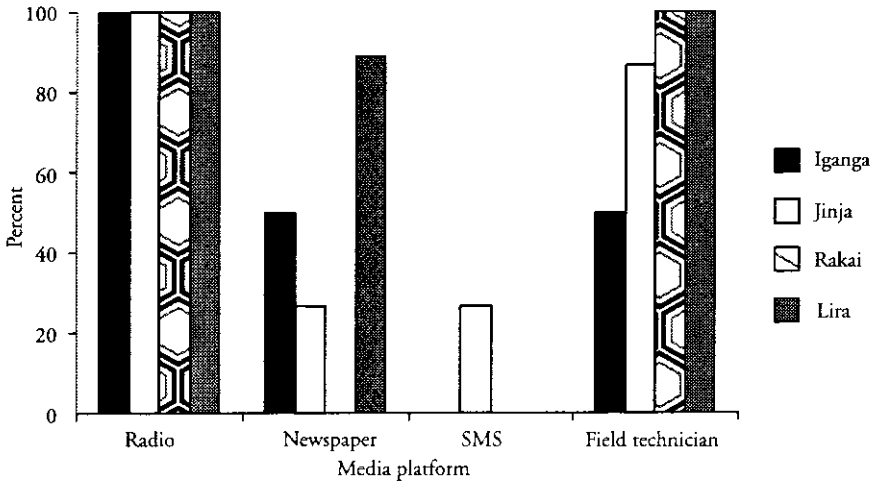


Figure 3. Market information access by small-scale traders.

Field technicians In Rakai district, where the market information was not linked to a dedicated radio, farmers, traders, and farmer groups gained access to market information mainly through the Community Enterprise Development Organisation, (CEDO) extension staff. In Lira, 93% of the small-scale farmers, 100% of the traders, and 90% of the group farmers confirmed accessing market information through the field technician. In Jinja, over 67% of the small-scale farmers, 87% of the traders, and 78% of the group farmers confirm access of market information through the field technician. The high response registered by farmers and traders in Rakai is because CEDO has many field staff, each assigned to a specific county. These field technicians spend most of the time with farmers and deliver agricultural production and marketing extension and credit services to individual farmers, traders, and group.

Newspapers About 25% of small-scale farmers, 90% of the traders, and 65% of the group farmers in Lira accessed market information through newspapers such *The Weekly Ad* and *Market Focus* that are published weekly and monthly, respectively, and distributed free of charge. Commercial newspapers are reluctant to commit free space for publishing market information. While 36% of the small-scale farmers surveyed in Iganga district reported accessing market information through the newspaper, only a 4% response was received in Jinja and no small-scale farmers in Rakai accessed market information through newspapers.

Email, Internet, and SMS No small-scale farmer, trader, or farmer group received information by email or Internet and less than 10% of small-scale farmers in Jinja and Iganga have accessed market information through mobile telephone short message services (SMS). Although market information can be cheaply disseminated through email and the Internet, the cost of the equipment necessary for accessing the information (computers and telephones) is far beyond reach of an average Ugandan. The information regarding the use of the mobile telephones (SMS) was more encouraging as this service had only been operating for two months when the survey was carried out.

Other sources of market information During the survey, farmers, traders, and group farmers were asked to rank other sources of market information they considered more important or just as important to FoodNet market information. In Rakai, individual small-scale farmers and traders consistently ranked other, larger traders as an important source of market information despite reservations about the accuracy of information from such a source. Similar individual small-scale farmer and trader rankings of the trader as an important source of market information were observed in Iganga, Jinja, and Lira (Figure 4).

Reasons why farmers and traders ranked other traders prominently, was that apart from giving market information, the trader provided other services, namely that they were able buy produce, or at least offer an advance payment to buy. Business partners were also ranked highly by small-scale traders in Lira, Jinja, and Iganga as an important source of market information.

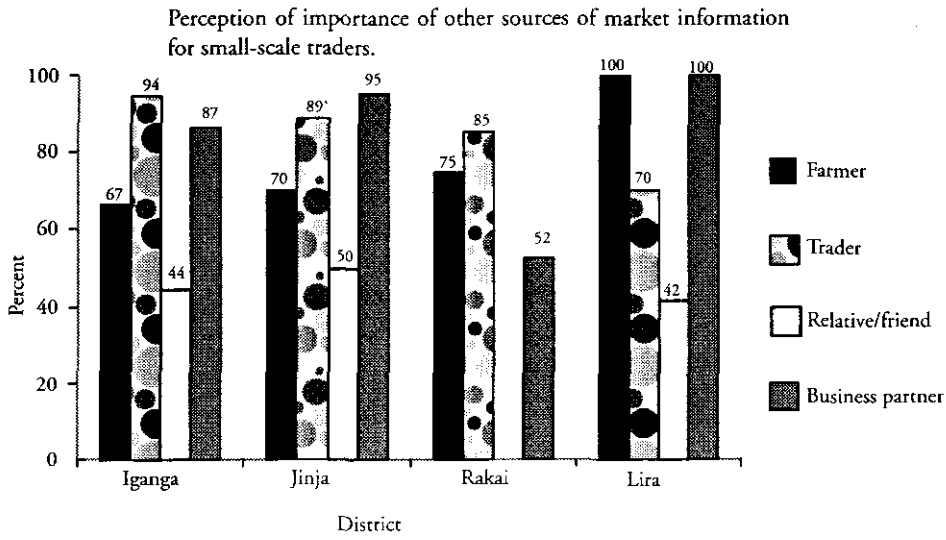


Figure 4. Importance of other sources of market information.

Frequency of access of market information *Although most respondents said they accessed* market information through radio and field technicians, there was a lower frequency of regular access to current market information by farmers in Rakai and Jinja, who relied upon technical visits. Where radio was used as the main means of dissemination information, 79% of farmers in Lira and 67% of farmers in Iganga accessed market information more than once a week (Figures 5, 6, and 7). The reason why group farmers in Rakai were able to access market information more regularly than individual farmers was because farmer groups are closely linked to CEDO, which receives daily price quotations from Kampala's major wholesale markets and a weekly district price spreadsheet and analysis from the FoodNet MIS project.

Over 80% of small-scale farmers, traders, and group farmers in Lira access market information more than once a week. Radio Lira has coopted the FoodNet MIS project field technician to head the agricultural market and extension desk and disseminate agricultural development and market information. Also involving the district and NGO agricultural and marketing technocrats, lead farmers, traders, and farmer groups in the region talking in their local dialect has made the program very popular.

Low rates of access by respondents in Lira, Jinja, and Iganga were because they were not at home at the time of radio broadcasts while respondents in Rakai indicated poor radio reception for CBS FM and Radio West. In Rakai, respondents suggested radio stations such as Star FM and Buddu FM were better channels for radio broadcast of information to Rakai district.

Relevance of market information An overwhelming majority (over 95%) of individuals and group farmers in Rakai and Lira districts stated that FoodNet market information was highly relevant for both short-term decision making (negotiating sales prices and deciding

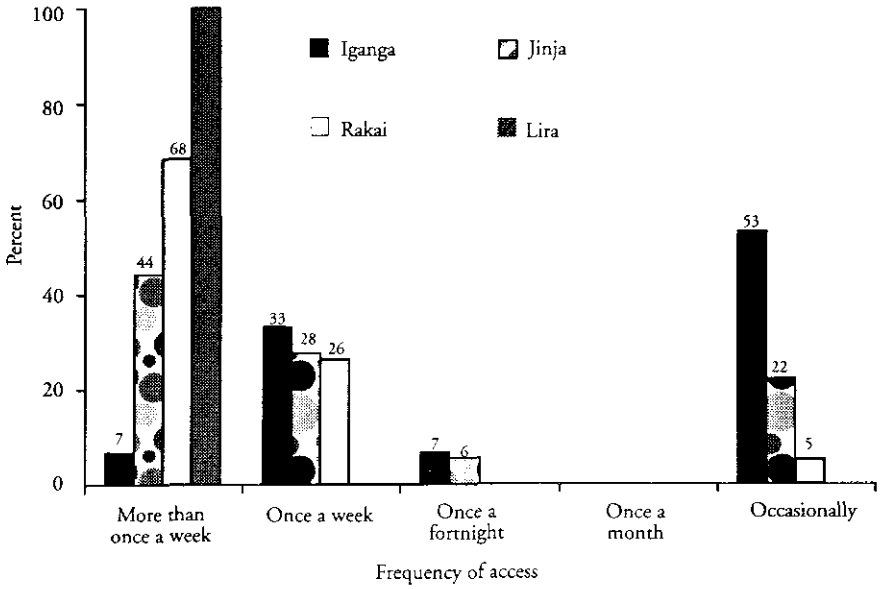


Figure 5. Frequency of access of market information by group farmers.

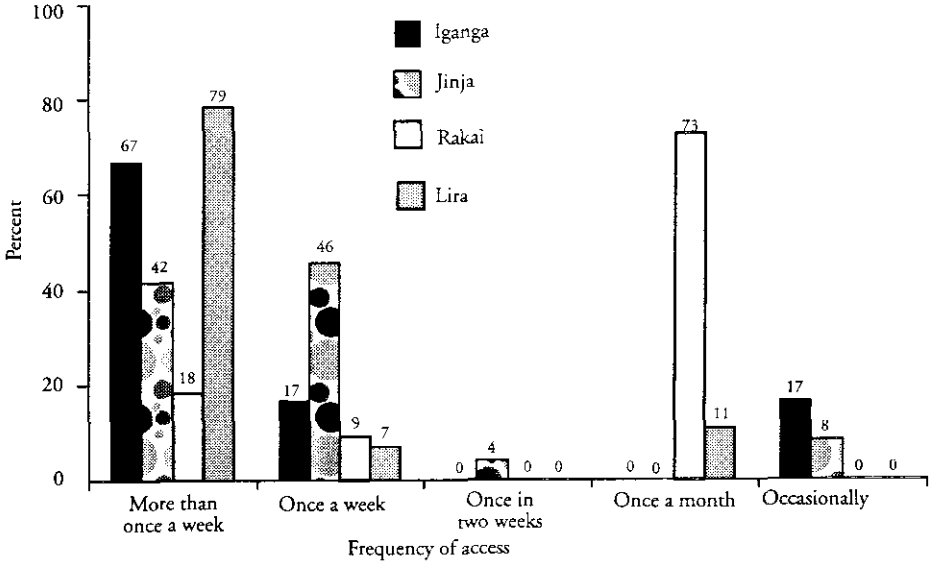


Figure 6. Frequency of access of FoodNet market information by individual farmers.

where to sell) and for future planning (deciding which crop to plant) (Figures 8 and 9). Responses from farmers in Jinja and Iganga indicated that farmers were also making comparisons between current supply of maize with that of the previous year. Farmers said that in this year, 2002, many farmers had opted out of maize because of the low maize prices

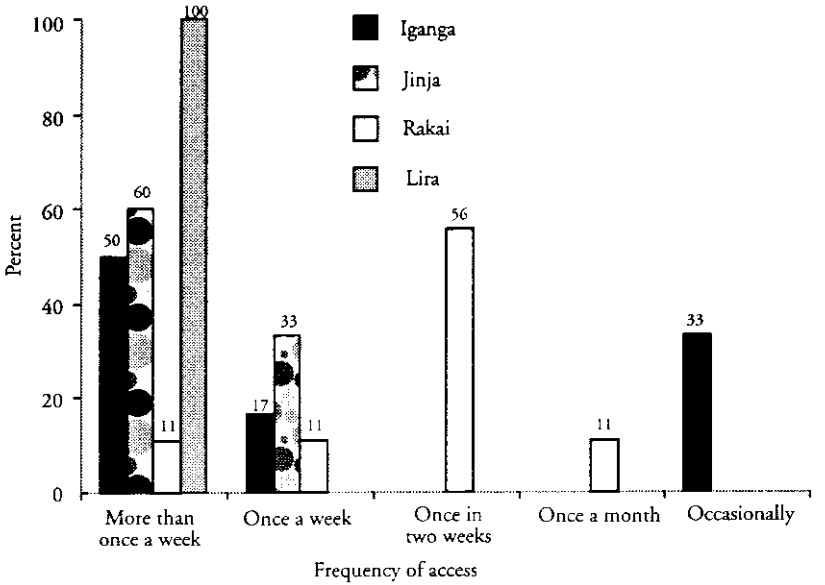


Figure 7. Frequency of access of FoodNet market information by small-scale traders.

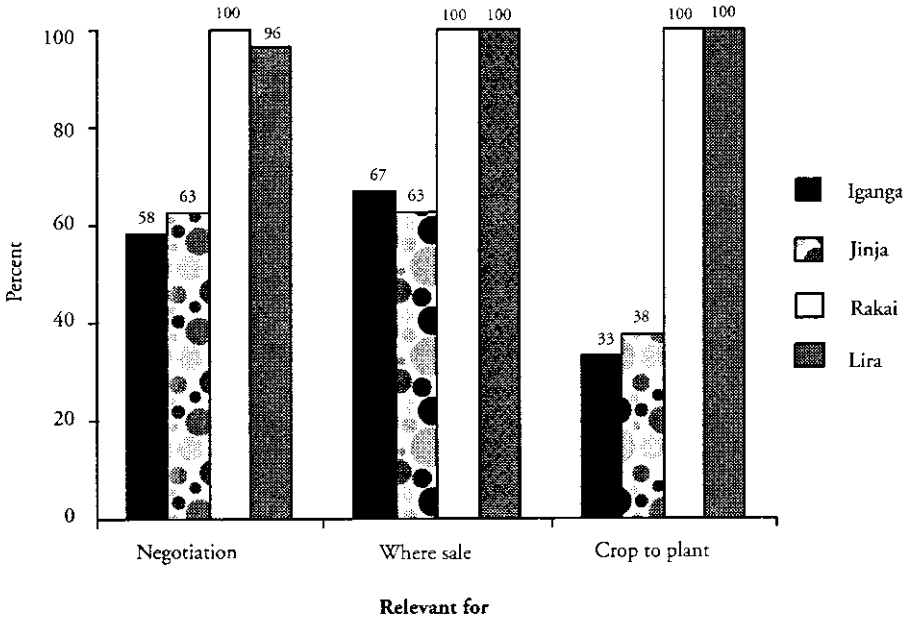


Figure 8. Relevance of FoodNet market information to small-scale farmers.

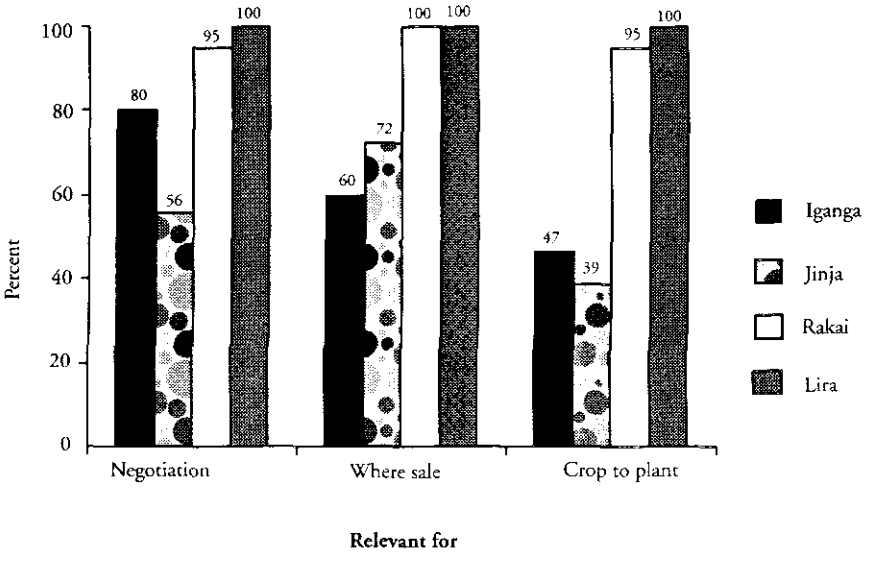


Figure 9. Relevance of FoodNet market information to farmers groups.

they had experienced during the previous year's bumper harvest. However, as prices were now rising, many farmers were now planning to plant more maize in the coming season at the time of the survey wholesale prices had returned to UsG 350, the highest levels recorded since 1991.

Most small-scale traders in Lira, Jinja, Igangam, and Rakai also recognized market information as an important tool for their business decision making (Figure 10). Only 22% of the traders in Rakai said that FoodNet market information was less relevant to them because they had their own network to gain accurate prices and locations of buyers.

Field technician's visits to small-scale farmers and group farmers

The local MIS project has field staff in Lira and Jinja districts. In Rakai, field technicians of CEDO provide the market information activities of the project. Apart from collecting and disseminating market information, field technicians also provide farmers with current price information and market linkage and train them in group formation. The survey therefore sought to know how often the small-scale individual and group farmers get visits from the field technician and their perception of technical support of the field technician.

The information in Figures 11 and 12 show that the visits of the field technician to the individual and group farmers were occasional rather than regular. Given the size of Jinja and Iganga districts it is apparent that the field technician cannot visit individual and group farmers on a weekly or fortnightly basis. In Rakai, where CEDO has a reasonable number of field technicians, 47% of the group farmers confirmed getting weekly field visits from CEDO technicians.

Farmers in Rakai and Lira confirmed that despite less regular visits by field technicians, the additional advice on quality improvements and buyers was much appreciated. Farmers also received advice on the benefits of group formation and collective marketing

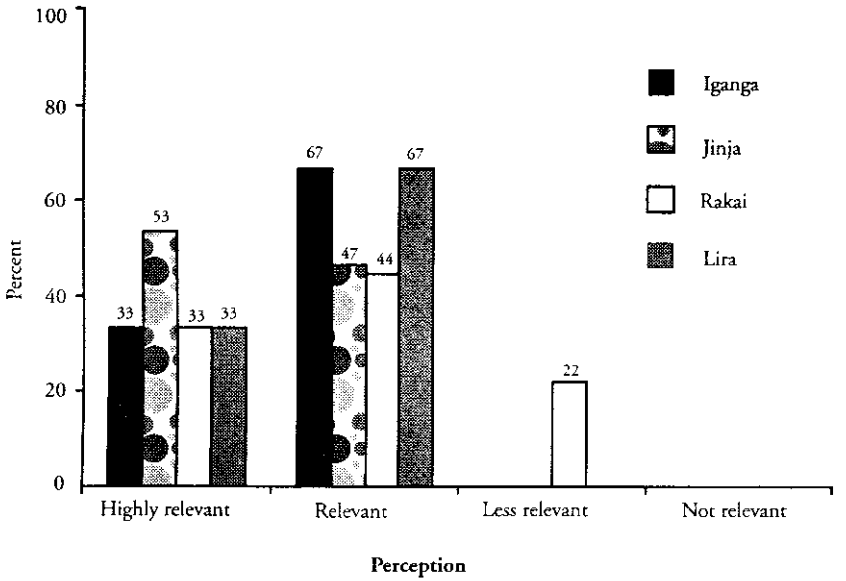


Figure 10. Relevance of FoodNet MIS to small-scale traders.

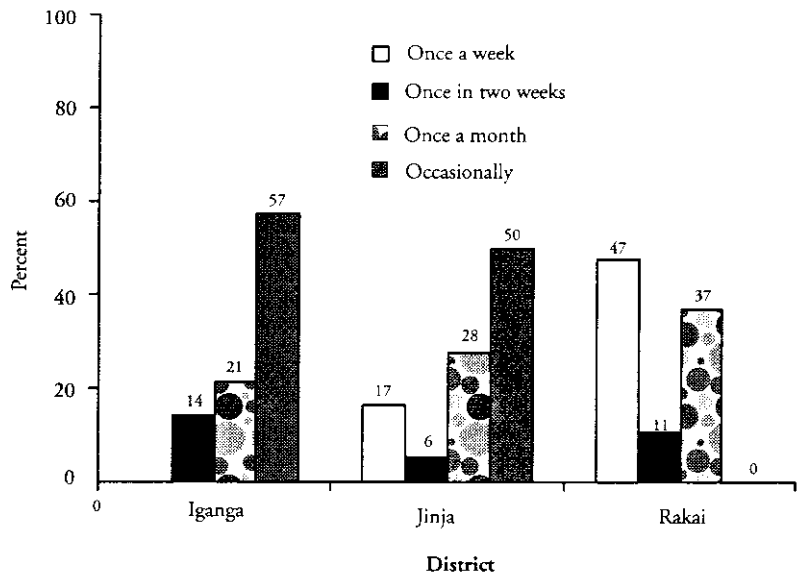


Figure 11. Field technician's visits to group farmers.

(Figures 13 and 14). In addition to price information, CEDO also offers group farmers seed credit and production extension services and trains them in product quality and group management. Through the micro-MIS project, FoodNet has been promoting the concept of group marketing among individual farmers in Jinja, Iganga, and Lira. Group marketing

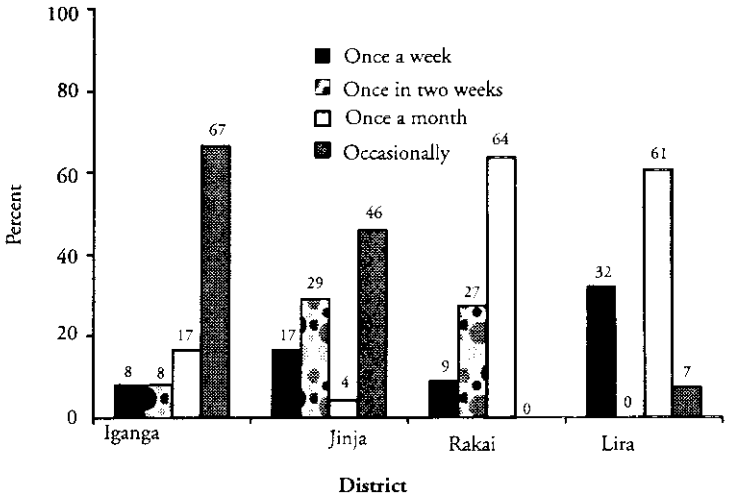
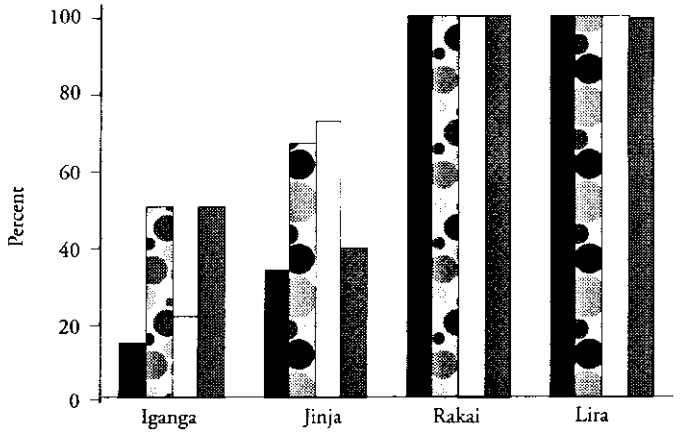
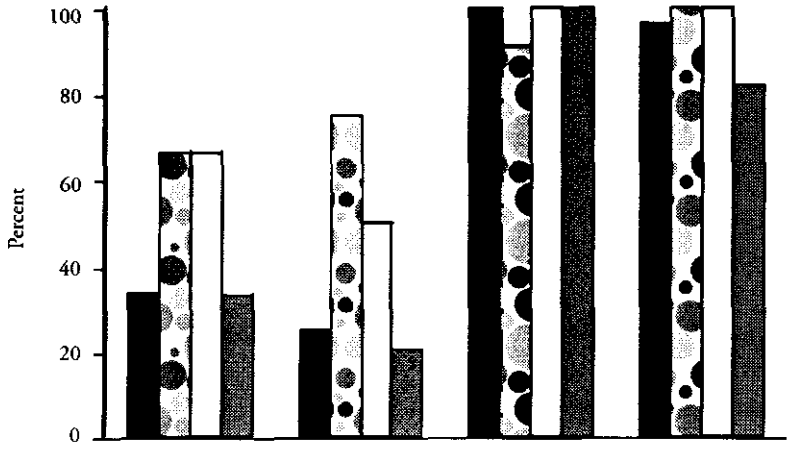


Figure 12. Frequency of FoodNet technician's visit to small-scale farmers.



	Iganga	Jinja	Rakai	Lira
Price info	14	33	100	100
Group info	50	67	100	100
Quality info	21	72	100	100
Market info	50	39	100	100

Figure 13. Field technician's support to group farmers.



	Iganga	Jinja	Rakai	Lira
Price info	33.3	25.0	100.0	96.6
Group info	66.7	75.0	90.9	100.0
Quality info	66.7	50.0	100.0	100.0
Market info	33.3	20.8	100.0	82.1

Figure 14. FoodNet field technician's support to small-scale farmers.

is rewarding as it enables farmers to bulk larger volumes of produce and link with larger buyers, thus saving on transport costs and generally gaining better prices by circumventing low level traders.

In order to assess links between income and market information, farmers and traders were asked to rank the commodities for which they use market information. In Rakai, beans were first priority in market information access, followed by maize grain, Irish potato, and coffee (Figure 15). In Jinja, maize grain was the main crop for which market information was required. Other crops that follow in the order of priority were beans, cassava, rice, and soybean. Respondents from Lira district had a wide range of crops for which they prioritized access of market information. However, most of the respondents consider maize grain and sunflower crops as key cash crops for which market information access is a priority.

Summary of the study All respondents acknowledge that market information was a very important input in their short-term, decision-making for future planning. The information was used to negotiate for better prices, to access market trends, and make comparisons with previous seasons to make decisions on which crops to grow. This is a remarkable achievement for a service that has only been in place for two years.

Radio and field technicians were confirmed as the most appropriate medium to disseminate timely, accurate, and reliable market information in Uganda. Small-scale farmers

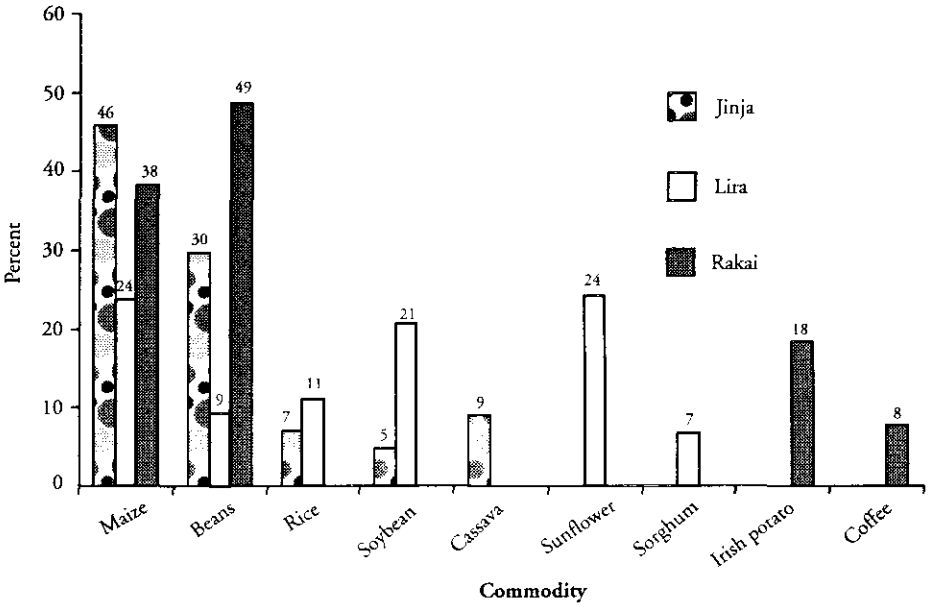


Figure 15. Weighted responses of priority crops for market information provision.

and traders in Uganda did not use computer-based access, email or the Internet for market information. SMS was starting to show some signs of use, but as it had only been running for two months, was too early to assess.

Despite the fact that the field technician's visits to the individual and group farmers may not be regular, this form of information sharing was highly regarded. This was because the field technicians were able to provide much more than just prices; the field staff also provided information on market linkages and training in group marketing and quality standards of the produce gaining the premium prices. Although field agents are an expensive option in the local service, they are highly appreciated.

Need for flexibility

Modification of the original design and some of difficulties encountered demonstrate the need to incorporate some flexibility in such projects. Cultural differences between the designers of the project and the local people and even cultural differences between different groups of farmers can lead to erroneous assumptions about trading behavior. Obtaining the necessary funding for projects that may have to be adapted over time is also difficult. Making any fixed assumptions in the context of scarce skills and resources, slow government machinery, outbreaks of violent conflict, and a poorly developed business culture can lead to disappointment and the disruption of seemingly well-planned projects.

Sustainability through Government support

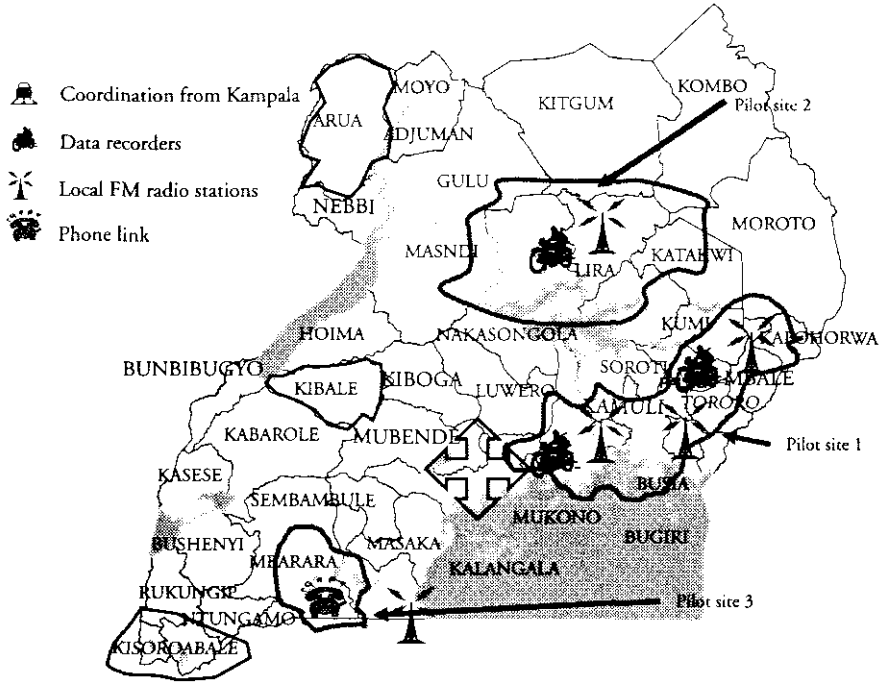
In mid-2003, when the CTA-funded pilot projects officially ended, IITA/FoodNet was fortunate enough to find an alternative source of funding to support this work, through

the Government of Uganda's newly initiated National Agricultural Advisory Service (NAADS).

The NAADS process is developing a demand-led approach to service provision and is aiming to develop agricultural services on a rolling program starting with six districts, then 16, and eventually aiming to include all districts of Uganda over the next several years.

The first of these districts, known as the trailblazing districts, were earmarked for local MIS services, which are, at the time of writing this report, being established (Map 1). It is envisaged, under the PMA, that all districts will be offered this service over the next ten years.

In addition to the acceptance of this new MIS model in Uganda, other countries have shown an interest in reproducing such systems. These include Ghana and other West African countries and South Africa. Meetings are taking place to finalize procedures for this expansion.



Map 1. Districts operating localized marketing information services.

Key characteristics of implementing the services

Local MIS

Target clients. Small-scale farmers, farmers' associations, and village traders. Target users 1–2 million people.

Infrastructure/equipment needs

Office staff. At the office the staff have access to computers, Internet connectivity, a vehicle, and general office support.

Field staff. At each location the field officer is equipped with notebooks, a mobile phone, an 80 cc or up to 125 cc motorbike depending on the location and road conditions, a tape recorder, funds for faxing information to the central office, and a provision to air two 2-minute and one 10–15 minute program on the local FM radio.

At the central office the analyst has one computer, email connectivity, and the Microsoft office suite. The analyst also has access to Priceman and Internet connectivity.

Staffing

One BSc economist who monitors data flow, inputs data into an Excel spreadsheet, and provides basic price analysis. The analyst is also responsible for providing training in collective marketing and giving guidance to monitoring quality of data from field officers.

One media liaison officer who assists with script writing and linkage of field officers with media, including radio and newspapers. The media officer is also responsible for developing radio plays that are developed from training and information manuals, such as "how to understand and use market information", and "how to market products collectively". The FM radio stations have been given some equipment and training in how to transfer prerecorded information.

Field staff At present the local marketing service operates in six districts, at each district/territory there is one locally hired field member of staff. This person is the marketing officer and reports to the analyst.

Timeliness of information Information for the local service is collected from 3–4 markets per week within the district and at the main district town market. The field agent prepares two weekly 2-minute programs in which local and national price data is given. This is done on Tuesdays and Thursdays. Therefore information collected on one day is broadcast the next day. At the end of the week, on Saturday or Sunday, a 10–15 minute script is prepared. This script provides information on weather, the production of crops within the season, storage options if applicable, and market information on prices and changes in the market. Data sheets are sent to the central office twice a week.

FM radio stations To facilitate the process of data transfer, some radio stations have been equipped with a World Space radio, a digital data antenna, and a refurbished, second hand laptop. This system enables text and MP3 data to be sent to the stations for rebroadcast.

These stations have also received some training in how to use a software program "Cool Edit" such that interviews or English text can be dubbed with local language translation.

In most cases the radio scripts are prepared and transmitted live. In other cases, particularly the larger radio stations, the program is prerecorded and then slotted into the programming when required. This has the advantage of allowing for mistakes to be corrected, for repeat plays, and to make dubbing and cutting in news stories easier.

Methods used to gather information The information is gathered through direct interviews with stakeholders, local market traders, farmers, and district resource persons; data is recorded onto price data sheets; and a general assessment of the market situation is also taken and recorded. Once entered into a field book, the data is then transferred to the central office via email if there is a local partner with a robust connection or via post office fax.

In each of the target subcounties the process for data gathering is given below:

Tororo Soko mujinga market on Mondays, Busaba on Tuesdays, Mile 8 on Wednesday, and Wabulera on Thursday and to report on the following: for Busaba market and Soko mujinga on Tuesdays and for Wabulera main market and Merikit on Thursday by fax.

Soroti Kamod on Tuesdays, and Ochapa on Wednesdays, and Arapai on Thursdays and is required to submit all information for Kamod and Katine on Tuesdays and for Ochapa and Arapai on Thursdays by email.

Kabale Rushebeya on Mondays, Ryakarima and Karukara on Tuesdays, Bukinda on Thursdays and is required to submit all information for Rushebeya and Karukara on Tuesdays and for Ryakarima and Bukinda on Thursdays by fax.

Arua Okokoro on Monday, Giligili on Tuesdays, Meridi on Wednesdays, and Ejomoi on Thursdays and is required to submit all information for Okokoro and Giligili on Tuesdays and for Meridi and Ejomoi on Thursdays by fax.

Kibaale Mabaale on Monday, Kakumiro on Tuesdays, and Kagadi and Kitutu on Wednesdays and is required to submit all information for Mabaale and Kakumiro on Tuesdays and for Kagadi and Kitutu on Thursdays by email.

Mukono Kiyindi on Monday, Kasawo on Tuesdays, and Wakisi and Nakkisunga on Wednesdays and is required to submit all information for Kiyindi and Kasawo on Tuesdays and for Wakisi and Nakkisunga on Thursdays by e-mail.

Headlines from the national script are integrated into the local scripts using the national FoodNet information.

Technologies used to gather information No specialized technologies are used to collate price data, this is simply transferred into a field book. The field agents have a tape recorder and will interview farmers, traders, researchers, and local government staff to find out more on a specific story. This information will be used as part of the weekly radio program.

Software used in service

- Price man computer package (storage of data)
- Microsoft Excel processing of data
- Microsoft Word writing of scripts and reports

- Microsoft Outlook for email through Info-com Uganda
- Cool Edit Pro program used at some radio stations with computer facilities

Once processed, the data is emailed or faxed back to the field officers. The field officer is also given additional comments on script ideas from the media officer. The media officer typically provides some thematic areas in which the field agents should gather information for the main program of that week.

Methods used to disseminate information The information is disseminated mainly by FM radio. However, through training events the message regarding the role of marketing information is also given through working groups. Some of this information is disseminated by email and fax, but this is usually on a demand basis.

Educational/capacity building processes Education is a process that needs to flow through an organization, starting with building competence within the staff, developing partnerships that bring in specialized skills, and then sharing these ideas with clients. At FoodNet the staff therefore undergo an initial training to ensure that they know what is expected of their work and how they should maintain quality at work. These principles are then applied to the provision of information to the target clients.

In many locations, the primary clients, i.e., the farmers, have reading problems, many have a limited understanding of liberalized market dynamics, and most are not working within well-organized groups. Therefore, in order to use market information effectively, FoodNet is developing educational processes to assist and encourage farmers to understand markets better and why prices fluctuate, to understand the value of knowing market prices and why they vary throughout the season, to know how to use the information, and then organize themselves to optimize their ability to take advantage of the information.

Typically, farmers in Africa tend to take their produce to market soon after the day of harvest, sell on an individual basis, which generally means in low quantities, and have little regard for product quality. The mass delivery of a product at the market by many farmers immediately drives down prices. Sales prices are further depressed when farmers sell at low volume with ungraded products. Farmers often attempt to add weight to their produce by adding contaminants, such as stones and chaff and many consider wet crops an advantage in terms of weight. For the trader all of these aspects provide an opportunity to apply discounts. In Uganda, farmers have also:

Important issues for the use of market information

- Understanding market price dynamics and cycles.
- Being aware of current market prices and what is driving current trends.
- Increasing produce volume, presented for sale through collective marketing.
- Cleaning, sorting, and grading products to meet market needs, that attract premiums, or meeting a recognized grade or standard to avoid discounts.
- Developing relationships with traders, so that prices and quality standards can be agreed in a professional manner.
- Being sufficiently well organized to be creditable for consideration for input options such as credit, that will buy seeds, fertilizers, and processing equipment.

To address these issues and to assist farmers in gaining better market prices, FoodNet is providing educational radio programs and training workshops as follows.

In house capacity The first level of training is given to the FoodNet data collectors in collection of market information and how farmers can best use this information when making decisions on the timing of sales, storage, grading, and aggregating product. Field staff are also given instruction on how to collect accurate price information.

Training of the radio personnel is also given so that they know how to deliver a script and how to integrate price data into their programs. Additional training was also given on how to prepackage radio programs using Cool Edit software.

Educational programming Role play/documentary type radio programs have been developed that provide information on how to use market information. A radio series, entitled "Market to market" comprising ten 15-minute episodes were developed based on scripts adapted from the work of A. Shepherd. The programs were drafted by Farm Radio network and adapted for Ugandan conditions by the FoodNet media officer. This program is being pilot tested in Lira district prior to general release.

Educational programming An additional 10-part series of radio programs, entitled "Marketing together" has also been adapted from the Collective marketing manual, written by Robbins et al. This program has been translated into several languages through dubbing using the Cool Edit software. This program was developed through a collaborative project between FoodNet, NRI, and the BBC. This program has been pilot tested in Lira district and is being made available through a more radio general release and through the dissemination of CD ROMs.

Building social capital As part of the ongoing process of building community/social capital into the radio listing group, FoodNet staff make all efforts to include the view of stakeholders in radio programs. This is achieved through interviews that are recorded on to tape machines and later rebroadcast, or by receiving and discussing questions raised through telephone calls.

Building business capital Facilitation in organizing farmer groups for collective marketing. This is achieved through farmer groups being encouraged through specialized 1 or 2-day training workshops carried out at the subcounty level. Workshops have been organized for farmers' associations and local leadership. The workshops aim to assist group leaders in how to develop their groups and how to follow a stepwise approach to collective marketing. This process was prepared by FoodNet and NRI, to facilitate the development of farmer groups. Hard copies of the manual "How to understand and use market information" by A. Shepherd is a standard text.

Use of new technologies As part of the collective marketing process, farmers are also shown how to use SMS mobile technology. This is done through radio announcements and by physically showing people how to use this technology. The national marketing information

service is currently supplementing the radio announcements with a poster campaign, showing how to use market information (Annex 8).

Grades and standards One of the most important trading concepts that many farmers do not understand or adhere to is market grades and trade standards. Grades in most countries outside of sub-Saharan African are mandatory and they are enforced by law and through food safety regulations and are encouraged at the market place through formally agreed quality criteria that attract premium prices. In most African markets quality is a time-based criterion at best and there is no enforcement. However, trade is increasingly becoming an integrated process of local to national to regional and international/overseas commodity flows and therefore farmers who ignore grading and standards will receive increasingly punitive price discounts for their goods. FoodNet is working with traders to introduce the concepts of these grades and why working with grades and standards could improve their incomes.

Sowing the seeds of innovation Training of stakeholders in use of market information, collective marketing, and standards are important steps in becoming more commercially minded. These steps require major changes in the way farmers operate. The more progressive farmers and especially those who are willing to work in groups/business teams are able to make gains in terms of income and social skills. This pathway is not a short-term exercise, it takes many years to acquire these skills and be confident in using them to build an agricultural business from a subsistence platform. However, it is these small ideas that will enable communities to start on a process of "learning to innovate" that will provide them with longer term resilience in an ever more shock-ridden environment.

Methods to evaluate and improve services

There are a series of methods used to evaluate and improve the services. Studies are conducted before starting the service in regard to the crop/product bias for a particular territory. Thereafter, a continuous process of dialog is used to ensure that information is relevant and timely. The main methods used include:

- Assessing the market information requirements of the stakeholders through a survey, so that local products are highlighted in the weekly news.
- Listening to and monitoring radio programs on a weekly basis from the target stations. FoodNet has attempted to set up radio listening groups to assess the quality of the programming. This has led to mixed results.
- Regular training and consultation with data collectors in the field. Visits to most sites are made on a monthly/bimonthly basis to monitor data quality and information flow.
- Monitoring visits to the markets consulting with market heads is done to check on how data is being collected, to review quality, and to evaluate whether any data manipulation is being attempted.
- Stakeholders are encouraged to write into the radio programs to build the social/community-based approach to this process of information and ideas sharing.

Impact assessment methods Impact is monitored on a formal and informal basis. The local market information service has been subject to two formal impact assessments conducted by CTA and NRI. The results from these studies have been partially presented in this document. The three main forms of evaluation are:

1. Communication from the stakeholders to the radio programs (letters/phone calls).
2. Survey of the stakeholders on the impact of the program.
3. Examination of the trends at the various points to record changes in volumes and grades of produce.

An assessment of the project

Although stakeholders have found the service relevant and useful, the lack of an adequate and assured funding stream has meant that the project fell somewhat short of the expectations held for the project by its designers and managers. Despite all the difficulties incurred, the basic objective of the project, which was to test this new MIS model in localized areas of typical African farming communities, has not been invalidated.

The project was monitored jointly by IITA and the Natural Resources Institute in November 2002. This monitoring exercise included an examination of the systems used and another survey of stakeholder opinion about the service. The survey was carried out interviewing stakeholders throughout the target areas and with the loose cooperative schemes in the western part of the country. The findings of this exercise showed that appreciation of the service varied over the target areas. Between one third and one half of all listeners in some areas found the service highly relevant or relevant. In other areas between one half and two thirds of listeners found the service highly relevant or relevant. Of those who thought the service relevant almost all stated that it helped them to negotiate sales and helped them to decide which crop to plant. Other conclusions of the assessment exercise included:

- The farmers and traders in areas where the local market information service were tested clearly had a far better understanding of the usefulness of market information compared with many other parts of the country. This supports the view that a national service does not meet the needs of the more remote, small-scale farmers.
- The presence of dedicated marketing offers a number of advantages including:
  - Tailoring the service to the ecozonal/cropping needs of the community. In this case the MIS can effectively integrate the local news with the national news.
  - Raising the level of community interaction in regard to using and understanding market information.
  - Being able to deliver educational programming to the farming community, such as how to use market information, the importance of grades and standards, and the value of collective action.
- The localized nature of the service makes for a simpler feedback mechanism into what works well and what does not work. In those areas where the FM stations had linked with the local extension agent, the broadcasts were being made at suitable times and in the local language, and the field officer could use local examples to relate ideas to the farming community.

The national market information service

Following the collapse of the market information services in Uganda in May 1999, IITA-FoodNet received funding from USAID, via ACDI/VOCA to develop a low-cost market information service that would provide market news to farmers, essential policy-based data to relevant government ministries, and more reliable information to FEWSNET.

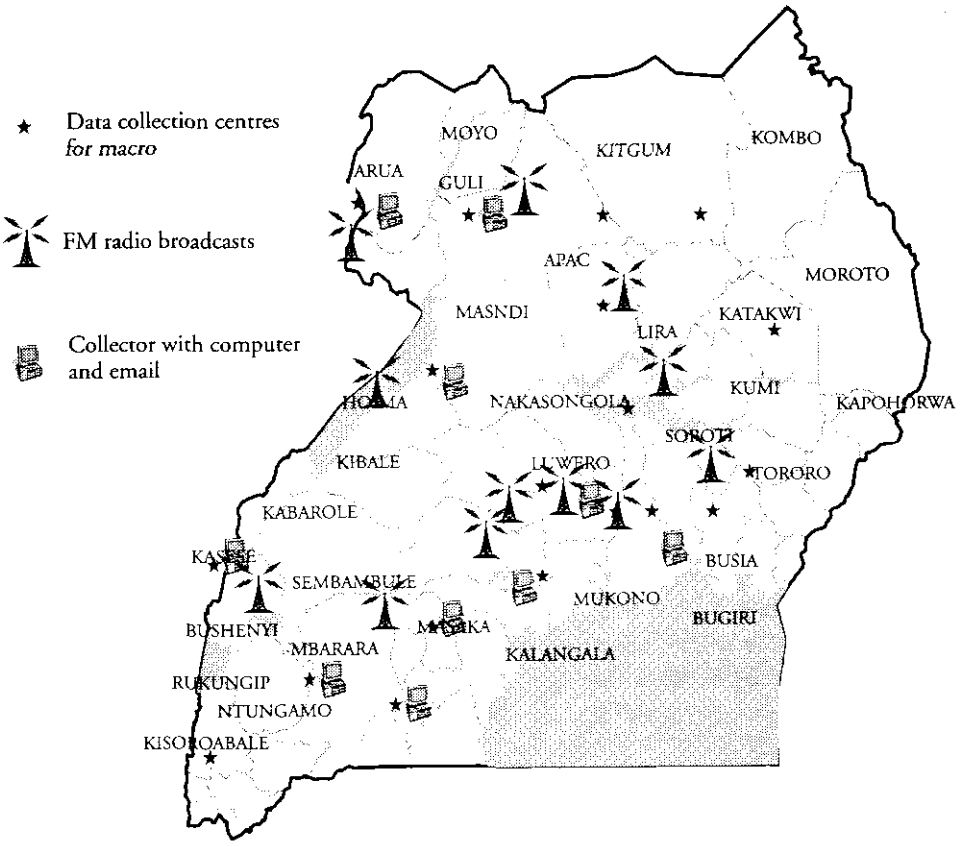
Process and methods

The national service was designed to collect both primary and secondary marketing data and relevant marketing news items and disseminate this information to a range of specific clients on a weekly basis. The main clients for this service were larger farmers, traders operating across districts, food relief agencies, researchers, and policy makers. The service initially aimed to provide a weekly synthesis of the market status across Uganda for the main staple food crops on a weekly basis.

Data sources In Uganda, the MIS collects primary data at the wholesale and retail level for 28 agricultural commodities (Annex 1). In Kampala, the capital city, a single marketing agent collects daily crop prices from three main markets, and meat product prices from the main abattoir. Weekly price data are collected from market centers in 16 districts (Map 2). In addition to the price data, descriptive information is also provided on parameters including trade volumes, demand and supply conditions, produce quality, and weather conditions. Marketing officers are also encouraged to report on any exceptional or specific circumstances that affect the market such as drought, roads being blocked, insecurity, and market surges caused by factors such as fuel price hikes, local festivals, or the opening of the new school year. A weekly report of marketing news from Uganda is supplemented with news from the East African region and around the world.

Number of locations There is a natural temptation to develop market services with as many data source points as possible and there is often considerable political pressure for specific towns to be included in such a system. The FoodNet design team decided to take a more reductionist approach and minimize the number of data collection points and still provide a meaningful overview of the national market situation. The number of towns included in the system was therefore reduced to those which provide the best "barometer" for trade activities. The number of sites can be periodically reviewed but we consider that for Uganda, the major 17 district centers provide a sufficiently good guide to the marketing dynamics and also generate a level of data and system support that is both manageable and financially viable. Participating districts include: Jinja, Iganga, Tororo, Mbale, Gulu, Masindi, Rakai, Masaka, Mbarara, Kabale, Kasese, Luwero, Lira, Soroti, Kampala, Kitgum, Arua, and Hoima.

Staffing At these district sites, information is collected by trade officers working for the Ministry of Tourism, Trade and Industry (MTTI), NGO staff, or farmer organization



Map 2. Location of market agents in national services.

staff. Market agents are paid approximately 90 000 Uganda Shillings/month, ($45), which includes the price of sending data to the analysis unit in Kampala. More recently the data collectors have also been given a mobile phone, with 5000 UgS, air time, and 10 000 monthly service charges. Including the money transfer fee of 5500, the cost of a market agent is approximately 110 500 UgS/month (US$55.25).

Data channels Information is sent from the field to Kampala via the post office fax service (see example data sheet—Annex 2). In some cases the market agents use email, but using this service has been problematic. In the year 2000, FoodNet made an attempt to provide the field agents with a computer and email facilities. Experience with the introduction of dedicated email equipment proved that Ministry staff were unable to maintain the equipment and were also unable to retain telephone lines due to overruns on billing and poor maintenance of the local lines. With the exception of emails based in commercial FM stations or large NGOs, in most cases email services were abandoned. Since that time, the steady increase in the number of up country cyber café's has reopened the possibility for

routine transmission of data, but at this time, FoodNet is more focused on developing SMS linkages rather than email systems (see later).

Data storage Once data is received at the FoodNet office in Kampala, it is entered into an Excel spreadsheet. The information is processed by two analysts at the MSc and diploma levels. Data from Kampala is collected on a daily basis and entered and stored on an Excel spreadsheet. Weekly data is analyzed using the FEWSNET "Priceman" software, which software can be downloaded from the FEWSNET website www.fewsnet.org. The Priceman software does not have a facility for daily data entry and FEWSNET have been unable to change this function. FoodNet has made some attempts to use the FAO product AGMARK for data entry and analysis but due to the complicated or somewhat cumbersome data entry screen, this was abandoned. Almost all other MIS services in the region only use Excel for entry, storage, and analysis. Secondary information is gained from a host of other institutions including:

- Agribusiness Development Centre/Investment in Development of Export Agriculture (IDEA)
- Ministry of Agriculture
- Famine Early Warning System (FEWSNET)
- PASAR Food Security Project—Rwanda
- Public ledger
- Internet World Wide Web
- Newspapers (*East African*, *Vision*, and *The Monitor*)

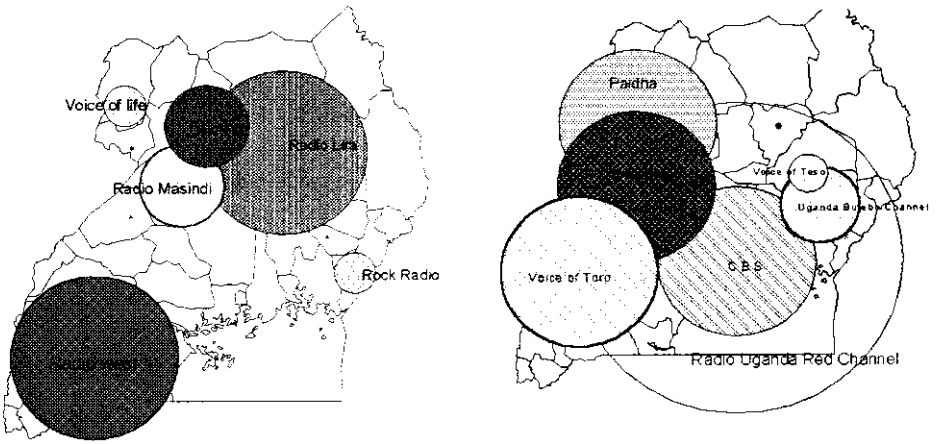
Dissemination of market information

In the past, most MIS services in Africa failed most apparently in their ability to disseminate accurate information to the farming community on a timely basis. Problems were associated with poor communication systems to collect information from the field, lack of up-to-date information, and high costs of staff and radio time (Robbins 1998). As a result, most information services shifted their client base away from farmers and traders towards policy makers and famine relief agencies. The latter clients often only require monthly or quarterly reporting of marketing data and therefore, as accuracy does not affect their operational profitability, short-term volatility was not considered to be such a critical issue. When FoodNet took up the management of the national MIS service in Uganda, the aim was to reverse this trend and focus on developing a service that provided timely, accurate information to the private sector at a low cost. To achieve this goal, the strategy was to use part-time staff and develop a multimedia approach to dissemination of information.

Email The national marketing information is emailed to 38 traders and institutional addresses on a daily basis and to 170 addresses on a weekly basis (see data sheets for daily and weekly price information sheets, Annexes 3 and 4).

Internet This information is also available on the FoodNet website, www.cgiar.org/FoodNet in the form of a radio script and datasheet.

FM Radio As the majority of clients are the many millions of small-scale farmers and traders scattered across the country, the best means of accessing these communities is through FM radios. Consequently, the main outlet for the national market information is through a 15-minute radio script that is broadcast to the nation on a weekly basis through 12 FM radio stations (see coverage Map 3). Survey work by FoodNet has shown that FM radio is the most accessible form of disseminating information to farmers as most farmers either own or know friends/neighbors who own a radio (Figure 16).



Map 3. Radio coverage for the market information service in Uganda.

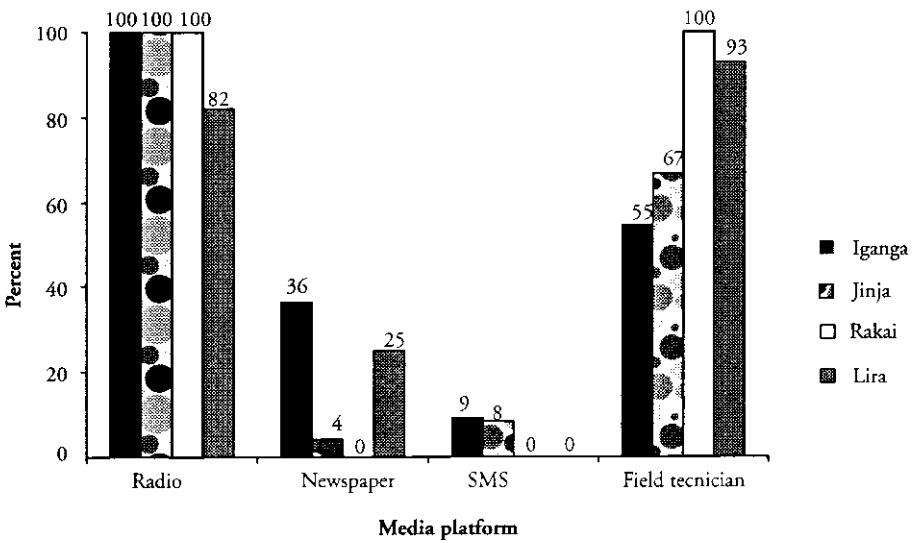


Figure 16. Medium of access of market information—small-scale farmers.

In virtually all cases radio scripts are emailed to the FM radio stations, where this is not possible, a fax is sent. In the future, we are planning to send prerecorded scripts as MP3 "voice files" directly to the stations via WorldSpace and/or the Internet.

This broadcast covers almost the entire country and provisions are being made to increase this coverage through linkage to the local market information service (see later). As Uganda has up to 36 local languages, it means that no single language can be used to disseminate the information to the entire farming community. To overcome this problem the scripts are sent to the radio stations in English from were they are translated into at least eight local languages.

The service has also recently developed links with a private sector company with studio production facilities and this has enabled the FoodNet team to produce audio scripts in Kampala, which can then be sent directly to the stations for broadcast.

In Uganda, the weekly service gets to an estimated 7–8 million people regularly. This is a very sizeable proportion of the farming community. (See example script Annex 5.)

Costs of radio dissemination Commercial radio costs can be relatively expensive for a routine broadcast, but due to the public goods nature of the information, the radio operators have agreed to disseminate this information at subsidized costs. Commercial rates for radio in Uganda are currently in the region of US$150–200/minute, but most studies charge in the region of $35–45 for a weekly 15-minute.

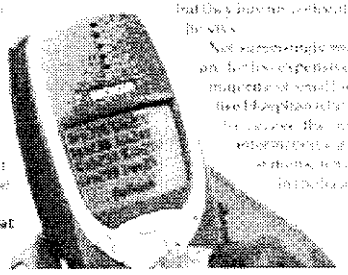
Newspapers The weekly price data sheets are published in one of the leading newspapers and in a local advertising publication, the *Weekly Ad.*

SMS mobile phone Most recently the FoodNet project has developed a partnership with a local short messages service (SMS) company on the MTN network, such that market information is linked with mobile phones. Information from the Kampala markets is loaded onto the SMS platform on a daily basis and provincial information from the 17 upcountry centers is updated on a weekly basis. The article below gives further details.

Mobile phones give farmers negotiating power

Inside Information

New technology is helping Ugandan farmers find out the real price of their crops and avoid being cheated by unscrupulous middlemen. Will Ross reports.



Market prices at your fingertips

The development and wide usage of mobile phones linked to the SMS service offers the opportunity to develop a near real time commodity price service through GSM mobile phones across the country.

Price data is obtained by the user simply by typing in a keyword, such as MAIZE, and sending this message to the SMS service provider's database. After 3–4 seconds, the caller will receive a return SMS message with the data attached. An example of a message that appears on the phone screen is:

Maize-UGS/KG-W/SALE:Kla225 Aru350 Glu200 Iga210 Jja210 Kab230 Kse180 Lra220 Lwr300 Msk350 Msi200 Mbl230 Mbr275 Rki180 Sor250 Tro250. FOODNET * RADIO WORKS 7/02/04 (See Footnote for details of message)[6].

All the market agents have recently been equipped with mobile phones, which has opened up new possibilities for data flow and FoodNet is exploring the opportunities of using this new data platform as a means of establishing a trading portal such that buyers can make offers and traders can enter a website to provide bids and make contact with potential sellers.

Costs and institutional housing

The national market information service is viewed as a long-term, strategic public goods service, which caters for the needs of the general agricultural sector and Government. The establishment cost for setting up the new service was approximately US$80 000 and at present the cost of running the national service in Uganda is approximately $50 000 (Tables 4 and 5). These costs include radio time, two full-time analytical staff, and 20 part-time field staff, operational costs, logistics, and monitoring.

The institutional housing of the national service is unlike any in the region in that it not executed by the Ministry. This new approach to effectively "outsource" the task to an independent public sector group is unusual but is providing the benchmark in the region as to cost efficiency, reliability, and performance in dissemination of information to a large number of clients.

Revenue opportunities

Few public services, particularly in developing countries are financially self-sustainable and history has shown that market information services are no exception. It takes time for farmers, policy makers, and other institutions to see the financial benefits of such a service and most recipients of the information are reluctant to pay or are too widely dispersed with no formal banking links to enable collection of a fee.

Therefore new models for financial sustainability need to be developed that are compatible with providing a specialized service to a highly atomized, poor client base. The SMS is one opportunity to offer the client a paying service. At present FooodNet has entered into a business relationship with the SMS provider such that 25% of the cost of each call is paid

[6]Acronyms of market centers (see Map 1 for locations): Kla–Kampala; Aru – Arua; Glu – Gulu; Iga – Iganga; Jja – Jinja; Kab – Kabale; Kse – Kasese; Lra-Lira; Lwr – Luwero; Msk – Masaka; Msi – Masindi; Mbl – Mbale; Mbr – Mbarara; Rki – Rakai; Sor – Soroti; and Tro – Tororo.

Table 4. Costs for establishing the national market information service in Uganda.

Item	Costs US$/year
Staff (field and office)	25 000
Vehicles (2)	10 000
Training	10 000
Computers	5000
Phones	1000
Radio air time and email	15 000
Logistics	7000
Monitoring	3000
Office operations	4000
Total	80 000

Table 5. Costs for operating the national market information service in Uganda.

Item	Costs US$/year
21 Staff (field and office)	25 000
Radio air time and email	15 000
Logistics	5000
Office operations	5000
Total	50 000

to FoodNet. These funds are used to offset costs of the data flow from the field. However, the proportion that FoodNet receives is low, i.e., 30 UgS/call, (1.5 US cents) and therefore it takes many thousands of calls until the service begins to offer a useful income source. There are options to change the amount charged by the phone companies for any areas of information, i.e., charging more for cocoa and coffee prices than for miller for example, but at this time, the view is that having the service operating in the country is more valuable than making a profit during this promotional time period.

Other options to increase revenue to the service include advertising and subscription fees to those partners who have the ability to pay. FoodNet is exploring the possibility of either sandwiching the radio scripts between commercial advertisements or franchising the information to a corporate institution as part of their community service development, i.e., Market information brought to you by Agriproducts International. This approach can be strengthened by syndicating such information across the top 10–15 radio stations.

Fee paying services are another possibility, but our experience has been that few private sector partners are willing to pay for services that others obtain free and many public sector agencies are not sufficiently commercially minded to see the benefits to the wider community.

These problems are common to many information providers, and many service providers consider that methods should be developed which either piggyback or embed this information into other services, i.e., market information being part of a bundle of information that a particular client may pay for either through an institutional or group purchase approach.

Whilst all of these avenues are being explored, it is our view at present that the most likely funding scenario is a hybrid of public and private sector funding.

Who benefits and how do they benefit from market information?

National market information services are designed to provide a countrywide service to benefit farmers, traders, development agencies, famine relief services, policy makers, and consumers. Due to this broad mandate of clients, the information is relatively general. Due to the costs of data collection and transmission in Uganda and much of eastern Africa, data is typically only available on a daily basis from the main terminal markets and only weekly from provincial centers. However, the benefits are tangible for the entire client groups named.

- Farmers who listen to the service, are empowered with information that will enable them to negotiate more effectively with traders.
- Small-scale traders can compare their margins and price changes against a number of nearby markets and against the major market trends indicated by the largest central markets.
- Itinerant traders can reduce risks by knowing where prices are highest and lowest, and can send trucks across the country to buy and sell at the highest margins. This is the most efficient method to achieve greater equilibrium in the markets.
- Development agencies involved in agricultural production can develop marketing strategies based on trend and spot prices. The information also enables them to select higher return crops and make decisions on whether to store or sell at a particular time.
- Famine relief organizations can monitor market surges and use the marketing data to make distribution more efficient and so have less market distorting effects.
- Policy makers can use this data over time to evaluate the effects of regulation and Government investment on the marketplace.
- Consumers.

Lessons learnt

The main lessons learnt from establishing the national service are:

- **Management** Market information services are more effectively run as an outsourced, independent function in collaboration with Government, but not by a dedicated department.
- **Staff** should be sufficiently trained, have routine processes to follow, and have access to the basic equipment in order to run an effective system. The basic requirement being:
  - The analytical office should be staffed with competent personnel. Whilst, Food-Net initially hired MSc staff to run this service, our experience has shown that,

once established, the service can be implemented by diploma holding staff. The service requires two analysts based at the main data collection center.

- Labor costs. The case for reducing labor costs is critical for the longer term sustainability of the service and therefore all efforts should be made to reduce these to manageable levels. Contracts should preclude the ability to remain in office regardless of quality of performance. Analytical staff should be limited to six-month and field staff to three-month renewable contracts. Field staff should be paid on a part-time basis or given a short-term contract to deliver the information.
- The analytical staff should operate within an independent working environment, with control of finances and surety that the budget is channeled to its intended areas of activity. This process should be monitored on at least a quarterly basis by reputable accountants.
- All staff must be paid routinely and given sufficient equipment to do the job. Equipment needs at the head office include computers, software, email, and phone connectivity. Vehicles are useful for routine monitoring exercises; FoodNet purchased second hand vehicles to run the service over a 6–7 year run. Similarly, field staff require a basic kit of a calculator, weighing balance, travel expenses and, if possible, access to a mobile phone.
- Maintaining the routine data flow is key to the successful running of this type of operation. All data should have a collection time and date and also a transfer time. Similarly, analysis should be completed within a specified timeframe with fixed times and dates for dissemination back to partners.
- Any impediment to the data flow should be dealt with quickly, and if staff are unreliable, they should be replaced without hesitation. The national service used monitoring sheets to monitor when data was submitted. Regular delays in submission should lead to dismissal.
- Data should be routinely evaluated with monitoring trips reporting on field staff performance. In the first three years of initiating the MIS, FoodNet staff conducted monthly monitoring trips to evaluate the field staff in terms of the data accuracy and knowledge of the local market.

- **Data points** The number of data collection centers should be manageable in terms of budget and data handling. A national MIS should attempt to provide a robust analysis of the market situation across the nation, but where possible, should reduce the number of collection points to the most important demand/trading centers. The number of sites in which data collection takes place should be linked to population density and radio outlets.
- **The number and types of commodity monitored** FoodNet purposely selected storable food products that are not highly price volatile over a 1–2 day period. Therefore the list of commodities is focused on dry products such as cereals, grains, pulses, and root crops. If a service intends to work with perishable products, the level of reporting should increase to more than once a day, and may require more data points due to the more volatile nature of these markets. It would probably be better to run two

types of operation, one focusing on higher value commodities and one on lower value.

- **Rate of reporting** Ideally a service should report for all products and markets on a daily basis. The national service does this for the largest markets in Uganda, i.e., the main wholesale markets in Kampala, but due to the costs and difficulties in data collection and transmission, only reports on district level data once a week.
  - When the service was established in 1999, the most reliable form of data transmission from upcountry was the local post office fax. This service is still the most reliable and cheapest system of information transmission if an individual only wants to send one sheet a week.
  - Email and the Internet remain inaccessible and or unaffordable for most operations, although Internet cafes are starting to become a more regular town feature. In most areas of Eastern Africa, Internet communications do not penetrate more than 10 km outside of a major center. Up to now, this system has not proved to be sufficiently reliable or affordable to use as the main data submission or distribution channel.
  - Mobile phones are being rolled out across most countries very quickly and this new service probably offers the best opportunities as the vehicle for data flow. As most towns in Uganda are now linked to mobile phones, the method of data submission is being shifted from fax to mobile phone. Using off the shelf software, data can now be submitted from a mobile phone directly into a database and thereafter redisseminated to clients via email and or SMS messages.
  - FM radios remain the most effective means of disseminating information to the mass clientele. The numbers of FM radios are increasing in all countries as the airwaves are liberated and a larger percentage of rural people have at least access to radios. The radio also offers other services such as the ability to run educational programming alongside the regular dissemination of data and phone-in services. In addition to this, local radios, can broadcast a regular script in the local language, which is an essential feature in a population that is largely illiterate.
- **Database software and quality control** FoodNet staff have attempted to use Priceman and Agmark with mixed results. As none of this software has been developed with a commercial service in mind, they are not flexible enough to be used for all requirements. At present most national services are limited to using Excel as the main data entry and storage system, which raises concerns as to likelihood of data corruption or loss over time. Data analysis is also limited using this system.
  - Maintaining data quality is critical to the viability of the service and if the private sector loses confidence in the information, the legitimacy of the service is lost. Therefore, the analytical team must maintain close links with the markets and make sure they visit the market at least 2–3 times/week.
  - This also applies to the upcountry data and one of the important roles of the analytical team is to conduct regular monitoring visits to the provincial markets to evaluate data quality and methods of collection. In Uganda, the field staff were

monitored by the analysts at least once a month. This has been reduced to once every two months after four years of operation.

- **Other services.** For the past five years the FoodNet national MIS has concentrated on commodity prices. However, there is demand for other information, which would provide a more holistic service and also offer greater opportunities for sustainability of the service. These services could incorporate ideas such as:
  - Perishable commodities such as fruits and vegetables. If this is to be done, the market information should focus on specialized markets and provide regular daily updates. A survey would need to be done to establish the most important commodities and the rate of information flow.
  - Fish is often a neglected area that provides an important source of income for many thousands of fishermen and mainly women traders. There is a good opportunity to support this sector, particularly in areas such as the great lakes, due to competition between countries.
  - Export commodities The service should provide both local purchase and internationally traded prices for commodities such as cotton, coffee, tea, cocoa, vanilla, specific spices, herbs, and oils.
  - Input supply Including fertilizer, seeds, and pesticides.
  - Nonagricultural commodities: regional Forex, gold, oil, transport, tariffs.
- **Two-way data flow** The main role of a national service is to provide information to large numbers of remote producers and traders. However, there is also demand for services from these clients, which can collate and transfer information on product availability, i.e., the supply side. Our experience has made it evidently clear that a commodity exchange type operation is virtually bound to fail, although it is a popular project in most countries. However, there is a real opportunity to develop a system whereby, farmers could send in information on their product availability via SMS. This could be stored on a database by location. Traders could then pay a fee to access this database through an Internet portal. This would enable them to locate a potential trade opportunity and thereby make their loading operations more efficient. The service would not be responsible for trade, it would only provide a platform for other to make contacts.
- **Monitoring and evaluation** A critical question often raised by donors and analysts is whether it can be shown that market information has a direct benefit on the income of recipients and if so, what is the magnitude of the increase in income. These are not simple questions to answer. Income for farmers is based on the sales of commodities at open markets and these prices are affected by many factors. The degree to which specific factors, such as access, supply, demand, shocks, changes in infrastructure social organization, and market information change over time and therefore attribution of positive change based on any one factor, such as market information, is complicated. In an attempt to address this important and highly relevant question, FoodNet is working with partners to find practical ways of making

links between livelihood incomes and the provision of information to assist marketing using two methods of analysis. The first and more complicated approach is to analyze time series data, to determine if a statistical relationship can be identified between commodity prices in a number of markets over time and then to tease out causal links between trends and developmental improvements, such as roads, security, and market information. The second approach has been to (i) survey recipients to provide information on whether the provision of market information has had a positive or negative effect on their incomes and (ii) to ask listeners of radio stations to write in describing their reactions to receiving marketing information.

The first results in this process are, however, encouraging in regard to the integration of maize markets in Uganda (Rashid 2002). Using weekly maize price data for two subperiods, 1st week of 1993 to 40th week 94 and 40th week of 1999 to 30th week of 2001, market information dynamics of spatial integration among provincial markets were tested using Johansen's multivariate maximum likelihood co-integration framework. Based on the empirical results, the main conclusion from the study was that compared to the early years of liberalization, the extent of integration in Ugandan maize markets has improved and the results currently show that whereas four markets were integrated according to the dataset from 1993 to 1999, this level of integration has increased to include eight markets as shown by the IITA-FoodNet data which covered the period from 1999 to 2001. This study is currently working on factors of attribution for this change, but maintains that market information is an important component in this process.

Using the more traditional approaches, FoodNet has undertaken two surveys and a radio call to evaluate the impact of market information in selected locations. This information was related to the localized marketing information service, as reported in the section on results from the first impact assessment (page 28). The response to the radio call, was overwhelmingly positive with most farmers indicating that they were very much in favor of receiving price and market information and that this had enabled them to improve their bargaining position, to make better decisions on what to plant and where to sell.

Results from individual respondents in the survey indicated that they had a much better appreciation of market price trends based on the market information and that they were able to use this information to improve their negotiating position with traders and that this led to better prices. Groups selling maize and beans in all districts receiving the market information on radio and through other means were able to negotiate for better prices. In a particular instance of a group in Rakai district, the group claimed to have increased their incomes within a range of 5–15 % against the most frequently quoted prices in their local market at the time of sale. The main message from the interviews was that the people who were most able to capitalize on the information were those organized into marketing groups.

How to do it better in the future (better, faster, further, and cheaper)

At present most services do not start from scratch, they are resurrected from within departments and there is generally considerable institutional baggage that must be taken into account. In future this may not be the case, and given an open tender opportunity there

are possibilities that the next generation of market information services can capitalize on both new management and technology opportunities.

- **Management** Governments should consider outsourcing market information services. Along with other state services the Government's track record in maintaining a quality service that provides regular, accurate data, at low cost, is poor. Government departments are typically under funded or not sufficiently motivated to maintain technology-based systems that offer quality; this is because quality does not affect their "bottom line". Opening the service to greater competition may provide an opportunity for reputable service provider organizations to make bids to run the national marketing information service. This process of tendering could be structured on a 3–4 year r olling contractual basis. In this situation, the Government can make a planned budget for the service and play a monitoring role in regard to contract performance.
- **Staff costs** Staff costs should be considered carefully, as this is the second highest expense after dissemination. The most streamlined services will in the longer run, be the most effective. This requires high levels of automation and best use of technology.
- **Data flow**. The most efficient method of data flow at present is the mobile phone. This should be used as the means of data capture and delivery to the analytical office. Where this is not available, the cheapest system should be used.
- **Data storage** The price and volume data should be stored on at least one computer, linked to an online database. This will require regular backing up of information. If possible a dedicated software package should be developed to facilitate data entry, analysis, and report preparation. The database should also be available for on-line analysis by clients, possibly on a fee-paying basis.
- **Dissemination** This is the highest cost and services should therefore work with the private sector at every opportunity to find ways of reducing this expense. Information from the service should also take advantage of all available media outlets to bring the information to clients.
  - Daily information should be made available via the Internet and to more remote farmers and traders via SMS. All major markets should ideally have an electronic noticeboard/redboard providing information from that and other markets.
  - Weekly or twice weekly information should be made available via FM radios.
- **Revenue** The service should attempt to find several revenue streams. This can be done by a combination of public and private support.
  - Gaining access to free airtime on dedicated phone numbers to provide the data.
  - Using advertising to support part of the radio air time costs.
  - Negotiating long-term contracts with radio companies and finding inducements such as training and or new technologies that will enable them to offset costs.
  - Developing a client base, whereby some clients such as development agencies, relief organizations, and/or some private sector associations would pay an annual fee to enable them to access long-term data via Internet access.

Key processes and characteristics for implementing the national market information service

Target clients Small-scale farmers, farmers associations, village traders, travelling traders, trade associations, nongovernment organizations, policy advisors, food security analysts, disaster mitigation agencies, food relief agencies, and consultants.

Infrastructure/equipment needs

Office staff Computers, Microsoft office, Priceman, Internet connectivity, a vehicle, an 80 cc motorbike for market visits, a mobile phone, access to FM radio airtime across the country, Worldspace connectivity, access to studio recording facilities, tape recorder.
Market/Field staff Weighing scales, mobile phones, computer email/ fax facilities, (moisture meters at key market points). Moisture meters would be useful at all market points, but due to cost, can only be used at a limited number of sites.

Staffing

One MSc economist, who monitors data flow and conducts basic price analysis. The analyst is responsible for overall management, providing training to staff, and testing new ideas in the field with partners and evaluating data quality. The analyst provides routine guidance to field officers and monitors data quality through regular field visits. The analyst is also responsible for developing training programs for key clients and farmers groups in collective marketing. At the end of each week, this person develops a radio script and ensures that all partners receive the information. The analyst is responsible for providing numerous clients with specific types of data and for undertaking data analysis on request. The TOR for this person has been developed such that the person is also responsible for strengthening the service through the development of partnerships with both public and private sector agents.

One marketing officer The main duties of this person are to collect daily and weekly information and ensure that all databases are current. The officer collects data from three major crop-based markets and one central abattoir on a daily basis and is the main link to the terminal market traders. The marketing officer is responsible for loading all data sets into an Excel spreadsheet on a daily basis and collating all the weekly data. These spreadsheets are held at one location and are emailed out to a standard list on a daily and weekly basis. The data is also loaded onto an SMS platform and at least three websites.

The marketing officer is involved with testing new equipment, such a moisture meters, and the promotion of new ideas with the traders at the main markets.

Field staff At present the national marketing service operates in 18 market centers. At each market a Government trade officer is provided with top-up funds to implement the work and disseminate information. The service currently has 18 data collectors based in the district and five volume collectors based in the markets.

At each location the field officers are equipped with notebooks, a mobile phone, and funds for faxing information to the central office and a provision to air one 10–15-min program on the local FM radio.

Timeliness of information

To ensure timely processing, analysis, and dissemination of market information, data collectors are required to transmit data to the central office on Tuesday and latest by Wednesday of the week. To ensure that data comes through by the designated dates, a data tracking form has been designed to keep record of the incoming data. In case some data collectors have not sent data on Tuesday, an SMS reminder is sent to all concerned data collectors on late afternoon of Tuesday about undelivered data.

- Daily price, volume, and grade information from major markets in Kampala.
- Weekly price and market information data sheets sent twice a week from provincial market centers.
- Weekly radio script sent to various stakeholders

Types of information

- Prices (off-lorry, wholesale and retail, export quality)
- Commodity volumes (tonnage, number of lorries)
- Commodity quality characteristics (various, e.g., single vs. mixed color, sorted vs. unsorted, mature vs. immature, new vs. old harvest etc.)
- Moisture content for grains (e.g., high moisture, dry/low moisture)
- Demand and supply situation (e.g., high, moderate, or low)
- Weather conditions (dry vs. wet, haze vs. clear, rainy vs. sunny, dusty etc.)

Methods used to gather information

In order to get all the required data, data collectors contact stakeholders from a range of agricultural sectors on a routine basis. These actors include:

- traders (sedentary traders, wholesalers, retailers, exporters and itinerant/ traveling traders)
- market administrators
- farmers, farmer representatives, regional associations
- district officers (commercial/trade)
- metrological office
- extension services such as NAADS officers, etc.).

This data is gathered to provide a general assessment of the market situation. The information from the markets is collected with the use of a 1-sheet data collection form, which can be faxed and or emailed to the central office (see Annex 2).

The following list indicates field officers from where information is directly accessed on a weekly basis.

Collection is done on a weekly basis from Monday to Wednesday and sent by Thursday. To supplement the price and grade data, traders have requested that FoodNet collect volume data from key market points; this is done by the following marketing agents.

Name	District	Mobile
Oryem Charles	Gulu	077 559732
Kasubo Sarah	Iganga	077 559269
Muganza James	Jinja	077 373014
Ahimbisibwe Charles	Kabale	077 559447
Byamukama Martin	Kasese	077 559268
Taiwo Benson	Lira	077 372438
Oboko Emanuel	Arua	077 372831
Kwebiha Robert	Hoima	077 888255
Kasozi Fredrick	Masindi	077 559136
Bumba Wagole	Mbale	077 559423
Nuwagaba Justinian	Mbarara	077 558997
Jimm Kava	Rakai	077 589595
Benjamin. A Ogunia	Soroti	077 372964
Opio Isaac	Tororo	077 363823
Enock Kikulwe	Luwero	077 414522
Christopher Amic	Kitgum	077 973537

Volume collectors (weekly)

Mpoza	Kisenyi market
Mwejje	Kisenyi market
Mugabi Gordon	Owino Market
Haji Muberu	Kisenyi Millers Assn
Bwire Henry	Busia border

- Public Ledger (weekly)
- Websites (Cotlook.com, ino.com,) (weekly)
- Newspaper (East African) (weekly)
- Members of Uganda Grain Traders (UGT) (Daily)
- Input suppliers (FICA, East African seeds Ug Ltd, Harvests Uganda) (Monthly)

Technologies used to gather information Lined paper note pads, weighing scales, tape recorders, moisture meters (in some test sites), access to fax facilities, and email.

Software used in service

The national service has used a number of different programs to input, analyze, and disseminate information. None of the available software was particularly good for all activities and FoodNet is currently working with Busylab to develop a dedicated software.

- Priceman computer package (analysis and storage of data) developed by FEWSNET.
- Microsoft Excel for processing data and for storage.
- Microsoft word for writing scripts and reports.
- Microsoft Outlook for email through local service provider.
- Cool Edit Pro, a program used at some radio stations with computer facilities to edit MP3/voice data.

- Macromedia Dreamweaver used to update information on the FoodNet website.
- Internet Explorer for receiving and collecting international information and perspectives.
- More recently, the data uploading system has been developed through a web-based interface, designed with Php website tools. This site has facilities to accept data loaded via a standard email format, and an SMS comma delimited message. This data processing loads the data onto a Mysql "public access data base platform". The option to use cold fusion was not selected; although it was considered a better system, it was thought that many African service providers would prefer to use a public domain software. For more details of this application, see the key characteristics section of the regional service.
- In this respect the national service has become the first recipient of the new software process and systems that were developed by the regional market information service.

Data processing and analysis

- Staff at the Concurrent information processing and computer (CIPC) center file all hard copy data received from the field immediately in box files provided for the purpose to ensure proper record keeping.
- Data is entered in the computer database as soon as possible, preferably on Wednesday, when all data has been received from the field.
- Data processing and analysis is completed by the end of working hours on Thursday of every week.
- Processed information includes outputs such as price-commodity information matrix/spreadsheets, radio scripts, newspaper briefs, etc.

Information sources for writing the scripts include the primary information gathered by data collectors, newspapers, knowledgeable individuals on the subject matter, Internet-Public Ledger, etc. The analyst and marketing officer have a routine number of information sources, which are assessed, mined, and integrated routinely.

Methods used to disseminate information

To maximize the relay of market information to all stakeholders, the project uses all possible media including the WorldSpace satellite radio, FM radio, email, the Internet, facsimile, newspapers, advertising spots, SMS, and workshops. Several other agencies also use the weekly FoodNet price data sheet for their businesses and as an information resource to promote other activities. FoodNet encourages multiple secondary usage of this information through other service providers. Key outlets are used as follows:

- Rural community-based radio stations; a weekly program is broadcast through 12 local FM radios, capturing an audience of 7–10 million potential clients.
- Email is sent on a daily and weekly basis, fax is used sparingly. Daily and weekly lists serve approximately 300 organizations and individuals.
- SMS are used to collect data. An SMS pull platform has been established from which clients can request for daily and weekly data.

- Websites. The FoodNet data is loaded onto three websites, including FoodNet, RATIN, and RADIOWORKS. Current hit rates are in the region 7–8000/month.
- The weekly Ad, an eight-page advertising sheet that has FoodNet news to attract customers. Circulation is 15 000 a week mainly up country.

Educational processes

Unlike the local service, the national market information service, which has developed specialized educational processes, has been the recipient of the new ideas being developed by the local service, which is another example of cross learning processes.

The focus of the national service has been on developing in-house competence and capacity. The national service team has trained both local and regional staff within FoodNet and in regional training courses.

- Training of data collectors in collection of market information and use of email, Internet, and SMS facilities.
- Training of the general public on how to get access to market prices via SMS.

Grades and standards

One of the most important trading concepts that many farmers do not understand or apply is the adherence to market grades and trade standards. Grades in most countries outside of sub-Saharan African are mandatory and they are enforced by law through food safety regulations and encouraged at the market place through formally agreed quality criteria that attract premium prices. In most African markets quality is a time-based criteria at best and there is no enforcement. However, trade is increasingly becoming an integrated process of local to national to regional and international/overseas commodity flows and so farmers who ignore grading and standards will receive increasingly punitive price discounts for their goods. FoodNet is working with traders to introduce:

Methods to evaluate and improve services

- Assess the market information requirements of the stakeholders through a survey.
- Listen to and monitor radio programs on a weekly basis from the target stations.
- Regular training and consultation with data collectors in the field on a monthly basis.
- Monitoring visits to the markets consulting with market heads.
- Advise stakeholders to write in to program.
- Number of hits on the website.
- Number of SMS requests from the main SMS service providers.

Capacity building of stakeholders

- Training of stakeholders in use of SMS and website reading.
- Monthly trade meetings on forecasts of production and weather.
- Inclusion of stakeholders in radio programs.

Quality assurance

- To ensure accuracy and timeliness of market information, the project has to work with people of high caliber within the district, particularly those already serving in a

related field such as trade, marketing, commercial or cooperative officers. They will be incorporated into the project to serve as data collectors provided they accept the terms and conditions of work.

- At the CIPC data input, processing and analysis should be treated with utmost care to ensure quality. Information from primary sources (e.g., from data collector, interviews with traders, etc.) should be crosschecked to ensure consistency, accuracy, and validity.
- Data collectors may be facilitated with voice recorders to record information.
- Wherever possible project staff at CIPC and data collectors should be called upon to present the market information radio scripts in the local language they are comfortable with. This is to ensure minimum distortion of the message contained in the radio scripts by broadcasters who may not be reasonably knowledgeable of the subject matter.
- Where possible, the project should translate radio scripts, spots, dramas etc. on market/marketing information into local languages to ensure quality, consistency, and minimum distortion of the message contained in the scripts.
- Other avenues should be explored to maintain/improve quality of the market information service processes and products.

Impact assessment methods

- Communication from the stakeholders to the radio programs (letters/ phone calls).
- Tabulation of counts of the products requested for on the SMS platform.
- Examination of the trends at the various points to record changes in volumes and grades of produce.

Regional marketing information services

Design of the regional agricultural trade intelligence network

In response to the foregoing analysis the regional marketing support service was developed to provide traders with the fundamental information to support decision making based on short-term and longer term forecast-based information. The data gathering system was also developed to take into account the two very different types of client, i.e., the larger formal trader and processor and the more opportunistic, cross border trader.

Goal

To strengthen food security and enhance economic growth based on increased volumes and value of interregional and extraregional trade.

Country selection

For the start-up phase of RATIN, it was decided to limit the number of countries to a manageable and sensible trading bloc. As such the trading countries of Kenya, Tanzania Rwanda, and Uganda were selected as the test countries. These countries also neatly fit into the East African Community. It is anticipated that the service will expand into the larger Eastern and Southern African trading corridor, including Malawi, Mozambique, South Africa, Zambia, and Zimbabwe in the next phase.

Commodity selection

Despite the temptation to include as many commodities as possible into a regional information base, the decision was made to limit the number of commodities used in the first 18 months of operation to the two highest volume, regionally traded goods, these being maize and beans. There are other commodities that are also traded in high volume such as banana, rice, wheat, and cooking oils, but they do not have the same level of trade across all the countries. It is anticipated however, that these commodities will be included in the second list of commodities that RATIN will service.

Data collection points

As with commodities, the number of data collection points required from each country is limited. There are traditional trading routes and therefore the cross border trader is most interested in market information from a few key markets along the trade route and for a limited number of products. Essentially, at the regional level, the service needs to consider, (i) what can be used from the national services that provides regional valued added in terms of price discovery and also, (ii) how to incorporate the border points for both formal and informal trade that are not adequately covered by the national services.

For RATIN, 4–5 major towns were selected from each of the participating countries. To capture the cross border flow, agents were hired to monitor commodity flows at the most strategic border points to capture volume, price, and when required, quality. Whilst

this information should be collected by Government officials, experience shows that there is considerable under reporting.

Data types

Price

As services target clients of higher volume transactions, the need for price data becomes less valuable as the actors will have established sources to gather price information. Most traders have a network of trusted contacts in the markets, which they can easily reach by phone. The aim in this case is to provide a reliable reference price that traders will use to reduce the number of calls needed to verify a price.

Volume

At the national service level, the intensity of trade can be addressed using descriptive terms such as low, average, and high. However, to meet the needs of trader who are making transactions over longer distances, the increased risk requires greater resolution in which case observers are needed who collate information on volume at both markets and border crossing points. RATIN has border monitors between the countries measuring daily volumes and prices of commodity. In some cases, this information is linked with source and destination data.

Trade balance sheets

During the survey of traders' information needs, one of the most common requests was for greater insight into projected supply and demand conditions and also the impact and timing and quantities of future imports. This information was considered to be particularly important for the urban traders. Government and food relief agencies often generate a so-called "Food Balance Sheet" to provide a measure of production against consumption and expected harvest based on crop performance. This tally sheet is mainly used to plan for importation of commercial and food aid.

As RATIN was designed to promote regional trade, the team has opted for a "Trade Balance Sheet" which provides a more commercial view of the importation and export flows. This information is developed in partnership with traders, Government officials, and experts from development and relief organizations. In cases where there are large discrepancies between Government and trader figures, both are provided (Table 6). In the past, the poor levels of cross border reporting and lack of confidence in Government production statistics has meant that balance sheets were subject to considerable interpretation. The introduction of more commercial information into this type of calculation, alongside other data on weather, crop condition, and trade flow aims to reduce this level of uncertainty.

At present the trade balance sheet is made on an annual basis, but there are plans to shift this into a rolling monthly balance sheet to reflect monthly changes in outlook.

Table 6. Trade balance sheet for Eastern Africa from June 2003 to April 2005.

Trade based estimate for regional maize balance sheet up to April 2005 (tonnes).

Maize balance sheet	Uganda	Kenya	Tanzania**	Tanzania*	Rwanda*	Rwanda**	Malawi	RSA
Period	07/03–06/04	07/03–06/04	06/02–05/03	07/03–06/04	07/03–12/03	07/03–12/03	01/03–12/03	05/04–04/05
Stocks	15 000	135 000	222 000	100 000	8000	1000	300 000	2 100 000
Relief inputs	30 000			30 000	10 000	3000		
Commercial imports		48 000	5000	750				
Cross border imports		198 000		–135 000				–800 000
Gross harvest	468 000	2 430 000	2 705 000	2 540 000	13 000	N/A	1 600 000	4 300 000
Postharvest losses								
Seed								
Exports			124 000					
Total availability	513 000	2 811 000		2 535 750	21 000	1000	1 900 000	5 600 000
Consumption	420 000	2 880 000	3 089 000	2 500 000	41 000	13 000	1 400 000	4 300 000
Surplus/deficit	93 000	–69 000	–281 000	35 750	–28 000	–13 000	500 000	1 300 000
Source	IDEA	Traders	MAFS/Jan	Traders	FBS	FBS	Traders	Traders

Please note differences in time frames when comparing these balances
**Tanzanian data from MAFS; *Tanzania data from traders assumes lower consumption; Rwanda * Grain; Rwanda ** Flour

Crop condition

In support of the trade balance projections, information is gathered from in-country surveys to provide updates on (i) crop performance in the field. The types of information provided in this section include (ii) date of planting, (iii) delays in planting, (iv) proportion of crop that has sufficient rain to reach harvest, and (v) amount of crop that has been harvested. These estimates are made using satellite imagery and through analysis by FEWSNET staff working with government extension services followed up with ground truthing.

Weather

FEWSNET is a longstanding project with strong links to the National Aeronautics and Space Administration (NASA), the United States Geological Survey (USGS), and the National Oceanic and Atmospheric Administration (NOAA). These agencies provide satellite imagery to FEWSNET for them to interpret for areas such as Eastern and Southern Africa. This information is therefore made available to the RATIN team for interpretation of the situation vis-à-vis crop performance. This work is also supported with local information and updates from the meteorological offices.

Policy documentation

A key role of the RATES within RATIN is to provide insight into policy changes that are taking place within the region and have a direct bearing on commodity trading. These reports are filed onto the website. The issues of particular interest to traders include changes in tariffs, road investments, changes in fuel prices, and port duties.

Analytical reports

All of the partners periodically produce reports on the marketing and production of maize and beans in the region. There are also other development and Government agencies writing similar reports. These reports are also filed onto the website as background information.

Product quality

Although quality is becoming an increasingly important trade variable, it is only used at present by formal traders, who make transactions based on agreed quality conditions. For a regional information service, it is important however, to be in a position to report on particular quality aspects, for example, how price varies with grade. Probably the most important quality variable that is currently used is moisture content and this attribute is closely linked with price. Other grading factors include old crop versus new crop, again, this is mainly linked with moisture content, and other traditional standards such as color, level of broken grains, pest and disease counts, and in some markets, such as cocoa, groundnuts, and now maize, there is a requirement for an aflotoxin evaluation. In Eastern Africa, moisture content and mold counts are major reasons for price quality discounts. Therefore, RATIN is focusing on moisture content as the most important quality criteria to track and this has introduced a research role into the service, which is aiming to find a low-cost, reliable solution to providing routine testing at key market centers.

Transport and tariffs

The cost of transport and tariffs are a major marketing issue. Although these do not vary as quickly as the other market factors, it is important that changes are reported promptly as they will impact directly on profit. Tariffs generally do not affect the small farmer and village trader, but have a marked effect on market prices in the major urban markets and will therefore affect the urban trader, the informal exporter as well as the regional trader.

Information sources

RATIN is a consortium of three regional networks, FoodNet, FEWSNET, and RATES, linked to a number of commercial and public sector partners. The lead partners play a facilitating role in gathering, analyzing, and disseminating information. The following section provides information as to these processes.

Regional crop and trade support groups One of the main features of the RATIN data collection service comprises two specialist groups that provide regular primary information into the service from the formal and informal trade perspectives. In some respects these forums are embryonic crop forecast committees as they essentially work towards the building of a consensus on countrywide positions of the crop in any particular month. The RATIN team uses these national forums to synthesize a regional perspective.

The more formal trade sector holds national meetings in Kenya, Rwanda, Tanzania, and Uganda during the first week of every month. This group is made up of traders, millers, representatives from farmer associations, Ministry staff from agricultural extension, Government statistics, meteorology, and representatives from the market information services alongside representatives from FoodNet, FEWSNET, and RATES.

At the meetings, information on production, crop performance, market prices, weather, demand and supply conditions, and other issues such as food aid purchasing and disbursements are presented by the group members and discussed. Particular issues of importance for any particular time in the crop cycle are also raised and, if possible, solutions or processes are put in place to tackle these issues. At the formal trade meeting, the reports from the other member countries are also presented. This is usually done by enabling one of the member partners to travel to another country or an email report is sent to the hosting institute. The meetings are held on a participatory basis and no fees are paid to the attendees.

Reports from these meetings are made on the RATIN website under the "Regional Trade Position" section. The website front page is emailed to all 1500 stakeholders on a monthly basis. The front page holds links which will take the user directly to the RATIN website.

Regional informal trade analysis Information from the formal traders support group is supplemented and verified with a regular monthly review from key informants from the informal traders group. To obtain this information a dedicated trade economist based at FEWSNET makes a regular series of phone interviews with cross border traders, Government extension officers, and millers.

Information from this regional analysis feeds into the formal meetings and also forms the basis of the cross border traders' bulletin. The bulletin is produced in English and Swahili and is sent to identified trader associations via hardcopy and WorldSpace.

Food aid updates Additional information is also provided on food aid purchasing and disbursement from the World Food Programme. This information includes procurement and in the future may contain tendering information.

RATIN partners and responsibilities

Due to the regional coverage of this service, partners were selected in regard to their regional capacity and include:

- **FoodNet,** a regional ASARECA research and development network, focusing on market analysis and enterprise development. This regional network was established in 1999, to provide a cross cutting support role to the ASARECA commodity-based projects. FoodNet has developed a portfolio of activities based around (i) trade analysis, (ii) market information, (iii) market analysis, (iv) enterprise development, and (v) Web-based information development.
- The role of FoodNet within RATIN is to provide marketing data, including spot prices and volumes from key markets and cross border points. FoodNet is also charged with providing at least four news stories per month. This information is archived into databases that provide the user with an option to review trend data. FoodNet hosts the Uganda trade meeting and edits the information from the monthly country crop position papers for uploading on the website www.ratin.net. FoodNet is also responsible for developing a WorldSpace Internet system http: //radioworks.africacentral.net/ that operates through FM radio handsets. This non-Internet system will be used to disseminate the monthly informal trader's newsletter.
- **The FEWSNET project** (Famine Early Warning System Network) is designed to gather and analyze a range of agricultural and socioeconomic information with the primary aim of highlighting areas of food insecurity. The information is disseminated to policy makers and humanitarian agencies such as the World Food Programme, to influence both food aid policy changes and Government emergency interventions.
- The role of FEWSNET within RATIN is to provide information on crop production and analyzed information on weather conditions and flows of food aid in the region. Specifically in support of RATIN, FEWSNET have hired a dedicated trade staff member to provide regular monthly analysis of local trade conditions with a focus on the informal sector.
- **RATES** (Regional Agricultural Trade Enhancement Support Programme) is designed to increase value/volume of agricultural trade within the East and Southern Africa region and between the region and the rest of the world. RATES is developing commodity-specific regional trade initiatives including coffee, maize and pulses, cotton and textiles, livestock, oilseeds, beans, and horticulture. Through policy advocacy, lobbying, public relations, and market research, RATES is developing a dialog regarding trade issues in East and Southern Africa.

- The role of RATES within RATIN is to provide information regarding policy-based information and updates on changes in tariffs and transport costs. RATES have also agreed to fund the development of specialist software and website development costs to support the database management for RATIN.

Ministries of Agriculture and Trade All the national market information services and agricultural staff from Kenya, Rwanda, Tanzania, and Uganda are involved in the process of data collection for marketing and production information. This information is integrated into the on-line services.

Trade groups Include millers associations, grain traders associations, and producer associations. This group is a critical membership of the monthly Crop and trade meetings.

Radio Works A Kampala-based radio company that operates four rural radio stations and the East African franchise for WorldSpace. Radio Works in partnership with RATIN is developing mechanisms through a WorldSpace linkage to enable the flow of text, bulletin, and MP3 files to rural radio stations and telecenters in Eastern Africa (see section on WorldSpace).

Direct beneficiaries of RATIN

The main beneficiaries for the regional service are medium-scale traders, mainly informal, who are directly involved with exports or who directly drive exports (see client list below):

- Small and medium-scale commodity traders associations: > 50 t < 100 t
- Larger traders > 500 t
- Farmer associations
- Transporters
- Development agencies
- Government policy agents
- Food aid agencies

RATIN activities

- Forecasting regional trade positions, based on monthly meetings.
- Routine collection of primary marketing information in collaboration with MIS services.
- Updates of relevant crop and weather conditions.
- Updates on policy review and analysis.
- Updates on relevant trade news.
- Analysis of information and repackaging for specific target groups.
- Dissemination of information through various media formats including Web, email, SMS, FM radio, satellite radio.
- Support to educational information for the informal trading sector.

Table 7. Summary of the direct beneficiaries of a regional MIS.

Actors	Comments
International trader	Not the target beneficiary—already has considerable access to world market data.
Regional trader	Already has a good system for obtaining market information, but interested in using a regional MIS data for comparisons or guide— would also make significant contributions to the regional MIS analysis and will therefore be a source of data and news.
Large millers	Needs information from neighboring countries to develop purchasing strategies. Would benefit from and contribute to a regional MIS.
Urban trader	This group has good sources to supply market price data, but needs data on production in neighboring countries as well as information on any interventions by Government. Should be one of the target beneficiaries of the regional MIS.
Larger informal exporter (more than 500 t/yr)	Principal target beneficiaries for the regional MIS. This group shifts 70+ % of cross border trade.
Smaller informal exporter (less than 100 t/yr)	This group is also a principal target beneficiary for the regional MIS. However, some of the information could reach them via their national MISs and therefore a special bulletin is written to support this group.
Village trader/farmer groups	Not targeted directly, but some of the information could be disseminated to them via their national MISs.
Small farmer	Not targeted directly, but some of the information could be disseminated to them via their national MISs.

Institutional housing

In the first 18 months the service will be run as an independent project. In the longer term, 3–5 years, the aim is to expand the service into the COMESA region in which case the service will become COMESA property.

Methods of information dissemination

Internet

RATIN Website www.ratin.net A good number of the larger traders that RATIN aims to serve have access to the Internet. A front-page image is presented in Figure 17.

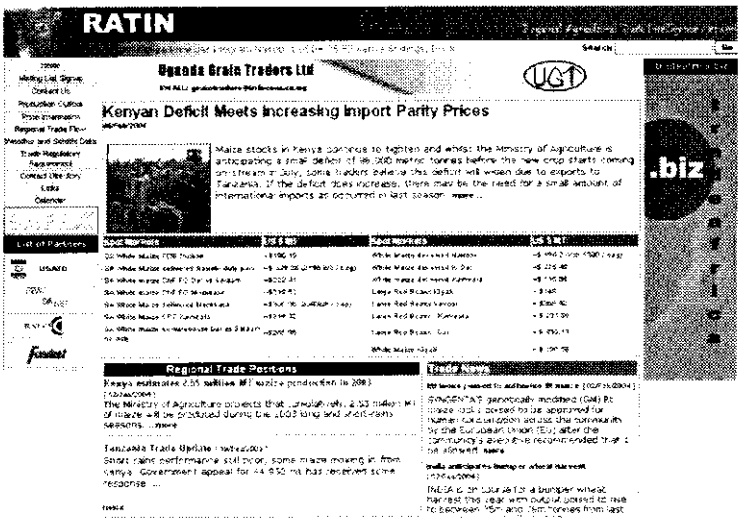


Figure 17. Index page of RATIN website.

The main information resources on this website are indicated in the table below with a designation of which partner in the consortium provides this data.

Activity	Serviced by
• Regional trade positions	• All Partners
• News stories regarding trade	• FoodNet
• Spot prices	• FoodNet
• Cross border volumes of trade	• FoodNet
• Price database information	• FoodNet
• Weather updates	• FEWSNET
• Trade balance sheets	• FEWSNET
• Crop updates	• FEWSNET
• FOODAID situation from WFP	• FEWSNET
• Millers prices	• Millers
• Cross border traders bulletin	• FEWSNET
• Production outlook database	• FEWSNET
• Policy and duty tariffs	• RATES
• Trade flow analysis	• FEWSNET
• Market subsector reports, workshop reports, technical reports	• All Partners

The website has been built with some innovative feature to facilitate information flow. As part of the data collection process, it is possible to SMS and email data directly into the databases. This means that field workers can avoid using faxes and directly update the databases from their markets, using their mobile phones. For the national MISs this also means that they can upload their daily or weekly data directly into the regional data system. From the database, routines have been developed to disseminate the information back to clients via emails and SMSs. This level of automation to the system aims to reduce labor costs and errors.

Clearly website development is a highly dynamic process and the team developed the first beta model in the knowledge that after 12 months, this first model would be reviewed and then reconstructed. FoodNet and FEWSNET are currently evaluating the first site with a view to developing a new site that is more focused and has a more robust database system. The issues of scalability of the database were also a concern in the first model and this is also being addressed in collaboration with new developments from "Busy Lab".

The new site aims to take on board the useful components of the previous Internet site, such as the data loading mechanisms, and complement this with a MySql database that will contain local, national, and regional information. The design of this new site is to enable many different users across the region to develop their own portal such that specific partners can formulate their own "look and feel" but essentially be working from the same data set.

WorldSpace

In Africa, the promise of the Internet has not yet been realized in most rural areas due to lack of landline telephone connectivity. Also costs for dial-up connections to the Internet remain relatively high and speeds are slow, even in most urban areas. To address this problem, FoodNet in collaboration with RadioWorks is using the WorldSpace satellite fed radio system to transfer data from the RATIN web to clients via WorldSpace.

The WorldSpace radio system was developed to beam FM quality radio programs to receivers in areas that were unable to receive ground-based FM signals. In addition to the 100 radio channels that are rebroadcast using this system, there a number of data channels that can be used to transfer a portfolio of information to clients who have a digital data adaptor (DDA) attached to their radio set and a site license to receive data. The system is different from the Internet in that it only allows a one-way flow of information, much the same as any conventional radio. WorldSpace charge for data transmission and to reduce costs of transmission Radioworks have built a "slim line" version of the RATIN website http://radioworks.africacentral.net/ which has a minimal set of files to reduce data transmission costs.

The use of the WorldSpace satellite radio technology will enable the RATIN team to send routine spreadsheet data and more complex information, maps, graphics, and voice data to remote non-Internet sites on a regular basis. Ideally, FoodNet would implement a communications system through V-Sat technology, which would provide two-way connectivity but at present this is too costly to set up and maintain. However, it is something for the future,

and that may arise sooner than expected as costs globally are falling fast and other sectors such as health and governance also set up communications infrastructure to facilitate the process.

In addition to data and text information, the system has been developed to send out radio scripts in different languages as MP3 files. This will allow FM radios to download the voice files and rebroadcast and/or use this information as part of their full coverage. In May 2004, FoodNet deployed 12 radio stations, linked to an additional seven transmitters and 10 institutions/agencies with the equipment. The area of coverage to date is indicated in Figure 18.

WorldSpace has two main types of data transmission, one that is based on an automated system that runs out of Johannesburg (RSA) and another system that operates through a closed user group from Toulouse (France). The automated version has the advantage of information being sent regularly and on a routine basis, but this service has the disadvantages of being controlled by another user group and the service also has reliability problems. The closed user group is controlled by the user and is fast. It is also expensive at 10 Euro/megabyte and for most uses this is simply too expensive to run commercially. FoodNet is attempting to use a hybrid of these two systems to provide lower costs and routine data flow.

Trader's bulletin The bulletin (Annex 6) is sent to clients via email and through the WorldSpace interface.

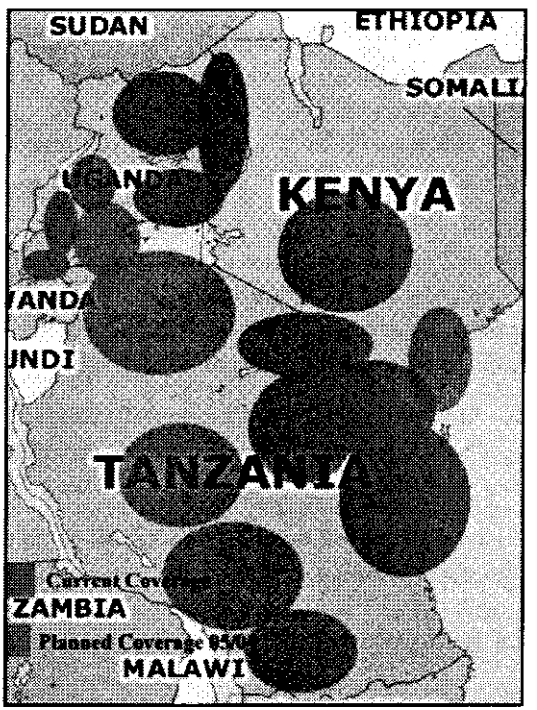


Figure 18. Footprints of radio stations that are linked via WorldSpace to RATIN dissemination.

FM radios As with the national MIS dissemination information can also be reformulated for the local stations.

Potential benefits of a regional trade intelligence network

The aim of this service is to stimulate regional trade through the use of market information by making it more competitive and facilitating the process of shifting surplus production to deficit areas. Another potential benefit of a well-managed trade intelligence network is that it can be used to identify trade opportunities that are not currently being developed.

Costs, sustainability, and revenue sources

Sustainability can either be viewed as self-financing or whether the service can be proved so useful that an intergovernmental agency, such as COMESA, will fund the organization. In both instances, it is important that the regional service offers good quality data that is valuable to its clients. One advantage that the regional service has compared to the MISs is that the smaller but more endowed client base will make it easier to collect revenue if a service fee is introduced. An illustrative budget for developing and implementing the regional network is shown in Table 8.

Service fee There is a possibility that some key players in the region and/or some institutions involved in trade, food aid, and/or food distribution/transportation may be interested to outsource this type of information collation and provision to RATIN. This would mean the service would be able to charge an annual fee to key members.

Trading platform Should the RATIN site ever get to a stage whereby bids and offers are transacted over the site, fee paying could be devised to support this process. At present this seems an unlikely option but some form of trading platform, however informal, through an Internet platform may develop, particularly as mobile phone technology is integrated into the Internet domain.

SMS text revenue The cost of the phone call to collect the information can be divided between the telephone company and RATIN or the MISs that feed RATIN to some extent. There are also now options to increase the revenue from specific types of more valuable data and this again can improve income sources or pay for field staff.

Embedding the service Another approach to financing the service is to embed this information flow into a larger public goods/private information provider and therefore enable clients to access this data as part of a larger information bundle.

Hybrid income Another approach will be to form a hybrid of public and private sector income streams such that the service is not totally dependent upon any one source.

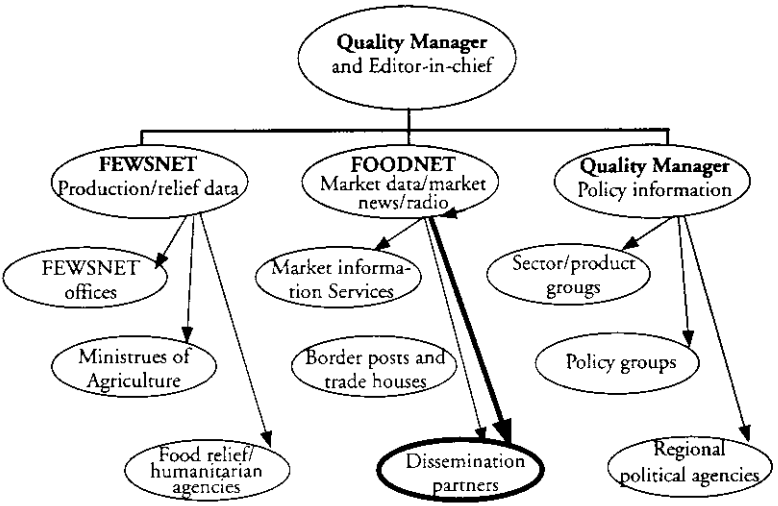
Key characteristics for implementing the regional market information service

Target clients Informal cross border traders, larger formal traders, and food aid and humanitarian agencies.

Table 8. Costs for running the Regional RATIN Service in years 1 and 2.

FoodNet	Year 1 Full costs	Year 2 Full costs
1.5 man-months senior scientist	15 000	
12 man-months associate scientist	7000	7000
Trade consultant 4 days * 6 months	14 280	7140
Radio works consultancy	2 1000	5000
Rwanda market data collection	1200	1200
Busia market data collection	2400	2400
Tanzanian data monitoring	5000	5000
Tanzanian border monitoring	1200	1200
Equipment, WorldSpace radios antenna	10 000	
WorldSpace franchises	100	1250
WorldSpace data push	12 000	12 000
Computers 50		
Market information support	5000	5000
WorldSpace franchises		7500
WorldSpace information push		12 000
Subtotal	94 180	66 690
FEWSNET		
1.5 man-months regional rep	15 000	
12 man-months trade economist	70 000	70 000
Consultant 4 days * 6 months	14 280	7140
Survey work	10 000	10 000
Regional meeting with gov staff	5000	
Regional traders meeting	5000	
Linkage to southern countries		5000
Subtotal	119 280	92 140
RATES		
0.5 man-months regional rep	5000	
Support to Website development	15 000	
Policy support		10 000
Subtotal	20 000	10 000
Launch costs	7000	
M&E		5000
Subtotal	7000	5000
Total	240 460	173 830

Organogram of regional information service.



Infrastructure/equipment needs One computer, mobile telephone, and access to Internet-linked database.

Market/field staff Mobile phones, computer email/ fax facilities (moisture meters at key market points).

FoodNet staffing

One MSc economist, who monitors data flow and conducts basic price analysis. The analyst is responsible for overall market data management and Website maintenance in terms of price and volume data, support to regional trade meetings, and regular reporting of market news to the editor-in-chief. At the end of each week, this person will work with the media officer to develop a radio script that will be used for regional broadcasting via WorldSpace.

The analyst is responsible for providing numerous clients with specific types of data and for undertaking data analysis on request. The TOR for this person have been developed such that the person is also responsible for strengthening the service through the development of partnerships with both public and private sector agents.

Field staff At present the regional marketing intelligence service works with four other national market information services in Kenya, Rwanda, Tanzania, and Uganda. FoodNet also has staff operating within these services to maintain data flow at terminal markets and border posts. One person for the Rwanda/Uganda border, one person for the Uganda/Kenya border, and three people for the Kenya/Tanzania border.

Timeliness of information

Information from the field agents comes in three categories:

- Daily information is received at approximately 3:00pm from Kampala, Kenya country wide, Dar es Salaam, and Kigali. This information is uploaded onto the RATIN website by the RATIN analyst at 4:00pm.
- The analyst should ensure that weekly information coming in from Uganda country wide, Kenya country wide, and Tanzania country wide is uploaded at the end of the week into RATIN website database.
- Information from Uganda is also being sent by SMS into the database and this information needs to be authorized by the respective person at the regional and or national level.
- The data collector who does not respond to the schedule is automatically reminded with either a phone call or an email according to the best means of communication.

Methods used to gather information

- **Spot market price** This information is gathered from markets across the region via the national services and loaded onto the regional MIS platform.
- **Weighing commodities** This applies to commodities that don't have a price attached to the unit to purchase such as sweet potato, cassava etc.
- **Telephone communication** This is when we can't reach the market easily but have a contact person there.

Technologies used to gather information

- Price data is delivered by telephone to contact persons and to use SMS data transmission. Most data is now transferred directly from a comma delimited SMS message.
- Scales to capture weights of a given commodity.
- Moisture meters to establish the moisture content in the commodity at a given time of the season.
- Internet facilities.
- Fax.

Software used in service

- Ms Excel, Word, Power point, Outlook
- Macromedia fireworks
- Priceman database
- MySQl database manager
- SPSS

Data processing and analysis

- WorldSpace Radio targeting informal traders
- Email
- Internet/websites
- Mobile phone SMS linkage

Methods used to disseminate information

- Email
- Internet
- WorldSpace

Educational processes

None, as yet, but will focus on grades, standards, and tariffs.

Methods to evaluate and improve services

Processes being developed to monitor service

Capacity building of stakeholders

Regional training of MIS services

Impact assessment methods

At this stage RATIN has not developed methods to show impact, however these tools will be developed and this analysis will aim to show:

- changes in volume of cross border trade
- access to more reliable production and trade statistics
- changes in transaction costs and time
- changes in access to regional information to support local purchasing of food aid
- changes in policies that restrict regional trade.

Lessons learnt at the regional level

As the regional marketing information service is still in a development phase it is less easy to draw any strong conclusions at this stage. However, it is apparent to the partners that following areas are working well:

- Face to face meetings held between Government, development agencies, and traders have proven to be popular. This is an opportunity to frankly discuss issues that are important to all the players, to reach a consensus on the trading position in the countries, and to find new business opportunities.
- Regional sharing of trade news and information amongst traders has proven to be successful with many traders making new contacts or strengthening their trading links.
- Peer pressure within the national MISs has enabled new processes to start and Kenya has significantly improved its performance. Data is now being sent to many partners on a daily basis.
- Regional policy dialog has started with a view to developing a "Maize without Borders" process. The RATES project has already held a regional meeting to this effect and the trade is keen to press ahead with greater formalization of the industry, with a particular focus on quality.
- New information on cross border trade has revealed that previous data had significantly underreported levels of trade, in some cases by 75%. This indicates an important loss of Government revenue and also an obvious area where improvements can be made in facilitating trade flow.

- The border practice of unloading trucks, ferrying the sacks over the border on bicycles, and the use of "panya" routes was highlighted, which again indicates an area of high transaction costs, which should be addressed.
- New systems for linking information between formal traders is making good progress, but this needs longer term support if we are to develop a long-term, sustainable process.

Areas and issues that are not working well include:

- The poor quality of the national production statistics in Rwanda, Tanzania, and Uganda has become an issue of increasing concern to the trade and support agencies. Whilst the data in Kenya has support form the trade, the production data in the other countries is extremely weak, in some cases bearing no relation to reality. The information is however maintained by a department of specialists and presumably some form of planning and budgetary forecasting, such as GDP, is based on these figures.

  An analysis of the production data in Uganda, commissioned by FEWSNET for the RATIN project, revealed that UBOS was over reporting production figures for virtually all crops. The level of over reporting was between 25 and 80% compared to estimates from the trade. The UBOS team also has several different figures for each crop based on different survey techniques. The report by Spilsbury outlines the considerable differences in production figures and the underlying lack of confidence in these figures. This problem has led to RATIN reporting on two levels of production figures in those countries where there is a high degree of divergence between the Government and trade estimates. This problem has real consequences for planning importation, via food aid and finance indicators. Whilst there are a number of possible ways of improving these figures, as yet there are no concrete plans for implementation.
- Business plans are yet to be developed for RATIN and whilst there is an interest in making this service a commercial venture, it is at this stage unlikely to become financially sustainable as many of the services are not yet in place.
- Institutional linkage to COMESA is yet to be finalized. There appears to be considerable inertia in gaining formal approval and support for RATIN. This is being investigated through USAID, but has as yet failed to reach closure. There is a long-term prospect that donors could support RATIN via financial support through COMESA, but this is yet to be discussed and formalized.

Conclusions

There are no examples of market information services operating in sub-Saharan Africa (with perhaps the exception of MIS networks serving commercial farms in South Africa), which have the efficiency, breadth, variety, and participation levels of those operating in all developed countries. Developed countries are, however, far less economically dependent on agriculture as developing countries. The integrated systems described in this report don't begin to compare with those available to the agricultural industries of Britain or Canada. They have only been established in the last few years. They are still only available to a minority of actors in Uganda and the region. They do not cover the entire range of agricultural commodities produced in the areas; neither do they cover the markets for farm inputs. Funding for the services is not as assured as it should be and participation by the stakeholders is not sufficient.

Independent assessors of these services, the stakeholders, and the service operators, however, are confident that the establishment of these services has benefited not only those directly targeted by the services but also the agricultural economy of Uganda and the region. They have had some beneficial effect on the efficiency and competitiveness of the markets and they have helped to strengthen the bargaining position of several million small-scale farmers.

Those involved in providing MIS to Ugandan farmers, traders, and processors have had to overcome some significant obstacles. Ugandans speak many different languages and many are illiterate. The introduction of competitive markets has been a comparatively recent event and many actors do not yet understand its purpose or how it is supposed to work. There is a serious shortage of people with the skills or experience to run such a service. Traders, who are the best source of market information, are sometimes reluctant to pass their intelligence of the market to the farmers they must deal with. Many deserving causes compete with MIS for funding and it is not easy to demonstrate the tangible benefits of the service. This has to do with the problems of attribution and it is often difficult to remove the effects of many factors, such as new roads, improved security, low supplies of a commodity in an area, the effects of world trade, changing fuel prices, the addition of new transport vehicles etc. on commodity prices, and the prices that farmers receive at the farm gate.

In addition, those working in Africa learn to expect the unexpected and must adapt to the prevailing culture of different countries and different regions within those countries. Women, proportionately, are not only burdened with the task of bringing up children but also carry out as much or more work in the fields as men; yet they are not well represented in the decision making process both in the family and in the village. Decades of conflict and weak institutions have instilled feelings of deep distrust of collaborative activities. Continuing conflict in some areas of Uganda disrupt farming and marketing activity. Unpredictable and sometimes extreme weather conditions can change crop patterns and disorganize transport systems. Some officials have divided loyalties and some find it difficult

to be trusted. There is often little adherence to a Western business culture—appointments for meetings are often missed, commitments are not always met, and timetables are often considered only as a loose guide to future activities. Local concepts of courtesy and attitudes to authority mean that it is often difficult to distinguish between a farmer's true opinion and a desire to say what they believe the questioner wants to hear. These factors effect not just trust relationships and attempts to improve support services, but also undermine other efforts such as contract farming agreements and access to credit.

For these and other reasons, these services do not exactly match the model that was originally envisaged for them. They have had to be adapted, and go on being adapted, not only to comply with the expressed needs of the stakeholders but also because of unforeseen circumstances and the limitations of the environment.

Despite these changes and the difficulties incurred, this model of MIS in a fairly typical region of sub-Saharan Africa, has been found cost-effective, relevant, and useful to a very wide range of stakeholders including government, development agencies, famine early warning agencies, exporters, traders, market managers, consumers, processors, and especially, small-scale farmers.

This project, however, as yet has not provided answers to several major questions. Can the model be replicated in other areas of Africa? How can such projects be put on a more sustainable footing? By what means can the participation and sense of ownership of the stakeholders be enhanced?

The confidence shown by the Ugandan Government's commitment to the expansion of the localized component of the scheme has given a much-needed element of sustainability. Great interest has also been shown by agencies working in other parts of Africa, including Ghana, Nigeria, and South Africa. In addition, several exchanges have taken place with agencies working in other countries in the region and government departments of those countries. Although these countries already participate in the regional service, they too are working on plans to expand or commission more comprehensive services of their own and are using the Ugandan model to help them design such services.

It is hoped that, by these exchanges and by the positive assessment of the program by independent agencies, the Ugandan model will flourish and that more agricultural development agencies will take up the challenge of establishing MIS in other countries that are in desperate need of such services.

Over the past four years, FoodNet has worked with a number of partners to develop new models for providing market information at the local, national, and regional levels. The initial work, which aimed to improve the national service was undertaken to support the production-based projects that IITA had started in Uganda. In 1998, there was no reliable source of information that provided insight into the market, and price information was only collected for a small number of grain crops and did not include major income products such as banana, cassava, and sweet potato. Given this situation it was difficult to comply with the requirement to have market-led agricultural projects unless dedicated support services were developed by each agency. The result, projects were almost entirely production based.

At that time market information was also out of favor with the donor community, those services that had been developed in the 1970s had all but failed and donors were reluctant to throw good money after bad.

The reasons for the services failing as described by Robbins were mainly related to poor management, lack of clarity in regard to clients beyond the Government, lack of innovation, and no uptake of new technologies.

IITA's approach has been to start simple, test the process in pilot stages, and find all avenues to make the service cheaper and deliver information to more people in a timely fashion. In the future, it is hoped that some of the lessons learnt in the experience can be expanded into other regions so that farmers and traders can easily access reliable information to support their business decisions.

Summary

The following section provides a review of the major thematic issues that have been explained in more detail in the sections relating to the local, national, and regional marketing information services. These summaries include the more cross cutting issues related to (i) local adaptation of information and ensuring data is sourced appropriately and presented suitably, (ii) the ability of the system to build on existing systems, (ii) how systems have been developed to service the needs of groups from different social and political groups, (iv) how capacity is being developed, (v) finding ways to ensure that information reaches and empowers poor people, as well as enabling them to participate in decision making processes, (vi) finding mechanisms that strengthen partnerships and sharing ownership among communities (vii) finding realistic approaches to technologies, and (viii) working on ways to develop more sustainability into the systems.

Client segmentation

The market information services being developed by FoodNet collect and disseminate appropriate and relevant information to a range of distinct client types at low cost. These clients include: policy makers, regional large traders, urban traders, rural traders, processors, farmer associations, and farmers. Each segment has different numbers of clients with different levels of sophistication, education, and ability to act on certain types of information. This requires that the clients be provided with different types of information through targeted channels of communication as shown in Tables 9 and 10.

Table 9. Numbers of clients in key segments, and needs.

	Type of information	Quantity of information
Policy makers	Studies on trade, liberalization, and globalization	< 200
Market researchers	Marketing studies	< 500
Processors	Marketing studies, market information services pilot testing of new technologies	< 5000 medium-sized processors
NGOs	Best practices for linking farmers to Markets	< 20 organizations
Farmers traders, processors	Market intelligence and market information services.	> 20 000 000 individuals and associations

Table 10. Channels/media for disseminating information to target clients.

Client	Channels/media of delivery
Farmers, farmer associations, rural traders	FM radio, marketing officers
Farm associations, urban traders	SMS mobile phones
Larger traders, development agencies, policy makers	Internet
All, in areas where Internet does not work	WorldSpace
General	Newspapers

All of the services at the local, national, and regional levels collect both primary and secondary information, which is processed and adapted as required by the local context. Considerable efforts are made to source information appropriately using trained, fully equipped staff and the information is checked, verified, and processed into a format that can be understood by the client types. This process of providing information and verifying its efficacy and usefulness is monitored closely by the coordination unit and its feedback loops are estimated at each level to gain an understanding of what is working well and what is not working well.

Access, empowerment, and educational programming

The primary client group for FoodNet is the many millions of small-scale farmers and farmers within associations. The farmers are the group that suffers from least access to information, and the role of FoodNet is to reduce the current levels of asymmetry in the information market.

At all levels, the dissemination of market information is targeted towards ensuring that information reaches and empowers poor people, enabling them to participate in decision making processes. The segmentation of the client base as described above is one way of addressing the wide diversity of information and communication requirements of men and women, youth, and other marginalized groups.

FoodNet has also invested considerable time in finding ways of educating farmers in how best to use market information. The educational process has involved developing partnerships with experts such as Andrew Shepherd from FAO and Monica Janowski from the BBC to take "best practices" in regard to how to use market information and repackage this information into radio programs in the local language so that farmers can learn and discuss the merits of marketing information. This approach is relatively long term, but means that practitioners and clients are supported with documentation and voice programs that enable them to organize and use the information provided by the service more effectively.

The radio programs that have been aired to date are also linked into call-in radio programs to discuss the ideas presented in the radio programs with the farmers. This has only

been possible in countries such as Uganda where the mobile phone technology is relatively widespread. However, the feedback from these processes has been very positive.

Ownership and timeframes The development of the new market information services in East Africa is primarily aimed to provide a useful service. Where possible this also means building on and enhancing existing management and communications systems at the local, national, and regional levels. However, the services have not been developed within existing programs, but have worked towards partnership.

The local information service did not exist in Uganda prior to the initial funding from CTA. Using the pilot funding, FoodNet was able to develop a new structure taking on board the ideas and strategies laid out in the Government of Uganda's Plan for the Modernisation of Agriculture (2000). The service hired independent staff on short-term contracts to collate information and fostered long-term working relationships with private sector radio companies to disseminate this information. This process of pilot testing lasted for two years. There was no attempt to make the service financially sustainable during this timeframe, the aim was to see if it was possible to develop a low-cost service that could provide a highly localized service to 1–2 million people within a well-defined territory.

When the service had shown itself to be both effective and in demand from the farmer groups, FoodNet proposed this service as part of a competitive bidding process to the Government's National Agricultural Advisory Service (NAADS) and it was accepted.

In 2003–2004, the localized information service has increased in coverage from three initial districts to six districts with plans to extend the program to 24 districts in the next two years. To encourage competition in the area of service provision for market information, the NAADS program developed a competitive tendering process to develop their service, such that organizations such as FoodNet, which have a recognized competence in this area, could bid for the contract to deliver such a service over a limited period, i.e., 1–2 year timeframe.

The national information service existed in Uganda prior to FoodNet involvement, but the service was virtually moribund by 1999. FoodNet at that time developed a proposal with USAID and ACDI/VOCA to rehabilitate the service. At that time, the information being collected by the Government service was inaccurate; there were no monitoring systems and there were no channels to disseminate the information beyond the line Ministry. Effectively this was not a public goods service. The first step in this process was therefore to evaluate what could work within the existing structure, what needed to be eliminated, and thereafter to find ways in which the service could be given incentives. Essentially the approach was to locate and work with existing partners and integrate their ideas with new and more efficient methods of communication, such that a service is delivered that provides useful information, at a low cost with maximum coverage. This approach is dynamic in that new methods are being applied over time to improve the service.

The general strategy for the national service was therefore to replace the management structure and performance monitoring system but to retain the field staff from the Ministry of Trade, Tourism and Industry. FoodNet did maintain the flexibility to hire and fire

staff if they were not able to perform. However, our experience was that once the field staff were retrained, re-equipped, and linked to local radio stations, the motivation was such that performance increased dramatically. It was only in very rare instances that field staff members were replaced and our policy was to work with the existing staff to raise the service quality.

In regard to dissemination, the original service was bound to use the Government radio to disseminate information. When the Government decided to charge commercial costs for the State services to line Ministries, the market information service ceased to function. From the outset, FoodNet was not bound to a Government communication channel and was not hampered by linkages weighed down by graft. The task was to find the most cost effective means of enabling clients to access information. This approach has allowed FoodNet the flexibility to work with private sector partners to operate in the media zone where they have a comparative advantage.

Although the new national service was operational within six months of start up, it has taken five years for this service to mature into a public goods service that is relied upon by the farming and trading community. It has also taken this time for the private sector to engage in "real" partnerships in which they will start to invest in the service. The second five-year period will experiment with ways of making the service more financially sustainable, but as with the provision of roads, it is as part of the overall public benefit where sustainability lies.

Regional market information service

In most cases, FoodNet aims to enhance rather than replace existing structures and channels of communication, however, at the regional level, there were no dedicated or existing marketing structures. In this case new approaches were required. Gathering and disseminating information across several countries has many problems and our target audience was of two kinds, a limited number of sophisticated large formal traders and a larger number of back-to-back cross border, informal traders.

The collation of information required access to regional market information, regional production data, crop performance and food security, and policy change. This prospect initially meant linkage with partners who operated at the regional level. This was mainly achieved through linkages with regionally funded projects such as FEWSNET and RATES. Linkage to regional political bodies such as the East African Community and COMESA are considered to be long-term options.

Gathering of information has been achieved through dialog groups and Internet connectivity and dissemination of information through Internet, email, and most recently via a WorldSpace network. FoodNet is currently working to prepare regional radio programs. The dissemination work is being conducted in collaboration with private sector companies to establish cost effective communication networks to deliver information to its clients. This has been done via WorldSpace technology at this stage, but this is considered an interim step towards V-Sat linkage.

The timeframe for the regional methodology is considered to be 18 months to attain an operational platform, 2–3 years to gain momentum and regionality of the service, and five years before we have a service with commercial prospects.

Political environment

In many countries in Africa, the idea of outsourcing a Government service remains an anathema. Government departments still wish to retain rigid control over employment possibilities even when they do not have the resources, capacity, competence, or the interest to deliver such service. In countries that have retained this state-bound approach, donors and the private sector are somewhat limited in their ability to improve service performance on a sustainable or equitable basis as the system is all too often inertia bound.

However, we believe this climate is changing. It is clearly the case that the Government of Uganda is taking on board an entirely new attitude towards the liberalization approach. There is strong political support in Uganda to assist the more marginalized areas of the country through decentralization and through a process of meaningful dialog between line ministries and the donor/development community. The Government of Uganda is actively seeking public–private sector partnerships and, where possible or realistic, to privatize segments of key public services.

This new approach in agriculture significantly benefited from the enactment of the policy document entitled the "Plan for the Modernisation of Agriculture" (2000). The policy framework was developed over 2–3 years by the Government and its "investment" partners. The document provides a robust framework in which many new partnerships can be fostered and in which there are budgetary line items that can receive support from Government and interested parties.

The NAADS program itself is a new type of sem-privatized extension system funded by the World Bank that is aiming to work towards cost sharing of its extension services with the farming community. The organization was developed as a stand-alone structure, operating independently from the traditional research and extension system. The secretariat of NAADS is limited and they are developing localized tendering boards, which will operate to evaluate demand for agricultural service provision and then set up competitive processes to supply these services. NAADS also has a regulatory and monitoring role to maintain quality of performance.

In addition to the liberalization within the Ministries, Uganda also has a highly liberalized approach to the media. In Uganda, there are over 60 FM stations, which have the ability to broadcast in local languages. This makes for a highly competitive media sector that can work with public sector organization. As such information services are not bound to Government broadcasting services and have the option to make longer term deals and advertising options with local companies.

Given this political environment, it is easy to see how FoodNet was able to operate in a largely independent fashion, by outsourcing Government services and linking into the private sector. Therefore whilst the ownership of these services remains with the Ministries, FoodNet manages the service costs, quality, and efficiency.

Capacity building is being addressed at several different levels. The first requirement was to make sure that the FoodNet core team and the field staff had a good understanding of their job requirements and their responsibilities in regard to quality and timeliness of information flow. As FoodNet is not a Government agency, it is not fettered with a "job for life" doctrine that hampers so many Government projects and programs. Our approach is that high performing staff should gain bonuses and that poor performance leads to replacement.

The ability to hire and fire staff based on performance is only possible in those countries, such as Uganda that are prepared to outsource the management of the market information service. In countries where all staff are permanent regardless of performance, this can have serious implications for quality. Bringing incentives into a system that is entrenched in graft or has a weak grasp of the concepts of consumer service is clearly a more challenging prospect than working in a system that has embraced a more liberalized approach to business. This aspect of the FoodNet approach should not be underestimated.

Staff are equipped with the tools of the profession and field staff are monitored routinely to ensure that they are collecting the right content. Having established and demonstrated "in-house" competence, the team is then in a position offer capacity building services to other levels of service and to other countries. FoodNet has been involved with training market information officers in Eastern and Western Africa. This training has been done on a "one-to-one" basis and through regional group training courses.

FoodNet has also provided training to radio companies demonstrating how to make programs and how to develop media campaigns around agricultural issues. This process has enabled local stations to link more effectively with their client base and in turn this leads to better working relations between FoodNet and the radio company.

Strengthening partnerships and participation This involves building horizontal and vertical links as well as shared ownership among communities, organizations, and sectors and is an organic process that takes time. In many cases donors have an unrealistic concept of timeframe, which is naturally driven by their tenure timeframe or that of the political process in their country of origin. In the case of FoodNet, USAID has been generous at the bilateral and multilateral levels. The five-year envelope of FoodNet has enabled the project to develop three operational models for marketing information services. This timeframe has also enabled the FoodNet group to foster meaningful partnerships with Government, NGOs, traders, farmer associations, and private sector partners from the media. We believe the models developed by FoodNet have scaling potential in Africa and perhaps other continents, but all approaches require at least 4–5 years to build partnerships that have a possibility of longer term sustainability.

Using realistic approaches to technologies In 1999, the MIS service run by the Government was typical of the region in that it collated the information and provided hard copy data to officials in their line Ministry. The costs of disseminating weekly programs through the state radio was prohibitively expensive and at that time there were only a limited number of privatized FM radios, mainly of a very localized nature, having a radius of 10 km and implemented by religious organizations. At the time it was extremely challenging to develop

a national dissemination service that was affordable and the situation in Uganda was further complicated by having more than 33 different languages.

For a largely illiterate, remote, client base, FM radio was the only medium that could effectively access farmers. Therefore, FoodNet started working with a number of small, rural radio companies to begin a process of building sustainable systems that can enhance existing structures, that can be extended, and can exploit the full range of existing media. This over time, i.e., 3–4 years, led to a network of companies working with FoodNet, to provide national coverage. The use of bulk airtime purchases, e.g., two-year block buys, enabled companies to upgrade equipment and work with FoodNet to increase their skills.

Since that time, FoodNet has also experimented with newspapers, advertising magazines, the Internet, email connectivity, and more recently, with mobile phone SMS services. Our experience has been that for large urban centers, newspapers are effective, whereas for upcountry areas advertising magazines are more appropriate. The magazines are free and tend to target areas outside of the national newspaper areas. The Internet is useful for the policy group, some higher order traders, and development agents. However, neither email nor the Internet are as yet tools of choice for most traders and certainly almost no farmers. Connectivity rates are so slow in most cases that people cannot use the system rapidly enough to make it interesting.

The mobile phone SMS service has proved to be effective, but requires a considerable investment in advertising to make it generally known. In the future, however, we consider this to be the medium of choice for both collecting and disseminating market information.

Costs and financial sustainability As has been stated for each of the services (local, national and regional levels), the differences in the mode of operation require different business plans, financing programs, and timeframes.

Local Financing The provision of suitable information infrastructure and content, particularly in remote areas, is most challenging and we believe the local service will remain a public good for some time. Most farmers are still not fully engaged or even understand the liberalized market economy that currently exists in Africa, banking systems are weak or nonexistent, and many other factors such as land tenure, seasonal volatility, weather, and political and economic shocks all mitigate against systems that require farmers to pay for information services. At present the localized services cost in the region of US$5–8000 to establish and thereafter $3–5000 to run on an annual basis. This investment will support approximately 1–2 000 000 farmers. There are methods for cost reduction and some avenues for cost recovery at the local level, but in the next 3–5 years it is difficult to envisage the localized services being able to finance themselves. Therefore the sustainability is through Government budget support.

National At the national level, our estimates are that after a set up cost of $80 000, the service costs are in the region of $50 000 per annum. It is possible that these costs could be reduced by 40% if radio costs could be covered by advertising. Again the issue of full cost recovery within the first 4–5 years of operation was not possible despite strong support from

the private sector. Our approach to the issue of sustainability has the following strategy that includes cost reduction and partial cost recovery and aims towards full cost recovery and ultimately, to profit.

Year 1	Develop a service that provides identified clients with essential information.
Years 1–3	Build in-house capacity to deliver a service that is credible and reliable and focuses on service efficiency and cost reduction.
Years 4–5	Seek public–private sector alliances that investigate avenues for partial cost recovery. This may be through advertising revenue, SMS revenue, or risk investment financing in media that offsets media costs.
Years 5–7	Commercialize applications for price and market data that can be sold to clients as a membership fee, i.e., transporters, traveling traders, regional traders, and development organizations.
Years 8–10	If the MIS is to be profitable, it will need to be established as a private company or made sustainable through a nonprofit commercial company. At this stage, Government linkage would be severed.

This approach to financial sustainability and ultimately long-term ownership for the East African model is somewhat different from approaches being developed in West Africa. In Mali, the MIS has been established through support from Michigan State University and is now owned and financed by the Malian Farmers Association. The important point is that the Government supports the process but is not running the service and this is perhaps of overriding importance.

In Uganda, the national market information service is at the stage of investigating methods for cost reduction and partial cost recovery.

We consider the national service to have the highest prospects for being a profitable entity, but that success in this area would probably mean becoming a public–private sector unit and this will only occur if the public group has the courage to make this step.

Regional The regional trade intelligence service has the highest transaction costs for establishment and operation compared with the national services. Costs for establishment were in the region of $250 000, with annual operational costs of approximately $100 000–150 000/annum. The regional benefits to having this resource are however also relatively high and these types of costs would be offset by a marginal increase in regional trade.

For example, in 2003, Uganda informally exported 80 000 t of maize and 40 000 t of beans to Kenya at a value of approximately $17 000 000. In addition another $25 000 000 worth of maize and beans were formally traded. Tanzania exported approximately $20 000 000 worth of maize into Kenya. At these values, the RATIN service represents 0.16% of the value of this trade.

In terms of supporting the region in its ability to compete against imported crops, particularly food aid, the service also provides an important resource as agencies such as the regional WFP procurement offices and ultimately the larger coordination units in Europe and the US, can monitor RATIN reports to establish the viability of local versus offshore purchases. This type of decision only needs to occur once a year in order to make RATIN an extremely valuable cog in the regional financial and food security balance sheet.

The profitability of RATIN in the longer term is still a critical question. At present the service only supports the main commodities that are traded regionally, i.e., maize and beans. There are in this case two major options.

Option 1. Expand the territorial coverage of the maize and beans marketing intelligence into the COMESA zone and evolve towards a public or a private sector information resource. Funding could be sought through the regional marketing agency or via a mix of traders and food security agents.

Option 2. Expand the commodity coverage, into a public ledger type program so that the market information will have wide support/membership options from traders and producers for the local, regional, and international market opportunities.

At present the RATIN group have made a decision to focus on maize and beans and increase coverage from Eastern Africa into Southern Africa. At this time the dissemination system is being established and financial models are being discussed in regard to regional advertising revenues and memberships from key agencies.

Sources

Web sites

www.ratin.net
www.FoodNet.cgiar.org
http://radioworks.africacentral.net/
www.ghanamarkets.com

Publications

Robbins, P. 2000. Review of market information systems in Botswana, Ethiopia, Ghana and Zimbabwe. CTA. The Netherlands.
Shepherd, A.W. 1997. Market information services. Theory and Practice. FAO. Rome, Italy.

Ministry of Finance. 1999. Plan for the Modernisation of Agriculture: eradicating poverty in Uganda, Government strategy and operational framework. (First draft, September 1999). Ministry of Agriculture, Animal Industry and Fisheries (MAAIF) PO Box 102, Entebbe, Ministry of Finance, Planning and Economic Development (MFPED), PO Box 8147, Kampala: 125 pp.

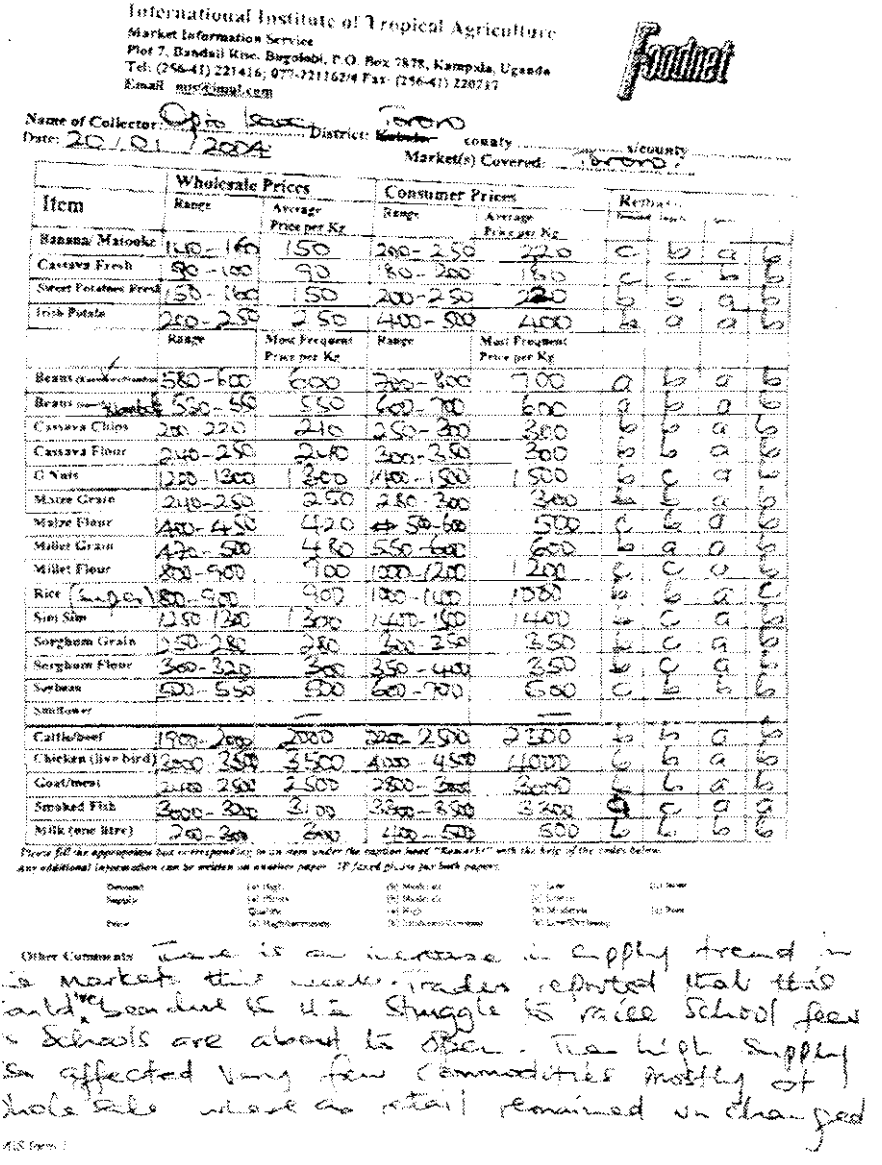
Kleih, U., W. Odwongo, and C. Ndyashangaki. 1999. Community acess to marketing opportunities: options for remote areas. NRI report No 2442, Project A0769. Uganda Case Study 60 pp.

Annexes

Annex 1. The list of commodities collected.

Daily prices		Weekly prices	
Crop	Markets	Commodity	Market
Onions	Markets	Matoke	Arua
Maize flour	Owino	Fresh cassava	Gulu
Maize grain	Kisenyi	Sweet potato	Iganga
Millet flour	Nakawa	Beans	Jinja
Millet grain	Three commercial buyers	Beans other	Kabale
Rice threshed		Cassava chips	Kasese
Sim sim		Cassava flour	Kitgum
Sorghum beer	Levels	Groundnuts	Lira
Sorghum flour	Wholesale	Maize grain	Luwero
Sorghum food	Retail	Maize flour	Masaka
Beans large	Off lorry	Millet grain	Masindi
Beans medium		Millet flour	Mbale
Beans mixed		Rice	Mbarara
Beans small		Sim sim	Rakai
Cowpeas		Sorghum	Soroti
Groundnuts		Sorghum flour	Tororo
Grams		Soya beans	
Soya		Sunflower	
Cocoa		Cattle steak	Levels
Ginger		Chicken	Wholesale
Sunflower		Goat	Retail
Banana/matooke		Fish	Off lorry
Cassava chips		Milk (one liter)	
Cassava flour			
Cassava fresh			
Potato Irish			
Potato sweet			

Annex 2. Data fax sheet incoming from the field.



International Institute of Tropical Agriculture
Market Information Service
Plot 7, Bandali Rise, Bugolobi, P.O. Box 7878, Kampala, Uganda
Tel: (256-41) 221416; 077-221162/4 Fax: (256-41) 220737
Email: ...@...com

Name of Collector: ... District: ... County ... s/county
Date: 20/01/2004 Market(s) Covered: ...

Item	Wholesale Prices Range	Wholesale Prices Average Price per Kg	Consumer Prices Range	Consumer Prices Average Price per Kg	Remarks
Banana/Matooke	140 - 160	150	200 - 250	220	
Cassava Fresh	80 - 100	90	180 - 200	190	
Sweet Potatoes Fresh	150 - 160	150	200 - 250	220	
Irish Potato	200 - 250	250	400 - 500	4000	
	Range	Most Frequent Price per Kg	Range	Most Frequent Price per Kg	
Beans (red)	580 - 600	600	650 - 800	700	
Beans (white)	500 - 550	550	600 - 700	600	
Cassava Chips	200 - 220	210	250 - 300	300	
Cassava Flour	240 - 250	240	300 - 350	300	
G Nuts	1200 - 1300	1200	1400 - 1500	1500	
Maize Grain	240 - 250	250	250 - 300	3400	
Maize Flour	480 - 450	420	450 - 600	5000	
Millet Grain	420 - 500	480	550 - 600	6000	
Millet Flour	800 - 900	900	1000 - 1200	1200	
Rice (Longo)	880 - 900	900	1000 - 1100	1050	
Sim Sim	1250 1300	1300	1400 - 1500	1400	
Sorghum Grain	250 - 280	250	300 - 350	350	
Sorghum Flour	300 - 320	300	350 - 400	350	
Soybean	500 - 550	500	600 - 700	600	
Sunflower					
Cattle/beef	1900 - 2000	2000	2200 - 2500	2300	
Chicken (live bird)	2000 - 3500	2500	4000 - 4500	40000	
Goat/meat	2400 - 2500	2500	2800 - 3000	30000	
Smoked Fish	3000 - 3200	3000	3200 - 3500	3300	
Milk (one litre)	200 - 300	300	400 - 500	500	

Please fill the appropriate box or corresponding to an item under the caption heard "Remarks" with the help of the codes below.
Any additional information can be written on another paper. If faxed please fax both papers.

Demand: (a) High; (b) Medium; (c) Low; (d) None
Supply: (a) Plenty; (b) Medium; (c) Low; (d) Scarce; (e) None
Price: (a) High/Increasing; (b) Medium; (c) Low/Decreasing; (d) Stable

Other Comments: There is an increase in supply trend in the markets this week. Traders reported that this could be due to the struggle to raise School fees as Schools are about to open. The bulk supply is affected very few commodities mostly at bulk sale where as retail remained unchanged

AIS Form 1

Annex 3. Daily price sheet from national marketing information service.

Market Information Service, International Institute of Tropical Agriculture
Tel: 256-41-223460, 077-221162, 077-221164; Fax: (256-41)-223459; Email: mis@imul.com
Plot 7, Bandali Rise, Bugolobi.
Commodity prices for Kampala district, Friday 23 January 2004

			Owino			Kisenyi			Nakawa			Kalerwe	
Class/group	Crop	Off lorry	Wholesale	Retail	Off Lorry	Wholesale	Retail	Off lorry	Wholesale	Retail	Off lorry	Wholesale	Retail
	Onion	450	500	700	–	–	–	500	550	800	480	550	700
Cereal	Maize flour	470	520	600	450	470	600	480	500	600	470	500	600
	Maize grain	260	280	400	220	230	400	250	280	400	250	270	400
	Millet flour	500	530	600	500	520	600	500	550	700	530	570	700
	Millet grain	430	450	500	440	460	500	450	480	500	450	470	500
	Rice	750	800	900	–	–	–	750	800	1,000	750	800	1,000
	Sim sim	1000	1200	1500	1100	1250	1500	1200	1350	1500	1150	1300	1500
	Sorghum beer	250	300	400	230	260	400	270	300	400	270	300	400
	Sorghum flour	500	530	600	500	520	600	500	550	700	500	550	600
	Sorghum food	260	300	400	240	280	400	270	300	400	270	300	400
Legumes	Beans large	450	480	600	430	460	600	460	500	600	470	500	600
	Beans medium	450	500	600	450	480	600	460	500	600	460	500	600
	Beans yellow	500	550	600	500	550	600	550	570	600	550	580	600
	Mixed bean	–	–	–	–	–	–	–	–	–	–	–	–
	Beans small	400	450	600	400	430	600	430	500	500	450	500	600
	Cowpea	600	630	800	560	620	800	600	650	800	600	650	800
	Groundnut	900	1100	1400	1050	1150	1500	1100	1250	1,500	1150	1280	1,500
	Grams	700	750	900	–	–	–	700	800	900	700	800	900
	Soya	550	620	800	520	600	800	600	700	800	600	650	800
Others	Cocoa	–	–	–	–	–	–	–	–	–	–	–	–
	Ginger	600	650	700				650	700	800	600	650	700
	Sunflower	–	–	–	–	–	–	–	–	–	–	–	–
Plantain	Banana/matooke	115	155	200				125	160	200	118	160	200
Root/tubers	Cassava chips	–	–	–	160	180	200	–	–	–	–	–	–
	Cassava flour	280	300	400	270	300	400	300	320	400	300	320	400
	Cassava fresh	225	260	300	–	–	–	230	270	300	240	270	300
	Irish potato	235	250	400	–	–	–	250	270	400	250	280	400
	Sweet potato	180	200	250	–	–	–	175	200	250	185	200	250

Annex 4. Weekly price data sheet from Uganda national market information service–wholesale and retail prices.

Retail prices (in Shs. per kg) for selected commodities for Week2 (12 Jan–16 Jan 2004) PL 480 Title II Program

	Kampala																				
	Kisenyi	Owino	Nakawa	Arua	Gulu	Iganga	Jinja	Kabale	Kasese	Lira	Luwero	Masaka	Masindi	Mbale	Mbarara	Rakai	Soroti	Tororo	Min	Mean	Max
Matoke	–	200	250	230	420	340	350	400	153	197	400	220	200	290	140	183	350	220	140	267	420
Fresh cassava	–	300	300	130	118	260	270	300	90	160	250	200	150	150	150	162	–	180	90	198	300
Sweet potato	–	250	250	130	118	250	320	250	130	143	220	215	200	200	250	165	93	220	93	200	320
Irish potato	–	300	400	600	650	400	500	200	110	400	500	200	600	350	200	152	500	400	110	380	650
Beans	500	500	600	600	600	600	600	500	470	500	500	500	550	600	500	400	600	700	400	546	700
Beans other	500	600	600	700	350	600	600	4,450	500	500	600	500	600	700	500	400	500	600	350	767	4450
Cassava chips	200			180	260	200	300	300	160	270			250	250	350		250	300	160	252	350
Cassava flour	400	400	400	300	680	300	300	350	250	500	350	350	500	350	400	400	300	300	250	379	680
Groundnut	1500	1500	1500	1000	1000	1300	1300	1300	1600	1500	1350	1500	1000	1400	1200	1200	1400	1500	1000	1336	1600
Maize grain	400	400	400	450	250	350	300	300	300	270	500	400	250	300	400	–	300	300	250	345	500
Maize flour	600	600	600	600	700	500	500	400	600	800	700	700	600	500	600	400	500	500	400	578	800
Millet grain	500	500	500	600	400	500	500	600	580	450	550	550	500	500	600	500	500	600	400	524	600
Millet flour	600	600	700	850	650	700	600	800	750	1200	550	700	600	1000	800	600	600	1200	550	750	1200
Rice		900	900	800	850	900	900	950	1000	1000	900	900	1000	1000	1100	1000	1000	1000	800	947	1100
Sim sim	1500	1500	1500	1000	1000	1500	–		1000	1500	900	–	1200	1300	–		1400	1400	900	1285	1500
Sorghum	400	400	400	450	220	350	400	350	500	250	400	–	350	300	600	–	250	350	220	373	600
Sorghum flour	600	600	700	500	450	400	400	450	750	400	–	–	600	400	750	–	300	350	300	510	750
Soybean	800	800	800	600	350	500	500	–	600	500	500	600	600	700	700	500	700	600	350	609	800
Sunflower	–	–		–	240	–	–	–	–	310	–	–		360	–		–	–	240	–	360
Cattle steak	–	2300	2300	2500	2500	2400	2500	2500	2000	2200	2000	2500	2000	2600	2200	2200	2200	2500	2000	2318	2600
Chicken	–	6500	7000	7500	6300	5500	5000	4500	5000	6000	4000	4000	4000	6000	4000	4000	4000	4000	4000	5135	7500
Goat	–	3000	3000	2700	2500	2700	3000	3000	2700	2500	2600	3000	2500	2800	2500	2500	2500	3000	2500	2735	3000
Fish	–	3000	3500	3000	3850	2500	3200	2500	2700	3500	2500	3000	2,500	2800	3000	2000	4500	3400	2000	3026	4500
Milk (one liter)	–	500	500	500	600	500	500	300	500	600	500	500	600	600	400	500	500	500	300	506	600

Annex 4. Weekly price data sheet from Uganda national market information service–wholesale and retail prices.(contd)

Wholesale prices (in Shs. per kg) for selected commodities for Week 2 (12 Jan–16 Jan 2004)

	Kampala Off lorry																			
	Kisenyi	Owino	Nakawa	Arua	Gulu	Iganga	Jinja	Kabale	Kasese	Lira	Luwero	Masaka	Masindi	Mbale	Mbarara	Rakai	Soroti	Tororo	Min	Mean	Max
Matooke	–	145	150	210	340	270	260	350	131	161	250	210	160	250	100	172	325	160	100	214	350
Fresh cassava	–	260	250	110	105	160	180	250	75	120	200	185	135	135	100	146	–	100	75	157	260
Sweet potato	–	170	170	110	110	150	240	200	95	120	180	205	150	160	180	153	–	150	95	159	240
Irish potato	–	235	250	500	600	350	350	180	92	350	350	190	350	300	170	131	450	250	92	300	600
Beans	430	450	450	500	500	390	420	450	380	400	400	450	500	500	400	300	500	600	300	446	600
Beans other	450	450	460	600	300	390	450	430	400	450	450	400	550	550	400	330	400	550	300	445	600
Cassava chips	170			150	220	140	150	280	130	250	–	–	200	220	300	230	230	220	130	206	300
Cassava flour	270	280	280	250	500	200	200	320	200	300	280	300	400	270	350	350	230	250	200	291	500
Groundnut	1050	1050	1150	900	800	1150	1000	1200	1300	1200	1300	1300	950	1300	1100	1000	1200	1300	800	1125	1300
Maize grain	235	260	265	420	200	210	220	280	230	250	300	350	220	270	275	280	250	250	200	265	420
Maize flour	470	480	500	550	600	430	420	350	450	600	400	600	500	440	500	350	450	450	350	474	600
Millet grain	400	400	420	550	350	380	350	550	500	420	480	500	450	450	500	400	450	500	350	447	550
Millet flour	500	500	550	700	550	500	500	700	650	1,000	500	600	–	800	700	500		900	500	634	1000
Rice	–	720	750	700	700	700	700	900	850	900	760	750	950	920	1000	900	880	900	700	822	1000
Simsim	1150	1150	1200	900	850	1200	–	–	800	1200	–	–	–	1200	–	–	1,100	1,300	800	1,095	1300
Sorghum	250	260	270	450	200	230	250	300	450	220	350	–	–	270	400	–	220	280	200	293	450
Sorghum flour	500	500	500	500	420	350	400	400	650	350	–	–	–	350	–	–	250	300	250	421	650
Soybean	630	600	700	500	300	400	400	–	480	450	400	500		600	450	400	650	500	300	498	700
Sunflower	–	–	–	–	220	–	–	–		300	–	–	–	320	–	–	–	–	220	280	320
Cattle steak	–	1900	1900	2,00	2200	2200	2000	2400	1600	2000	2100	2300	1800	2400	1900	1600	2200	2000	1600	2047	2400
Chicken	–	5000	5000	6000	5600	3500	3500	4400	3800	5000	3500	3500	–	5000	3500	3000	3500	3500	3000	4206	6000
Goat	–	2700	2700	2600	2200	2500	2500	2900	2000	2200	2400	2700	2200	2600	2000	1800	2400	2500	1800	2406	2900
Fish	–	2400	2500	2500	2850	2000	2700	2400	1800	3000	2200	2850	–	2600	2800	1700	4000	3200	1700	2594	4000
Milk (one Liter)	–	400	400	400	500	400	400	250	400	500	320	300	375	500	300	400	400	300	250	385	500

Annex 5. Example of weekly radio script for Uganda MIS service.

Radio Script No 02, 16 January 2004
The NEW Market Information Service,
Tel: 077221162, +041-223445
Email: mis@iitaesarc.co.ug, Website: www.FoodNet.cgiar.org.
Author: Okoboi Geofrey
This "Market News" is brought to you by the FoodNet Market Information Service, funded by
UGANDA USAID PL-480 Title II Programme

- Highlights
  - Maize harvesting in Busoga region.
  - Cooking banana and Irish potato prices lower in Kampala
  - Groundnut harvesting in Mbarara
  - District briefs

Maize harvesting in Busoga region

Second season harvests of maize grain are ongoing in Busoga region. In Jinja and Iganga the second season output is expected to be high owing to the favorable weather conditions in the past months. The expected high supply is likely to depress prices. Currently, there is low demand for maize grain, which is wholesaling at Ush.220/kg in Jinja and at Ush.210/kg in Iganga.

In Kampala, traders from Tanzania Lake region continue to buy but lower quantities of maize grain in Kisenyi market at Ush.235/kg off-lorry. However, for good quality dry maize, the traders offer Ush.270/kg.

In other districts, maize prices remain stable. Maize is wholesaling at Ush.220/kg in Masindi, Ush.230/kg in Kasese, and Ush.200/kg in Gulu. However, in western Uganda wholesale prices for maize are high at Ush.280/kg in Rakai and Kabale, Ush.275/kg in Mbarara and Ush.350/kg.

Cooking banana prices lower

Retail prices for cooking bananas (*matooke*) have considerably reduced following the end of the Christmas festive season. In Kampala, barely two weeks ago, a bunch of cooking bananas that retailed at Ush.8000 now goes for Ush.5000 and smaller bunches are retailing at Ush.2500. Low demand for bananas coupled with improved supply from Mbarara and Bushenyi districts are the main reason for lower prices.

In Mbarara, the retail price for matooke too, has dropped. A big bunch of 20–25 kg retails at Ush.3000. Prices for bananas are also comparably low in Rakai and Kasese districts. However retail prices for bananas remain high in Kabale and Luwero at an average of Ush.8000 for a 20 kg bunch.

Groundnut harvesting in Mbarara

Groundnut prices have fallen in Gulu, Arua, Masindi, and Mbarara due to increased supply from new harvests. In Gulu, groundnuts are wholesaling at Ush.800/kg, Arua they are at Ush.900/kg, Masindi they are at Ush.950/kg, and in Mbarara they are at Ush.1100/kg. The supply of groundnuts is also high in Kampala, the off-lorry price is Ush.1050/kg.

In other districts where no harvests are taking place such as Luwero, Tororo and Mbale, wholesale prices are averaging Ush.1300/kg.

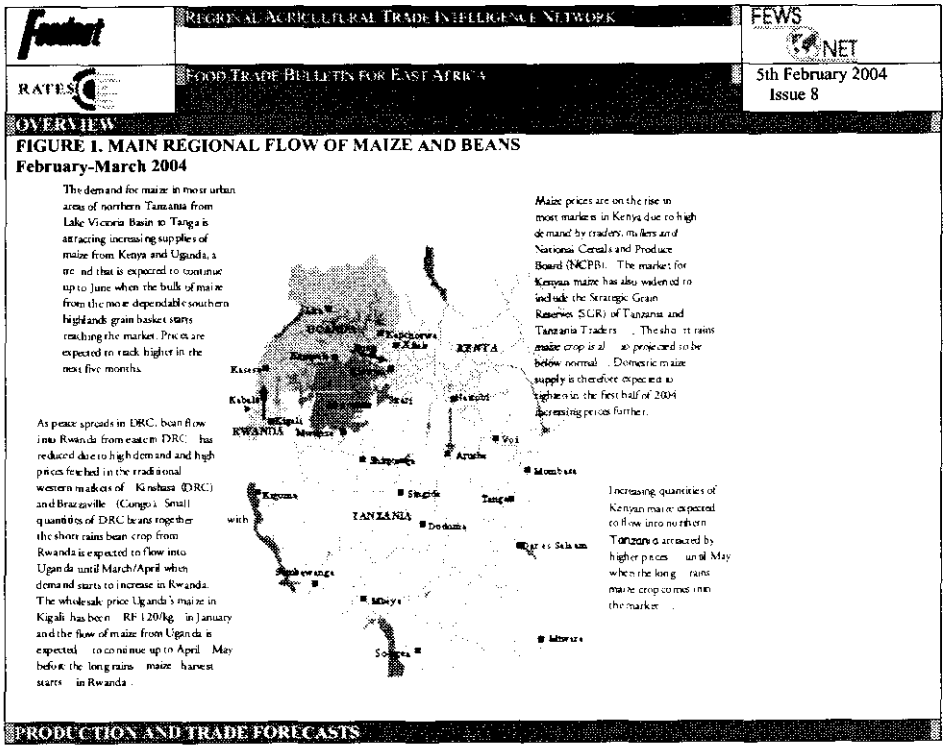
District briefs

Masindi: The supply of beans is very low in Masindi, wholesaling at Ush.500/kg for Nambale beans and Ush.550/kg. Meanwhile, the coffee buying season that has started in Masindi has attracted many buyers especially from Luwero.

Lira: Lira is now enjoying cabbages from Mbale which are wholesaling at Ush.18 000 per sack. On the other hand simsim and soya beans are currently going to Busia in large quantities, while maize grain is take to Kampala by Lira traders.

**Please read prices relevant to your area from the prices spreadsheet.
The FoodNet Market Information Service brings this information to you:
Script compiled by Okoboi Geofrey.

Annex 6. Informal traders bulletin.



Highlights

- Maize from Kenya and Uganda is expected to continue flowing into northern Tanzania regions in February-March 2004.
- Uganda's second season crop will still sell in western and south-eastern parts of Kenya.
- The flow of beans from Uganda, Rwanda and DRC into Kenya is expected to remain stable in February–March 2004 even with the onset of the harvest of Kenya's short rains bean crop.

Tanzania

The government of Tanzania has reached an agreement with the Kenyan government to buy at least 10 000 t of maize from Kenya's National Cereals Board (NCPB) from Kenya by end of January for distribution in various parts of the country as famine relief aid. The Tanzania Strategic Grain Reserve Unit planned to import 20 000 t of maize from Kenya's National Cereals and Produce Board (NCPB) but the board could only supply 10 000 t since it has yet to purchase 270 000 mt of maize for is own strategic grain reserves. It is expected that the next consignment of 10 000 t may be supplied to Tanzania in March. The price of the maize from Kenya will depend on which NCPB depots Tanzania would

like to source the maize from. The prices are expected to be: Kshs 1315/90 kg bag on rail at Eldoret, Kshs 1413/90 kg bag on rail at Kisumu, Kshs 1406/90 kg bag on lorry at Kisumu, Kshs 1487/90 kg bag on lorry at Nairobi. The government of Tanzania hopes to contract a private logistics firm to transport the maize from Kenya to Tanzania.

Increasing commercial supplies of maize from Kenya and Uganda is reaching most urban parts of northern Tanzania where demand is high and wholesale prices which have been rising in the past 5 months are expected to stabilize at a higher level compared to previous five years.

Kenya

Generally, maize prices are on the rise in most markets in Kenya due to high demand by traders, millers and National Cereals and Produce Board (NCPB). Wholesale buying prices for high quality maize by Millers and NCPB in the North Rift area have increased from Kshs 12.22/kg in November-December 2003 to 13.33/kg in the third week of January 2004. Traders wholesale buying prices have increased from Kshs 10/kg to Kshs 11.40/kg in the same period.

The market for Kenyan maize has also widened to include the Strategic Grain Reserves (SGR) of Tanzania and Tanzania Traders. SGR has purchased 10 000t of maize and still needs another 10 000 t. Maize supply to parts of northern Tanzania has been on the increase with 7000 t moving to Tanzania in January through areas around Isebania, Namanga and Holili compared with 3000t in December. Crop production estimates for the short rains maize crop is also expected to be revised downwards below 360 000 t projected earlier due to delayed on set of the short rains season and inadequate or erratic rainfall during the season. Domestic maize supply is therefore expected to tighten in the first half of 2004 increasing prices further.

Maize market segregation is expected to widen with supply of more expensive high quality maize targeting millers and NCPB. Consumable maize that does not meet the quality specifications of millers and NCPB is expected to sell at a discount to households through open markets. Wet maize from Uganda is expected to sell well in western and eastern parts of Kenya before the early harvest of the main crop in August/October.

The average white maize prices in the main world markets have been high compared to Kenya's prices. For example, if South African white maize is delivered in Mombasa in the first week of February, it would cost an average of Kshs 22.67/kg compared with the domestic price of Kshs 16.11/kg. Consequently no major commercial maize imports are expected in the first half of 2004.

Short rains bean production is projected at 180 000 t compared with 330 000 t in a normal season. However due to high supply from Uganda and Rwanda, prices are expected to remain stable in Kenya.

Uganda

The short rains maize production is estimated at 100 000 t by end of harvest in February 2004 of which 50 000 t would be traded. There is increasing supply of wet maize into the

Ugandan maize market as harvesting of the short rain maize crop nears end. A combination of high supply, poor quality and low demand has depressed maize prices in most markets in Uganda. For example, the Off-lorry wholesale price of maize in Kisenyi market in Kampala is down to Ushs 235/kg from an average of Ushs 265/kg in October-December 2003. However, the demand for Ugandan maize is expected to increase in both Kenya and northern Tanzania due to tightening of the maize market.

The increasing prices of quality maize in both Kenya and Tanzania has sidelined a sizeable population that cannot afford it and are buying cheaper wet maize which they dry by themselves. Consequently the flow of Ugandan maize to Kagera, Mwanza and Musoma Regions in Tanzania; Western, Nyanza, Eastern and Coast provinces in Kenya is expected to increase in the first half of 2004 with prices tracking higher. Maize flow into Kenya was 6500 t in January through Busia border compared with 5000 t in December. 1034 t of maize was delivered in Mwanza Tanzania by train ship.

Bean prices have been rising in the main trading market of Busia from an average of Ushs 398/kg in late December to Ushs 446/kg in the third week of January in response to high demand from Kenya. 5300 t of beans crossed into Kenya in December compared with 5000 t in December. Prices may drop slightly with the short rains bean harvest in Kenya in late February through March.

Rwanda

Preliminary estimates put Rwanda's maize production in 2003 at 69 000 t, 14% higher than 64 000 t in 2002. However, maize is usually not a major second season crop in Rwanda. The average wholesale price of Uganda's maize in Kigali was RF 120/kg in January and the flow of maize from Uganda is expected to continue up to April-May before the long rains maize harvest starts in Rwanda.

Increased supplies of beans into the domestics market from short rains harvest have lowered the wholesale prices in most markets in Rwanda. In Kigali, the average wholesale price of beans in January was RF 105/kg compared to RF 120/kg in November through December. Consequently the outflow of beans to Uganda and Kenya where prices are high due to high demand is expected to continue until March/April when bean supply tightens. As peace spreads in DRC, bean flow into Rwanda from eastern DRC has reduced due to high demand and high prices fetched in the traditional western markets of Kinshasa (DRC) and Brazzaville (Congo). The DRC currency has also gained against the Rwandese francs making the DRC beans relatively expensive in Rwanda.

Prices

		Maize wholesale													Beans wholesale										
		2002	2003												2002	2003									
Markets	Units	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Arusha	Tz shs/Kg	108	113	111	118	131	151	162	169	170	165	165	180	200	363	376	339	357	397	395	437	435	405	395	405	400	427
Kisumu	Kshs/Kg	12	12	12	12	16	18	18	22	20	13.3	13.3	14.2	13.3	22	22	21	23	30	36	37	33	23	26.6	29	28.9	33.3
Mbale	Ushs/Kg	284	232	233	243	318	326	385	390	237	240	250	245	260	450	450	455	543	619	613	550	400	350	400	400	400	450
Kigali	RF/kg	100	100	95	76	90	100	100	100	100	85	85	120	120	135	135	95	95	100	87	92	110	110	120	110	140	140

RATIN/FEWS NET Tel: (254) 20 350523-5 Nairobi, Kenya; Thomas Awuor

Ugandan maize market as harvesting of the short rain maize crop nears end. A combination of high supply, poor quality and low demand has depressed maize prices in most markets in Uganda. For example, the Off-lorry wholesale price of maize in Kisenyi market in Kampala is down to Ushs 235/kg from an average of Ushs 265/kg in October-December 2003. However, the demand for Ugandan maize is expected to increase in both Kenya and northern Tanzania due to tightening of the maize market.

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Arusha	Tz shs/Kg	108	113	111	118	131	151	162	169	170	165	165	180	200	363	378	339	357	397	395	437	435	405	395	405	400	427
Kisumu	Kshs/Kg	12	12	12	12	16	18	16	22	20	13.3	13.3	14.2	13.3	22	22	21	23	30	38	37	33	23	26.6	29	28.9	33.3
Mbale	Ushs/Kg	284	232	233	243	318	326	365	360	237	240	250	245	260	450	450	455	543	619	613	550	400	350	400	400	400	450
Kigali	RF/kg	100	100	95	78	90	100	100	100	100	85	85	120	120	135	135	95	95	100	87	92	110	110	120	110	140	140

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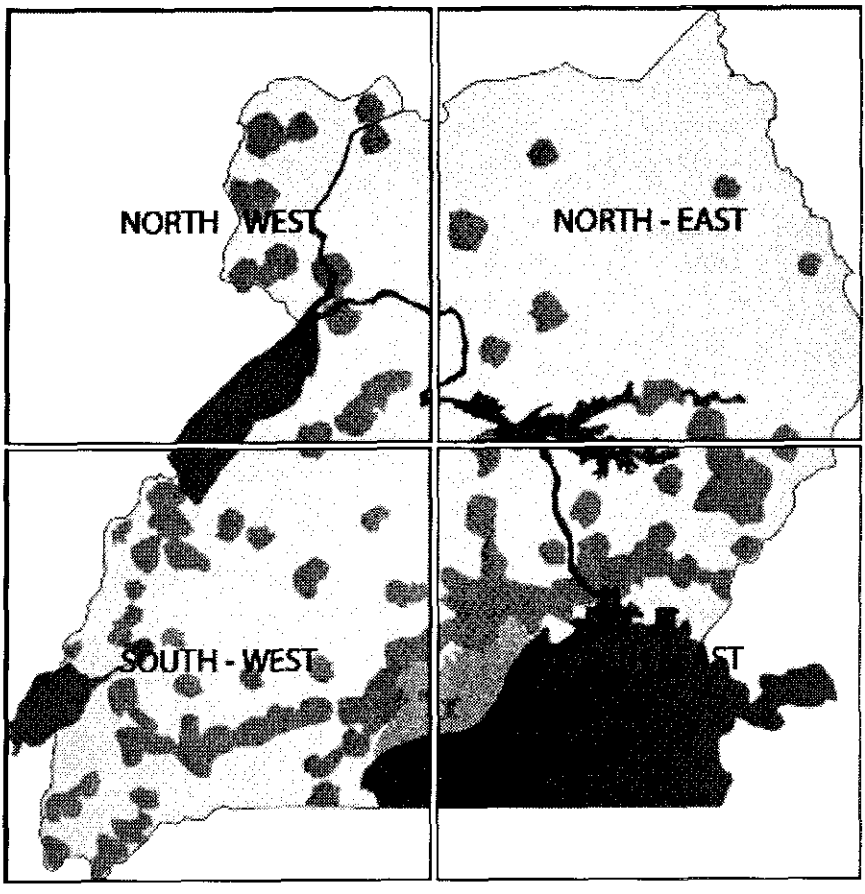
Annex 7. Major towns in Uganda with MTN coverages.

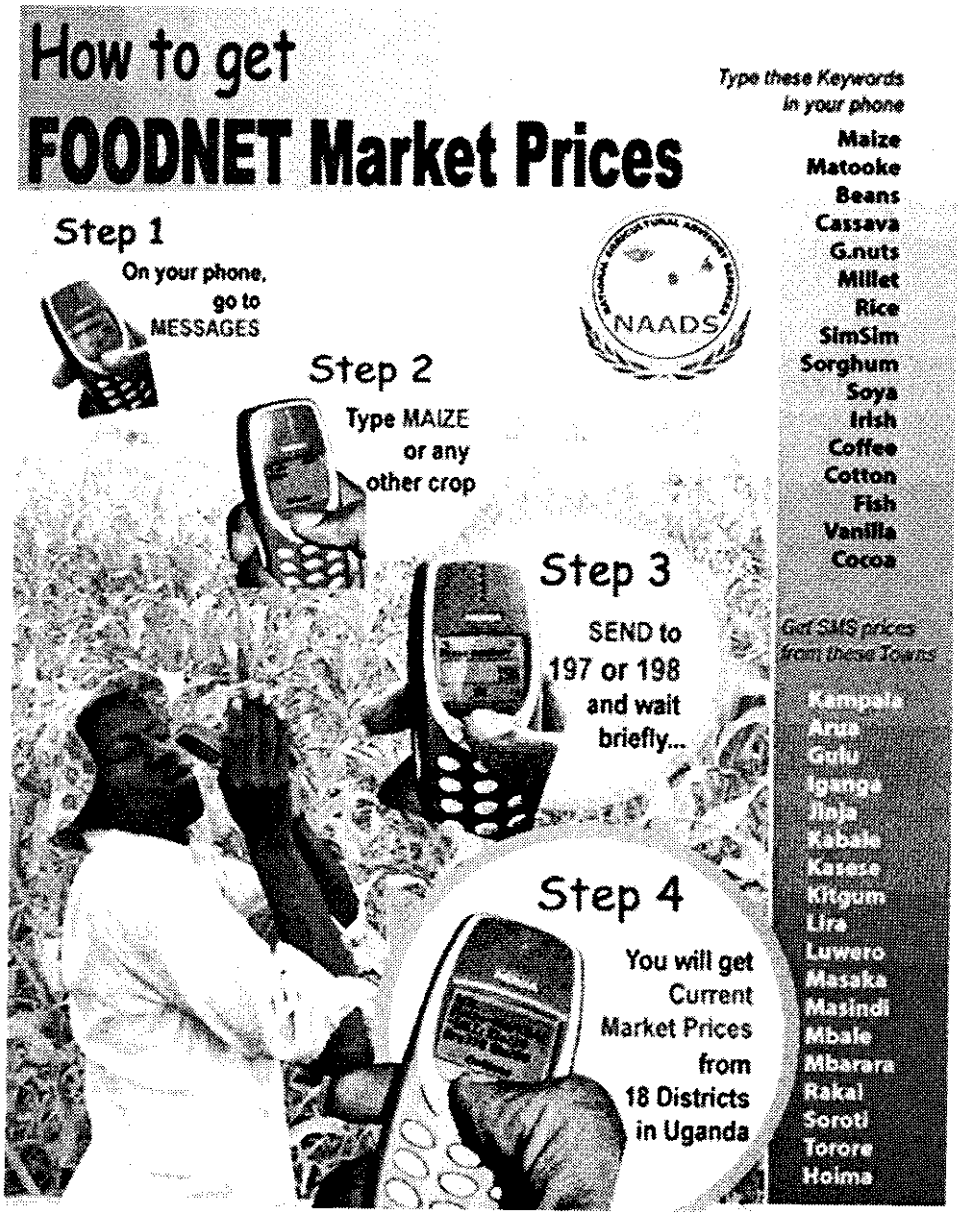


Abaita Ababiri	Busia	Kabala	Kayunga	Lugazi
Adjumani	Busiu	Kadugala	Kibaale	Lukaya
Aduku	Butenda	Kagamba	Kibiito	Luwero
Anyeke	Buwalasi	Kajjansi	Kiboga	Lyantonde
Apac	Buwama	Kakira	Kiira	Magamaga
Arapai	Buwayo	Kakiri	Kilibi	Makasongola
Aringa	Buwenge	Kakuuto	Kinoni	Malaba
Arua	Bwenkoma	Kalangala	Kireka	Maracha
Bihairwe	Bweyogerere	Kalisizo	Kirumba	Masaka
Bombo	Bwizibwera	Kamengo	Kisoga	Masindi
Bubaale	Dundu	Kampala	Kisomoro	Matuga
Budadiri	Entebbe	Kamuli	Kisoro	Mbale
Budaka	Erute	Kanungu	Kitala	Mbarara
Bugembe	Fort Portal	Kapchorwa	Koboko	Mbirizi

Annex 7. Major towns in Uganda with MTN coverage (contd).

Bugiri
Buhesi
Buikwe
Bukedea
Bunamwaya
Busembatia
Busesa
Bushenyi
Mukuju
Mutukula
Mwiri
Nakaseeta
Namafuma
Namanyonyi
Namulonge
Nansana
Ndejje
Gayaza
Gulu
Hakibale
Hoima
Hoima
Ibanda
Iganga
Jinja
Nebbi
Njeru
Nkokonjeru Nkoma
Nkozi
Nsangi
Ntungamo
Nyabushozi
Okavia
Okollo
Kasangati
Kasese
Kashongati
Kassana
Katikamu
Katooma
Katovu
Katuna
Paidha
Pakwach
Pallisa Paraa
Rakai
Rubirizi
Rukungiri
Rwagaaju
Rwahi
Rwimi
Kumi
Kyadondo
Kyaliwajala
Kyarushozi
Kyazanga
Kyenjojo
Kyotera
Lira
Sanga
Seeta
Sembabule
Sironko
Soroti Terego
Tororo
Vurra
Wakiso
Wobulenzi
Yumbe
Misindye
Mityana
Moyo
Mpenja
Mpigi
Mubende
Muduuma
Mukono

Annex 8. SMS advertising.



About FOODNET

The FOODNET project is a regional agricultural research and development network focusing on market-oriented research and sales of value-added agricultural products.

The overall project goal is to strengthen regional capacity in value-added, agro-enterprise technologies for increased income, improved nutrition, and sustainable food security in eastern and central Africa.

The project purpose is to identify market opportunities for existing and novel, value-added products, and optimize appropriate postharvest technologies to enhance the income generating capacity of small- and medium-scale entrepreneurs from the private sector and promote products to improve nutrition.

FOODNET project partners are ASARECA networks, national programs, Universities, International Agricultural Research Centers, NGOs, CBOs, farmers, processors, manufacturers, and other agricultural sector stakeholders within the ASARECA region.

Researchers working with FOODNET use market survey techniques to identify market opportunities and work in close collaboration with a range of public and private sector partners to develop agro-enterprise projects, using innovative postharvest technologies and products to supply both new and existing markets.

Agro-enterprise activities will be developed using commercial models through the integration of market studies, improved technologies, and the development of partnerships with the various agents involved in the production to sales marketing chain.

To build capacity in this type of research, the network seeks to strengthen links between the private and public sector agencies and provide regional training in market studies and agro-enterprise development to accelerate the process of change towards market oriented research.

Project objectives are to:

- Identify market opportunities for increased sales of value-added products.
- Identify varieties with specific nutritional/processing qualities for germplasm enhancement.
- Identify, adapt, and promote improved postharvest technologies with private sector partners.
- Diversify product range from locally available crops for market expansion and improved nutrition.
- Provide training to strengthen the capacity of the Network to deliver profitable agro-enterprises.
- Develop postharvest information systems for increased access and exchange of information.
- Catalyze the process of change from production to market oriented research in partnership with the ASARECA networks and private sector partners.
- Enhance local, regional, intercenter, and international cooperation in postharvest activities.

About IITA

The International Institute of Tropical Agriculture (IITA) was founded in 1967 as an international agricultural research institute with a mandate for improving food production in the humid tropics and to develop sustainable production systems. It became the first African link in the worldwide network of agricultural research centers known as the Consultative Group on International Agricultural Research (CGIAR), formed in 1971.

IITA's mission is to enhance the food security, income, and well-being of resource-poor people primarily in the humid and subhumid zones of sub-Saharan Africa, by conducting research and related activities to increase agricultural production, improve food systems, and sustainably manage natural resources, in partnership with national and international stakeholders. To this end, IITA conducts research, germplasm conservation, training, and information exchange activities in partnership with regional bodies and national programs including universities, NGOs, and the private sector. The research agenda addresses crop improvement, plant health, and resource and crop management within a food systems framework and is targeted at the identified needs of three major agroecological zones: the savannas, the humid forests, and the midaltitudes. Research focuses on smallholder cropping and postharvest systems and on the following food crops: cassava, cowpea, maize, plantain and banana, soybean, and yam.