

Platform  
for Agricultural  
Risk Management

Managing risks  
to improve farmers'  
livelihoods

**Working Paper**



# Information Systems for Agricultural Risk Management in Uganda

**Working Paper #2**  
September 2015





PARM  
PLATFORM FOR  
AGRICULTURAL RISK  
MANAGEMENT

Platform  
for Agricultural  
Risk Management

# Managing risks to improve farmers' livelihoods



Platform for Agricultural Risk Management

**AGRICULTURAL RISK MANAGEMENT  
INFORMATION SYSTEMS**

# UGANDA

WORKING PAPERS

**Agricultural Risk Management  
Information Systems (ARM-IS) in  
Uganda**

*Working Paper # 2*



Agnes Atyang

September 2015



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## Acronyms

ACCRA	Africa Climate Change Resilience Alliance
ACTED	Agency for Technical Cooperation and Development
AMITSA	Agricultural Input Market Information and Transparency System
ARM	Agricultural Risk Management
CABI	Centre for Bioscience International
CDO	Cotton Development Organisation
CKW	Community Knowledge Worker
COMESA	Common Market for Eastern and Southern Africa
DDA	Dairy Development Authority
EAC	East Africa Community
EAGC	East African Grain Council
EWS	Early Warning Systems
FAO	Food and Agriculture Organisation of the United Nations
FEWSNET	Famine Early Warning Systems Network
FMD	Foot and Mouth Disease
GHA	Greater Horn of Africa
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
GoU	Government of Uganda
ICPAC	IGAD Climate Prediction and Applications Centre
IFDC	International Fertilizer Development Centre
IGAD	Intergovernmental Authority on Development
IPC	Integrated Food Security Phase Classification
MAAIF	Ministry of Agriculture Animal Industry and Fisheries
MIS	Market Information Systems
NAADS	National Agricultural Advisory Services
NADDEC	National Animal Disease Diagnostics and Epidemiology Centre
NARO	National Agriculture Research Organisation
NGO	Non-governmental organizations
OPM	Office of the Prime Minister
PARM	Platform for Agriculture Risk Management
RATIN	Regional Agricultural Trade Intelligence Network
SIDA	Swedish International Development Agency
SMS	Short Messaging Service
UBOS	Uganda Bureau of Statistics
UCDA	Uganda Coffee Development Authority
UNADA	National Agro Inputs Dealers' Association
UNMA	Uganda National Meteorological Authority
USAID	United States Agency for International Development
WAHIS	World Animal Health Information System
WFP	World Food Programme
WMO	World Meteorological Organisation

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## **Executive Summary**

Agriculture risk management requires access to information. Information is required by farmers to enable them select the most appropriate tools to manage the risks they face, the private sector to develop risk management insurance products that are affordable by the smallholder, and for policy makers to design appropriate agricultural policies to support response mechanisms.

Information systems are knowledge infrastructures which facilitate the dissemination of information for risk awareness and mitigation, market decisions, and policy decision-making. There are a number of information systems in Uganda that inform smallholder farmers and the policy makers of the risks in agriculture. These include: weather and climate, plant health, livestock health, production and yields, market information, price of inputs, and socio-economic factors. There are also EWS that combine some of these systems for mainly food security monitoring. There are some challenges with these systems regarding the quality of the data, timeliness and reaching the majority of the rural smallholder farmers. This is further worsened by the ongoing restructuring of the agricultural extension services which are an important source of information for the farmers.

Recommendations are made to improve the information systems including: integrating the various disjointed EWS under the NEWS so as avoid confusion that arises when there are numerous sources of information; empowering and building the capacity of local government staff to collect agricultural information/data; enhancing cooperation between districts, rural based FM radio stations and MIS providers to broaden access to market information; and rolling out the mobile plant clinics across the whole country using the agricultural extension system that is being reinvigorated. There are several ongoing interventions aimed at improving the hydro-meteorological monitoring network and UNMA information.

## **1. Introduction**

### **1.1 Context of the Study**

The Platform for Agricultural Risk Management (PARM), a G8-G20 initiative hosted by the International Fund for Agricultural development (IFAD), provides technical support to Governments on Agricultural Risk Management ([www.p4arm.org](http://www.p4arm.org)). PARM Secretariat is working in the African continent in strategic partnership with the NEPAD Agency (African Union's New Partnership for Africa's Development), which, in collaboration with the Food and Agriculture Organization (FAO) has been establishing since 2011 an Agriculture and Food Insecurity Risk Management (AFIRM) initiative to support African countries in mainstreaming agriculture and food security risk management into their Comprehensive Africa Agriculture Development Programme (CAADP) implementation (Antonaci *et al.*, 2013). Nine countries have currently been selected to participate in PARM including Uganda.

ARM can significantly contribute to improve the resilience of vulnerable rural households by increasing their capacity to absorb and adapt to risks. The PARM is a global platform that builds on existing initiatives and knowledge, in particular from the World Bank that has already undertaken "agricultural sector risk assessment" reports in several countries, the FAO, the World Food Program, NGOs and the private sector. The PARM activities are oriented to facilitating the development of ARM knowledge and tools, creating synergies and complementarities among different partners and stakeholders.

Information is the key input for any risk management activity. The information system may cover all sources of risk: from markets, inputs, production, weather, diseases, policies, etc. It may reach different users in different ways: smallholders, governments, insurance companies, service providers and other players. Without appropriate information farmers cannot identify their main risks and select the appropriate tools to manage them, and governments cannot design their agricultural policies and respond to risks with preparedness. Lack of reliable information also discourages private sector investments or the cost to protect them is so high that the final product is not affordable for smallholders. This is often the case of insurances. Weak information systems will lead to wrong investments and ARM decisions. In this context, information systems have been identified as main limiting factors to develop ARM tools

### **1.2 Background**

Agriculture is naturally a risky business. Weather variability, particularly drought and floods, and wide fluctuation in prices of inputs such as seeds and fertilizer translate into high variability in production and prices of food commodities and incomes of farming households. These risk have a high cost attached to them therefore, managing these risks remains central to achieving rapid

agricultural productivity and growth, increasing incomes and lifting households out of poverty. Consumers on the other hand, especially the poor, are exposed to risks concerning availability and affordability of food.

From the field level to government policy, efforts to reduce the impacts of climate risk on food security depend increasingly on information and knowledge. In an increasingly uncertain climate, information and advisory services can help farmers better manage risk and take advantage of favourable climate conditions. Providing quality information is necessary, but not sufficient for farmers to be able to use it effectively. Several additional challenges—including how information can be accessed, its relevance on a local scale, whether farmers feel it is legitimate, equitability of access and use, and integration with other needed inputs—must be addressed. To help them make the most of their harvests, smallholder farmers need access to arrange of information that can help them decide when best to buy inputs or sell their yields, saving them time and money; plan for weather changes that can help them capitalize on rainfall; pick the best-yielding seed varieties; and distinguish between disease and pests and respond appropriately.

Risk management in agriculture is a system in which there is interaction between many elements: the sources of risk, farmers' strategies and government policies (OECD2009). A number of issues and concepts are crucial to the understanding of these interactions. The sources of risk in agriculture in Uganda are numerous and diverse; availability of genuine agricultural inputs, volatility of prices of agro-inputs and products, weather related hazards particularly droughts, floods and climate variability; pests and diseases; or personal circumstances determine production in ways that are outside the control of the farmer. Unexpected changes may occur in access to credit or other sources of income that affect the financial viability of the farm. The legal framework or changes in it may lead to liability and policy risks.

Risk management strategies start with decisions on the farm and the household: on the set of outputs to be produced, the allocation of land, the use of other inputs and techniques, including irrigation and the diversification of activities on and off-farm.

### **1.3 Objective of the Study**

The objective of this study is to investigate the availability and quality of information available for agricultural risk management purposes in Uganda with emphasis on the existence of the information and the timeliness and accessibility by stakeholders at smallholder and government policy level for risk management purposes.

## 1.4 Methodology

The study relied on review of documents and websites related to relevant information systems, including information outputs, data generation and management methods, organizational structures and resources. In addition, meetings were held with some stakeholders (Annex 1).

## 1.5 Information Systems

Information systems are knowledge infrastructures which facilitate the dissemination of information for risk awareness and mitigation, market decisions, and policy decision-making. Information systems in agriculture are generally classified in two main categories: MIS and Weather Forecast and EWS (Antonaci *et al.* 2014).

MIS refer to gathering, analysing and disseminating information on agricultural prices, quantities and other relevant information on widely traded agricultural products from farmgate, rural assembly, retail and wholesale markets. The main purpose of an MIS is to provide market monitoring indicators and decision-making support to devise and steer agricultural and trade policies and improve transparency and market efficiency by providing operators with information on prices and market conditions (European Commission 2012). An MIS therefore aims to: (i) Redress the information asymmetry between players, to help poor farmers; (b) Facilitate trade decisions for buying, selling and investing; (c) Improve small-scale farmers' negotiating capacity; (d) Improve market transparency, competition and trade-offs; (e) Improve the strategic guidelines given by public and private institutions; and (f) Reduce transaction costs (access to information).

EWS collect, analyse and disseminate timely and effective information about hazards and additionally may combine it with information on prices, crop production, and vegetation conditions in a holistic analysis to inform decision making process that will avoid or reduce risks and prepare an effective response. EWS are dependent on data accuracy, clear risk assessment based on context specific indicators, timeliness of warnings, and ease of access of use information by end users. Therefore, effective agricultural information systems are valuable to reducing uncertainties in agriculture by enabling governments, farmers and the private sector to better plan their actions to manage the risks.

This study will therefore make an inventory of existing ARM information data systems and data sources in Uganda and their characteristics in terms of information gathering methods, availability and accessibility of data and institutional arrangements.

## **2. Agricultural risk management information systems in Uganda**

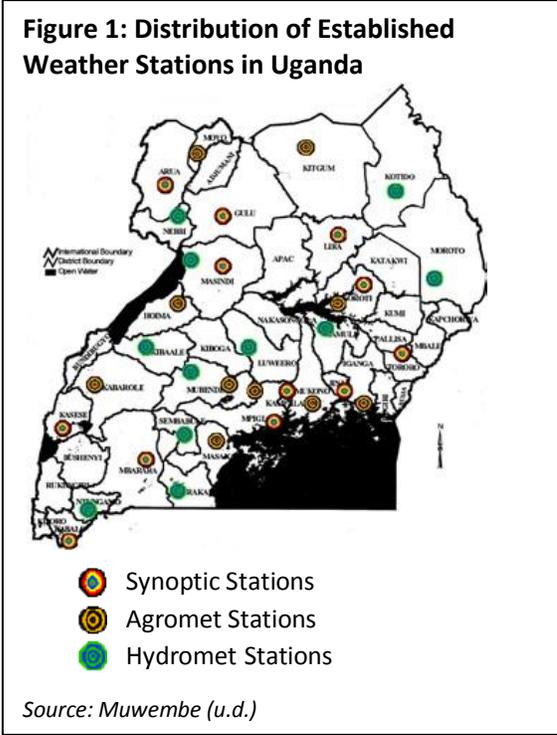
### **2.1 Meteorological and climate information**

Agriculture in Uganda is rain-fed therefore weather and climate are the main drivers of production. Variability in weather often influences farmers' decisions such as choice of agricultural enterprise to engage in, crops to grow, when to plant. It may also deter farmers from adopting new technologies and market opportunities. While taking such risks could improve yields and boost profits in a good season, extreme weather events such as drought or outbreak of disease can wipe out crops or livestock, leaving farmers impoverished. Institutions that influence and support farmers, such as national agricultural research and extension systems and development NGOs, are also affected by weather and climate uncertainty because it affects the type of backup that they provide to farmers. Climate uncertainty also has a negative impact on the providers of credit and markets for productive inputs and can make it difficult for smallholder farmers to benefit from agricultural markets. Weather and climate information can reduce uncertainty and support farmers in making decisions to reduce risks associated with their agricultural enterprises. Responding to climate variability and change in agricultural communities will be incomplete without access to weather forecasting and early warning information. The forecasts can provide advance information so that farmers can adjust critical agricultural decisions, thereby improving efficiency, and enabling them to adopt the most suitable coping strategies.

#### **2.1.1 National weather/climate information system**

The main source of weather and climate information (including warnings/advisories) is UNMA. The UNMA is a government agency and largely relies on GoU to finance the data collection, archiving and dissemination. UNMA also receives support from development partners (donors) such as USAID and GIZ. The weather products are provided to the public and all stakeholders at no cost. However, any data requested by any entity is charged depending on the number of stations, parameters and time series required. The agency works in partnership with NGOs, the media, private companies and government ministries, departments and agencies to publicize weather information. UNMA has archives of all weather data in Uganda albeit with some gaps. Data for some weather stations go as far back as 1800s. This historical weather information is available for trend analysis and is important in informing EWS. Data is aggregated by weather station. This includes parameters like rainfall, temperature and humidity, among others. The seasonal weather forecasts are the important product for farmers issued by UNMA. These provide a three-month forecast of likely weather conditions, particularly rainfall, during the cropping season. This enables farmers plan their production activities.

However, the low density of meteorological stations (Figure1) coupled with obsolete equipment due to chronic under-funding undermines the accuracy of the forecasts (Muwembe, *undated*). At least each district should have an operational weather station in order to ensure that the weather information is representative. However, only about 40 of the 112 districts have operational weather stations. The weather and climate observation infrastructure are clustered around public institutions for ease of access and thus do not cover the spatial variability of the different zones in the country, i.e. agro-meteorological, climatological, hydro-meteorological and isohyet (rainfall variability) zones (UNDP 2013). In addition to the poor spatial coverage, most stations are only partially functional or non-operational as a result of vandalism, limited spare parts and insufficient maintenance and calibration equipment (Table1). The basic components of a functioning weather/climate and hydrological monitoring system (including synoptic, agro-meteorological and hydrological stations, satellite receivers, radar and upper air stations) in Uganda have not been updated with appropriate automated equipment and have been insufficiently maintained over the last 20-30 years. This has resulted in only about 30 percent of



the required information and data from Uganda being transmitted internationally through the Global Telecommunications Network (GTS). This means that weather and climate observations from Uganda are not effectively incorporated into regional and global circulation models which decreases the accuracy of these models for the Ugandan context. At present, there are limited weather and climate observing infrastructure and

**Table 1: Status of existing meteorological stations**

Station type	Existing (number)	Fully operational (number)
Synoptic	12	0
Agro-meteorological	17	7
Hydro-meteorological	15	5
Rainfall stations	150-300	60
Automatic Weather Stations	33	1
Radar	1	0
Upper Air	0	0
Pilot Sounding	0	0
Satellite receiving stations	1	1

Source: UNDP 2013

the required information and data from Uganda being transmitted internationally through the Global Telecommunications Network (GTS). This means that weather and climate observations from Uganda are not effectively incorporated into regional and global circulation models which decreases the accuracy of these models for the Ugandan context. At present, there are limited weather and climate observing infrastructure and

communications equipment, technological capacity for weather forecasting and analysis, and human and technical capacity to utilise these technologies (*Ibid*). The significant shortage of weather and climate monitoring stations in Uganda negatively affects the country’s ability to monitor, detect and predict climate variability and climate change effectively. A combination of non-operational, poorly functioning and obsolete infrastructure as well as poor spatial station coverage is currently reducing the ability of the UNMA to provide detailed and accurate weather and climate information and products (OPM 2014).

Despite the above challenges, UNMA continues to provide a wide range of weather and climate products using their limited equipment. These products range from daily and monthly weather updates to seasonal forecasts that vary in content (Table 2). Three seasonal weather forecasts are issued in a year; March to May (MAM), June to August (JJA) and September to December (SOND). These forecasts give advisories on likely weather/climate conditions and impact on various sectors such as agriculture, works, transport and infrastructure, and disaster management. A typical seasonal forecast issued to the public is shown in Annex 2.

**Table 2: Information products by UNMA**

Product	Content	Target Audience	Dissemination channels
Daily public forecasts	<ul style="list-style-type: none"> <li>-Weather for the current day</li> <li>-Weather for the next 24 hours</li> <li>-Daily readings for rainfall, temperatures, humidity, wind and sunshine</li> </ul>	-General public	<ul style="list-style-type: none"> <li>-Radios (mainly FM radio stations broadcasting in local language);</li> <li>-Television;</li> <li>-Print media</li> </ul>
10-day (dekadal) and Monthly agro-meteorological bulletins	<ul style="list-style-type: none"> <li>-Weather summary and highlights for the last 10 days</li> <li>-Weather reviews at monthly and seasonal basis</li> <li>-10, 20 and 30 days rainfall and temperature analysis</li> <li>-Advisories to agricultural sector</li> <li>-Seasonal rainfall accumulated from the beginning of year to most current dekad</li> </ul>	<ul style="list-style-type: none"> <li>-Agricultural community</li> <li>-Feeds into various EWS</li> <li>-Agricultural policy makers</li> </ul>	<ul style="list-style-type: none"> <li>-Internet,</li> <li>-stakeholder meetings,</li> <li>-mailing list</li> </ul>
Monthly Weather bulletin	Climatological statistics including comparison of current month And long-term averages	<ul style="list-style-type: none"> <li>-Planners</li> <li>-Climatologists</li> <li>-Agricultural community</li> <li>-Feeds into various EWS</li> <li>-Agricultural policy makers</li> </ul>	Stakeholder meetings, mailing list

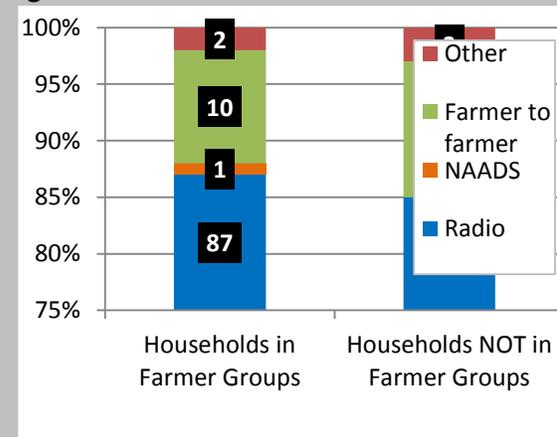
Special forecasts	<ul style="list-style-type: none"> <li>-Seasonal forecast circulars</li> <li>-Press releases on unpredicted weather events of concern to the public</li> </ul>	<ul style="list-style-type: none"> <li>-Policymakers</li> <li>-Insurance companies</li> <li>-General public</li> <li>-Agricultural community</li> <li>-Feeds into various EWS</li> </ul>	Press release, media
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Source: UNMA

The seasonal forecast in the form issued in Annex 2 is incomprehensible and too technical for the rural farmers. To address this, UNMA works with specialised translators trained in meteorology to simplify and translate the forecast into local languages. This has improved understanding of the seasonal scientific weather/climate forecasts and reduced misinterpretation (ACCRA and UNMA 2014). The translations are produced on pre-recorded audio CDs which are then sent to local FM radio stations and posted on the UNMA website as audio broadcast. The seasonal forecasts are currently available in 22 out of 54 languages spoken in Uganda. Additionally, the FM Radio stations can easily access the translated forecasts from the website and relay to the public.

Smallholder farmers mainly access weather information from their local radio stations or from NGOs and other extension agents working with them. According to Uganda Census of Agriculture of 2008/09, the radio is the major source of weather information for more than 85 percent of agricultural households in Uganda (Figure 2). Fellow farmers are also an important source of information for at least 10 percent of the farming households.

**Figure 2: Access to weather information by agricultural households**



Source: Adong et. al., 2012

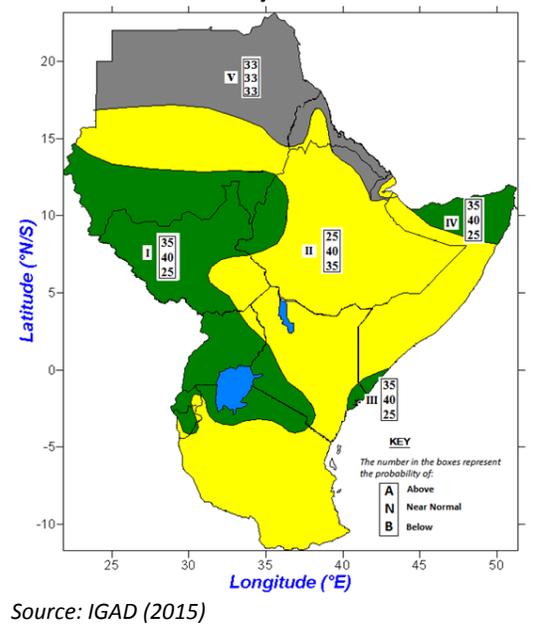
### 2.1.1 Regional Climate Information System

The regional weather/climate information system in the GHA is managed by ICPAC, a specialized IGAD institution. In addition to providing regional climate information, the ICPAC supports National Meteorological and Hydrological institutions in member countries of Burundi, Djibouti, Eritrea, Ethiopia, Kenya, Rwanda, Somalia, South Sudan, Sudan, Tanzania and Uganda to provide timely climate early warning information to support development. ICPAC produces a number of information products including dekadal, monthly and seasonal summaries of rainfall and drought severity, monthly temperature anomalies and predictions for the following three months. The prediction products are provided through outlooks for a dekad, month and season bulletins. The ICPAC organises consensus pre-rainfall season forums to provide a regional platform for interaction

between the climate scientists and various users of climate early warning advisories in order to derive a single consensus forecast for the GHA region e.g. Figure 3 and detailed in Annex 4. It is these regional forecasts that National Meteorological and Hydrological institutions downscale to obtain national seasonal forecasts (e.g. Annex 2).

The availability of long-term, probability-based forecasts, as a form of climate information, has important implications for various socio-economic issues including agricultural production, improved food security, and policy in the region. It is therefore, important to enhance the forecasts with scenarios and outlooks to better inform government policy e.g. Annex 5 (Vogel and O'Brien 2006).

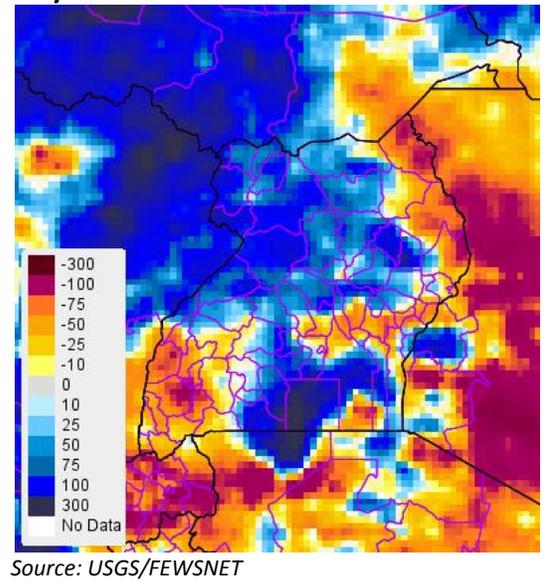
**Figure 3: GHA Consensus Climate Outlook for the March to May 2015 rainfall season**



## 2.2 Satellite image information

The sparse distribution of weather stations means the use of satellite data helps to fill the gaps. The UNMA has access to Satellite images which it uses to make projections in combination with ground based weather observations such as rainfall, temperature, humidity and wind to generate the various weather/climate products. Other organisations use publicly available satellite images to access information on weather, particularly rainfall. Organisations like Grameen Foundation and Infotrade complement information obtained from the UNMA with that from <http://www.totoagriculture.org/weather.aspx?> (Annex 6). The forecasts on this dashboard are derived from satellite-based projections coupled with ground weather observations/data (such as rainfall, wind, temperature, humidity, sunlight hours, etc.) and provide weather information for various administrative units, down to the parish level. The Grameen Foundation and Infotrade access the five day weather forecasts from this website which they disseminate to their farmers through CKWs and call centres. The five-day lead

**Figure 4: Rainfall anomalies for March to May 2014 in mm from 2001 to 2013 mean**



time gives farmers an opportunity to plan their operations better than the daily forecasts obtained from UNMA. Additionally, UNMA provides information at the district level.

Other satellite images are available from <http://earlywarning.usgs.gov/fews>. FEWSNET, an EWS, uses this freely available and downloadable data/information to monitor spatial and temporal rainfall performance throughout the cropping seasons in Uganda. For instance, Figure 4 shows satellite imagery of the departure of the 2014 first season rainfall from the 10-year average. The products include weather forecasts and seasonal outlooks highlighting trends, hazards, and anomalies, as well as geospatial data and mapping related to vegetation, rainfall, and water use.

### **2.3 Price of inputs**

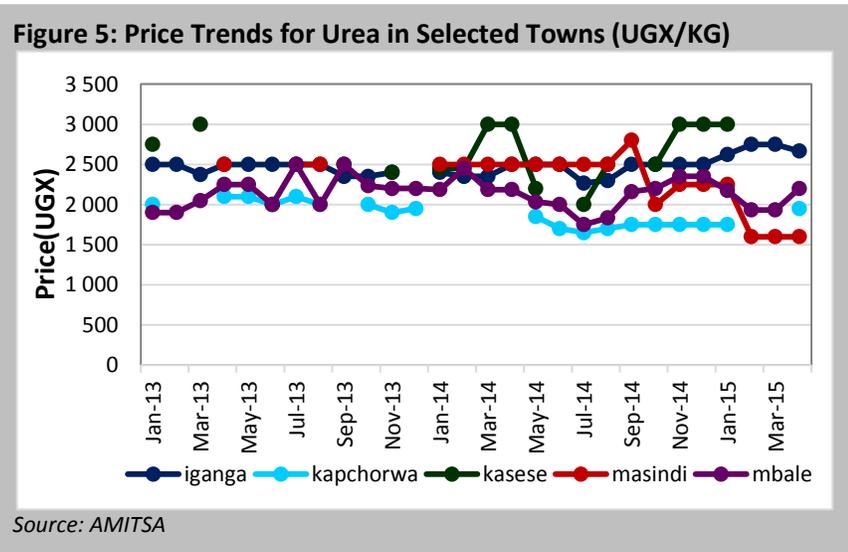
Average crop yields in Uganda are 20 – 30 percent of their potential. A major contributing factor is the lack of access to and therefore use of improved and good quality seeds and other planting material. In Uganda, 90 percent of crops are produced using home-saved seeds and planting materials (Joughin 2014). A Risk Assessment Study on Uganda by PARM showed that this situation is exacerbated by the low use of improved inputs and the presence of counterfeits in the market which cause annual losses of US\$ 11 – 22 million to the farmers. It is the risk of such high losses that has compelled farmers to rely on home-saved seed and other planting materials. This has led to low yields and reduced income for the farmers (Kerer 2015).

AMITSA is an inputs information system is collaborative effort of IFDC, the EAC and COMESA. The overall objective of this information service is to improve access to market and technical information on agricultural inputs such as fertilizers, seeds, fungicide, insecticide and herbicides in Eastern Africa. Specifically, it seeks to;

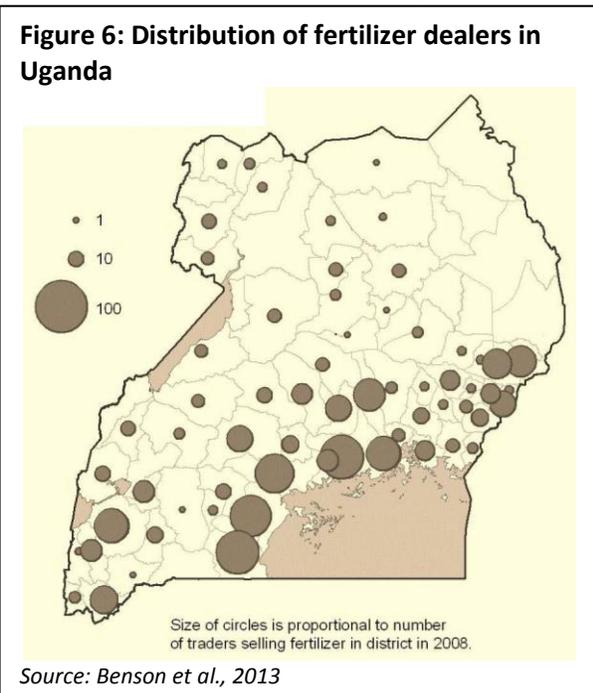
- Improve access to timely data and information on agricultural input markets
- Establish business linkages in value chain
- Reduce input procurement costs
- Increase the use of genuine inputs
- Increase agricultural productivity

The AMITSA system involves both the private and the public sector agro-input stakeholders to collect, collate and process agro input data and information. The monthly prices of fertilizers, selected seeds, pesticides and herbicides are available from March 2010, albeit with some gaps for specific commodities. The prices are limited to complex fertilizers (e.g. NPK), nitrogen and phosphate fertilizers; maize and bean seeds; and commonly used pesticides and herbicides. Farmers can access the prices through Infotrade. AMITSA also provides the list of the input dealers who are members. These members are recognised as dealing in genuine inputs. The system also provides fertilizer price trends in selected towns in Uganda, including: Arua, Iganga,

Kapchorwa, Masaka, Masindi, Kabale, Kachumabala, Kumi, Lira, and Mbale (Figure 5). These price data, input dealers, charts and trends are available at <http://www.amitsa.org/>. The price data available is aggregated as averages per town and national average (Annex 8).



AMITSA works in partnership with Infotrade to provide information on prices of the agricultural inputs and contacts of the input dealers using their dissemination channels. This implies that farmers who are Infotrade subscribers can easily access this information and therefore purchase genuine inputs. The MAAIF maintains a list of licensed agro-input companies, as does UNADA, but this information is inaccessible to the majority of rural smallholders. As such, the majority of the smallholders, who do not have access to information on genuine input dealers, purchase their inputs from any agro-input dealer in the nearest town or trading centre where chances of buying adulterated or counterfeit inputs are high. However, only about 25 percent of the smallholder farmers purchase fertilisers, herbicides or improved seeds. Among smallholder farmers, fertilizers are mainly used in maize, coffee, and vegetable production (near major towns) where its profitability is widely recognized. However, the number of fertilizer dealers in each district in Uganda, is very small in most of the country, thus limiting access to fertilizers (Figure 6). As Benson *et al.* (2013) found out, the traders offer advice to farmers on the use of fertilizer. However, the means by which traders obtain this information is quite varied, and the quality of the information that they communicate to farmers is difficult to judge. Smallholders also obtain information on how best to use fertilizers on their crops from farmers' groups and also rely on their own experience.



## 2.4 Prices of food commodities

More than half of rural households' income is spent on food (52 percent), where as for urban households the share is close to 37 percent (UBoS 2014). The prominence of food in the consumption basket is further reflected in its weight in the computation of the Consumer Price Index for Uganda. This implies that shocks affecting food prices, especially resulting in price movements that go beyond the usual seasonal price variations, will have wide economic effects. An example is oil (fuel) prices which are a major determining factor for price transmission within the country (Kaspersen and Føyn 2010). Furthermore, Campenhout *et al.* (2013) found that a spike in global food prices in 2008 and 2011 [caused by higher oil prices, the use of food crops for biofuel, increased meat consumption, poor harvests in certain agricultural regions, a depreciating dollar, export bans by key wheat and rice producers, and under investment in the agricultural sector in the past] resulted in substantial increase in rural poverty in Uganda in the short run but significant increase in welfare of rural farming households in the long run. This was attributed to increased returns to farm labour, agricultural land and improved market prices for agricultural commodities sold. They concluded that policies are needed to protect the highly vulnerable households from high food prices and extreme volatility in the short run, without eliminating the incentives of steadily rising commodity prices for longer-run structural agricultural development.

### 2.4.1 National commodity prices

Ferris *et. al.* (2008) showed that access to simple but trusted market signals can result in significant behavioural changes which have positive impact on household income. Once farmers receive market information, they are able to understand and use this data to monitor market changes and to apply this information to a range of marketing decisions. This includes decisions what crops to plant, selection of market location, when to sell in the season, making improvements on quality, speculative storage, and for improving the negotiating capacity of farmers to gain better sales prices with traders.

There are three main companies that are providing market prices of food commodities is easily accessible to medium and big farmers, traders and other players in the value chains. However, the majority of the smallholder farmers in Uganda cannot access this information.

**Infotrade** uses field agents to collect information market information thrice a week using Agricultural MIS is an on-line platform that incorporates market information collected from different information providers. This platform is also used by field officers to carry out on spot data entry. The information provided includes market prices, in put prices, commodity offers where members can post produce for selling/buying and agricultural directories. It also provides information on; fuel prices collected from major district fuelling stations, input prices and list of

input suppliers, traders, bulk stores. Infotrade is a private company providing a suite of information for smallholder farmers, traders and organisations so it is profit making. To finance its operations, Infotrade charges a subscription for various services. For instance:

- a) Broadcasting price data three times a week for specific markets and commodities which mainly benefits traders and other stakeholders at meso level;
- b) Profiling farmers to enable them keep farm records to use to grow their farming business enterprises. This is done in the Farm Information System or FARMIS (Annex 7). FARMIS captures information/data on farm inputs, crop yields per season, labour costs, farm management systems, harvest, post-harvest, marketing and sales data, among others. This allows farmers to assess the profitability of their enterprises and prepare business plans to access loans and credit from banks and other financial institutions, make informed decisions regarding their farms, enjoy the benefit of market linkages and group marketing. FARMIS is an online platform and farmers can access their information anytime on the internet or mobile. Farmers are charged UGX 20,000 per year and have the option of enrolling as a farmers group at a lower cost of UGX 1,200 per month. However, farmers groups are limited to those consisting of at least 300 farmers. So far 4,000 farmers in Uganda have been profiled in collaboration with Opportunity bank and Postbank. Infotrade is aiming to profile at least 450,000 farmers;
- c) Profiling for NGOs their farmers to enable them to evaluate the impact of their interventions and to receive market data. So far more than 10,000 farmers have been profiled through NGOs;
- d) Sale of bulk data price trends and forecast reports. However, weekly agricultural commodity prices provided through the SMS platform is free of charge with the exception of the cost of the SMS.

Price information is collected from 35 markets in major districts in Uganda on 47 commodities in all food categories including cereals, animal products, poultry, and food crops. The historical information covers a period of nine years. Infotrade also provides other information deemed essential in making decisions in relation to agriculture. These include: weather, commodity trade offers, transporters, bulk traders, and price of inputs.

The company uses SMS text messaging, voice services and rural radio present opportunities to better reach many people even in remote rural communities. Agricultural price information is accessible from the SMS Platform by simply texting the key word (price) followed by the commodity and the location to a dedicated short code 8555. More than 30,000 are benefitting from weekly price information using this service.

The food prices are provided to farmers and traders free of charge through selected radio stations

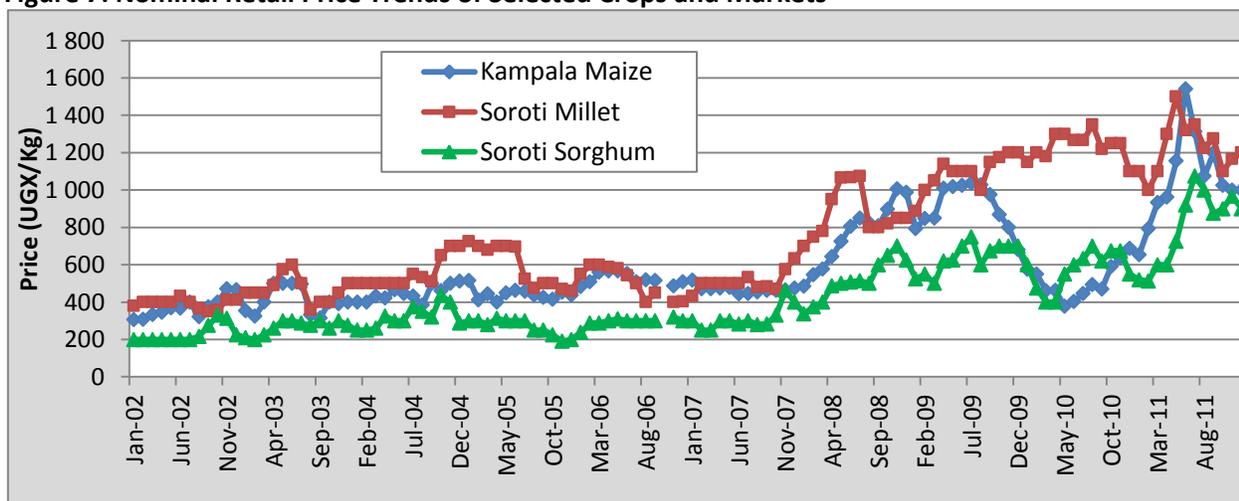
in major districts in Uganda. These Radio stations then include the information in their weekly farming programs. Price data is given on Blackboards in local markets where buyers and sellers of agricultural produce typically meet. In addition, the blackboard provides farmers with a platform to inform potential buyers about their produce. This blackboard is installed at each of the district markets in Uganda where Infotrade is collecting prices. The blackboard has only two purposes; for people looking for market for their produce to post their offers and those looking to buy. The blackboard captures three major items; Item/crop on sale, quantity and contact. Farmers can therefore use them to advertise their produce. This is a free service.

Infotrade also provides weekly agricultural market price reports which are mainly disseminated through email and the website (<http://www.infotradeuganda.com/>). Where information users are do not have access to internet, field officers print out these reports and post them on notice boards erected at markets and district offices where Infotrade is operational.

**Farmgain Africa Ltd** also uses agents in the major markets where it is operational to collect market prices. This MIS is linked to market intelligence networks within the region such as the RATIN which is a consortium of FEWSNET, EAGC, SIDA and USAID. Farmgain is also linked to the Food and Agricultural Market Information System (FAMIS), a regional market information system developed by COMESA. Unfortunately, FAMIS has been inactive since 2012.

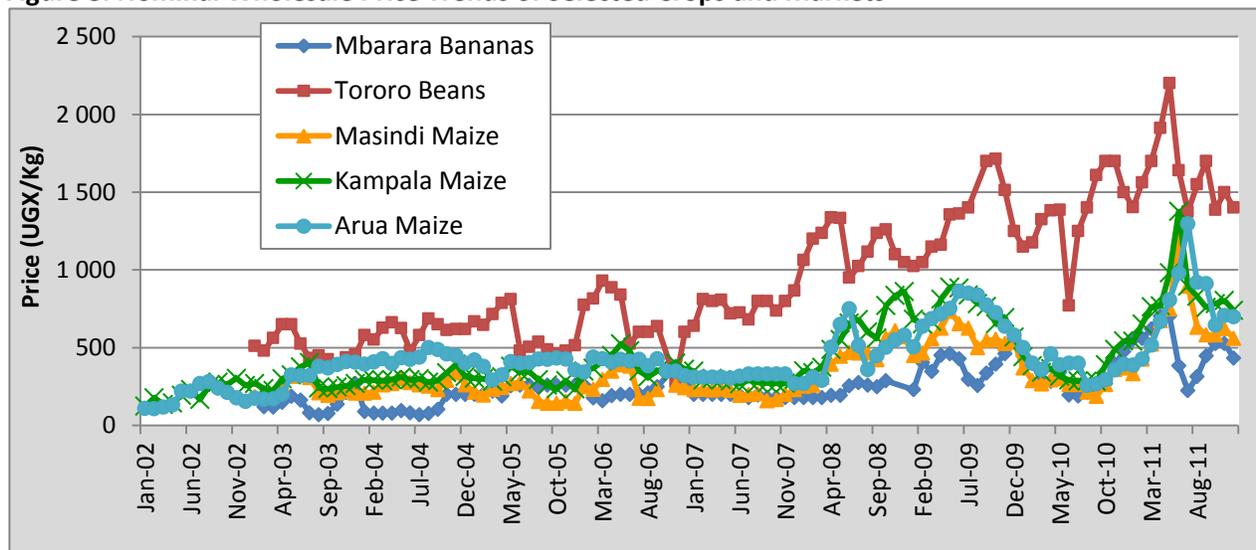
Farmgain is a private consultancy firm that specializes in agri-business, market information and agro enterprise development. It provides small and large scale farmers with commodity market information at retail and wholesale level on a weekly basis for major markets and daily for Kampala markets. Farmgain is currently monitoring 18 markets spread out nation wide, including five in Kampala, and 37 commodities. Price data is available from 2000 to-date albeit not for all markets. Data is more consistent for Arua, Kabale, Kampala, Kiboga, Lira, Masaka, Masindi,

**Figure 7: Nominal Retail Price Trends of Selected Crops and Markets**



Mbarara, Soroti and Tororo markets and the following crops; bananas/matooke, fresh cassava, sweet potatoes, potatoes, beans, cassava chips, cassava flour, groundnuts, maize grain, maize flour, millet grain, millet flour, rice, simsim (sesame), sorghum grain, sorghum flour, and soybeans. These crops don't feature in all the market listed because of variation in production and consumption patterns. Figures 7 and 8 illustrate the type of data available.

**Figure 8: Nominal Wholesale Price Trends of Selected Crops and Markets**



Source: Farmgain Ltd

The MIS is funded through subscription to market alerts which range from US\$5–100 monthly depending on the number of markets and commodities the client is interested in; sale of bulk market price data, and a portion of the cost of the SMS sent by farmers and traders. This information is also provided on the SMS platform on short code 8198. Weekly data is also available freely on the website at <http://farmgainafrica.org/>.

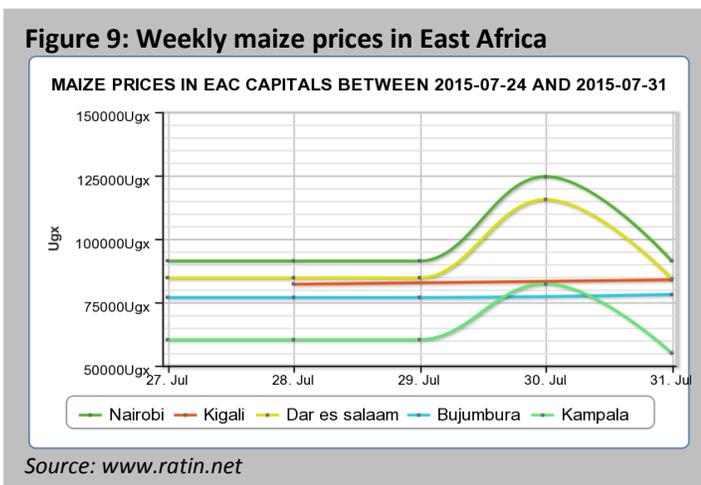
**Agrinet Uganda**, started in 2010, is also a private MIS that provides information to farmers, traders, agro-processors and other value chain actors, using mobile phone SMS, information boards, emails, website (<http://www.agrinetug.net/>), newsletters and local FM radio stations. It operates through a franchise network of 350 local entrepreneurs to provide a range of market access services including agricultural market intelligence and market linkages (brokerage). Agrinet provides prices on five commodities; beans, groundnuts, maize, rice and sorghum in Gulu, Iganga, Kampala, Lira, Mbale, Soroti and Tororo. It finances its operations by charging commission on services such as commodity brokerage, supervising contract production of commodities and organising commodity auction on behalf of sellers.

**WFP** collects monthly price data in the Karamoja region i.e. Kaabong, Kotido, Nakapiripirit, Napak and Moroto districts. WFP staff at the sub offices in the districts collects data on prices of

maize, sorghum, beans, goat and wage labour. Data is available from 2012 and is freely available on request. WFP issues a monthly price bulletin showing analysis of price trends and forecast. The bulletins are distributed by email and are also downloadable from [http://vam.wfp.org/CountryPage\\_overview.aspx?iso3=UGA](http://vam.wfp.org/CountryPage_overview.aspx?iso3=UGA). These bulletins are aimed at policy makers at central and district local governments, food security and agricultural livelihoods cluster members and donors.

#### 2.4.2. Regional Market Information Systems

**RATIN** is the main source of information on the grain market in East Africa. Established in 2006 by the Eastern Africa Grain Council, RATIN provides market intelligence online and through SMS for the agriculture markets in Kenya, Uganda, Tanzania, Rwanda, and Burundi. The prices of grains such as maize, rice, sorghum, beans, wheat and millet are provided on daily, weekly, monthly and annual basis. Typical example of weekly prices is shown in Figure 9 which allows

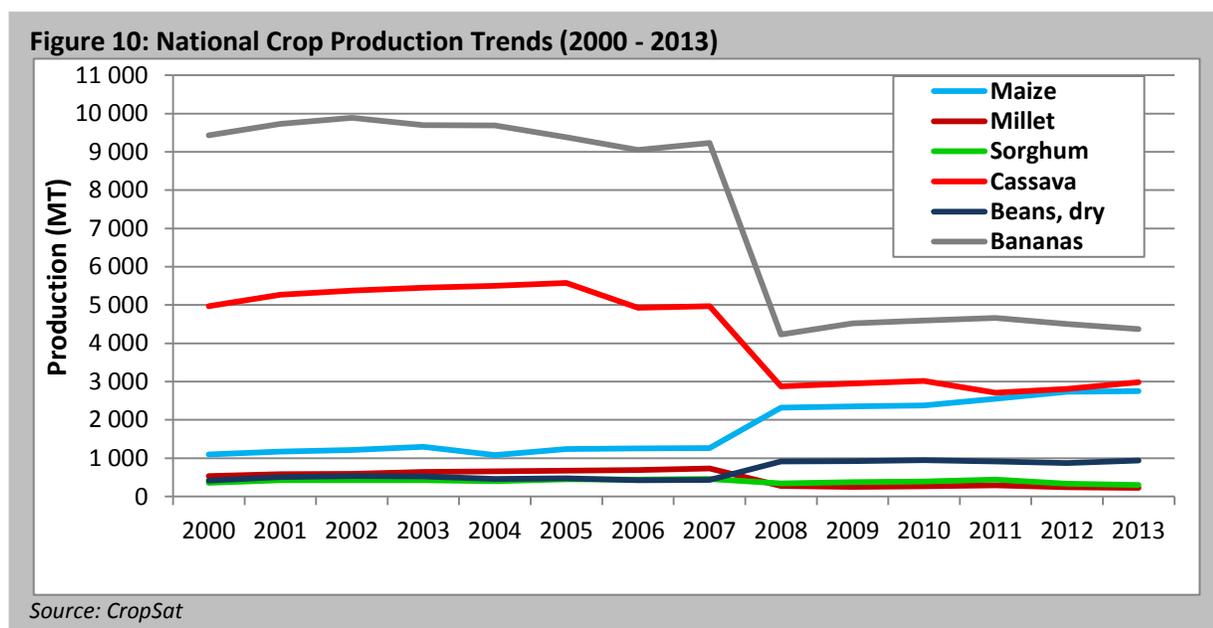


for price comparison across the region. RATIN also gives information on informal cross border trade and weekly consumer prices of staple foods (Annex 10). Information is disseminated by SMS, email and on the website (<http://www.ratin.net/>).

#### 2.5 Production levels and yields

The UBoS, in collaboration with MAAIF, are responsible for collecting and archiving production data. The MAAIF collects data on crop and livestock production through the district production offices twice a year corresponding to the cropping seasons. This data is supposed to be collated and processed by the Statistics Unit under the Monitoring and Evaluation Section within the Department of Agricultural Planning in MAAIF. However, due to low capacity to collect and process data, very few agricultural statistics are collected on an annual basis at national and sub-national levels, particularly on are crop area, yield, and production. As such, most of the information that is published by MAAIF and UBoS is by imputation (Muwanga-Zake, 2009). This implies production is estimated by judging the likely impact of performance of the cropping season on the production levels attained at 2008/09 agriculture census baseline. MAAIF relies on various reports to estimate annual crop production. These include: a) reports from the district extension staff on crop performance based on interviews with farmers, field observations, perception of the field staff and weather. These reports are generated each

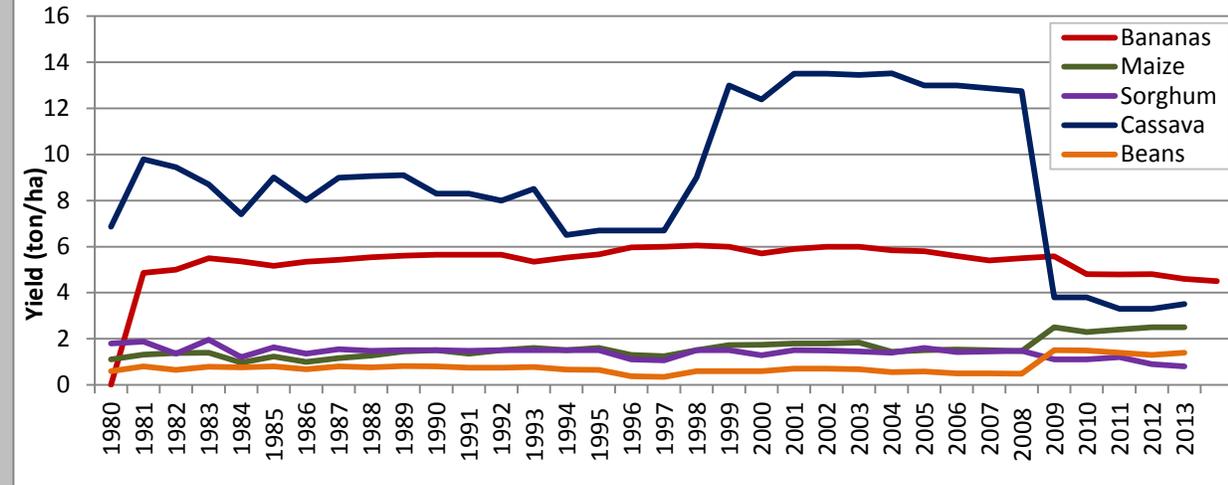
quarter of the year and forward to MAAIF for compilation and aggregation at national level; b) quarterly and annual reports from MAAIF programmes that are long established in some areas such as the Vegetable Oil Development Project in northern and eastern Uganda which generates information on production and productivity of oil crops such as simsim, sunflower, soybeans and oil palm; c) annual reports from donor funded projects such as USAID projects which generate production and productivity data on specific crops such as maize and beans from the farmers they work with; d) panel and household surveys conducted by UBoS every 2 – 5 years.



Production data is only available for 15 selected crops and is aggregated at national level. These crops are: wheat, paddy rice, maize, millet, sorghum, potatoes, cassava, sweet potatoes, beans, peas, pigeon peas, cowpeas, soy beans, groundnuts, sunflower, sesame and bananas. This data is currently available for the period since 1980 to 2014 and can be downloaded from <http://countrystat.org/home.aspx?c=UGA>. A sample of the data is shown in Figure 10. Access to disaggregated statistics is a challenge and hampers monitoring of production at sub-national level. When MAAIF generates annual production data, it also estimates area cropped from which yield can be computed (Figure 11). Fermont and Benson (2011) demonstrated that the yield estimates given by MAAIF are within the range reported by farmers. However these national average data does not provide accurate information on farmer's yield variability.

Agencies of the MAAIF such as DDA, UCDA, CDO, NAADS, and NARO and other commodity associations like Uganda Tea Association, Uganda Tobacco Association and Sugarcane Plantation Association also generate production and yield data which is shared with the ministry. These

**Figure 11: Yield Trends of Selected Crops (1980-2013)**



Source: Compiled from several UBOS and MAAIF Statistics Abstracts, Cropsat

agencies and associations compile annual data on acreage and production by the smallholders which they share with the ministry. NARO conducts research on smallholder farms and research stations, which generates data on production, productivity and yield gaps. During the course of provision of extension service and inputs, NAADS collates information/data on various aspects of smallholder production like use of inputs, acreage cropped, production and productivity.

## 2.6 Plant health

Crops grown by smallholders are constantly affected by pests and diseases causing losses which reduce household incomes. Sometimes, there are outbreaks of some pests and diseases that result in great economic impacts at household and national levels. For instance, Coffee Wilt Disease, Banana Bacterial Wilt and Cassava Brown Streak Disease in coffee, banana and cassava respectively, have caused losses estimated in millions of US dollars (MAAIF2014a). The impact of crop pests and diseases on the economy is well articulated in the PARM Risk Assessment Study on Uganda (Kerer 2015). The study shows that crop pests and diseases represent a major risk that smallholder farmers face. Farmers, therefore, need information on appropriate pest and disease control measures to reduce losses and the location of outbreaks to avoid getting planting material from such places and spreading the pests and diseases.

In the event of a new or outbreak of pests/diseases in an area, the district extension, production and NAADS staff are obliged to report the occurrence to their districts. This information is then channelled upwards through to the MAAIF to substantiate through field visits and surveillance. Thereafter, the MAAIF recommends the appropriate control actions. This information is relayed back to the farmers through the district extension services and NAADS. Depending on the geographical extent of the outbreaks, the information on identification of the pest/disease and

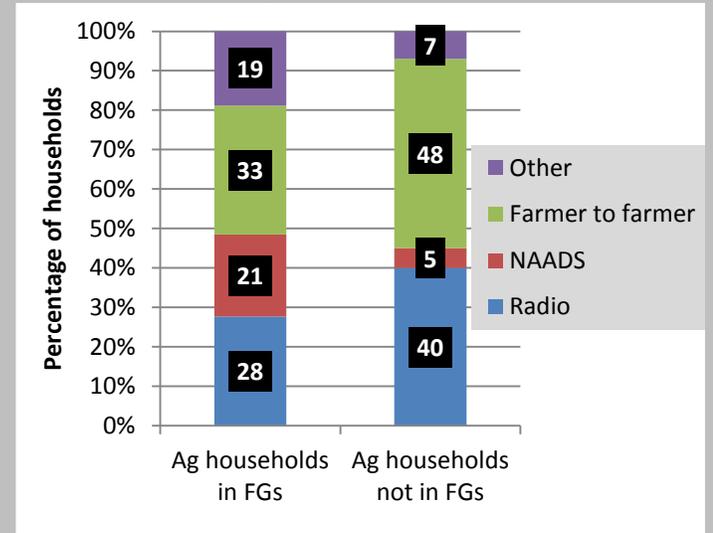
appropriate control measures may also be relayed to the farmers through the radio.

Smallholder farmers in Uganda typically belong to farmer groups (FG). These are the primary entry points of support of farming households from government (e.g. through NAADS, NARO, agriculture extension services) and NGOs. Even then, some farmers do not belong to farmer groups. The main sources of information on pests and diseases for all farmers are mainly by farmer-to-farmer sharing and the radio (Figure 12). Information on radio is provided by MAAIF. Extension services are also an important source of information, either through NAADS, district extension staff or NGOs. These provide information

during routine visits to the farmers or FGs. It is noteworthy that NGOs and farmer organisations sometimes consult with the more experienced district production staff for advice on pest and disease identification and their control. However, extension services in Uganda are constrained by mainly limited staff which affects farmer access to information and advice in a timely manner.

To complement the extension services, MAAIF is collaborating with CABI, through Plantwise, to improve farmer access to information on plant health. Plantwise is a global initiative led by CABI to collect and share information about plant health. It seeks to provide practical advice to farmers on how to reduce crop losses caused by plant health problems, principally through the establishment of community-based plant mobile clinics and development and improvement of in-country plant health networks and systems. Plant clinics are where farmers go for information and advice. Typically, plant clinics are held on weekly market days when many farmers gather at a single location and are therefore readily accessible. The clinics are staffed trained plant doctors who give advice on any problem on any crop and on safe and effective use of pesticides. When farmers have a problem with their crops, they bring pest/disease affected plant samples to the plant doctor and receive a diagnosis and a suggested course of action. However, sometimes a diagnosis cannot be given immediately by the plant doctor and a plant sample is referred to diagnostic laboratories at the National Phytosanitary Laboratories and Quarantine Services in Namalere and Makerere University Plant Diagnostics Laboratory in Kampala. These laboratories provide accurate diagnoses and identification of organisms and thereafter appropriate recommendations and

**Figure 12: Farming Household access to information on Pests and Diseases by source**



Source: Adong et al. 2012

advice is provided. The laboratories, therefore, have an important role in monitoring known plant health problems and providing an early warning system for emerging problems, including invasive pests and diseases. Since 2010, the MAAIF has established 170 clinics in 88 districts although many areas remain uncovered (Figure 13). However, the functioning of all the clinics has been affected by the ongoing reforms in NAADS and the national agricultural extension system from which the plant doctors are drawn.

Plantwise has a knowledge bank, an online repository, which provides both locally relevant and comprehensive plant health information that is access to plant doctors for reference. This information is available as easy to read factsheets which can be help in diagnosis and recommending management measures of a plant health problem.

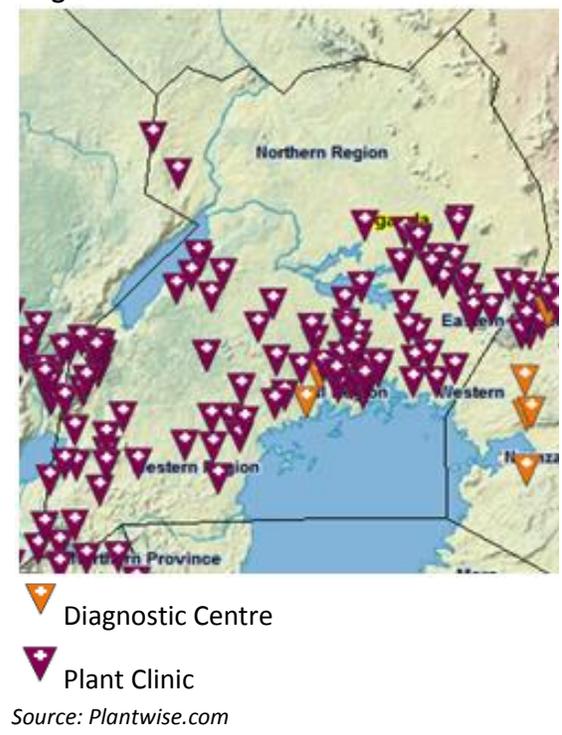
The knowledge bank is accessible at [www.plantwise.com](http://www.plantwise.com). Typical examples of factsheets are shown in Annex 11.

Plant doctors file quarterly reports of their activities with the ministry. The MAAIF is currently developing a database for this data/information, indicating the pests and diseases treated/identified, location, prescribed control and prevention methods. This data/information is therefore not yet available. Nonetheless, it is likely to lead to improved information flow and collaboration between extension staff, agro-input dealers, researchers and policy makers at the ministry and lead to early response, availability of pesticides and targeted research on pest/disease management.

## 2.7 Livestock health

The MAAIF runs the Integrated National Animal Diseases Information System to track all livestock diseases in the country (INADIS). This system is managed by the NADDEC. The INADIS is comprised of three systems; the Animal Resource Information System, WAHIS and the EMPRES-i. Information on various aspects of livestock disease surveillance (e.g. cases of diseases, technical capacity available at districts, livestock health management facilities) for the Animal Resource and World Animal Health information systems is collected routinely on a monthly basis by the district

**Figure 13: Distribution of Plant Clinics and Diagnostic Centres**



production staff using a template. However, information on rapidly spreading diseases like FMD is collected as it occurs. This system has been operational in all the districts since 1994. Some of this information is available on web-based WAHIS at <http://www.oie.int/>. A typical example of the information available is shown on Annex 12. This system is supported by African Union and GoU.

The information is disseminated to policy makers through reports from NADDEC. District agricultural staff is also informed by MAAIF through reports particularly when there is a disease outbreak in neighbouring districts. Agricultural staff is then expected to inform the livestock farmers in their districts during routine visits.

EMPRES Global Animal Disease Information System (EMPRES-i) is a web-based application that is designed to support veterinary services by facilitating the organization and access to regional and global disease information. Timely and reliable disease

information enhances early warning and response to transboundary and high impact animal diseases, including emergent zoonoses, and supports prevention, improved management and progressive approach to control. This system started two years ago and is currently covering Busia, Isingiro, Kibaale, Lyantonde, Masaka, Mbale, Mpigi, Nakasongola, Rakai and Sironko. Information/data is collected at subcounty level using mobile phones by the veterinary staff and relayed to NADDEC for review and posting on the EMPRES-i platform. Plans are underway to expand to the seven districts of Karamoja; Abim, Amudat, Kaabong, Kotido, Moroto, Nakapiripirit and Napak. Information is available online at <http://empres-i.fao.org/>. This database is linked to WAHIS above, the major difference is the location of disease events can be mapped e.g. Figure 14 which is a representation of disease outbreak in Table 3. This system is supported by FAO and GoU.

**Table 3: Disease outbreaks in Uganda (Jan 2013-Jul 2015)**

Country	Admin1	Reporting Date	Disease	Species Description
Uganda	Kampala	2/19/2015	Anthrax	null
Uganda	Napak	7/25/2014	FMD	domestic, cattle
Uganda	Kaabong	7/25/2014	FMD	domestic, cattle
Uganda	Kumi	7/25/2014	FMD	domestic, cattle

Source: <http://empres-i.fao.org/>

**Figure 14: Observed disease events in Uganda (Jan 2013-Jul 2015)**



Source: <http://empres-i.fao.org/>

## 2.8 Policy changes

The creation of NAADS to support smallholders to improve farm productivity has been fraught with challenges which are well documented by Kjær and Joughin (2012) and Ilukor *et. al.* (undated). There is now a gradual reversal of policy back to government-provided extension, commonly referred to as “single spine”, through the district production departments. The smallholder farmers have borne the brunt of shifting policy on provision of extension services yet it is an important source of information for their agricultural activities.

## 2.9 Human health

The **Integrated Disease Surveillance and Response System (IDSR)** is a disease EWS is implemented by the Public Health Emergency Operations Centre (EOC), a specialised agency of the Ministry of Health (MoH). Established in 2013, it is charged with streamlining and coordinating human disease surveillance activities such as detection, reporting, analysis, interpretation, feedback, and response. The centre also keeps surveillance on events at the intersection of public health and domestic animals and wildlife.

**Table 4: Priority diseases, conditions and events for IDSR**

Category	Examples	Collection Periodicity
Epidemic prone diseases/conditions	Cholera, Bacterial Meningitis Diarrhea with blood (Shigella), Acute hemorrhagic Fever Syndrome (e.g. Ebola, Marburg, Rift Valley, Lassa, Crimean Congo, West Nile Fever), Malaria, Typhoid fever, Yellow fever, Chikungunya, Dengue, Measles, Influenza-like illness, Severe Acute Respiratory Infection (SARI), Plague, Human Rabies, Anthrax (human), Acute viral hepatitis, Maternal deaths, Peri-natal deaths.	Weekly or as it occurs
Diseases/ conditions Targeted for eradication Or elimination	Dracunculiasis, Leprosy, Neonatal tetanus Poliomyelitis, Onchocerciasis, Buruli ulcer, Lymphatic Filariasis, Noma	Monthly
Other major diseases/ conditions of public health importance	Diarrhoea with dehydration less than 5years of age, Severe pneumonia less than 5 years of age, New Advanced HIV/AIDS, Tuberculosis, sexually transmitted infections (STIs), Human African Trypanosomiasis (HAT), Trachoma, Schistosomiasis, Diphtheria, Pertussis (Whooping cough), Brucellosis, Kalaazar, Nodding Syndrome, Injuries (Road traffic Accidents), Hypertension, Diabetes mellitus, Adverse Drug Reactions (ADR), Adverse events following immunization (AEFI).	

Diseases or events of International concern <i>(In addition to some noted in rows above)</i>	Human influenza, Severe Acute Respiratory Syndrome (SARS), yellow fever, Smallpox, Acute Hemorrhagic Fever Syndrome, Any public health event that is infectious, zoonotic, food borne, chemical, radio nuclear, or due to unknown condition.	As it occurs
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Source: IDSR Strategy, 2011

Data is collected from all public health facilities, not-for-profit hospitals and laboratories using a web-based District Health Information System (DHIS-II) which has been integrated with mTRAC (an SMS system) for direct sending of aggregated data from Health facilities to District Health office and Servers at EOC.

The DHIS-II is a web-based open-source communications system for reporting national health data. Data is collected on priority diseases in Table 4. The EOC receives, evaluates, and distributes the information and serves as the centre of communication and coordination of response operations in the health sector.

The EOC issues weekly bulletin by mail and on the website and they are targeted at health workers frontline of management of health events, general public, OPM, district leadership and health development partners. Information for general public is provided through radio broadcast and talk shows, press releases, policy statements and media interviews. The data is available at health centre level which can be aggregated at any administrative level such as sub-county, district and national.

## 2.10 Socio-economic Factors

UBOS periodically (2-5 years) conducts panel surveys to monitor poverty trends, access and delivery of social services. These socio-economic factors have a bearing on the wellbeing and productivity of smallholders.

The dynamics of the labour are important measures of the economic and social wellbeing of the country. Table 5 shows that the national labour force (14 – 64 years old) is predominantly self-employed. This category includes employers, own-account workers, contributing family workers and members of producers’ cooperatives. The percentage has generally ranged from 70 to 73 percent over the past four survey periods.

**Table 5: Distribution of the Labour Force (percentage)**

Activity Status	2005/06			2009/10			2010/11			2011/12		
	Male	Female	Total									
Not working	17.5	21.3	<b>19.5</b>	14.1	16.3	<b>15.2</b>	14.7	15.7	<b>15.2</b>	17.4	18.4	<b>18.0</b>
Self-Employed	65.3	73.1	<b>69.4</b>	68.4	78.1	<b>73.3</b>	67.4	77.2	<b>72.4</b>	66.6	73.9	<b>70.4</b>
Paid Employee	17.2	5.6	<b>11.1</b>	17.5	5.7	<b>11.5</b>	17.9	7.1	<b>12.4</b>	16.0	7.7	<b>11.7</b>
Total	100	100	<b>100</b>									

Source: UBOS 2013

The main sectors of employment are agriculture, production and services with the former dominating (Table 6). The agricultural sector comprises of activities in agriculture, hunting, forestry and fishing. The production sector comprises of mining and quarrying, manufacturing, construction and public utilities; while the services sector includes: wholesale and retail trade, restaurants and hotels, transport, storage and communications, finance, insurance, real estate and business services, and community, social and personal services.

**Table 6: Employment by sector**

Activity Status	2005/06			2009/10			2010/11			2011/12		
	Male	Female	Total									
Agriculture	67.7	83.9	<b>76.0</b>	66.4	79.3	<b>72.9</b>	69.5	82.0	<b>75.8</b>	70.2	81.3	<b>75.9</b>
Production	7.3	2.9	<b>5.0</b>	8.6	3.6	<b>6.1</b>	7.1	2.4	<b>4.7</b>	7.1	2.2	<b>4.6</b>
Services	25.1	13.2	<b>19.0</b>	25.0	17.1	<b>21.0</b>	23.5	15.5	<b>19.5</b>	22.8	16.5	<b>19.5</b>
Total	100	100	<b>100</b>									

Source: UBOS 2013

Poverty changes can be monitored over a long period using panel data. Table 7 shows that 10 percent of the population is chronically poor, meaning that they remained poor over three years of the panel survey. The chronically poor were more likely to be households whose head had no formal education as well as those that resided in northern Uganda. Households in eastern and northern regions moved in or out of poverty within the three years. The heads of such households had some or no formal education or were engaged in agriculture. Overall, 54 percent of the population remained non-poor in the same period. This corresponds with households whose heads had post-secondary education and were employed in the services or manufacturing sectors.

**Table 7: Poverty Dynamics between 2009/10 and 2011/12**

Background Characteristics	Chronically Poor	Moved into or out of Poverty	Non-Poor	Total
<b>Region</b>				
Central	1.7	21.4	76.9	100.0
Eastern	11.0	46.2	42.9	100.0
Northern	20.6	43.1	36.3	100.0
Western	7.1	36.0	56.9	100.0
<b>Education of the Head</b>				
No Formal Education	23.2	45.1	31.7	100.0
Some Primary	9.2	45.1	45.7	100.0
Completed Primary	6.0	34.2	59.9	100.0
Some Secondary	3.6	27.3	69.2	100.0
Completed Secondary	4.2	17.9	78.0	100.0
Post-Secondary and above	1.0	9.0	90.0	100.0
<b>Sector of employment of Household Head</b>				
Agriculture, Forestry and Fishing	12.1	47.4	40.5	100.0
Manufacturing	4.3	25.5	70.2	100.0
Service	3.4	16.5	80.1	100.0
<b>Total</b>	<b>9.5</b>	<b>36.4</b>	<b>54.1</b>	<b>100.0</b>

Source: UBOS 2013

Access to health services is vital for households to maintain their wellbeing. Inadequate staff has remained the most serious limiting factor to access to health services since 2010/11. Inadequate facilities and drugs remain significant concerns to provision of health services (Table 8).

**Table 8: Factors Limiting Provision of Health Services**

Limiting Factors	2009/10	2010/11	2011/12
Inadequate drugs	51.9	46.8	31.5
Inadequate funding	38.9	29.1	30.1
Inadequate number of staff	35.9	48.0	56.4
Inadequate facilities	27.4	29.3	49.4
Inadequate clinical equipment	17.8	19.2	14.8

Source: UBOS 2013

## 2.11 Integrated systems of information

The integrated systems of information exist mainly in EWS. There are several organisations and agencies implementing EWS in Uganda, with varying temporal and spatial dimensions. These include MAAIF, ACTED, FEWS NET, UNMA, and Ministry of Health.

**Grameen Foundation** (GF) does not collect data/information for the purpose of disseminating to farmers but relies on a partnership with information providers to access the required information. The overall purpose is to provide tailored information that would enable farmers make better

business decisions about which crops to plant, in which agricultural assets to invest, where to find quality inputs, how to grow crops and/or rear livestock for sale and home consumption, how to plan activities in-line with changing weather patterns, and how to process, bulk, and market their produce to obtain higher prices. This therefore, allows GF to give farmers integrated information on various aspects of agriculture.

GF uses CKWs to provide information to farmers in two districts in western Uganda and through partner NGOs in northern Uganda. CKWs are literate and trusted people chosen by the community in which they live and are willing to act as knowledge access points for other farmers. They are viewed as resident rural information providers who can provide much needed extension services within remote areas. GF trains the CKWs extensively in use of mobile technology and are then equipped with Android Smartphones. The smart phones are fitted with a suite of applications (Apps) which CKWs can search for up-to-date and location-specific information to provide on-demand on-farming practices, market prices, pest and disease control, weather forecasts, and a range of other issues important to farmers. The Apps are designed and developed in-country at Grameen's App lab. The CKW Apps provides information that can broadly be classified into four categories. First, current prices for various crops in different locations can be requested. This information is provided by Infotrade. Second, three-day weather forecasts, along with seasonal forecasts, are provided by the UNMA and <http://www.totoagriculture.org/weather.aspx?> Third, there is an extensive knowledge base on farmer best practices. This information was collected from expert organizations such as the NARO and NAADS. Finally, UNADA (specifically Victoria Seeds Ltd) provides information on farm input suppliers across the country that includes their locations down to sub-counties and contact information. There is also an extensive directory of traders, brokers, and transporters that can be accessed using the Apps.

Each CKW works with about 50 farmers and is required to visit at 4 – 5 farmers each day. At each visit, the CKW uses the smart phone to access information that a farmer may need. They also act as interpreters for those farmers who do not speak English, have lower literacy levels, do not own phones, and are less familiar with how to use services on their phones (particularly SMS services that are provided in English). Thus, the CKWs are able to travel to farmers who, because of a lack of mobility due to various reasons such as lack of resources, are isolated in their villages and generally have little access to information. A CKW knows the local context and is better able to contextualize the information obtained through the phone, consider the farmer's ability to deal with risk and increase the chances that farmers will act upon the information and knowledge obtained. Campenhout (2013) found that access to information through CKWs induced farmers to adjust their crop portfolio, moving from low-risk low-return to more commercially oriented commodities with higher returns, and to obtain better prices for their commodities. The CKW

model thus helps to close critical information gaps faced by smallholder farmers in agricultural extension and marketing.

GF has a toll free Farmer Call Centre (FCC) to provide information to farmers. This centre is open to farmers and CKWs can also use it to access any additional information, depending on the need. The FCC is manned by agriculture experts skilled in handling farmer queries on a broad spectrum of agricultural topics. They are also able to communicate in a wide range of local languages, Swahili and English. The FCC is equipped with systems and applications capable of developing farmer databanks through farmer registrations, registration and tracking of farmer queries, and using a searchable knowledge databank e.g. *Plantwise* where answers to the farmer queries can be obtained. When operators cannot find the answer to a query, they can contact experts from NARO, Makerere University, the Uganda Veterinary Association, and input dealers, among others. The FCC is not restricted to GF members but is open to all farmers in the country.

GF has a team of external agricultural experts from different backgrounds of agriculture and some non-agriculture experts that review the contents of the database once every quarter. The review is done with agriculture experts at the Call Centre to improve on the quality of content being delivered to the farmers specifically focusing on whether the content is actionable, accurate, complete, relevant, and understandable.

GF subscribes to Infotrade to access market data which it provides free of charge to their farmers. Information obtained free of charge from UNMA. As all information to farmers is provided free of charge, GF depends on funding from business partners such as input dealers willing to advertise their products to the farmers and from the GF headquarters.

The **MAAIF** has managed the national food security EWS since around 2000. It monitors crop, livestock and fisheries production and performance. The EWS in the ministry collects data on crop and livestock production indicators like yield, level/extent of pest and disease damage, and food and livestock prices. However, most of this information is not digitized so there is no proper information system in place to track and monitor trends. To ease operation of the EWS, the ministry relies on partners with archives such as FEWSNET and DEWS for Karamoja.

MAAIF generally produces farmer advisories issued twice a year to coincide with the beginning of each cropping season soon after UNMA issues the seasonal weather forecast. The advisories are designed to advise the farming community on the likely impact of the seasonal rains on their activities and the appropriate crops to plant during the season. These are mainly issued as press releases and disseminated through newspapers, radios and local government to the farmers (Annex 3). However, this advisory is not always disseminated due to limited funds.

MAAIF heads the technical working group on IPC in Uganda. Periodically, they produce reports based on integration of several data/information such as livestock, plant and human health, MIS, production, livelihoods (Annex 14).

The MAAIF is in the process of establishing a web based **Knowledge hub** with the objective of sharing information with agricultural stakeholders in Uganda and beyond. It will also have a platform to enable users put their queries to ministry staff and experts. It will also be a repository for ministry reports, policies, regulations, data, among others.

Additionally, **NAADS** staff and **district production** staff provide farmers with information on many aspects of agricultural production particularly on crop and livestock husbandry, weather and availability of clean planting materials during their extension visits to farmers. NAADS works through farmer groups which are the primary institutions through which government supports agricultural households' production and marketing activities in Uganda. However, according to the Uganda Census of Agriculture, only 16 percent of nearly 4 million agricultural households belong to farmer groups. The chances of agricultural households receiving visits from extension staff are absolute if they belong to farmer groups under NAADS (100 percent). According to Adong *et al.* 2012, this chance decreases progressively if the farmer groups are not under NAADS (53 percent) or if the farming households do not belong to any group (14 percent). This highlights the importance of encouraging agricultural households to belong to farmer groups to ease access to information, particularly because of the low availability of extension

**Table 9: Availability of Agricultural Services in Communities (%)**

Region	Agricultural Extension	Veterinary
Central	12	13
Eastern	26	16
Northern	13	36
Western	34	10
<b>Sub-region</b>		
Kampala	4	1
Central I	11	11
Central II	16	19
East	44	25
Eastern	14	9
Mid-North	10	43
North-East	3	48
West-Nile	26	16
Mid-West	20	7
South-western	48	14
<b>Uganda</b>	<b>22</b>	<b>11</b>

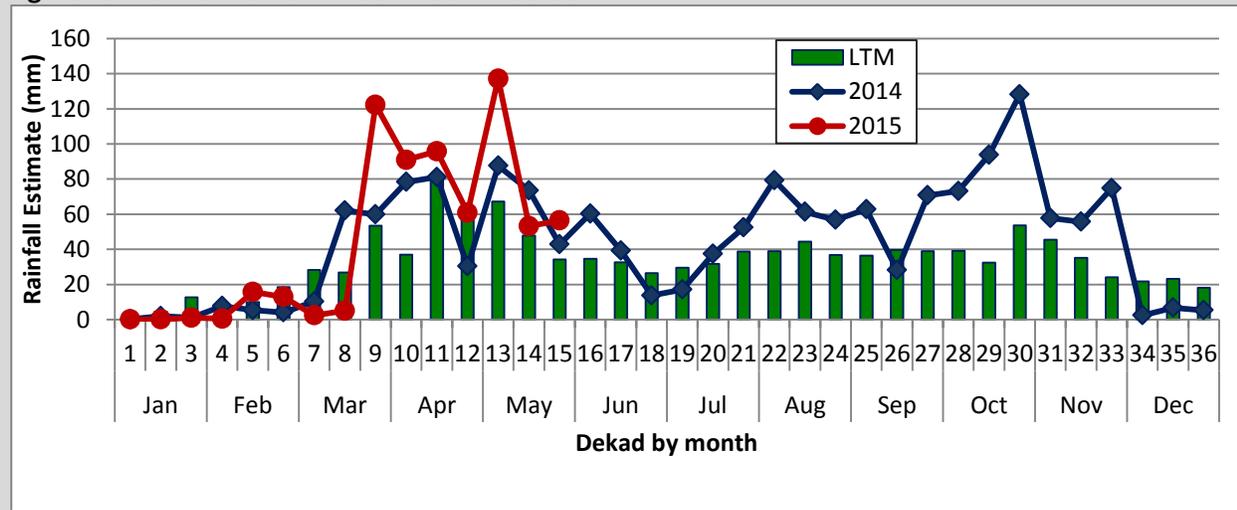
Source: UBOS 2014 (UNHS 2012/13)

services in communities. Table 9 shows availability of agricultural extension services nationally is very low at only 22 percent for and 11 percent for veterinary services. The northeast, which has the highest number of livestock, fares better than other regions in terms of availability of veterinary services (48 percent) but poorest for other agricultural extension services (3 percent). This adversely affects farmer access to information through extension and veterinary services.

**FEWS NET** is a project of the USAID which monitors and reports on food security conditions and issues early warning to decision makers for response to emerging humanitarian crises. FEWS

NET target audience is policy makers. FEWS NET monitors hazards like drought, floods, price shock, livestock epidemics that may have an impact on food security. This is integrated with information and data on markets and trade, nutrition, livestock and crop production, and livelihoods to evaluate current and future food security conditions. The indicators used include, terms of trade, satellite rainfall estimates, normalized vegetation index (vegetation condition), informal cross-border price data, nutrition indices, monthly price data of staple foods, livestock and livelihood commodities such as firewood, charcoal and wage labour. These reports can be downloaded from [www.fews.net](http://www.fews.net) (Annex 14). FEWSNET collects very limited primary data, mainly prices and volumes of informal cross- border trade at Mpondwe and Suam. This is done in partnership with FAO and WFP at East African regional level. FEWS NET therefore relies on network of partners to access the data needed including; market price of staples in Karamoja from WFP and Farmgain for other major markets in Uganda; seasonal forecasts from UNMA, rainfall estimates from publicly available satellite data from United States government agencies like National Aeronautics and Space Administration, National Oceanic and Atmospheric Administration and US Geological Survey (USGS) which provide data on current conditions, historical trends, and future forecasts; seasonal livelihood activities from district production offices and NGOs working at community level. Dekadal or 10-day rainfall data is downloaded from <http://earlywarning.usgs.gov/fews/>. This is useful for monitoring the performance of rainfall during the cropping season. Figure 15 illustrates the type of rainfall data that can be extracted for a district, rainfall performance in first season 2015 compared against 2014 and long-term mean (LTM). It is noteworthy that data extraction is

**Figure 15: Rainfall Performance in Gulu District**



Source: USGS/FEWSNET

based on the old administrative district boundaries. This means that, districts created after 2005 are not reflected as distinct but are considered part of the parent district. Therefore, data extracted for Gulu district includes Nwoya and Amuru districts that were carved out.

FEWSNET Uganda collaborates informally with other EWS agencies such as MAAIF, ACTED and

UNMA. At regional and global levels FEWS NET works in partnership with Global Information and Early Warning System on Food and Agriculture (GIEWS) and IPC.

FEWS NET has historical price data from 2000 for selected markets and food commodities obtained from **Farmgain Africa Ltd** over time. Historical weather data and information is available from the internet and is combined with UNMA for seasonal forecasts. In partnership with FAO and WFP, FEWSNET produces a quarterly markets and trade bulletin at the regional level to monitor cross-border of food commodities and livestock to quantify the contribution of informal cross-border trade to food security in eastern Africa. This is available from 2008.

FEWSNET produces quarterly food security outlook with a six-month lead period, monthly food security outlook updates, and monthly market reports. Occasionally, an alert is issued to highlight areas of food security concern. The content of the quarterly report describes the overall current and food security situation and projected food security conditions. It includes the information on weather, markets, health and nutrition, livestock health and pasture conditions, household food deficits with qualitative description of livelihoods and coping strategies. It also provides judgement on the severity of the situation using the IPC framework. The protocols and analysis thresholds used to indicate levels of risk are based on the Acute Scale of the IPC system used for decision making in emergency situations (Annex 15). These standards are nationally and internationally recognized.

All these information products are distributed via email mailing list and internet to government ministries (e.g. MAAIF, OPM, Karamoja Affairs), donor organisations, humanitarian agencies, local governments and NGOs. This information is also presented to stakeholders at the disaster risk reduction platform and food security and agriculture sector meetings.

FEWSNET is wholly funded by USAID based on five-year funding cycle. Its reliance on donor funding jeopardizes its long-term sustainability as any change in donor funding priorities may result in downscaling or termination of the EW activities.

**Uganda Bureau of Statistics** collects data mainly through censuses and surveys on agricultural development, environment and socio-economic factors. In addition, Panel Surveys are undertaken to provide continuous data and information on particular households to augment the socio-economic surveys. Environment statistics collected by UBOS are compiled from secondary sources and presented as national aggregates (UBOS 2008). Environment data/information are basically considered as raw data and comprise environmental parameters such as vegetation cover, livestock numbers, and human settlements, water supplies, forestry, mining, land/soil and fauna/flora. Agricultural statistics include statistics on livestock, crop

husbandry, agricultural inputs, and fisheries among others. Additional agricultural statistics is generated through household surveys and secondary data compiled by MAAIF. An assessment of the accuracy and reliability of agricultural statistics by UBoS in accordance with their Data Quality Assessment Framework concluded that agriculture data is deficient (*ibid*).

**Drought Early Warning Systems (DEWS)** is implemented in Karamoja sub-region largely by the district local governments with support from ACTED. It was set up purposely to provide communities, districts leadership and development partners with timely warning of increased risk of drought and therefore initiate implementation of drought preparedness measures. On a monthly basis, data is systematically collected from sentinel sites comprising of 10 households in 10 parishes representing the main livelihood zones in each district. The data is collected by parish chiefs from households, kraals and markets using both printed forms and mobile phones. Data is collected on 21 indicators in four main sectors; livestock, crops, water, and livelihoods. Additional data and information is obtained from other partners such as rainfall estimates from FEWSNET (generated from satellite images), livestock disease surveillance from district veterinary staff, and weather forecasts from UNMA. The data is uploaded from the mobile phone modules into the DEWS software at the district which automatically analyses the data and generates a draft report. The district early warning team, comprising of technical personnel from agriculture, water, natural resources, security, livestock, health, and commerce sectors, reviews the draft and validates the final report before it is disseminated.

The DEWS is partly funded by UK Department for International Development through FAO for supportive activities. Because it is set in the local government structure, the parish chiefs, DEWS focal persons and other technocrats are paid by the government. However, plans are underway to transfer the DEWS to OPM and MAAIF. DEWS has been operating since 2008 therefore, districts have monthly data on all indicators collected since then.

The EW messages are disseminated as monthly early warning bulletins (e.g. 2 page summary in Annex 16) by electronic mail to decision makers. Radios are used to relay messages to communities. To enhance listening to radios, ACTED provided the 10 selected households in each parish with a radio, with the hope that they would listen to the spot messages and inform their neighbours. Community drama groups, with support from ACTED, also present skits at community meetings on salient messages that need to be communicated to communities.

The above shows that there is no single entity or organisation that integrates the different data/information collected for a final analysis of all of them.

### 3. Assessment of information systems

The tables below show a summary of the salient issues on the information systems available in Uganda.

**Table 10: Summary of information systems, accessibility and timeliness**

S/N	Information System	Data/Information provided	Accessibility	Timeliness	Linkage
1.	CountryStat	Production data	<ul style="list-style-type: none"> <li>•Web-based,</li> <li>•Macro level</li> </ul>	Annual	MAAIF, UBoS
2.	Grameen Foundation	<ul style="list-style-type: none"> <li>•Prices of agricultural commodity</li> <li>•Agronomic advice</li> <li>•Livestock production</li> <li>• Weather/climate</li> </ul>	<ul style="list-style-type: none"> <li>•On demand by SMS, call centre, modules in smart phones through CKW</li> <li>•Micro level</li> </ul>	<ul style="list-style-type: none"> <li>available on demand</li> <li>Weather available daily and 5day forecasts</li> </ul>	Infotrade UNMA
3.	Infotrade	<ul style="list-style-type: none"> <li>•Prices of agricultural commodities, fuel, inputs</li> <li>•Commodity offers</li> <li>list of input suppliers, traders, bulk stores</li> <li>•Weather</li> </ul>	<ul style="list-style-type: none"> <li>•On demand by SMS, Radio, Notice Boards, Blackboards, email, web-based</li> <li>•Micro, meso and macro level</li> </ul>	<ul style="list-style-type: none"> <li>•Weekly price summaries</li> <li>•Broadcast three times a week for members</li> </ul>	<ul style="list-style-type: none"> <li>•Grameen Foundation,</li> <li>•AMITSA</li> </ul>
4.	Farmgain	Market prices	<ul style="list-style-type: none"> <li>•On demand by SMS, email</li> <li>•Micro and macro level</li> </ul>	Weekly prices on demand	FEWSNET
5.	FEWSNET	<ul style="list-style-type: none"> <li>• Early Warning on food Security and livelihoods</li> </ul>	<ul style="list-style-type: none"> <li>• Monthly reports on internet or mailing list</li> <li>•Macro level</li> </ul>	Timely monthly updates, food security outlook with six-month lead period	MAAIF, DEWS/ACTED, Farmgain and UNMA
6.	MAAIF	<ul style="list-style-type: none"> <li>• EW on food security</li> </ul>	<ul style="list-style-type: none"> <li>• IPC reports online or from the ministry</li> <li>• Meso (Karamoja), Macro levels</li> </ul>	<ul style="list-style-type: none"> <li>• Annually (Karamoja), biannual for other areas of country. Reports not timely because of limited funding</li> </ul>	FEWSNET, UNMA,DEWS
		<ul style="list-style-type: none"> <li>• Crop pests and diseases</li> </ul>	<ul style="list-style-type: none"> <li>• Plant doctors,(where available) on market days</li> <li>• Extension and NAADS staff</li> <li>• Information on high impact pests and diseases may be provided on radio</li> <li>• Micro, meso and macro levels</li> </ul>	<ul style="list-style-type: none"> <li>• Weekly during plant clinic days, where available</li> <li>• When extension staff visit</li> <li>• Online reporting lags behind by months because of challenges of receiving reports from the field</li> </ul>	

		<ul style="list-style-type: none"> <li>• Livestock diseases</li> </ul>	<ul style="list-style-type: none"> <li>• Veterinary and para-veterinary staff, where available (micro)</li> <li>• Available online (macro)</li> </ul>	<ul style="list-style-type: none"> <li>• When extension staff visit</li> <li>• Online reporting lagging behind by months because of challenges with receiving reports from the field</li> </ul>	Adhoc linkage to FEWS NET/DEWS through districts.
		<ul style="list-style-type: none"> <li>• Crop and livestock husbandry</li> </ul>	<ul style="list-style-type: none"> <li>• Extension and NAADS Staff when available</li> <li>• Print media</li> </ul>	<ul style="list-style-type: none"> <li>• When extension staff visit but currently constrained by restructuring of extension services</li> </ul>	None
		<ul style="list-style-type: none"> <li>• Impact of seasonal weather forecast on agriculture</li> </ul>	<ul style="list-style-type: none"> <li>• Media; print and radio whenever possible</li> <li>• Ministry reports</li> </ul>	<ul style="list-style-type: none"> <li>• At the start of the each rain season (typically Feb/Mar and Aug/Sep)</li> </ul>	FEWS NET, DEWS, IPC
7.	UNMA	<ul style="list-style-type: none"> <li>• Weather/climate</li> </ul>	<ul style="list-style-type: none"> <li>• Media (broadcast mainly)</li> <li>• Internet</li> <li>• Micro, meso and macro levels</li> </ul>	<ul style="list-style-type: none"> <li>• Daily</li> <li>• Seasonal</li> <li>• Monthly</li> </ul> <p>Mostly timely particularly seasonal forecasts</p>	All
8.	UBOS	<ul style="list-style-type: none"> <li>• Production/yield data</li> <li>• trends in measurement of living standards</li> </ul>	<ul style="list-style-type: none"> <li>• Macro and meso levels</li> <li>• Reports</li> </ul>	<ul style="list-style-type: none"> <li>• Annual (production)</li> <li>• Panel and household surveys every 2–5 years</li> <li>• Censuses at least every 10 years</li> </ul>	None.
9.	Agrinet	<ul style="list-style-type: none"> <li>• Food commodity prices</li> <li>• Commodity offers</li> </ul>	<ul style="list-style-type: none"> <li>• On demand by SMS, Radio, Notice Boards, Blackboards, email, web based</li> <li>• Micro, meso and macro level</li> </ul>	<ul style="list-style-type: none"> <li>• prices available on demand</li> </ul>	None
10	WFP	<ul style="list-style-type: none"> <li>• Prices of sorghum, beans, maize, goat and wage labour for 5 markets in Karamoja</li> </ul>	<ul style="list-style-type: none"> <li>• On request from WFP</li> </ul>	<ul style="list-style-type: none"> <li>• Monthly</li> </ul>	FEWS NET

**Table 11: Summary of Data aspects of the information systems**

Risk	Information System Institution	Institution Aspects	Data collection	Data/information Quality	Data/information availability
Agricultural and environmental (crop and livestock production, fisheries, etc)	UBOS	Public	Censuses and surveys (e.g. National household and Panel)	limited by capacity to collect and analyse at MAAIF so much of data is derived by imputation based on likely impact of the weather performance on the production baseline of 2008/09, district reports, project reports	Statistics are represented as text, tables, and charts in reports aggregated at national level e.g. Annual statistics abstracts which are freely available and downloadable from <a href="http://www.ubos.org">www.ubos.org</a> Production for selected crops from 1980 to 2014 available at <a href="http://countrystat.org/">http://countrystat.org/</a>
	MAAIF	Public	Plant doctors for crop pests and diseases, agriculture production staff at districts,	<ul style="list-style-type: none"> <li>plant doctors are trained and have access to fact sheets for reference as print documents or downloadable from <a href="http://plantwise.org">plantwise.org</a></li> </ul>	<ul style="list-style-type: none"> <li>MAAIF database on diseases reported and location still under development, so not available</li> </ul>
			Routine reporting requirements by district staff, surveillance reports of suspected or confirmed livestock disease outbreaks	detailed reporting required of districts. Main challenge is forwarding information to MAAIF in a timely manner.	<ul style="list-style-type: none"> <li>Available Online or through NADDEC</li> </ul>
Meteorological	UNMA	Public	Weather stations, <ul style="list-style-type: none"> <li>Satellite, observations, analyses and forecasts from Regional and Global meteorological centres</li> </ul>	limited by poor hydro-meteorological infrastructure and technology	Weather data is available from UNMA upon payment of a cost recovery fee depending on the number of stations and time series needed. Weather reports are free and can be downloaded from <a href="http://www.unma.go.ug">www.unma.go.ug</a>
	FEWS NET	Wholly funded By USAID	<ul style="list-style-type: none"> <li>Satellite data</li> <li>UNMA reports (<b>FEWS NET doesn't collect data</b>)</li> </ul>		Current up to the last dekad Downloadable for any spatial layer e.g. administrative level, livelihood zone <a href="http://earlywarning.usgs.gov/fews">http://earlywarning.usgs.gov/fews</a>

Price of food commodities	Farmgain	<ul style="list-style-type: none"> <li>Private Funding through: monthly subscription, sale of bulk data, cost of SMS</li> </ul>	Field based agents	Spot check to verify information	Up to 20 years for some markets and food commodities (consistent for 10 markets and 17 commodities) Bulk data has to be Paid for
	Infotrade	<ul style="list-style-type: none"> <li>Private</li> <li>Funding by subscription, sale of bulk data, annual reports on price trends and forecast, customized reports, Sub sector Reports</li> </ul>	Field based agents	spot checks to verify information relies on central markets in the districts	7years, bulk data available at a fee, weekly data available from <a href="http://www.infotradeuganda.com/">http://www.infotradeuganda.com/</a>
	Agrinet	Private, funded by commission on services such as commodity brokerage	Relies on network of traders across the country	data collection by field agents crosschecked with their traders	Website data not up to date
	FEWS NET	USAID funded in partnership with FAO and WFP	Uses crossborder trade monitors at Mpondwe and Suam as part of the FEWS NET/FAO/WFP Joint Cross-Border Market and Trade Monitoring Initiative that covers the IGAD region		Download from <a href="http://www.fews.net">www.fews.net</a>
	WFP	WFP funded	<ul style="list-style-type: none"> <li>Collected by staff at 5 sub offices</li> </ul>		Data available from WFP on request, bulletins by email and download from <a href="http://www.wfp.org">www.wfp.org</a>
Integrated information (crop and livestock husbandry, food and input prices, weather)	Grameen Foundation	<ul style="list-style-type: none"> <li>Public Private Partnership</li> <li>Funded by Grameen Foundation and partners e.g. Victoria Seeds, Chemonics International and FHI360° who pay for their farmers to access</li> </ul>	<ul style="list-style-type: none"> <li>Does not collect data</li> <li>Redistributes market information from Infotrade</li> <li>Uses pre-approved databases to inform farmers</li> </ul> Price of inputs obtained from Victoria Seeds	external experts periodically review the content database to ensure that it is actionable, accurate, complete, relevant, and understandable.	Farmer Call Centre toll free number 08002178

Early Warning Systems	DEWS	<ul style="list-style-type: none"> <li>Quasi Public-Private: Data collectors and technical staff funded through local governments; donors support infrastructure for data collection, analysis and information dissemination.</li> </ul>	PS enabled Smartphone data collection by parish chiefs	field visits to for quality assurance, rigorous analysis within Karamoja context	Available from 2008 from each district in Karamoja; backup available from ACTED office in Kampala.
	FEWS NET	USAID funded project	<ul style="list-style-type: none"> <li>Does not collect, uses data from partners e.g. Farmgain, WFP</li> </ul>	<ul style="list-style-type: none"> <li>Rigorous analysis using livelihoods framework</li> </ul>	<ul style="list-style-type: none"> <li>Reports downloadable from <a href="http://www.fews.net">www.fews.net</a></li> </ul>

#### 4. Conclusion

There are information systems that monitor the major risks that smallholder farmers face. However, it is evident that most of these systems are designed to inform the policy makers are macro level because they are web based, too technical in content and language, available only in English and information is not available at lower administrative levels (e.g. district or sub-county) to be useful. These systems are therefore not suitable for smallholders as they do not meet their need for simplified, easily accessible and timely information in languages they understand.

UNMA, MIS (Infotrade, Farmgain and Agrinet), Grameen Foundation and the MAAIF (use of plant doctors where they are available) have adopted different models for delivering information to smallholders which appear to work well. This shows that it is possible for other information systems to package their information to suit the unique needs of rural farmers.

The main link between the macro and meso institutions on one hand and the farmer at micro level on the other is the agricultural extension service. They give farmers information on a range of subjects including plant and livestock health management, crop and livestock husbandry, risk management on the farm e.g. water harvesting, choice of enterprises, new technologies. The breakdown of the agricultural extension service is therefore an impediment to farmers' access to information.

## 5. Recommendations on Improvement of the Information Systems

The status of the information systems identified indicates that there is need to strengthen them if they are to contribute effectively reducing risks associated with farming. Major are as that need improvement are availability and quality of data/information and timeliness of availability of information.

- a) The various **early warning information systems** are disjointed and not integrated which leaves farmers and the private sector with numerous sources of information which can result in confusion and discourages investments e.g. in insurance products aimed at farming. There is need to coordinate and harmonise approaches and bring efficiency, coherence and synergy to the diversity of EWS in Uganda and build a sustainable comprehensive system. Furthermore, the analysis and integration of data and information from multiple sources is most effective when it is coordinated under a single authority. This would aid in use of standardized protocols for warning communication and dissemination, effective coordination and data exchange among the actors in the EW process (UNEP 2012). It is also important that the EW information is timely, reliable, accurate, and issued by a respected national agency with the requisite political authority (UNISDR 2006, United Nations 2006). These are essential for public confidence if recipients are to act on the information and as more decision-makers trust an EWS, the more effective it is likely to be (Bailey 2013). This would enable farmers reduce their risks. To this effect, the OPM is currently implementing a plan to integrate the various EWS from ACTED (DEWS), MAAIF, FEWSNET, UNMA, IDSR, among others to create the NEWS. The NEWS will integrate data collection and dissemination of information to smallholder farmers and policy makers.
- b) More partners in the agriculture value chain, especially **agro-input suppliers**, should be encouraged to actively participate in providing information to farmers particularly the Uganda National Agro-Input Dealers Association and Uganda Seed Traders Association. Members of these associations participating are doing so on adhoc basis e.g. with Grameen Foundation and Infotrade. Currently, there is no national system monitoring availability, price and local suppliers of genuine inputs that is accessible to the majority of smallholder farmers.
- c) Improving **agricultural production information systems should be priority and** will require the following:
  - i. Collection of agricultural production data and information should concentrate on the major food crops of importance for household food security such as: Cereals (maize, millet, sorghum, rice); Root crops (cassava, sweet potatoes, Irish potatoes); Pulses (beans, cowpeas, field peas, pigeon peas); and Oil crops (groundnuts, soya beans, sesame); and bananas (matooke).

- ii. Build capacity of local governments to collect data at lower administrative levels, collecting information on observed production and yields in the farm, through the Community Information System which was designed to generate statistics for local governments. This data can then be aggregated at various levels e.g. parish, sub-county, district and national levels. This may be achieved by including data collection in job description of the sub-county and parish chiefs and district local governments committing funds to data collection. Agricultural extension services are undergoing restructuring that will result in increase in personnel in districts. These officers can supervise agricultural data collection by the parish and sub-county chiefs. Data collection system can be enhanced by harnessing modern technology through use of templates in GPS enabled Android Phones or handheld computer. ACTED, through DEWS in Karamoja, has proved that this is possible. For the annual crops, data should be collected at least three times in a cropping season: about a month after planting so as to measure the area planted and assess the performance of the crops; about a month before harvest to assess the performance of the crop and provide a harvest forecast; at harvest to give the actual crop harvest and yield.
- iii. Build the analytical capacity of the Statistics Unit in MAAIF to generate statistics regularly.
- iv. Institutionalize the development of an effective agricultural statistics system by reactivating the National Agricultural Statistics Technical Committee and formation of the National Agricultural Statistics Coordination Committee as provided for in the Agricultural Sector Strategic Plan for Statistics for Uganda.
- v. Exploit the use of new information technologies particularly for data capture and processing and dissemination, including handheld computers and the internet as is already being done by ACTED in Karamoja and EMPRES-i.

d) Other important information for the smallholders is on weather, pest and disease management and prices. UNMA has made significant progress in availing weather information in 22 languages on local FM radio stations. In Uganda today, there are many FM radio stations with combined coverage of most of the country. As more extension staff are recruited in districts, MAAIF should train more plant doctors and ensure that mobile plant clinics are rolled out across the entire country. Each district has a commercial officer (DCO) who can liaise with companies providing price information like Infotrade, Agrinet and Farmgain to display market prices at the main district markets or on the district commercial office notice board. The DCOs should be encouraged to collaborate with these companies.

Working with nine districts in the central region, Infotrade has demonstrated that this is feasible at no extra cost to the district. Also, the link between FM radio stations and MIS providers can be strengthened. Once again, Infotrade has shown, through working with radio stations in northern Uganda, that if radio stations are made aware that price information is important for their listeners, they are willing to schedule price dissemination in their programmes. This would enable a wider population to receive the information and make better marketing decisions. Also, knowing the market price at the district main markets would enable smallholders to negotiate for better farmgate prices. Additionally, weekly price information can be obtained by SMS without subscribing to the MIS provider. Many rural households have access to at least a mobile phone they can use to receive information. There is therefore, need to publicise how to access this information from the MIS providers.

e) There are ongoing projects to improve **meteorological data/information systems**. These are funded by several agencies such as GIZ, USAID, UNDP, GoU, among others designed to strengthen, expand and automate the existing hydro-meteorological monitoring network. These projects include aspects aimed at:

- Improving capacity to analyse and interpret climate data;
- Improving weather forecasting capabilities;
- Enhancing the availability of local, regional, national and global data;
- Establishing denser monitoring networks and infrastructure—including automatic and remote sensing technologies—which can be rapidly deployed especially in hazard-prone areas, are relatively easy to maintain, and simple to use;
- Recovering historical data held in paper/perishable/obsolete formats;
- Building support and awareness among local communities that have a demand for weather/climate information and warnings;
- Promoting greater collaboration between the providers and users (including user-agencies and local communities) of weather/climate information.

d) f) The **agricultural extension system**, the main source of agricultural information for smallholder farmers, is under going yet another transition. The NAADS is the main provider of extension and advisory services to farmers in Uganda. This is complemented by the district and sub-county production officers. These two parallel systems are being restructured to create single system which is expected to increase farmers' access to the information services.

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## Annex 1: Persons contacted

	<b>Name</b>	<b>Organisation</b>	<b>Contact</b>
1	Robert Kintu	Infotrade	<a href="mailto:Robert@fituganda.com">Robert@fituganda.com</a> 0752-460354
2	David Luwandagga	Farmgain	0772-373093
3	Jenefer Lhughabwe	Grameen Foundation	<a href="mailto:jlhughabwe@grameenfoundation.org">jlhughabwe@grameenfoundation.org</a> 0392-000022/0772-712898
4	Charles Ssemwogerere	Grameen Foundation	<a href="mailto:cssemwogerere@grameenfoundation.org">cssemwogerere@grameenfoundation.org</a> 0392-000022/0772-712236
5	Stella Sengendo	FAO Uganda	<a href="mailto:Stella.Sengendo@fao.org">Stella.Sengendo@fao.org</a> 0772-419649
6	Samuel Mugarura	FEWS NET	<a href="mailto:smugarura@fews.net">smugarura@fews.net</a> 0755-779179
7	Annunciata Hakuza	MAAIF	<a href="mailto:maaifewu@yahoo.co.uk">maaifewu@yahoo.co.uk</a> 0772-479309
8	Noelina Nantalima (Dr.)	MAAIF	<a href="mailto:noelinanantima@yahoo.com">noelinanantima@yahoo.com</a> 0772-515962
9	Justine Jolly Hoona(Dr.)	MAAIF	<a href="mailto:justinejollyhoona@gmail.com">justinejollyhoona@gmail.com</a> 0772-482255
10	Benius Tukahirwa	MAAIF	<a href="mailto:btukahirwa@gmail.com">btukahirwa@gmail.com</a> 0773-454318
11	Daisy Eresu	MAAIF	<a href="mailto:daisyeresu@yahoo.com">daisyeresu@yahoo.com</a> 0772-311553
12	Hamidu Tusiime	WFP	<a href="mailto:hamidu.tusiime@wfp.org">hamidu.tusiime@wfp.org</a> 0312-242000

## Annex 2: Typical Seasonal Rainfall Outlook



MINISTRY OF WATER AND ENVIRONMENT



UGANDA NATIONAL METEOROLOGICAL AUTHORITY

# UGANDA NATIONAL METEOROLOGICAL AUTHORITY

P.O. BOX 20026, KAMPALA-UGANDA

## PRESS RELEASE

### MARCH TO MAY 2015 SEASONAL RAINFALL OUTLOOK OVER UGANDA

#### BACKGROUND

The Department of Meteorology (DoM) under the Ministry of Water and Environment has been of recent transformed into a semi autonomous institution namely the 'Uganda National Meteorological Authority, (UNMA)' by an Act of Parliament, (The Uganda National Meteorological Authority, Act, 2012) that went into effect from **24 January, 2014**.

**The vision** is "being a centre of excellence on weather and climate services for sustainable development of Uganda."

**The Mission** is "to contribute to overall national development through provision of quality, customer-focused, cost-effective and timely information for weather and climate services to all users."

**The overall goal** is "to improve technical and institutional capacity for providing weather and climate information, prediction products and services, early warning system, and related services for sustainable development in Uganda".

UNMA is the Government's authoritative voice on Weather and Climate. It is mandated to install and maintain weather observations and monitoring equipments, monitor weather and climate, exchange meteorological data, information and meteorological products and issue weather and climate advisories to all sectors of the economy in particular and to international partners in general.

#### 1. OVERVIEW

March to May (MAM) constitutes the first major rain fall season in Uganda. During the 39<sup>th</sup> Climate Outlook Forum for the Greater Horn of Africa held in Nairobi, Kenya from 23<sup>rd</sup> to 25<sup>th</sup> February 2015, the national, regional and international climate scientists reviewed the state of the global climate system and its implications on the seasonal rainfall over the east African region. It was observed that the major physical conditions likely to influence the weather conditions of Uganda and the rest of the region for the forecast period of March to May 2015 are as follows:

- Atmospheric-Oceanic conditions over the adjacent Indian and Atlantic Oceans, as well as over the Pacific Ocean;
- The predicted neutral ENSO conditions in the tropical Pacific Ocean;
- The influence of regional circulation patterns, topographical features and large inland water bodies.

Based on the above considerations as well as details of the climatology of Uganda and scientific tools for climate analysis, Uganda National Meteorological Authority in the Ministry of Water and Environment, has come up with the following detailed forecast:-

#### 2. GENERAL FORECAST

Overall, there is an increased likelihood of **near normal** rainfall over several parts of the country. The onset of seasonal rains is expected to be characterised by severe thunder storms and hailstorms over isolated parts of the country. The breakdown of the forecast for each region is given as follows:

##### 1.1 EASTERN UGANDA

**2.1.1 Eastern Lake Victoria and South Eastern:** (Jinja, Kamuli, Iganga, Bugiri, Luuka, Namutumba, Buyende, Kaliro, Busia and Tororo) districts

This region has been experiencing dry spell since January 2015. However, towards the end of February, it started receiving isolated outbreaks of light showers associated with destructive storms over few places. This situation is expected to continue until third week of March 2015, when the onset of steady rains is expected to get established. The peak of the seasonal rains is expected around early April with cessation expected around early to mid June. **Overall, this region has a high chance of receiving near normal rainfall.**

**2.1.2 Eastern Central** (Pallisa, Budaka, Mbale, Sironko, Manafwa, Bududa, Kapchorwa, Kumi, Kaberemaido, Soroti, Serere, Amolatar, Butaleja, Bulambuli, Kween, Bukwo, Bukedea and Ngora) districts

The region has been experiencing dry conditions during the month of January 2015 and started receiving isolated light showers by end of February 2015. The light showers with occasional violent thunderstorms and hailstorms are expected to continue prevailing around third week of March when steady seasonal rains are likely to set in. The peak rains are expected around mid April 2015. Thereafter, moderate relaxation rainfall is expected around mid

June. **Overall the region is expected to receive near normal with slight tendency to above normal rain.**

**2.1.3 North Eastern Region:** (Katakwi, Moroto, Kotido, Nakapiripirit, Abim, Eastern Napak, Amudat, Amuria, and Kaabong) districts

This region has been experiencing dry conditions reaching drought levels in several areas. The onset of steady rains is expected around early to mid April, reaching the peak around mid May, and then moderate relaxation around mid June 2015. **Overall, there are high chances for below normal rains over this region.**

##### 2.2 NORTHERN UGANDA

**2.2.1 Eastern part of northern region:** (Lira, Kitgum, Agago, Otuke, Pader, Kole, Dokolo, and Kaberemaido) districts

The region has been experiencing dry conditions since January 2015. However, sporadic light showers are currently being experienced in isolated locations and this situation is expected to continue up to late March when the onset of steady rains is expected to get established. Moderate relaxation of rains is expected around mid June. **Overall, near normal rainfall is expected during this season.**

**2.2.2 Central Northern Parts:** (Gulu, Apac, Lamwo, Nwoya, Amuru, Oyam and Kiryandongo) districts

The region is currently experiencing isolated light showers which are expected to continue up to around third week of March when the onset of the seasonal rains is expected to get established. The seasonal rains will be interrupted by short-lived dry spells and Moderate relaxation of rains is expected around mid June. **Overall, near normal rainfall is expected over this region.**

**2.2.3 North Western:** (Moyo, Arua, Maracha, Nebbi, Okoro, Adjumani, Yumbe, Koboko, Terego and Zombo) districts

The region is currently experiencing isolated light showers with prolonged dry spells which are expected to continue up to mid March when the onset of the seasonal rains is expected to get established. The seasonal rains are likely to be interrupted by short dry spells. The peak of the seasonal rain is expected around mid/late April 2015 and moderate relaxation is expected around mid June 2015. **There is a high chance of this region receiving near normal rainfall during this season.**

##### 2.3 WESTERN UGANDA

**2.3.1 South Western** (Kisoro, Kabale, Rukungiri, Kanungu, Ntungamo, Mbarara, Kiruhura, Isingiro, Ibanda, Bushenyi, Buhweju, Mitooma, Sheema, Rubirizi and Kasese) districts

The region is experiencing isolated outbreaks of light showers and thunderstorm over few places, which are likely to continue until third week of March. The onset of the seasonal rains is likely to be characterised by violent winds and hailstorms that may be destructive to crop and other properties. The peak of the seasonal rains is expected around early to mid April and the cessation around early to mid June. **Overall, the region is expected to receive near normal rains during this season.**

**2.3.2 Western Central** (Bundibugyo, Ntoroko, Kabarole, Kyenjojo, Kyegegwa, Kamwenge, Kibaale, Hoima, Buliisa and Masindi) districts

The region has been experiencing relatively dry conditions since January 2015. Currently isolated outbreaks of showers accompanied by destructive wind storms are being experienced and these are expected to continue up to mid March, when the onset of steady rains is expected to be established. The peak rains are expected around early/mid April 2015. The cessation of the seasonal rains is expected around mid June. **Overall, the region is expected to receive near normal tending slightly to above normal rainfall during this season.**

##### 2.4 LAKE VICTORIA BASIN AND CENTRAL AREAS

**2.4.1 Central and Western Lake Victoria Basin:** (Kalangala, Kampala, Wakiso, Eastern Masaka, Lwengo, Mpigi, Butambala, Kalungu, Bukomansimbi, Gomba, and Mityana) districts

The region is currently receiving intermittent light showers which are expected to continue up to mid March when the onset of steady rains is expected to get established. The onset of seasonal rains in

This region is expected to be accompanied by strong and destructive winds as well as hailstorms and thereafter, rains are expected to intensify with the peak seasonal rains occurring around mid April. The cessation is expected around early to mid June 2015. **Overall, there are high chances of near normal rainfall over this region.**

**2.4.2 Western Part of Central:** (Nakasongola, Luwero, Kyankwanzi, Nakaseke, Kiboga, Mubende, Sembabule, Western Masaka, Lyantonde, and Rakai) districts

The region is currently experiencing the outbreak of isolated light showers associated with occasional strong winds and hailstorms which are expected to continue up to about third week of March when the onset of steady rains is expected to get established. The peak of rains is expected to occur around mid April; however sort-lived dry spells are expected to interrupt the seasonal rains in this region. By mid May, the rains are expected to relax with cessation occurring around early/mid June 2015. **Overall, there are high chances of near normal rainfall over this region.**

**2.4.3 Eastern parts of Central:** (Mukono, Buikwe, Kayunga, Buvuma) districts

The region is currently receiving some isolated light showers and thunderstorms with occasional hailstorms which are expected to be the gradual onset of the seasonal rainfall. The peak of rains is expected around early/mid April 2015, thereafter, the rains are expected to relax with cessation occurring around early to mid June 2015. Seasonal rains in this region are expected to be interrupted by occasional dry spells. **Overall, near normal rainfall is expected over this region.**

#### THE IMPLICATIONS OF THE CURRENT FORECAST

**There are high chances that the rainfall performance over several places in the country is expected to be near normal with late onset over several places.**

It should be noted that areas expected to receive near normal rainfall does not mean that they will receive little rainfall. The implication is that these areas will receive rainfall within average range of their long term mean and rainfall is expected to adequately support the normal socio-economic activities for the various areas;

ii) It should also be noted that localized episodic flash flood events may also be observed in areas that are expected to receive near normal rainfall as a result of isolated heavy down pours and similarly, poor rainfall distribution may occur in localized areas expected to receive above normal rainfall;

iii) The Karamoja region which is currently experiencing dry conditions is likely to receive deficient rainfall. Consequently, some of the few hazards that have been associated with the prolonged dry conditions are likely to continue over some parts of Karamoja region.

#### SPECIFIC ADVISORIES TO DIFFERENT SECTORS:

##### 4.1 Agriculture and Food Security Sector

The predicted rains are expected to be normal over much of the country and therefore, farmers are advised to do the following:

- Plant long maturing crops like millet, rice, sorghum, maize, cassava, sweet potatoes on the start of rains and short quick maturing crops later on (beans, tomatoes, vegetables) as rains progress;
- Construct drainage and diversion channels on crop plots and parcels in case of heavy rains;
- Put in place soil conservation structures to prevent soil erosion for those on slopes and highlands;
- Plant pastures, trees including the improvement of the existing ones;
- Guard against tick-borne diseases and worms;

**4.1.1 Regions expecting near normal to below normal rainfall such as Karamoja are advised to do the following:-**

- Timely planting of quick maturing crops and dry sowing for cereals; where possible as they wait for the on-set of rains is encouraged;
- Use foodstocks sparingly and ensure appropriate food storage practices;



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- Drip irrigation where possible is encouraged;
- Pasture preservation (making hay and silage) and use available water sparingly;
- Water harvesting for home consumption, and groundwater harvesting into gardens, dams and valley tanks for livestock and sustaining crop production is encouraged;
- Farmers with paddock farms are encouraged to get access to pasture seed sand plant to improve on the quality of the existing.
- Plant drought resistant crop varieties.

In general, farmers are advised to make use of the seasonal rains by optimizing crop yield through appropriate land-use management. Farmers are also encouraged to plant enough food for both domestic use and sale to emerging markets in the neighbouring countries.

#### 4.2 DISASTER MANAGEMENT SECTOR

It should be noted that local and month-to-month variations might occur as the season progresses. For example, episodic flash floods might be experienced in some areas leading to loss of lives and destruction of property. Other disasters may arise from possible landslides mostly in mountainous areas of western, south-western and eastern Uganda as well as strong and gusty winds and lightning among others. Therefore, appropriate measures should be taken to avoid loss of life and destruction of infrastructure and property such as:-

- Construct proper drainage systems around homesteads and urban areas.
- Identify and report any cracks in mountainous areas to the authorities
- Local communities living adjacent to rivers prone to flash floods are advised to places and bags a few metres from riverbanks and around their houses.
- Identify and report any cracks in mountainous areas to the authorities.
- Village, Subcounty and District Disaster Management committees are advised to report any emerging incident associated with weather and climate hazards immediately to the concerned authorities at National Emergency Coordination and Operation Centre (NECOC), Office of the Prime Minister on toll free line **0800177777**
- Current stock of food reserves should be used sparingly.
- De-silt the dams in Karamoja subregion to capture and store the water flows from expected limited rains for use
- Pre-position all emergency logistics in districts prone to hydrometeorological hazards.
- District authorities are advised to update their contingency plans for better coordination in case of any weather and climate disaster that may occur during this season.

#### In case of Lightning;

- Authorities at all levels should continue to encourage communities to install lightening conductors/arrestors on all structures especially on public buildings (schools, hospitals) and also in homes.
- Teachers should ensure that school children do not play in open grounds or take shelter under trees during light drizzles that precede thunderstorms.
- Avoid contact with metallic objects during thunderstorms since such objects may conduct the electricity discharged by a lightning strike in the neighbourhood.
- Always listen to your local radios about warnings on impending thunderstorms activity in your area.

#### 4.3 WATER, ENERGY AND POWER GENERATION

##### 4.3.1 Regions expecting near normal to above normal.

- Plans for optimization of power generation and distribution should be enhanced due to the expected increased discharge of seasonal rainwater into the water bodies;
- Setting up and protection of vegetated/forested buffer zones

around water sources to guard against water pollution should be encouraged and communities should avoid consumption of contaminated water.

- There is a likelihood of accidents arising from settlements constructed in water catchment areas especially flood plains.
- Human activity in steep slope areas should be regulated to avoid flooding in downstream areas.
- More cases of electricity pole and wire breakdowns are expected due to wet soils and strong winds. Transformers also may be at stake.

##### 4.3.2 Regions expecting near normal to below normal

Water source protection and management should be strengthened for water security.

- Water should be sparingly used and water recycling canal so be adopted.
- Locals together with all stakeholders should assist communities to construct larger reservoirs to collect rain water.
- Protect and conserve the water infrastructure in the areas like already established dams and valley tanks.
- Soil and water conservation should be encouraged like mulching.
- Other energy sources like solar, biogas and wind energy should be exploited for example Biogas fuel using energy saving stoves should be courage and exploited.

#### INFRASTRUCTURE, WORKS AND TRANSPORT SECTOR

The anticipated near normal rainfall patterns are likely to be occasionally accompanied by intense rainfall events that may lead to flash flooding in some localized places especially in Kampala city and other urban areas. The following measures should be taken:

- Urban authorities need to clear and reduce blockages of the drainage systems to avoid waterlogging on streets.
- Preposition of the maintenance logistics (e.g. bulldozers) for repair of bridges that may become submerged or washed away due to flash floods and also landslides which may cause road blockages
- Strong/violent winds may be experienced that can cause structural damages to buildings (blow off rooftops and collapse of poorly constructed buildings).
- Local Councils should mobilise communities for carrying out "bulungi bwansi".
- Engineers should watch out for curing time of the materials used to avoid overloading them before they dry out as this period is expected to have lower sunshine hours to drive the drying process.
- Engineers/contractors should provide for loss of time due to the long hours of rainfall.
- Roads Authority should liaise with telecommunications and power companies on putting in place emergency remedies in case of demolition of infrastructure due to heavy rains
- Finalize critical work ( e.g. roads) that is affected by rain
- De-silting drainages and other water channels to curtail flooding.
- Prepositioning of construction equipment in areas which are prone to landslides e.g. excavators and bulldozers.

#### 4.5 HEALTH

##### General:

- Increased disease surveillance due to expected upsurges of epidemics related to rainy season such as Malaria, Cholera, bilharzia and typhoid, also increase in lower respiratory diseases e.g. Asthma due to humid conditions and allergies from some flowering plants are expected. Health authorities are therefore advised to be on the lookout and equip hospitals with necessary drugs to deal with such situations as they may arise. They should also intensify health education and awareness campaigns emphasizing the use of mosquito nets, slashing bushes, disposing open containers, filling open pits around homes, draining of stagnant to reduce malaria
- General Hygiene and Sanitation around homes and schools should be strengthened.
- Increase Health surveillance and Health & Reporting in all areas.

Increase behavior change communication and campaigns in local communities

- Increase budget support for local and regional health authorities and centers
- Frequent health inspection in all communities
- Increase drug distribution
- Family planning awareness.
- Increased prevention for air born diseases and non communicable illnesses.

**In conclusion**, the predicted rains require action in sufficient time and in an appropriate manner so as to take advantage of the information. This forecast should be used for planning in all rain- fed economic activities so as to improve economic welfare and livelihoods for all our communities in their localities.

The ministry has taken a further step of translating this forecast into twenty two (22) different local languages for audio and text messages including among others; *Kiswahili, Luganda, Ateso, Lusoga, Rukonjo, Rwamba, Karamajong, Lumasaba, Japadhola, Rufumbira, Ma'di, Sabiny, Runyankole-Rukiga, Runyoro-Rutoro, Luo, Lusamia, Kumam, Alur, Kakwa, Nubi, Lugwele, and Lugbara*. These translated messages will be disseminated to communities in different parts of the country mainly using local FM radios and meetings/workshops.

#### For God and My Country

Hon. Flavia M Nabugere  
MINISTER OF STATE FOR ENVIRONMENT

#### EXPLANATORY NOTES TO TERMINOLOGY

**Above Normal:** This is when the total rainfall is above 125% of the long - term -mean (LTM). Impact on socio-economic activities is mostly boosted especially in the modest degrees of above average.

This is when the total rainfall is in the range of 75% to 125% of the LTM. This range of rainfall is expected to adequately support the normal socio-economic activities for the various areas.

**Below Normal:** This is when the total rainfall is below 75% of the LTM. Under this range there are high chances for socio-economic activities being stressed, the level of stress increasing with increasing rainfall deficiency.

**Accuracy:** This forecast is up to 70% accurate. It is supported by useful forecast guidance inputs drawn from a wide range of sources including the World Meteorological Organisation's Global Producing Centres (WMO GPCs). These inputs were combined into a regional consensus forecast using deterministic and probabilistic modelling alongside expert analysis and interpretation to obtain the regional rainfall forecast for the March to May 2015 season.

The Uganda National Meteorological Authority will continue to monitor the evolution of relevant weather systems particularly the state of the SSTs and issue appropriate updates and advisories to the users regularly.



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## Annex 3: MAAIF Advisory to farmers for first season of 2015



### MINISTRY OF AGRICULTURE ANIMAL INDUSTRY AND FISHERIES

#### *MESSAGE TO FARMERS FOR THE FIRST SEASON 2015*

##### **Introduction**

This year 2015 begun with a dry spell across the country, which intensified during the months of February. The temperatures have been higher than normal, reaching drought levels in Karamoja region. The same conditions have been carried over into the first and second week of March 2015 causing adverse effects on livestock and crops. There is shortage of both pasture and water. Milk has also reduced in quantity. The quality of the available sweet potatoe vines and cassava cuttings are poor and in short supply for planting during the first season this year. Coffee and banana plantations have are in stressed condition. The extreme heat caused sun burns on coffee and quickened the ripening of bananas, causing an increase in post-harvest losses. Banana shortage and poor quality coffee harvests are expected in the next six to seven.

##### **How does the March to May 2015 Forecast Look like**

According to the weather forecast released by the National Meteorological Authority (UNMA) for the period March to May 2015, there is an increased likelihood of **near normal** rainfall over several parts of the country. The onset of seasonal rains in most regions is expected Mid-March and cessation is expected by Mid-June. The season is expected to be characterised by severe thunderstorms and hailstorms over isolated parts of the country. The breakdown of the forecast for each region is given in the table below;

##### **When to plant?**

Farmers are advised to use the on-going sporadic rains to prepare land and dry-sow cereals immediately. All cereals should be planted during the month of March. Planting of root crops, legumes and vegetables should be staggered during the months of March and April.

##### **What to plant?**

It is recommended that only quick maturing and disease/drought tolerant crop varieties should be planted this season as follows:

**Beans:** Nabe 16, 17, 18, 19, 20, 21, 22 and 23 for low land areas. Nabe 12c, 26c, 27c and 29c for high land areas. Nabe 17 and 19 are specifically recommended for northern Uganda.

**Cassava:** Nase 3 (Migyera), Nase 14, 15, 18 and 19 are both tolerant to Cassava brown Streak and Cassava Mosaic Diseases.

**Maize:** Longe 4, longe 5 (Nalongo), Longe 6H and longe 7H.

**Upland rice:** NERICA-4, NERICA-10, NERICA-1.

### How to control Diseases for Planting Materials

Plant materials obtained from disease free fields, preferably those inspected by Agricultural Officers in your localities. The government has put in place measures to deal with the prevailing diseases mainly affecting cassava, bananas and coffee. You are requested to abide by the regulations provided for control of these diseases (Banana Bacterial Wilt, Coffee Wilt, Cassava brown Streak and Cassava Mosaic). The local authorities across the country are requested to continue enforcement of the regulations provided, and deal with defaulters accordingly. Ensure that all the planting materials selected for planting this season are disease free.

**Pasture Management:** The on-going dry spell the country has experienced has affected pastures in terms of quality and quantity. Livestock farmers are advised to improve the available pastures by planting pasture seeds. These are available with various Zonal Agricultural Research Stations across the country. You approach the nearest Veterinary Officers for guidance on where to get the appropriate seeds.

**Livestock Breeds:** The Government, through Ministry of Agriculture, Animal Industry and Fisheries imported in the country Boran cattle to improve on beef production and Kroillar birds for poultry improvement both meet and egg production. Good dairy cattle are also available for milk production. All these are available with selected farmer breeders. You are advised to approach your nearest extension workers on guidance of how to obtain these breeds to cross with the locals for better production.

**Pest and Disease Epidemics:** Following the higher temperatures experienced since January this year, pest and disease epidemics for both crops and livestock are expected to emerge across the country. Report any pests observed in population increase, and diseases to the nearest local authorities for action.

**Poor Land Management Practices** The issue of land degradation is becoming more prominent because of poor land management practices by farmers. This has been aggravated by bush burning which is common during dry seasons. Local Authorities across the country are reminded to re-enforce the available bye-laws on land management and take punitive measures to those that do not abide by them.

**Table1: March to June 2015 Seasonal Forecast and Advisory Message**

REGIONS	FORECAST	ADVISORY MESSAGES
<b>Eastern Lake Victoria and South Eastern:</b> <i>(Jinja, Kamuli, Iganga, Bugiri, Luuka, Namutumba, Buyende, Kaliro, Busia and Tororo) districts</i>	This region has been experiencing dry spells since January 2015. Towards the end of February, it started receiving isolated outbreaks of light showers associated with destructive storms over few places. This situation is expected to continue until third week of March 2015, when the onset of steady rains is expected to get established. The peak of the seasonal rains is expected around early April with cessation expected around early to mid-June. <b>Overall, this region has a high chance of receiving near normal rainfall.</b>	<ul style="list-style-type: none"> <li>✓ <i>Use on-going light showers to clear land and dry sow- cereals.</i></li> <li>✓ <i>Plant quick maturing and water stress tolerant crops, plant pulses when rain get established to avoid destruction by expected storms at on set.</i></li> <li>✓ <i>Micro-irrigation to supplement irregular rains is encouraged.</i></li> <li>✓ <i>Maintain routine disease control, proper housing and efficient use of water and pasture for</i></li> </ul>

REGIONS	FORECAST	ADVISORY MESSAGES
		<i>livestock</i>
<b>Eastern Central</b> (Pallisa, Budaka, Mbale, Sironko, Manafwa, Bududa, Kapchorwa, Kumi, Kaberamaido, Soroti, Serere, Amolatar, Butaleja, Bulambuli, Kween, Bukwo, Bukedea, Ngora districts)	The region has been experiencing dry conditions during the month of January 2015 and started receiving isolated light showers by end of February 2015. The light showers with occasional violent thunderstorms and hailstorms are expected to continue prevailing until mid-March when steady seasonal rains are likely to set in. The peak rains are expected around mid-April 2015. Thereafter, moderate relaxation of rainfall is expected around mid-June. <b>Overall the region is expected to receive near normal with slight tendency to above normal rain.</b>	<ul style="list-style-type: none"> <li>✓ Use on-going light showers to clear land and dry sow- cereals.</li> <li>✓ Plant quick maturing and water stress tolerant crops, plant pulses when rain get established to avoid destruction by expected storms at on set.</li> <li>✓ Micro-irrigation to supplement irregular rains is encouraged.</li> <li>✓ Maintain routine disease control, proper housing and efficient use of water and pasture for livestock</li> </ul>
<b>North Eastern Region:</b> (Katakwi, Moroto, Kotido, Nakapiripirit, Abim, Eastern Napak, Amudat, Amuria, and Kaabong) districts	This region has been experiencing dry conditions reaching drought levels in several areas. The onset of steady rains is expected around early to mid-April, reaching the peak around mid-May, and then moderate relaxation around mid-June 2015. <b>Overall, there are high chances for below normal rains over this region.</b>	<ul style="list-style-type: none"> <li>✓ Construct drainage channels in fields located in flood risk areas to check expected floods in may.</li> <li>✓ Proper soil and water conservation and water harvesting practices are recommended.</li> <li>✓ Prepare land and seed and get ready for early planting in April.</li> <li>✓ Plant crop varieties that mature quickly and torrent to water stress.</li> <li>✓ Ensure that routine livestock disease control is observed.</li> </ul>
<b>Eastern parts of northern region:</b> (Lira, Kitgum, Agago, Otuke, Pader, Kole, Dokolo, and Kaberamaido) districts	The region has been experiencing dry conditions since January 2015. However, sporadic light showers are currently being experienced in isolated locations and this situation is expected to continue up to around mid-March when the onset of steady rains is expected to get established. Moderate relaxation of rains is expected around mid-June. <b>Overall, near normal rainfall is expected during this season.</b>	<ul style="list-style-type: none"> <li>✓ Use available light rains and prepare land.</li> <li>✓ Normal season expected, follow normal cropping calendar should be followed.</li> <li>✓ Prepare to plant all other crops when steady rains begin.</li> <li>✓ Routine livestock disease control and animal husbandry practices.</li> </ul>
<b>Central Northern Parts:</b> (Gulu, Apac, Lamwo, Nwoya, Amuru, Oyam and Kiryandongo) districts	The region is currently experiencing isolated light showers which are expected to continue up to mid-March when the onset of the seasonal rains is expected to get established. The seasonal rains will be interrupted by short-lived dry spells and Moderate relaxation of rains is expected around mid-June. <b>Overall, near normal rainfall is expected over this region</b>	<ul style="list-style-type: none"> <li>✓ The expected short lived dry spells are likely to stress all crops.</li> <li>✓ Appropriate water harvesting and conservation technologies and micro-irrigation are recommended</li> <li>✓ Plant short maturing and drought tolerant crop varieties.</li> </ul>
<b>North Western:</b> (Moyo, Arua, Maracha,	The region is currently experiencing isolated light showers with prolonged dry spells which are expected to continue	<ul style="list-style-type: none"> <li>✓ The expected short lived dry spells are likely to stress all</li> </ul>

REGIONS	FORECAST	ADVISORY MESSAGES
<i>Nebbi, Okoro, Adjumani, Yumbe, Koboko, Terego and Zombo</i> ) districts	up to mid-March when the onset of the seasonal rains is expected to get established. The seasonal rains are likely to be interrupted by short dry spells. The peak of the seasonal rain is expected around mid/late April 2015 and moderate relaxation is expected around mid-June 2015. <b><i>There is a high chance of this region receiving near normal rainfall during this season.</i></b>	<i>crops.</i> ✓ <i>Appropriate water harvesting and conservation technologies and micro-irrigation are recommended</i> ✓ <i>Plant short maturing and drought tolerant crop varieties.</i> ✓ <i>Mulching of coffee and bananas is recommended in this region.</i>
<b>South Western</b> <i>(Kisoro, Kabale, Rukungiri, Kanungu, Ntungamo, Mbarara, Kiruhura, Isingiro, Ibanda, Bushenyi, Buhweju, Mitooma, Sheema, Rubirizi and Kasese)</i> districts	The region is experiencing isolated outbreaks of light showers and thunderstorm over few places, which are symbolizing the onset of steady rains. The onset of the seasonal rains is likely to be characterized by violent winds and hailstorms that may be destructive to crops and other properties. The peak of the seasonal rains is expected around early to mid-April and the cessation around early to mid-June. <b><i>Overall, the region is expected to receive near normal rains during this season.</i></b>	✓ <i>Take precautions against the expected storms and lightening to protect lives, livestock and banana. Observe proper crop and animal husbandry practices where rains planting of root crops (cassava, sweet potatoes and vegetables should continue.</i> ✓ <i>In greater Mbarara, farmers should follow their normal crop routine for the season.</i> ✓ <i>Harvest water for livestock.</i>
<b>Western Central</b> <i>(Bundibugyo, Ntoroko, Kabarole, Kyenjojo, Kyegegwa, Kamwenge, Kibaale, Hoima, Buliisa and Masindi)</i> districts	The region has been experiencing relatively dry conditions since January 2015. Currently isolated outbreaks of showers accompanied by destructive wind storms are being experienced and these are expected to continue up to mid-March, when the onset of steady rains is expected to be established. The peak rains are expected around early/mid April 2015. The cessation of the seasonal rains is expected around mid-June. <b><i>Overall, the region is expected to receive near normal tending slightly to above normal rainfall during this season.</i></b>	✓ <i>Digging channels in fields for proper drainage to mitigate water logging and flooding in low land areas of Ntoroko district, and other high risk areas.</i> ✓ <i>Soil conservation to check landslides in highland areas.</i> ✓ <i>Early planting of all crops.</i> ✓ <i>Proper routine livestock husbandry practices recommended.</i>
<b>Central and Western Lake Victoria Basin:</b> <i>(Kalangala, Kampala, Wakiso, Eastern Masaka, Lwengo, Mpigi, Butambala, Kalungu, Bukomansimbi, Gomba, and Mityana)</i> districts	The region is currently receiving intermittent light showers which are expected to continue up to mid-March when the onset of steady rains is expected to get established. The onset of seasonal rains in this region is expected to be accompanied by strong and destructive winds as well as hailstorms and thereafter, rains are expected to intensify with the peak seasonal rains occurring around mid-April. The cessation is expected around early to mid-June 2015. <b><i>Overall, there are high chances of near normal rainfall over this region.</i></b>	✓ <i>Construction of channels for proper water drainage to control flooding and water logging in high risk areas in the lake Victoria basin.</i> ✓ <i>Appropriate soil and water conservation practices</i> ✓ <i>Stay alert for lightening's and storms.</i> ✓ <i>Early planting of all crops.</i> ✓ <i>Maintain routine livestock disease control.</i>
<b>Western Parts of Central:</b>	The region is currently experiencing the outbreak of isolated light showers associated with occasional strong	<i>The expected short lived dry spells and early sensation of rains will</i>

REGIONS	FORECAST	ADVISORY MESSAGES
(Nakasongola, Luwero, Kyankwanzi, Nakaseke Kiboga, Mubende, Sembabule, Western Masaka, Lyantonde, and Rakai) districts	winds and hailstorms which are expected to continue up to mid-March when the onset of steady rains is expected to get established. The peak of rains is expected to occur around mid-April; however short-lived dry spells are expected to interrupt the seasonal rains in this region. By mid-May, the rains are expected to relax with cessation occurring around early/mid June 2015. <b>Overall, there are high chances of near normal rainfall over this region.</b>	<i>adversely affect crop development.</i> <i>Recommendation;</i> <ul style="list-style-type: none"> <li>✓ <i>Early planting of drought tolerant crop varieties;</i></li> <li>✓ <i>Harvest water for livestock</i></li> <li>✓ <i>Soil and water conservation practices, including mulching of coffee and bananas.</i></li> <li>✓ <i>Micro-irrigation.</i></li> <li>✓ <i>Maintain Livestock vaccinations and disease control</i></li> </ul>
<b>Eastern parts of Central:</b> (Mukono, Buikwe, Kayunga, Buvuma) districts	The region is currently receiving some isolated light showers and thunderstorms with occasional hailstorms which are expected to be the gradual onset of the seasonal rainfall. The peak of rains is expected around early/mid April 2015, thereafter, the rains are expected to relax with cessation occurring around early to mid-June 2015. Seasonal rains in this region are expected to be interrupted by occasional dry spells. <b>Overall, near normal rainfall is expected over this region.</b>	<i>A normal rainfall season is expected in this region. Farmers are advised to do as follows:</i> <ul style="list-style-type: none"> <li>✓ <i>Timely planting of all crops</i></li> <li>✓ <i>Plant quick maturing and water stress tolerant varieties</i></li> <li>✓ <i>Water harvesting for livestock and micro-irrigation</i></li> </ul>

I thank all the farmers in Uganda, for their contribution in boosting the economy and feeding the nation. I wish you a fruitful first season of the year 2015.

Hon. Tress N. Bucyanayandi (MP)

**MINISTER OF AGRICULTURE, ANIMAL INDUSTRY AND FISHERIES**

## **Annex 4: Regional Climate Outlook for MAM 2015**

### **STATEMENT FROM THE THIRTY NINTH GREATER HORN OF AFRICA CLIMATE OUTLOOK FORUM (GHACOF39) FOR MARCH TO MAY 2015 RAINFALL SEASON: 23-25 FEBRUARY 2015; BOMA, HOTEL, NAIROBI, KENYA**

#### **Summary**

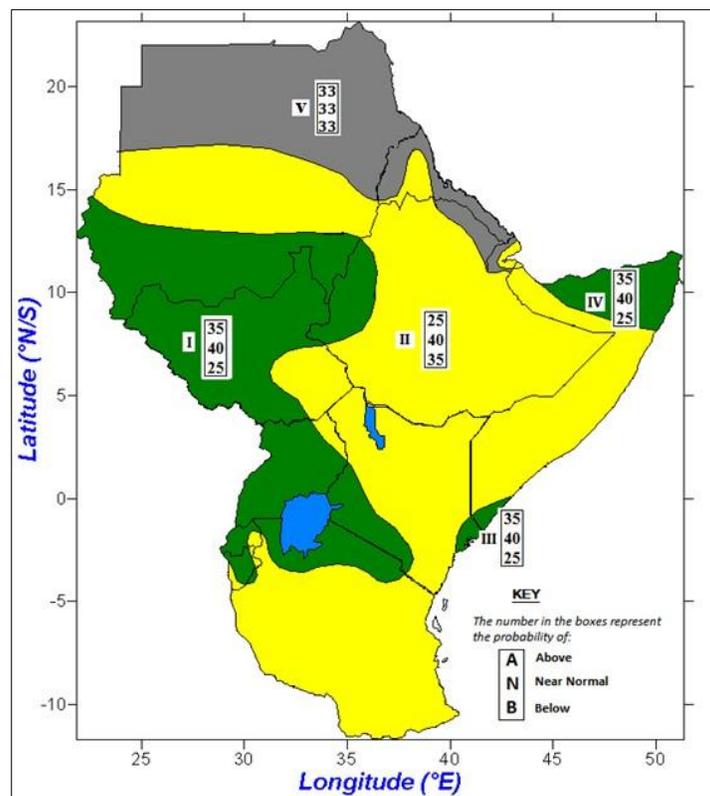
The March to May months constitute an important rainfall season over the equatorial parts of the Greater Horn of Africa (GHA) region. The regional consensus climate outlook for the March to May 2015 rainfall season indicates an increased likelihood of near normal to below normal rainfall over central parts of Sudan, central Eritrea, eastern Djibouti, much of Ethiopia, much of Somalia, most areas of Kenya, much of Tanzania, southwestern and northeastern Rwanda, southeastern Burundi, northeastern Uganda and southeastern parts of South Sudan. Much of Burundi, Rwanda, Uganda and South Sudan, southern parts of Sudan, western parts and northern coast of Kenya as well as extreme southern coast and northern parts of Somalia have increased probability for near normal to above normal rainfall during March to May 2015 rainfall season. The major processes considered as key drivers of the regional climate during March-May 2015 season included atmospheric-ocean conditions over the adjacent Indian and Atlantic Oceans, as well as over the Pacific Ocean and predicted neutral ENSO conditions in the tropical Pacific Ocean. The potential risk of tropical cyclones occurrence was also integrated. The outlook is relevant for the March-May 2015 season as a whole and for relatively large areas. Local and month-to-month variations might occur as the season progresses. It is likely that episodic heavy rainfall events leading to flash floods might occur even in areas with an increased likelihood of near normal to below normal rainfall. Also, dry spells may occur in areas with an increased likelihood of near normal to above normal rainfall. ICPAC will provide regional updates on regular basis while the National Meteorological and Hydrological Services (NMHSs) will provide detailed national and sub national updates.

#### **The Climate Outlook Forum**

The Thirty Ninth Greater Horn of Africa Climate Outlook Forum (GHACOF39) was convened from 23<sup>rd</sup> to 25<sup>th</sup> February 2015, at Boma Hotel, Nairobi, Kenya by the IGAD Climate Prediction and Applications Centre (ICPAC), the Kenya Meteorological Service (KMS) the World Bank and partners to formulate a consensus climate outlook for the March to May 2015 rainfall season over the GHA region. The GHA region comprises Burundi, Djibouti, Eritrea, Ethiopia, Kenya, Rwanda, Somalia, South Sudan, Sudan, Tanzania and Uganda. The forum reviewed the state of the global and regional climate systems and their implications on the March to May seasonal rainfall over the region. Among the principal factors taken into account were the observed and predicted atmosphere-ocean conditions in the Indian and Atlantic Oceans with implications of transporting moisture and rainfall distribution in the region as well as global scale forcing due to mechanisms like the neutral ENSO conditions in the tropical Pacific. The dominant climate forcing processes included the continued cooling and warming over the western Indian Ocean as well as southeastern Atlantic Ocean and eastern Indian Ocean respectively with implications on the March-May 2015 forecast period. Users from agriculture and food security, livestock, water resources, disaster risk management, Non-Governmental Organizations and development partners formulated the potential implications of the consensus climate outlook, and developed mitigation strategies for their respective countries and sectors. The media on the other hand formulated strategies for effective dissemination of the consensus climate outlook and its potential impacts.

## Methodology

The forum examined the prevailing and predicted SSTs over the Pacific Ocean as well as the Indian and Atlantic Oceans together with other global, regional and local climate factors that affect the rainfall evolution during the season. These factors were assessed using dynamical and statistical models as well as expert interpretation. The regional consensus climate outlook also included inputs from National Climate Scientists who participated in the pre-COF39 capacity building workshop that was hosted by ICPAC from 16<sup>th</sup> to 21<sup>st</sup> February 2015. Additional inputs were obtained from various climate Centres worldwide including the World Meteorological Organization's Global Producing Centres (WMO GPCs), International Research Centre for Climate and Society (IRI) and CPC/African Desk. The current capability of seasonal to inter-annual climate forecasting allows prediction departures from mean conditions on a large scale basis, bearing in mind scales of processes which contribute to regional and sub-regional climatic conditions. The experts established probability distributions to indicate the likelihood of above-, near-, or below-normal rainfall for each zone (Figure1). Above-normal rainfall is defined as within the wettest third of recorded rainfall amounts in each zone; near-normal is defined as the third of the recorded rainfall amounts centred around the climatological median; below-normal rainfall is defined as within the driest third of the rainfall amounts. Climatology refers to a situation where any of the three categories have equal chances of occurring. The Rainfall outlook for March to May 2015 for various zones within the GHA region is given in Figure 1.



**Figure1: Greater Horn of Africa Consensus Climate Outlook for the March to May 2015 rainfall season**

**ZoneI:** Increased likelihood of near normal to above normal rainfall indicated over much of Burundi, Rwanda, Uganda and South Sudan, southern parts of Sudan, extreme western Ethiopia and southwestern Kenya.

**ZoneII:** Increased likelihood of near normal to below normal rainfall over central parts of Sudan, central Eritrea, eastern Djibouti, much of Ethiopia, much of Somalia, most areas of Kenya, much of Tanzania, southwestern and northeastern Burundi, southeastern Rwanda, northeastern Uganda and southeastern parts of South Sudan.

**ZoneIII:** Increased likelihood of near normal to above normal rainfall Indicated over northern coast of Kenya extending to extreme southern coast of Somalia.

**ZoneIV:** Increased likelihood of near normal to above normal rainfall indicated over parts of northern Somalia.

**Zone V:** Usually dry during March– May season over northern Sudan, much of Eritrea, western Djibouti and extreme northeastern Ethiopia.

**Note:**

*The numbers for each zone indicate the probabilities of rainfall in each of the three categories, above-, near-,and below-normal. The top number indicates the probability of rainfall occurring in the above- normal category; the middle number is for near-normal and the bottom number for the below-normal category. For example in zone II, covering much of GHA there is 20% probability of rainfall occurring in the above-normal category; 45% probability of rainfall occurring in the near-normal category; and 35% probability of rainfall occurring in the below-normal category. The boundaries between zones should be considered as transition areas.*

**Contributors**

The Thirty Ninth Greater Horn of Africa Climate Outlook Forum (GHACOF 39) was organized jointly by the IGAD Climate Prediction and Applications Centre (ICPAC) and National Meteorological and Hydrological Services (NMHSs) of ICPAC member countries. The forum was supported by the World Bank Group with partial support by the World Meteorological Organization (WMO)and the Kenya Meteorological Service(KMS). Contributors to theGHACOF39consensus regional climate outlook included representatives of the National Meteorological Services from GHA countries (Insitutut Geographique du Burundi; Meteorologie Nationale de Djibouti; National Meteorological Agency of Ethiopia; Eritrea Meteorological Service; Kenya Meteorological Service; Rwanda Meteorological Agency; South Sudan Meteorological Service; Sudan Meteorological Authority; Somalia Meteorological Authority; Tanzania Meteorological Agency and Uganda National Meteorological Authority) and climate scientists as well as other experts from national, regional and international institutions and organizations: IGAD Climate Prediction and Applications Centre(ICPAC); The Met Office, UK; HELIX Climate Change Project, World Meteorological Organization (WMO) and WMO Global Producing Centres (GPCs); Korea Meteorological Administration (KMA)and the University of Nairobi, Kenya.

**ABOUT THISREPORT**

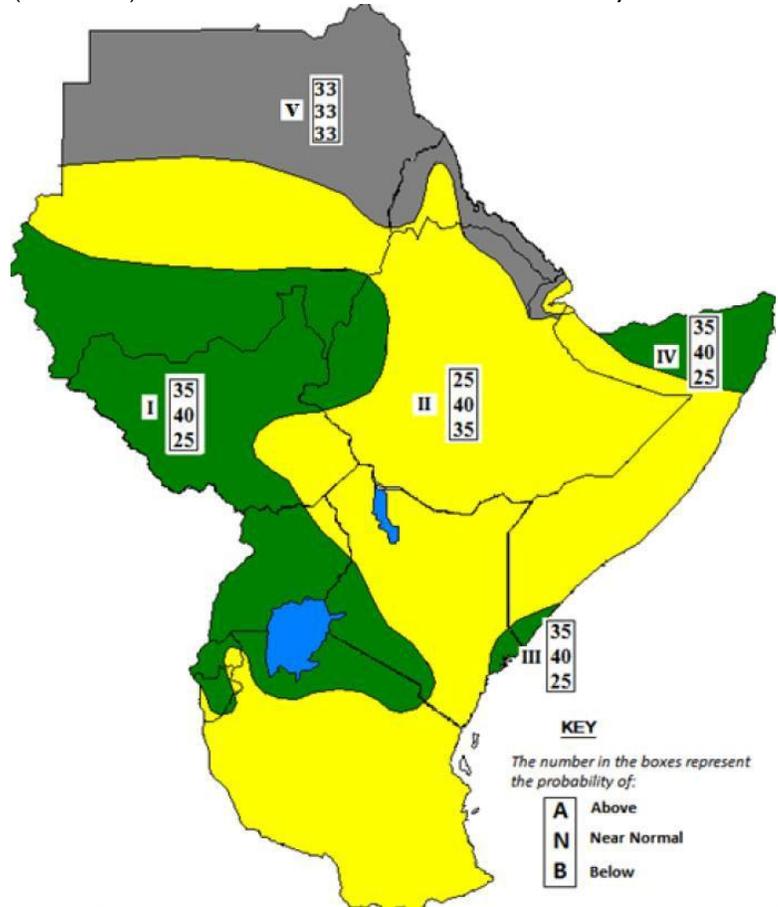
To project food security outcomes, FEWSNET uses scenario development. In this methodology, an analyst uses current evidence to develop assumptions about the future and compare their possible effects. The following report outlines assumptions at the regional level. Assumptions are also developed at the country level; these are likely to be more detailed. Together, the regional and national assumptions are the foundation for the integrated analysis reported in FEWSNET’s Food Security Outlooks and Outlook Updates. Learn more about our work [here](#).

FEWS NET’s Food Security Outlook reports for April to September 2015 are based on the following regional assumptions:

**SEASONALPERFORMANCE**

- The **February-to-May Belg rains in the northeastern highlands, central and eastern Oromia, and SNNPR in Ethiopia** are expected to be near average in terms of cumulative rainfall and to start late. More frequent and longer dryspells are expected during the season.
- In **Tanzania, the March-to-May Msimu rains are expected to be near average to below average in the unimodal southern, eastern, and central parts of country** and to end normally between May and June.
- The **March-to-May rains in Rwanda, Burundi, Uganda and northwestern Tanzania** are likely to be near average in terms of cumulative rainfall with a near normal timing of their start (Figure1).
- The **March-to-May rains in the eastern Horn of Africa** are likely to be near average to below average in terms of cumulative rainfall, especially over eastern Kenya and southern Somalia, and will also have a late start and erratic distribution (Figure1).

**Figure I.** 39<sup>th</sup> Greater Horn of Africa Climate Outlook Forum (GHACOF) consensus climate outlook for March to May 2015 rainfall



Source: [Inter-Governmental Authority on Development \(IGAD\) Climate Prediction and Applications Center \(ICPAC\)](#)

- In **Yemen, the March-to-November rains** will have near average cumulative rainfall in both unimodal and bimodal areas with a normally timed start. The peak of rainfall will be between June and September.
- The start of the **June-to-September rains over Sudan, South Sudan, and western Ethiopia** is likely to be normally timed with average to below average amounts of rain.
- The **June-to-September Karan/Karma rains over Djibouti, Afar and northern Somali Region in Ethiopia, and northwestern Somalia** are likely to have a normally timed start and have average to below average amounts of rain.

**EAST AFRICA REGION**  
[fews.east@fews.net](mailto:fews.east@fews.net)  
[www.fews.net/East](http://www.fews.net/East)

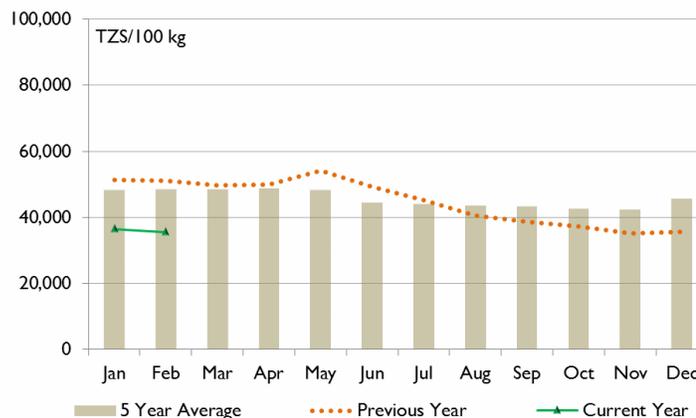
*FEWSNET is a USAID-funded activity. The content of this report does not necessarily reflect the view of the United States Agency for International Development or the United States Government*



## REGIONAL TRADE AND PRICE DYNAMICS

- Although the January-to-February *Vuli* harvests in the northeastern bimodal areas of Tanzania were below average, maize supplies remain in markets from the above normal July-to-September *Masika* harvests in these areas and the May-to-August harvests in the Southern Highlands. **Above normal availability and relatively lower prices of maize in Tanzania that are on average below recent five-year averages (Figure 2) are expected to continue to encourage above-average exports to southeastern Kenya, Rwanda, and Burundi between April and June.** Additional exports will follow the release of old stocks at the start of the *Msimu* harvest in May in the surplus-producing southern regions of Tanzania.

**Figure 2.** Wholesale white maize prices in Arusha, Tanzania, Tanzanian shilling (TZS) per 100kilogram (kg) sack, 2010 to 2014 five- year average, January 2014 to February 2015



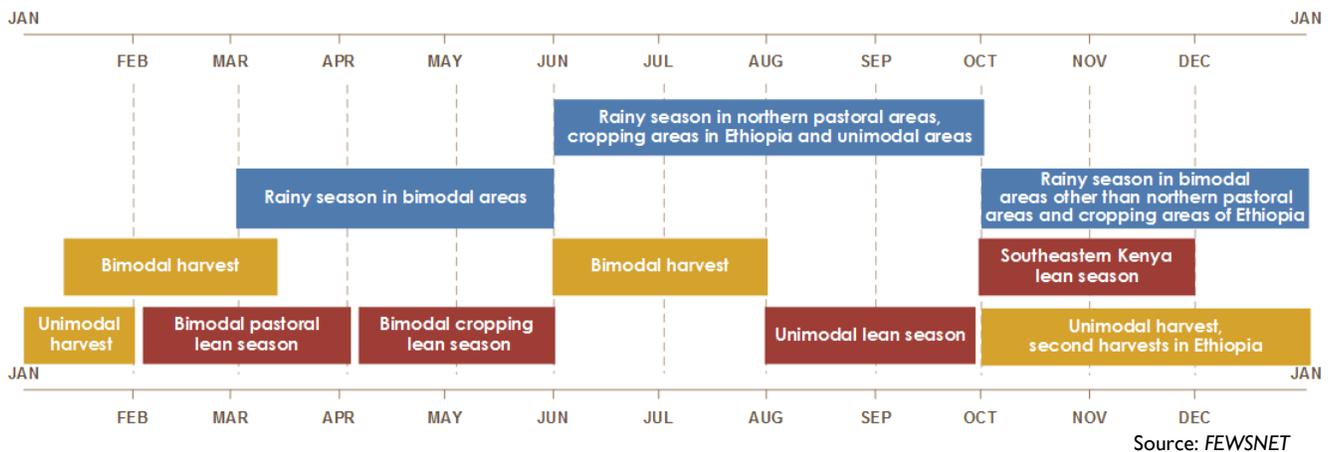
Source: [Tanzania's Ministry of Industry, Trade, and Marketing \(MITM\)](#)

- In Uganda, the above normal November-to-December maize harvest in conjunction with decreased volume of exports to South Sudan ever since the start of conflict in late 2013, have exerted downward pressure on prices, which are generally still below prices last year. **These low prices are expected to lead to above-average volume of exports to Kenya between April and June**, but exports are expected to face stiff competition with exports from Tanzania, preventing these exports from reaching markets east of Nairobi.
- Food exports from Uganda to South Sudan will remain less than during the pre-conflict period but higher than last year**, due to reduced incidences of clashes and easier transactions between cross-border traders. In addition, exports from Ethiopia and Sudan to South Sudan are expected to increase gradually from their low bases, especially to Jonglei and Upper Nile States. However, in areas of conflict, supply from imports and from surplus-producing areas of the country will continue to be constrained by high levels of tension and lawlessness, especially before the onset of the rains in May/June, due to the lack of transport facilities, high levels of formal and informal taxes, tariffs, and fees, and other factors that increase marketing costs. In most of the country, limited availability of fuel and the depreciation of the currency are expected to increase the costs of most commodities, including staple foods.
- Staple food production in Sudan was above average and well above the below-average 2013/14 harvest. The prices of sorghum and millet will likely beat or drop below last year's prices between April and June, but they will likely remain well above their five-year averages due to high inflation and currency depreciation. **As a result, exports from surplus-producing areas in Blue Nile, Sinar, White Nile, and Gadarif States in Sudan to the northern states of South Sudan, including Upper Nile, are expected to be relatively higher than last year.**
- Maize exports from Ethiopia to northern Kenya are expected to continue at seasonally normal levels between April and June** due to above-average supply from the October-to-January *Meher* harvest. However, supplies to Mandera County in northeastern Kenya may be limited by insecurity. **Sorghum exports from Ethiopia to Djibouti are also expected to be near average through June.**
- The January-to-February *Deyr* harvest of maize and sorghum in southern Somalia was estimated at 105,300 metric tons (MT), which is 29 percent higher than in 2014 and five percent higher than the five-year average. **Sorghum and maize imports into southern Somalia from Ethiopia between April and June will likely be limited** by better local availability from the slightly above-average harvest. However, **exports from Ethiopia to central and northern Somalia are expected at normal volumes.**

**CROSS-BORDER CONFLICT AND DISPLACEMENT**

- According to the [United Nations High Commissioner for Refugees \(UNHCR\)](#), 514,974 people fled South Sudan between December 15, 2013 and March 31, 2015. Due to a combination of on going fighting, expected high phases of acute food insecurity in Greater Upper Nile, and the growth of political instability and inter-communal conflict elsewhere in South Sudan, **cross-border out migration from South Sudan to neighboring countries, including of refugees, over the course of 2015 is likely to reach levels similar to or slightly below 2014 with a likely peak between April and June** during the lean season but before the start of the rains.

**SEASONAL CALENDAR IN A TYPICAL YEAR**



## Annex 6: Typical weather forecast from the internet

### Masindi District, Uganda

Features:	first-order administrative division
Latitude:	1.833333
Longitude:	31.833333
Elevation:	1078 meters

#### Forecasts

Note: Forecasts, which are derived from satellite-based projections coupled with ground observations, can have low reliabilities in certain areas of the world (e.g. especially in Africa and many parts of Asia, the Middle East, Europe and the Americas). Forecasts beyond a few days should be viewed with caution, as the reliabilities decline the farther the forecasts project into the future (e.g. forecasts beyond +1 or +2 days). This is especially true in areas with volatile weather patterns (e.g. the tropics).

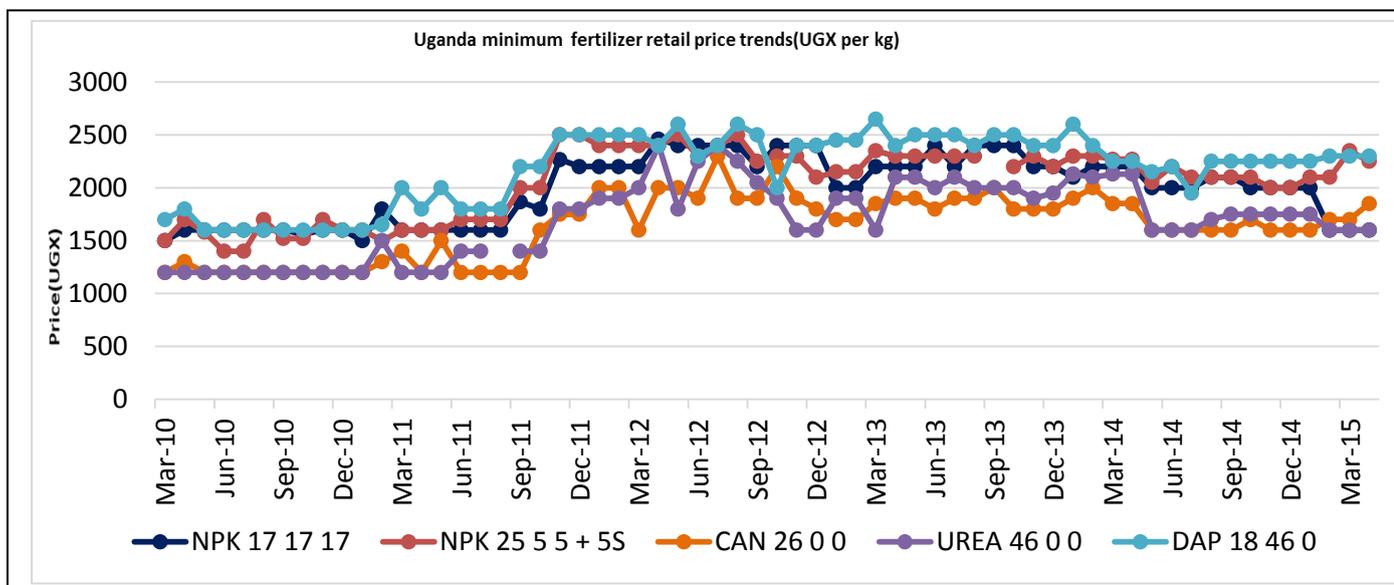
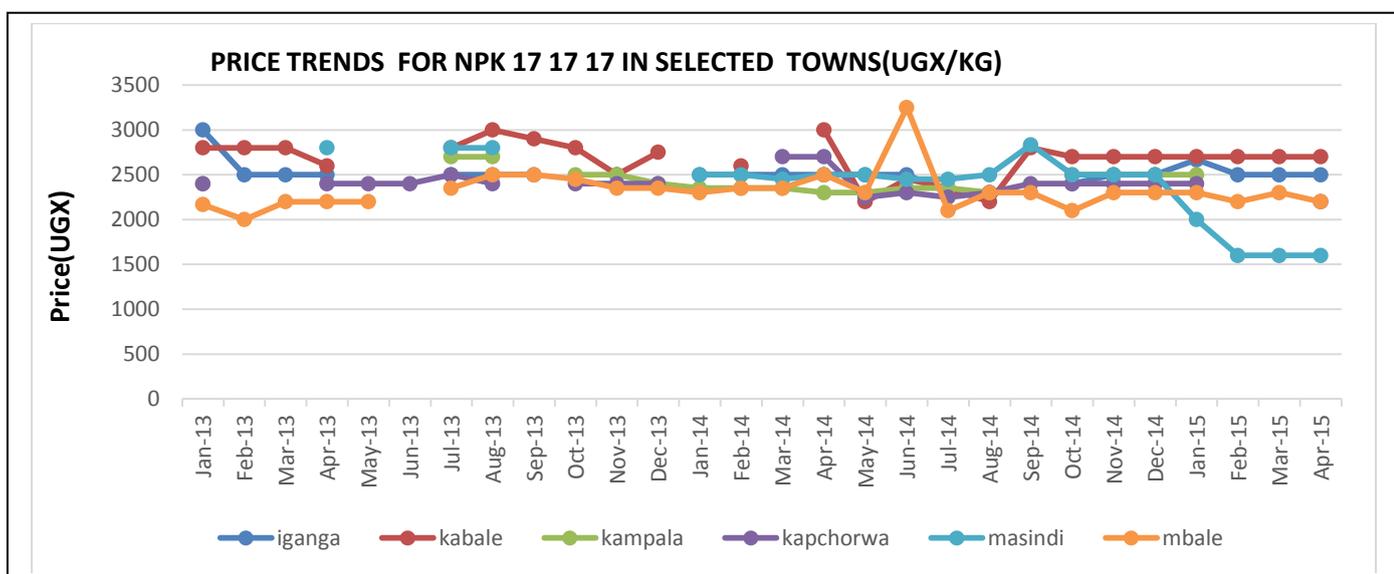
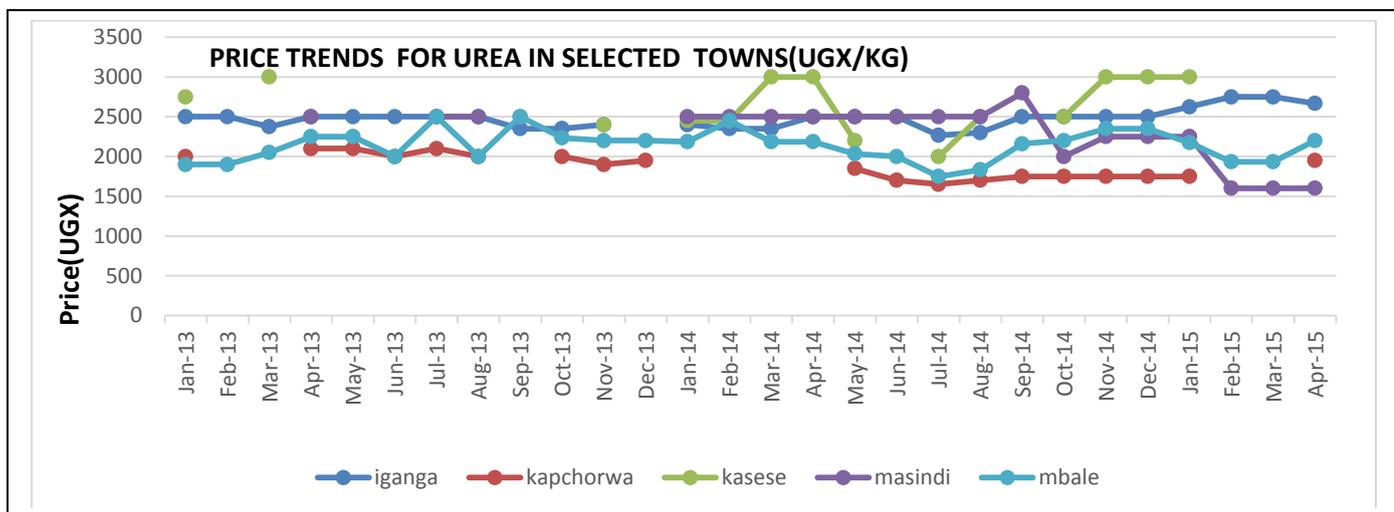
Currently	6:00 PM-9:00 PM	Thursday (+1 day) June 25	Friday (+2 days) June 26	Saturday (+3 days) June 27	Sunday (+4 days) June 28	Monday (+5 days) June 29	Tuesday (+6 days) June 30
 <p>Mostly Cloudy &amp; Thunder Storms Temperature: 21 C Wind: 0.6 km/hNorthwest Visibility: 8.0 km Humidity: 94% Pressure: 1021 hPa Low: 18 C High: 30 C Sunrise: 06:48 Sunset: 19:02</p>	 <p>Partly Cloudy &amp; No Rain Temperature: 23 C Rain: 0.0 mm Wind: 0.5 km/hNorthwest Humidity: 76%</p>	 <p>Partly Cloudy &amp; No Rain Low: 18 C High: 30 C Rain: 1.7 mm (35%chance) Wind: 0.6 km/hSouthwest Sunrise: 06:49 Sunset: 19:02</p>	 <p>Partly Cloudy &amp; Thunder Storms Low: 19 C High: 27 C Rain: 5.3 mm (80%chance) Wind: 0.5 km/hNorthwest Sunrise: 06:49 Sunset: 19:02</p>	 <p>Partly Cloudy &amp; Showers Low: 19 C High: 28 C Rain: 3.1 mm (78%chance) Wind: 0.5 km/hNorthwest Sunrise: 06:49 Sunset: 19:02</p>	 <p>Partly Cloudy &amp; Showers Low: 19 C High: 28 C Rain: 7.6 mm (71%chance) Wind: 0.4 km/hNorth Sunrise: 06:49 Sunset: 19:02</p>	 <p>Partly Cloudy &amp; No Rain Low: 18 C High: 28 C Rain: 0.2 mm (42%chance) Wind: 0.4 km/hNorth Sunrise: 06:49 Sunset: 19:03</p>	 <p>Mostly Cloudy &amp; Slight Rain Low: 18 C High: 27 C Rain: 0.7 mm (64%chance) Wind: 0.4 km/hNorthwest Sunrise: 06:50 Sunset: 19:03</p>
Wednesday (+7 days) July 1	Thursday (+8 days) July 2	Friday (+9 days) July 3	Saturday (+10 days) July 4	Sunday (+11 days) July 5	Monday (+12 days) July 6	Tuesday (+13 days) July 7	
 <p>Mostly Cloudy &amp; Showers Low: 18 C High: 27 C Rain: 2.5 mm (87%chance) Wind: 0.5 km/hSouth Sunrise: 06:50 Sunset: 19:03</p>	 <p>Mostly Cloudy &amp; Showers Low: 18 C High: 26 C Rain: 3.4 mm (95%chance) Wind: 0.4 km/h North Sunrise: 06:50 Sunset: 19:03</p>	 <p>Mostly Cloudy &amp; Slight Rain Low: 18 C High: 26 C Rain: 1.2 mm (89%chance) Wind: 0.4 km/h North Sunrise: 06:50 Sunset: 19:03</p>	 <p>Mostly Cloudy &amp; Slight Rain Low: 18 C High: 27 C Rain: 1.5 mm (69%chance) Wind: 0.4 km/hSouthwest Sunrise: 06:50 Sunset: 19:03</p>	 <p>Partly Cloudy &amp; Slight Rain Low: 18 C High: 27 C Rain: 0.6 mm (61%chance) Wind: 0.4 km/h South Sunrise: 06:51 Sunset: 19:04</p>	 <p>Partly Cloudy &amp; No Rain Low: 18 C High: 28 C Rain: 0.2 mm (47%chance) Wind: 0.4 km/h South Sunrise: 06:51 Sunset: 19:04</p>	 <p>Partly Cloudy &amp; No Rain Low: 19 C High: 28 C Rain: 0.1 mm (44%chance) Wind: 0.4 km/h South Sunrise: 06:51 Sunset: 19:04</p>	

Source: <http://www.totoagriculture.org/weather.aspx?>





### Annex 8: Fertilizer price trends



# WFP UGANDA

## Monthly Market Bulletin—July 2015



The Uganda Market Price Update is produced by the Analysis, Monitoring and Evaluation (AME) Unit of the World Food Programme Uganda on a monthly basis. Price data collected by staff at WFP Sub offices in Moroto, Kotido, Kaabong and Nakapiripirit is analyzed along with price data from Gulu, Kampala, Mbarara, Soroti, Tororo, Lira and Mbale. The update is divided into four sections; Karamoja markets, Price trends over one year, Other Markets and table on Price changes.

### HIGHLIGHTS

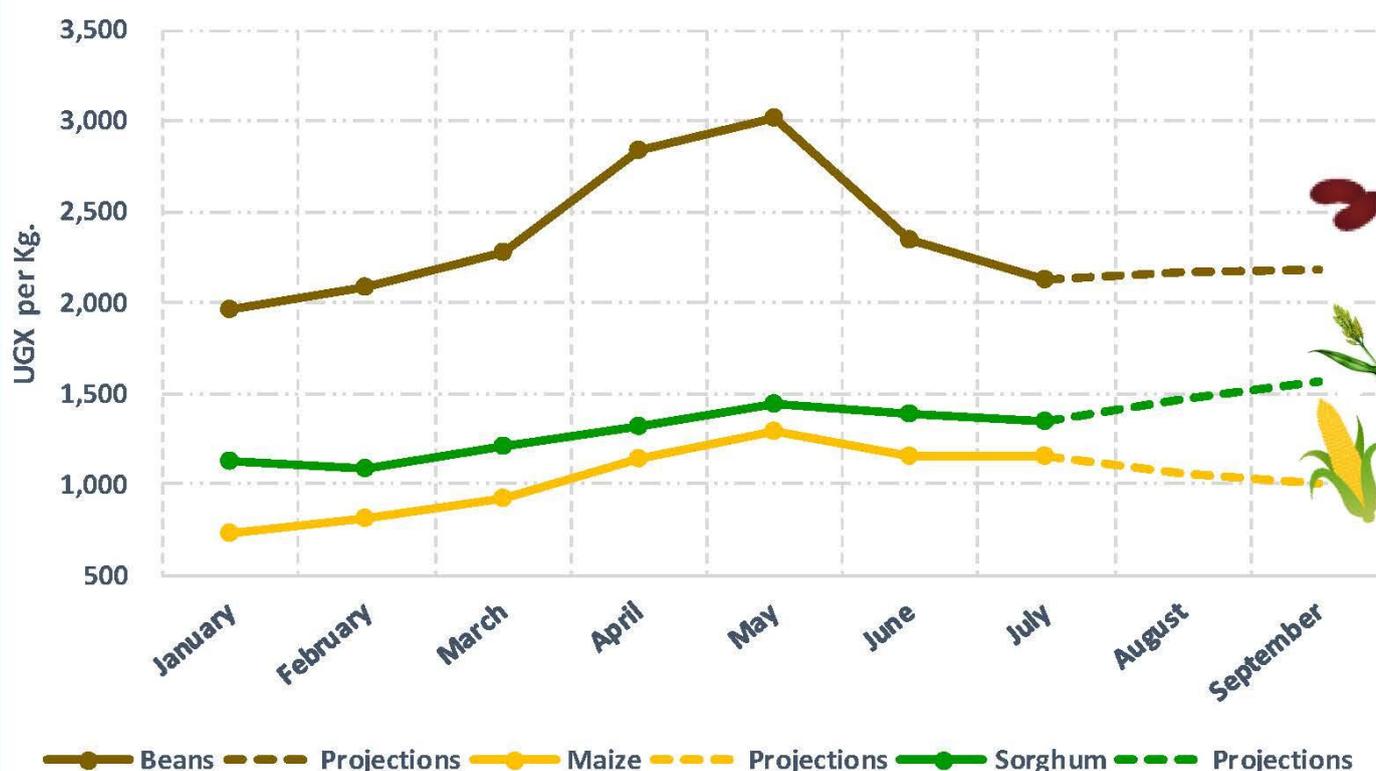
#### KARAMOJA

- Average nominal retail prices for maize grain and sorghum remained relatively stable during the month of July compared to June 2015.
- Retail prices for beans decreased by 27% during the month.
- An increase in goat prices in July led to an improvement of 9% in the terms of trade against maize grain compared to June.

#### REST OF THE COUNTRY

- Nominal retail prices for maize grain remained stable in July but were higher 10% than the same period in 2014.
- Price for beans in markets is expected to remain stable in August and September and maize grain to decrease as a result of the new harvest.

### Grain Prices Average in Uganda & Projections 2015



**Grain prices have remained stable in July with some reduction in beans prices. This trend is expected to continue ahead up to the next harvest**

For further information please contact the AME unit WFP Uganda

vam

food security analysis

**Siddharth KRISHNASWAMY**  
Analysis Monitoring & Evaluation, Head.  
[siddharth.krishnaswamy@wfp.org](mailto:siddharth.krishnaswamy@wfp.org)

**Hamidu TUSIIME**  
Food Security & Market Analyst  
[hamidu.tusiime@wfp.org](mailto:hamidu.tusiime@wfp.org)

## Annex 10: RATIN Regional Bulletin



### EAGC-RATIN MARKET ANALYSIS REPORT FOR THE WEEKENDING JUNE 19TH, 2015

This report analyses activities across the East Africa (EAC) region's selected main grain markets from **8TH -19TH June, 2015**. The monitoring is carried out by Eastern Africa Grain Council (EAGC) monitors based in all the 5 EAC countries on a daily basis. Monitors collect and transmit commodity prices and factors that trigger their price changes.

This is a service of EAGC primarily to its members and other interested stakeholders. The full market data of daily wholesale and Retail market prices is available in [www.ratin.net](http://www.ratin.net).

#### GRAIN NEWS HIGHLIGHTS FROM THE CONTINENT

- The East African Community will rollout improved Customs Union Rules of Origin in the next fiscal year, promising a better future for cross-border trade.
- Farmers in Kenya will be able to select the right kind of seeds for specific local conditions after the government launched an online 'seedbank', to allow farmers and local seed sellers to access a list of suitable seed varieties for specific weather conditions and soils for their areas.
- Commercial farmers in Tanzania have been granted huge tax breaks in a bid to spur agricultural development.
- Farmers across Rwanda are counting losses after purchasing counterfeit fertiliser, which damaged their crops
- Kenyan millers have raised alarm over the growing competition for maize between humans and livestock and now want a duty waiver on the yellow variety used in the manufacture of animal feeds.
- In a recent National Budget Consultative meeting, farmers decried the indiscriminate levying of taxes on agricultural products, urging government to instead increase subsidies as farmers suffer from increased production costs owing to the taxed agro-inputs. See [www.ratin.net](http://www.ratin.net) for more information

#### REGIONAL MARKET ANALYSIS

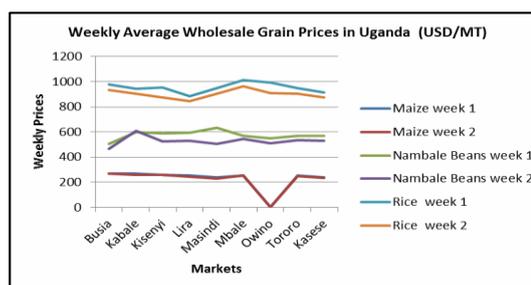
##### UGANDA

The week was characterized by continued decreases in the prices of commodities across the EAGC monitored markets. The price of beans country wide continued to decrease while maize prices remained stable in the monitored markets while the price of rice, millet and sorghum remained stable due to the off season and scarcity of the commodities.

**Table1: Summary of weekly grain prices in Uganda**

Weekly Average Wholesale Grain Prices in Uganda 0n {(\$/MT)}

	Maize		Nambale Beans		Rice	
	week1	week2	week1	week2	week1	week2
Busia	270	266	507	464	980	934
Kabale	269	256	600	608	942	905
Kisenyi	257	260	588	524	954	874
Lira	252	244	594	530	885	843
Masindi	237	229	632	506	948	904
Mbale	253	253	569	542	1011	964
Owino	0	0	550	512	992	910
Tororo	252	248	569	536	948	904
Kasese	237	233	569	527	916	874



**Table2: Summary of weekly grain prices in Uganda for Sorghum & Millet**

	Sorghum		Millet	
	week1	week2	week1	week2
Busia	297	283	416	400
Kabale	506	542	446	446
Kisenyi	253	266	518	512
Lira	215	212	395	377
Masindi	316	301	506	482
Tororo	572	572	458	437
Kasese	600	572	664	659

**Maize:** Reports from the EAGC RATIN monitored markets continue to remain stable in some markets while other reported price decreases. Reports indicated that 'supply into the markets was decreases despite high demand.

**Rice and Beans:** According to reports from the EAGC RATIN monitored markets, the prices of beans continued to decrease this week as new harvested beans entered the markets across the country. Similarly, the price of rice across the monitored markets reported large decreases with Lira

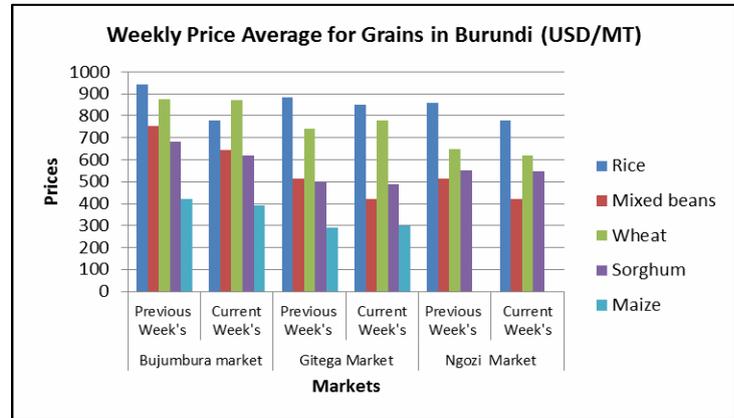
reporting the lowest price of USD 843/MT. This could be attributed to the scarcity of rice across the country.

**Sorghum & Millet:** Reports from the EAGC RATIN monitored markets realized price decrease in millet which could be attributed to increase of the commodity in the markets. Sorghum also recorded a price decreases across the monitored as shown in table2 above except in Kabale and Kisenyi markets to trade at USD 542/MT and USD 266/MT respectively.

## BURUNDI

The average prices of grains across all the EAGCRATIN monitored markets recorded a decrease due to low demand of commodities and new harvest, particularly for beans.

**Maize & Beans:** Reports from the EAGC RATIN monitored markets indicated a price decrease of maize in Bujumbura market to trade at USD 390/MT from previous price of USD422/MT. This could be attributed to increased supply in the market. The price of beans also reported price decrease across all the markets with Bujumbura reporting the highest price increase of USD643/MT. The price decrease could be as a result of an increased supply of beans in the market due to the current harvest.



## RWANDA

**Table3: Summary Average Grain prices in Rwanda**

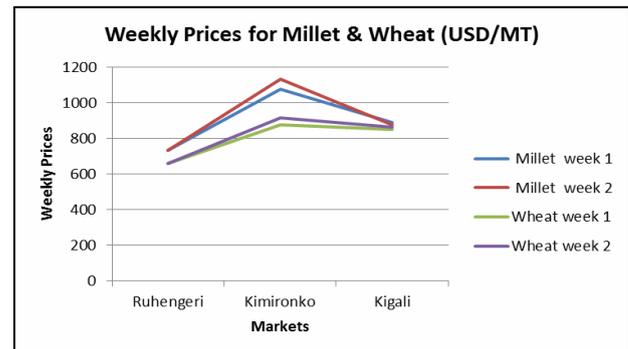
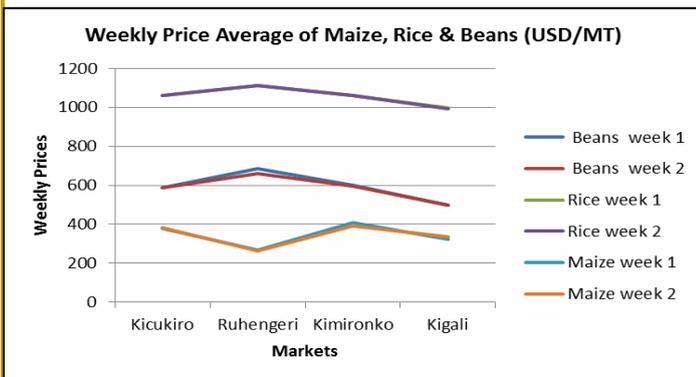
Market	Beans		Rice		Maize	
	week 1	week 2	week 1	week 2	week 1	week 2
Kicukiro	587	587	1062	1061	380	384
Ruhengeri	687	658	1112	1111	269	263
Kimironko	598	597	1060	1062	408	392
Kigali	497	497	995	994	322	336

**Beans and Maize:** Reports from monitored markets indicated a price decrease of beans in Ruhengeri market of USD 29/MT to trade at USD 658/MT. This could be attributed to increased supply in the markets. Maize reported price an increase in monitored market of Kicukiro and Kigali to trade at USD 384/MT and USD336/MT. however, Ruhengeri and Kimironko reported price decreases which could be attributed increased supply of beans in the market.

**Table4: Summary of sorghum prices in Rwanda.**

Market	Millet		Wheat	
	week1	week2	week1	week2
Ruhengeri	731	731	658	658
Kimironko	1075	1133	878	914
Kigali	889	877	848	863

**Wheat and Millet:** As shown in the table 5 above, the price of millet in the monitored market reported an increase across the Kimironko markets to trade at USD 1133/MT. This could be attributed to decreased supply for the commodity in the markets. Reports from EAGCRATIN monitored markets indicated price increase for wheat in Kimironko and Kigali markets to trade at USD 914/MT and USD 863/MT respectively.

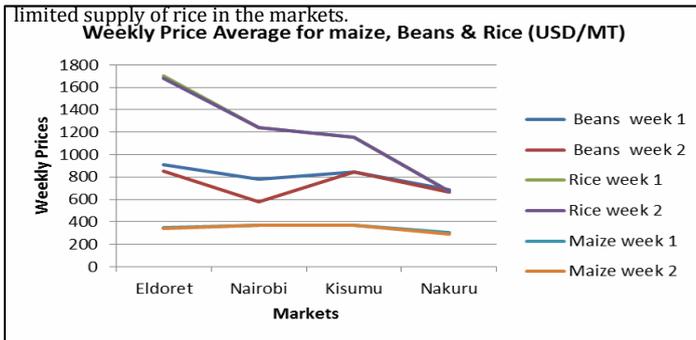


## KENYA

**Table5: Summary of grain prices in Kenya**

Market	Beans		Rice		Maize	
	week1	week2	week1	week2	week1	week2
Eldoret	912	850	1701	1684	347	344
Nairobi	781	578	1242	1242	368	368
Kisumu	842	842	1157	1157	368	368
Nakuru	684	663	673	673	303	290

**Rice and Beans:** Reports from the EAGC RATIN monitored markets in Kenya indicated a price decrease of beans across all markets with Nairobi reporting the highest price decrease to trade at USD578/MT as shown in table 6 above. This could be attributed to an influx of beans in the market. According to reports from the EAGC RATIN monitored markets, the price of rice reported decreases in Eldoret market which could be attributed to limited supply of rice in the markets.



**Maize:** According to reports from the EAGCRATIN monitored markets, the price of maize reported price decreases in Eldoret and Nakuru markets to trade at USD 344/MT and USD 290/MT respectively. This could be attributed to decreased demand of maize in the markets.

**Table6: Summary of Sorghum & Millet prices in Kenya**

Market	Millet		Sorghum		Wheat	
	week1	week2	week1	week2	week1	week 2
Eldoret	859	842	477	478	487	486
Nairobi	705	701	421	421	526	526
Nakuru	631	565	368	368	421	421
Kisumu	789	789	315	315	0	0

**Millet:** As shown in table 7 above, the price of millet in the reported markets continued to register a price decrease which could be attributed to increased supply in the market. Eldoret reported the highest price decrease of USD 19/MT to trade at USD 842/MT.

## CONCLUSION

Reports from the EAGC RATIN monitored markets across the region indicated price decreases in majority of the markets across the region as new supply of various commodities enters the markets. We can expect prices to remain stable within the coming week as the commodities continue to decrease across the region.

## CONTACTS

For comments or feedback, contact: Janet Ngombalu  
 Eastern Africa Grain Council MIS Team  
 Email: [grains@eagc.org](mailto:grains@eagc.org)  
[www.ratin.net](http://www.ratin.net), [www.eagc.org](http://www.eagc.org)

### Annex 11: Yield Data for Selected Crops (ton/ha)

Year	PLANTAINS	CEREALS					ROOT CROPS			PULSES				OTHERS			
	Bananas	Finger millet	Mai ze	Sorghum	Rice	Wheat	Sweet Potatoes	Irish Potatoes	Cassava	Beans	Field Peas	Cow pea	Pigeon Peas	Groundnuts	Soy Bean	Sim sim	Sunflower
1980	4.9	1.6	1.1	1.8	1.5	2.1	5.2	6.9	6.9	0.6	0.4	0.4	0.5	0.7	0.8	0.3	
1981	5.0	1.6	1.3	1.9	1.3	2.0	3.7	7.0	9.8	0.8	0.4	0.4	0.5	0.8	1.0	0.4	
1982	5.5	1.2	1.4	1.4	1.3	2.0	4.0	7.0	9.4	0.7	0.5	0.4	0.5	0.8	1.0	0.4	
1983	5.4	1.6	1.4	2.0	1.3	2.4	4.0	7.0	8.7	0.8	0.5	0.8	0.5	0.8	1.2	0.4	
1984	5.2	1.0	1.0	1.2	1.2	1.8	4.2	7.8	7.4	0.8	0.8	0.8	0.3	0.7	0.7	0.5	
1985	5.3	1.6	1.2	1.6	1.4	2.0	4.6	6.7	9.0	0.8	0.5	0.8	0.5	0.7	0.8	0.4	
1986	5.4	1.2	1.0	1.4	1.1	1.6	4.6	5.2	8.0	0.7	0.6	0.8	0.4	0.7	0.8	0.4	
1987	5.5	1.6	1.2	1.6	1.3	2.0	4.2	7.1	9.0	0.8	0.5	0.9	0.5	0.8	0.8	0.4	
1988	5.6	1.6	1.3	1.5	1.4	2.2	4.1	7.0	9.1	0.8	0.5	0.8	0.7	0.7	0.8	0.4	
1989	5.6	1.6	1.5	1.5	1.4	2.2	4.1	6.9	9.1	0.8	0.5	0.8	0.7	0.8	0.9	0.5	
1990	5.6	1.5	1.5	1.5	1.4	2.0	4.1	7.0	8.3	0.8	0.5	0.8	0.8	0.8	1.0	0.5	
1991	5.7	1.5	1.4	1.5	1.4	2.0	4.2	7.3	8.3	0.8	0.6	0.8	0.8	0.8	1.1	0.5	
1992	5.4	1.6	1.5	1.5	1.4	1.8	4.3	7.2	8.0	0.8	0.6	0.8	0.8	0.8	0.9	0.5	0.8
1993	5.5	1.5	1.6	1.5	1.4	1.8	4.3	8.0	8.5	0.8	0.6	0.8	0.8	0.8	1.0	0.5	0.8
1994	5.7	1.5	1.5	1.5	1.4	1.8	4.5	8.4	6.5	0.7	0.6	0.8	0.8	0.8	1.1	0.4	0.8
1995	6.0	1.6	1.6	1.5	1.4	1.8	4.5	8.0	6.7	0.7	0.6	0.8	0.8	0.8	1.1	0.4	0.8
1996	6.0	1.1	1.3	1.1	1.4	1.8	3.0	6.0	6.7	0.4	0.6	0.8	0.8	0.6	1.1	0.4	0.9
1997	6.0	1.3	1.2	1.1	1.3	1.8	3.6	6.4	6.7	0.4	0.7	0.8	0.8	0.5	1.1	0.4	0.9
1998	6.0	1.6	1.5	1.5	1.4	1.8	4.0	6.4	9.0	0.6	0.6	0.8	0.8	0.7	1.2	0.4	0.9
1999	5.7	1.6	1.7	1.5	1.4	1.8	4.4	7.0	13.0	0.6	0.7	1.0	1.0	0.7	1.2	0.5	0.9
2000	5.9	1.4	1.7	1.3	1.5	1.7	4.3	7.0	12.4	0.6	0.6	0.9	1.0	0.7	1.2	0.5	1.0
2001	6.0	1.5	1.8	1.5	1.5	1.8	4.4	7.0	13.5	0.7	0.6	0.9	1.0	0.7	1.1	0.5	1.0
2002	6.0	1.5	1.8	1.5	1.5	1.8	4.4	7.0	13.5	0.7	0.6	0.9	1.0	0.7	1.1	0.5	1.0
2003	5.8	1.6	1.8	1.5	1.5	1.7	4.4	7.0	13.5	0.7	0.6	0.9	1.0	0.7	1.1	0.5	1.1
2004	5.8	1.6	1.4	1.4	1.3	1.7	4.4	6.9	13.5	0.6	0.6	1.0	1.0	0.6	1.1	0.5	1.1
2005	5.6	1.6	1.5	1.6	1.5	1.7	4.4	6.8	13.0	0.6	0.6	1.0	1.0	0.7	1.1	0.6	1.1
2006	5.4	1.6	1.5	1.4	1.4	1.8	4.5	7.0	13.0	0.5	0.6	1.0	1.0	0.7	1.2	0.6	1.1
2007	5.5	1.7	1.5	1.5	1.4	1.7	4.5	7.0	12.9	0.5	0.6	1.0	1.0	0.7	1.2	0.6	1.2
2008	5.6	1.7	1.5	1.5	1.3	1.7	4.5	6.9	12.7	0.5	0.6	1.1	1.0	0.7	1.2	0.6	1.2
2009	4.8	1.3	2.5	1.1	2.4	1.7	4.2	4.6	3.8	1.5	0.4	0.4	0.4	0.7	0.6	0.6	1.2
2010	4.8	1.6	2.3	1.1	2.5	1.7	4.5	4.6	3.8	1.5	0.6	0.5	0.4	0.7	0.6	0.6	1.2
2011	4.8	1.5	2.4	1.2	2.6	1.8	4.0	4.9	3.3	1.4	0.6	0.5	0.4	0.8	0.7	0.7	1.2
2012	4.6	1.4	2.5	0.9	2.3	1.4	4.1	4.7	3.3	1.3	0.4	0.4	0.4	0.7	0.5	0.6	1.0
2013	4.5	1.3	2.5	0.8	2.3	1.4	4.0	4.5	3.5	1.4	0.6	0.5	0.4	0.7	0.5	0.6	1.0

Source: Compiled from several UBOS and MAAIF Statistical Abstracts, Cropsat

PEST MANAGEMENT DECISION GUIDE: GREEN LIST

## Covered smut of sorghum

*Sporisorium sorghi*



Sorghum smut (Courtesy EcoPort (<http://www.ecoport.org>): Jürgen Kranz)



Sorghum smut (Courtesy EcoPort (<http://www.ecoport.org>): Jürgen Kranz)

Prevention	Monitoring	Direct Control
<ul style="list-style-type: none"> <li>◆ Use certified disease-free seeds</li> <li>◆ <b>Use resistant cultivars</b></li> </ul> <p>As the disease is seedborne, avoid harvesting diseased grain and contaminating grain used for seed with spores</p>	<p>Seedling infection occurs between seed germination and seedling emergence, but the disease is apparent only after heading</p> <p>Severity of infection is influenced by soil temperature and soil moisture. Severe smut infection generally occurs when soil temperature ranges from 18-23 °C and soil moisture is 15-20% during the infection period</p> <ul style="list-style-type: none"> <li>◆ Monitor after heading for symptoms:</li> </ul> <p>Individual grains of sorghum become misshapen as they develop and are filled with dark smut spores on maturity. The smut sori (cone-shaped gall) is inside the seed coat</p> <p>The panicle may be reduced to a few twisted, distorted branches covered with large, superficial smut sori. In some cases, the panicle branches may be completely destroyed, leaving only the distorted central rachis covered with sori</p> <p>Infected plants are generally the same height and size as healthy plants</p>	<p>Remove the smutted heads and bury in soil or burn</p>

Pesticides may be available to control this pest. Please check with the Ministry of Agriculture in your country to find out which pesticides are registered in your country and the local restrictions for their use.

## Head smut of maize

*Sphacelotheca reiliana*

	Prevention	Monitoring	Direct Control
 <p>Partial infection of tassel showing anomalous leafy structures (William M. Brown Jr., Bugwood.org)</p>  <p>Late stage of infection on ear caused by <i>S. reiliana</i> (Agriculture and Agri-Food Canada Archive, Agriculture and Agri-Food Canada, Bugwood.org)</p>  <p>Smutted ears on a dwarfed plant (Agriculture and Agri-Food Canada Archive, Agriculture and Agri-Food Canada, Bugwood.org)</p>	<ul style="list-style-type: none"> <li>◆ Use healthy seeds</li> <li>◆ Use resistant varieties</li> </ul> <p>The fungus survives in soil for several years and infects plants during seedling stage. Use cultural practices that promote rapid seedling germination and emergence:</p> <ul style="list-style-type: none"> <li>◆ Frequent irrigation for 3 weeks after planting reduces the incidence of the disease</li> <li>◆ Balanced soil fertility; the disease is more severe under nitrogen deficiency</li> <li>◆ Practise deep ploughing</li> <li>◆ Practise crop rotation</li> </ul>	<p>Symptoms of the disease are apparent only from tassel and silking stages. Monitor for:</p> <ul style="list-style-type: none"> <li>◆ Anomalous leafy structures on tassels</li> </ul> <p>Ears maybe smutted or aborted. Galls of the smutted ears are covered initially by creamy-white membranes. Galls replace kernels, which initially maintain their size but eventually become dark and deformed</p> <p>Both diseased areas of tassels and ears of infected plants rapidly disintegrate into a mass of powdery black spores</p> <ul style="list-style-type: none"> <li>◆ Whole plant may be severely dwarfed</li> <li>◆ Dry, cool weather and soil moisture at 15-25% are optimal conditions for seedling infection. Later in the season, dry and warm conditions (21-30°C) favours the disease</li> </ul>	<p>Promptly remove and destroy (but don't bury) smutted tassels, ears, and infected plants before the fungus spreads, to reduce the build-up of the disease in the soil</p>

Pesticides may be available to control this pest. Please check with the Ministry of Agriculture in your country to find out which pesticides are registered in your country and the local restrictions for their use.

## Annex 13: Livestock health information reports

Detailed country disease incidence of Foot and Mouth Disease (Jan 2014 to Jun 2015)

Uganda

Location	2014												2015					
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Administrative divisions																		
Bugiri						<u>1</u>							...					...
Kotido	<u>1</u>												...					...
Lira						<u>1</u>							...					...
Lyantonde	<u>1</u>												...					...
Totals	2					2												

Source: <http://www.oie.int/>

### Disease outbreak summary, Uganda

#### Foot and mouth disease, Kotido, Jan 2014

<b>New outbreaks</b>	1
<b>Total outbreaks</b>	1
<b>Serotype(s)</b>	

#### Affected species (Wild)

Species	Susceptible	Cases	Deaths	Destroyed	Slaughtered
No records found					

#### Affected species (Domestic Species)

Species	Susceptible	Cases	Deaths	Destroyed	Slaughtered
Cattle	10000	25	0	0	0

Source: <http://www.oie.int/>

**SIX-MONTHLY REPORT ON THE NOTIFICATION OF THE PRESENCE OF OIE-LISTED DISEASES**

OIE Reference: 143627	Report period: <b>Jan-Jun 2014</b>	Country: Uganda
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**Report Summary**

<b>Animal type</b>	Terrestrial	<b>Date of report</b>	29/12/2014
<b>Submitted</b>	No	<b>Report Period:</b>	Jan-Jun 2014
<b>Name of sender of the report</b>	Nicholas Kauta	<b>Address</b>	P.O. Box 513 Entebbe Entebbe
<b>Position</b>	Commissioner	<b>Telephone</b>	(256-414) 320 627
<b>Email</b>	nicholaskauta@yahoo.co.uk	<b>Fax</b>	(256- 414) 321 255
<b>Entered by</b>	Nicholas Kauta		

**1. Summary on OIE-listed diseases/infections present in Uganda**

OIE-Listed disease	occurrence	Serotype(s)	New outbreaks	Total outbreaks	Species	Control Measures	Routine Vaccinated	Measuring units	Susceptible	Cases	Deaths	Destroyed	Slaughtered	Ring vaccinated
Foot and mouth disease (Domestic)	+	No	4	4	***	* Qf M GSu Qi V	...	Animals	...	...	...	...	...	...
					bov		...	Animals	22040	156	0	0	3	0
					buf		...	Animals	...	...	...	...	...	...
					cap		...	Animals	...	...	...	...	...	...
					cml		...	Animals	...	...	...	...	...	...
					o/c		...	Animals	...	...	...	...	...	...
					ovi		...	Animals	...	...	...	...	...	...
					sui		...	Animals	...	...	...	...	...	...
Bluetongue (Domestic)	+?		...	...	o/c	M Te GSu TSu		Animals	...	...	...	...	...	...
					ovi	M Te GSu TSu		Animals	...	...	...	...	...	...
					bov	M Te GSu TSu		Animals	...	...	...	...	...	...
					cap	M Te GSu TSu		Animals	...	...	...	...	...	...
Rabies (Domestic)	+	No	4	4	can	* Qf GSu V	...	Animals	...	5	...	5	0	0
					fel	* Qf GSu V	...	Animals	...	...	...	...	...	...
					bov	* Qf GSu		Animals	...	...	...	...	...	...
					cap	* Qf GSu		Animals	...	...	...	...	...	...
					o/c	* Qf		Animals	...	...	...	...	...	...
					ovi	* Qf GSu		Animals	...	...	...	...	...	...
					sui	* Qf GSu		Animals	...	...	...	...	...	...
Rabies (Wild)	+()	...	...	...				Animals	...	...	...	...	...	...
Brucellosis (Brucella abortus) (Domestic and Wild)	+		...	...	bov	* M Te GSu TSu		Animals	...	...	...	...	...	...
Brucellosis (Brucella melitensis) (Domestic and Wild)	+		...	...	o/c	* M Te GSu TSu		Animals	...	...	...	...	...	...
Contagious bov. pleuropneumonia (Domestic)	+	No	4	4	bov	* Qf M GSu TSu Qi V T	...	Animals	1049	50	9	5	3	7000
Lumpy skin disease (Domestic and Wild)	+	No	8	8	bov	* Qf M GSu		Animals	41845	468	25	1	1	3900

OIE-Listed disease	occurrence	Serotype(s)	New outbreaks	Total outbreaks	Species	Control Measures	Routine Vaccinated	Measuring units	Susceptible	Cases	Deaths	Destroyed	Slaughtered	Ring vaccinated
Bovine anaplasmosis (Domestic)	+		...	...	bov	* M GSu		Animals	...	...	...	...	...	...
Bovine anaplasmosis (Wild)	+?	...	...	...				Animals	...	...	...	...	...	...
Bovine babesiosis (Domestic)	+		...	...	bov	* M		Animals	...	...	...	...	...	...
Bovine tuberculosis (Domestic)	+		...	...	bov	* Qf GSu TSu		Animals	...	...	...	...	...	...
Bovine tuberculosis (Wild)	+()	...	...	...				Animals	...	...	...	...	...	...
Theileriosis (Domestic)	+		...	...	bov	M GSu		Animals	...	...	...	...	...	...
Theileriosis (Wild)	+?	...	...	...				Animals	...	...	...	...	...	...
Trypanosomiasis (Domestic)	+		...	...	bov	* M GSu		Animals	...	...	...	...	...	...
Trypanosomiasis (Wild)	+?	...	...	...				Animals	...	...	...	...	...	...
Peste des petits ruminants (Domestic and Wild)	+		...	...	o/c	* Qf M GSu V	...	Animals	...	...	...	...	...	...
Sheep pox and goat pox (Domestic and Wild)	+		...	...	o/c	* GSu		Animals	...	...	...	...	...	...
Contagious cap. pleuropneumonia (Domestic and Wild)	+		...	...	cap	* Qf M Te GSu TSu Qi V	...	Animals	...	...	...	...	...	...
African swine fever (Domestic)	+		...	...	sui	* Qf M GSu Qi		Animals	...	...	...	...	...	...
Newcastle disease (Domestic)	+		...	...	avi	* Qf M Te GSu TSu V	...	Animals	...	...	...	...	...	...
Newcastle disease (Wild)	?	...	...	...				Animals	...	...	...	...	...	...
Avian infectious bronchitis (Domestic)	?		...	...	avi	* Qf M GSu		Animals	...	...	...	...	...	...
Avian infect. laryngotracheitis (Domestic)	?	...	...	...				Animals	...	...	...	...	...	...

OIE-Listed disease	occurrence	Serotype(s)	New outbreaks	Total outbreaks	Species	Control Measures	Routine Vaccinated	Measuring units	Susceptible	Cases	Deaths	Destroyed	Slaughtered	Ring vaccinated
Fowl typhoid (Domestic)	?		...	...	avi	* M GSu		Animals						
Infectious bursal disease (Gumboro) (Domestic)	+		...	...	avi	* M GSu		Animals	...	...	...	...	...	...

## 2. OIE-listed diseases absent in Uganda during the reporting period or never reported

### Multiple species

Disease	Date of last occurrence	Species	Control Measures	Routine Vaccinated
Anthrax (Domestic)	06/2013	***	* GSu Qi	...
		bov	V	...
		cap	V	...
		o/c	V	...
		ovi	V	...
Anthrax (Wild)	16/05/2011	fau	*	
Aujeszky's disease (Domestic and Wild)	0000	bov	GSu	
		can	GSu	
		cap	GSu	
		o/c	GSu	
		ovi	GSu	
		sui	GSu	
Brucellosis (Brucella suis) (Domestic)	12/2008	***	* GSu	
		sui	Te	
Crimean Congo haemorrhagic fever (Domestic and Wild)	0000	bov	GSu	
		can	GSu	
		cap	GSu	
		cer	GSu	
		o/c	GSu	
		ovi	GSu	
		sui	GSu	
Equine encephalomyelitis (Eastern) (Domestic and Wild)	0000			
Foot and mouth disease (Wild)	06/2010	fau	* Qf M Te GSu TSu Qi	
Japanese encephalitis (Domestic and Wild)	0000			
New world screwworm (Cochliomyia hominivorax) (Domestic and Wild)	0000	avi	GSu	
		bov	GSu	
		buf	GSu	
		can	GSu	
		cap	GSu	
		cml	GSu	
		equ	GSu	
		fel	GSu	
		lep	GSu	
		o/c	GSu	
		ovi	GSu	
		sui	GSu	
Paratuberculosis (Domestic)	12/2008	bov	GSu	
Rift Valley fever (Domestic and Wild)	0000	***	GSu	
		bov	* Qf Te TSu Vp	
		cap	* Qf TSu Vp	
		cml	* Qf Vp	
		o/c	* Qf TSu Vp	
		ovi	* Qf TSu Vp	
		buf	Qf Vp	
		fau	*	
Rinderpest (Domestic)	07/1994	***	* Qf GSu Vp	
Rinderpest (Wild)	1994	fau	* Qf GSu Vp	
Trichinellosis (Domestic)	2001			

Disease	Date of last occurrence	Species	Control Measures	Routine Vaccinated
Vesicular stomatitis (Domestic and Wild)	0000	bov	GSu	
		cap	GSu	
		ovi	GSu	
		sui	GSu	
West Nile Fever (Domestic and Wild)	0000			

### Cattle

Disease	Date of last occurrence	Species	Control Measures	Routine Vaccinated
Bovine spongiform encephalopathy (Domestic and Wild)	0000	bov	* Qf GSu	
Bovine viral diarrhoea (Domestic and Wild)	0000	bov	GSu	
Infectious bovine rhinotracheitis/infectious pustular vulvovaginitis (Domestic and Wild)	0000	bov	GSu	

### Sheep/Goats

Disease	Date of last occurrence	Species	Control Measures	Routine Vaccinated
Ovine epididymitis (Brucella ovis) (Domestic)	12/2008	ovi	* GSu	

### Swine

Disease	Date of last occurrence	Species	Control Measures	Routine Vaccinated
Nipah virus encephalitis (Domestic and Wild)	0000			
Swine vesicular disease (Domestic and Wild)	0000	sui	GSu	

### Equidae

Disease	Date of last occurrence	Species	Control Measures	Routine Vaccinated
African horse sickness (Domestic and Wild)	0000	equ	GSu	
Equine encephalomyelitis (Western) (Domestic and Wild)	0000			
Venezuelan equine encephalomyelitis (Domestic and Wild)	0000			

### Birds

Disease	Date of last occurrence	Species	Control Measures	Routine Vaccinated
Highly pathogenic avian influenza (Domestic and Wild)	0000	***	* Qf GSu TSu	

### Other

Disease	Date of last occurrence	Species	Control Measures	Routine Vaccinated
Camelpox (Domestic)	0000			

## 3. Detailed quantitative information for OIE-listed diseases/infections present in Uganda

### Disease information by State by month from Jan-Jun 2014

#### Foot and mouth disease (Domestic)

##### Domestic Species

Month	District	Serotype(s)	New outbreaks	Total outbreaks	Species	Family Name	Latin Name	Measuring units	Susceptible	Cases	Deaths	Destroyed	Slaughtered	Ring vaccinated
Jan	KOTIDO	No	1	1	bov			Animals	10000	25	0	0	0	0
	RAKAI	No	1	1	bov			Animals	40	29	0	0	0	0
Feb			...	...										
Mar			...	...										
Apr			...	...										
May			...	...										
Jun	BUGIRI	No	1	1	bov			Animals	4000	67	...	...	3	...
	LIRA	No	1	1	bov			Animals	8000	35	...	...	...	...

#### Contagious bov. pleuropneumonia (Domestic)

##### Domestic Species

Month	District	Serotype(s)	New outbreaks	Total outbreaks	Species	Family Name	Latin Name	Measuring units	Susceptible	Cases	Deaths	Destroyed	Slaughtered	Ring vaccinated
Jan			...	...										
Feb			...	...										
Mar	LIRA	No	1	1	bov			Animals	200	1	...	1	...	...
Apr	LIRA	No	1	1	bov			Animals	25	2	...	2	...	...
May	LIRA	No	1	1	bov			Animals	324	11	9	2	0	0
Jun	LIRA	No	1	1	bov			Animals	500	36	...	...	3	7000

#### Lumpy skin disease (Domestic)

Month	District	Serotype(s)	New outbreaks	Total outbreaks	Species	Family Name	Latin Name	Measuring units	Susceptible	Cases	Deaths	Destroyed	Slaughtered	Ring vaccinated
Jan	KIBAALLE	No	1	1	bov			Animals	30000	4	2	0	0	0
	LIRA	No	1	1	bov			Animals	300	5	0	0	0	0
Feb	LIRA	No	1	1	bov			Animals	...	9	...	...	...	...
	MUKONO	No	1	1	bov			Animals	...	15	...	...	...	...
Mar			...	...										
Apr	LIRA	No	1	1	bov			Animals	1200	170	...	...	...	...
	MPIGI	No	1	1	bov			Animals	345	7	1	...	1	...
May	MUKONO	No	1	1	bov			Animals	5000	129	11	...	...	3100
	NAKASONGOLA	No	1	1	bov			Animals	5000	129	11	1	...	800
Jun			...	...										

#### Rabies (Domestic)

##### Domestic Species

Month	District	Serotype(s)	New outbreaks	Total outbreaks	Species	Family Name	Latin Name	Measuring units	Susceptible	Cases	Deaths	Destroyed	Slaughtered	Ring vaccinated
Jan	MOYO	No	1	1	can			Animals	...	1	...	1	0	0
Feb	BUSIA	No	1	1	can			Animals	...	1	...	1	...	...
Mar	MOYO	No	1	1	can			Animals	...	2	...	2	...	...
Apr			...	...										
May			...	...										
Jun	MOYO	No	1	1	can			Animals	...	1	...	1	...	...

#### 4. Unreported OIE-listed diseases during the reporting period

##### Multiple species

Bluetongue (Wild)	Brucellosis ( <i>Brucella suis</i> ) (Wild)	Echinococcus granulosus (Infection with) (Domestic and Wild)
Echinococcus multilocularis (Infection with) (Domestic and Wild)	Epizootic haemorrhagic disease (Domestic and Wild)	Heartwater (Domestic and Wild)
O. w. screwworm ( <i>C. bezziana</i> ) (Domestic and Wild)	Paratuberculosis (Wild)	Q fever (Domestic and Wild)
Surra ( <i>Trypanosoma evansi</i> ) (Domestic and Wild)	Trichinellosis (Wild)	Tularemia (Domestic and Wild)

##### Cattle

Bov. genital campylobacteriosis (Domestic and Wild)	Bovine babesiosis (Wild)	Contagious bov. pleuropneumonia (Wild)
Enzootic bovine leukosis (Domestic and Wild)	Haemorrhagic septicaemia (Domestic and Wild)	Trichomonosis (Domestic and Wild)

##### Sheep/Goats

Caprine arthritis/encephalitis (Domestic and Wild)	Contagious agalactia (Domestic and Wild)	Enzootic abortion (chlamydiosis) (Domestic and Wild)
Maedi-visna (Domestic and Wild)	Nairobi sheep disease (Domestic and Wild)	Ovine epididymitis ( <i>B. ovis</i> ) (Wild)
Salmonellosis ( <i>S. abortusovis</i> ) (Domestic and Wild)	Scrapie (Domestic and Wild)	

##### Swine

African swine fever (Wild)	Classical swine fever (Domestic and Wild)	Porcine cysticercosis (Domestic and Wild)
Porcine reproductive/respiratory syndr. (Domestic and Wild)	Transmissible gastroenteritis (Domestic and Wild)	

##### Equidae

Contagious equine metritis (Domestic and Wild)	Dourine (Domestic and Wild)	Equid herpesvirus-1 (EHV-1) (Infection with) (Domestic and Wild)
Equine infectious anaemia (Domestic and Wild)	Equine influenza (Domestic and Wild)	Equine piroplasmosis (Domestic and Wild)
Equine viral arteritis (Domestic and Wild)	Glanders (Domestic and Wild)	

##### Lagomorphs

Myxomatosis (Domestic and Wild)	Rabbit haemorrhagic disease (Domestic and Wild)	
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##### Birds

Avian chlamydiosis (Domestic and Wild)	Avian infect. laryngotracheitis (Wild)	Avian infectious bronchitis (Wild)
Avian mycoplasmosis ( <i>M. synoviae</i> ) (Domestic and Wild)	Duck virus hepatitis (Domestic)	Fowl typhoid (Wild)

Infectious bursal disease (Gumboro) (Wild)	Low pathogenic avian influenza (poultry) (Domestic)	Mycoplasmosis ( <i>M. gallisepticum</i> ) (Domestic and Wild)
Pullorum disease (Domestic and Wild)	Turkey rhinotracheitis (Domestic)	

**Bees**

Acarapisosis of honey bees (Domestic)	American foulbrood of honey bees (Domestic)	European foulbrood of honey bees (Domestic)
Small hive beetle infestation (Domestic)	Tropilaelaps infestation of honey bees (Domestic)	Varroosis of honey bees (Domestic)

**Other**

Leishmaniosis (Domestic and Wild)		
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**5. Information about other animal type**

No data on the OIE-listed diseases for aquatic animals has been sent to the OIE
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Source: NADDEC

# Integrated Food Security PHASE CLASSIFICATION (IPC)

## Karamoja Acute Food Insecurity Situation Overview Current

Created on: 22/Jun/2015, Valid from 22/Jun/2015 to 01/Nov/2015

Key Outcomes for the Worst Affected Areas: Kaabong, Kotido, Napak and Moroto

**FOOD CONSUMPTION** -62.7% had borderline to poor Food consumption.

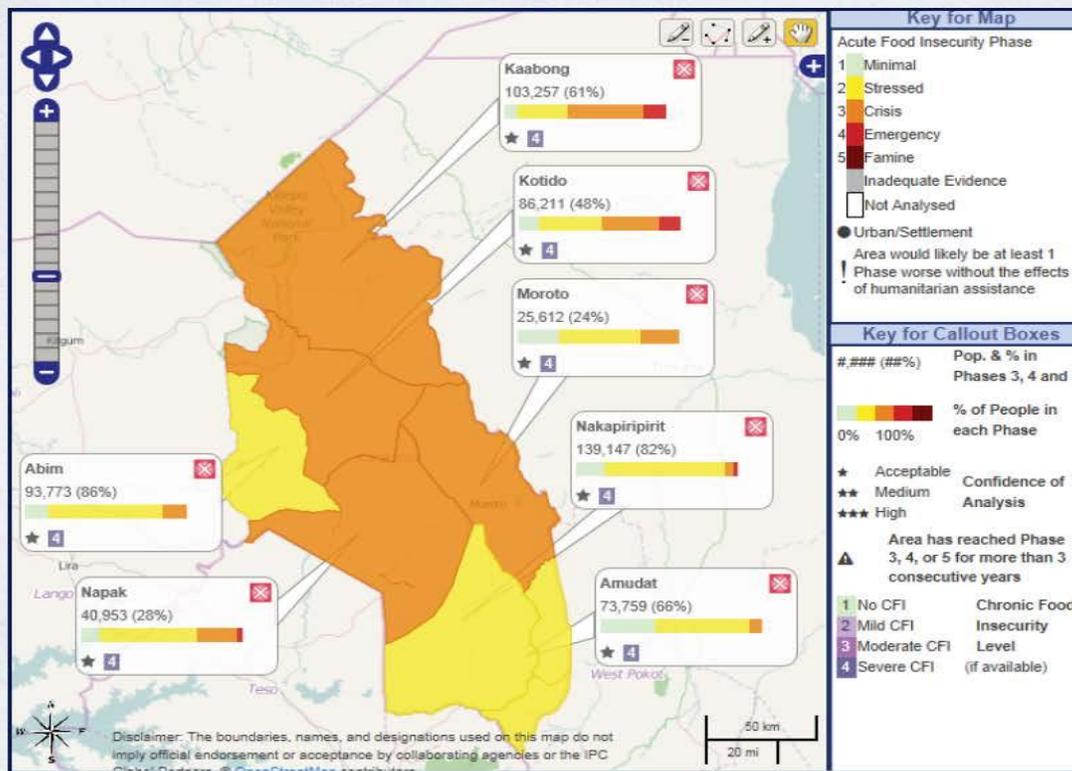
**LIVELIHOOD CHANGE**-43% employing emergency coping and 20% crisis coping.

**NUTRITIONAL STATUS**- GAM 15% points to an emergency phase

**MORTALITY**- CMR 0.5/10,000; U5MR 1/10,000

### Summary of Causes, Context and Key Issues

The region was majorly classified in overall phase 3 (Crisis) with the most affected districts being Kaabong, Kotido, Napak and Moroto. Phase 2 (stressed) districts included Amudat, Nakapiripit, and Abim. Food insecurity was attributed to the poor harvest caused by poor rainfall performance in 2014. Though areas cultivated were reported to have increased, crop production was generally below normal. Pasture and browse were available for most of the year, however the high prevalence of livestock diseases affected livestock production and eventually household incomes. Currently household food stocks are exhausted with the lean season at its peak, households are mostly involved in cultivation activities and are surviving on market purchase, vegetables, wild foods, income from labour opportunities resulting from cultivation activities, firewood, charcoal and exploitation of natural resources. The most extreme limiting factor to food security in the region is utilization followed by access. Food availability is a minor limiting factor, because despite crop harvests of the previous season being dismal, food is available in the markets due to fair road network, stable security and active social safety nets.



Analysis Partners & Supporting Organisations  
 MAAIF, OPM, MOH, FAO, WFP, UNICEF, ACF, URCS, FEWSNET, GOAL, PENHA, WVU,  
 COMWO, ZOA, ACF, WHH, ACTED, MUK, KARAMOJA DISTRICT LOCAL GOVTS

The Integrated Food Security Phase Classification (IPC) is a global, multi-partner, innovative initiative to inform food security policy and programming and, ultimately, to contribute to the global food and nutrition security. The IPC promotes a common approach for classifying severity and underlying factors of both acute and chronic food insecurity thus improving the rigour, transparency, relevance, and comparability of food security analysis for decision makers.

## Part 2: Summary of Findings, Methods, and Next Steps

The region was majorly classified in overall phase 3 (Crisis) with the most affected districts being Kaabong, Kotido, Napak and Moroto. Phase 2 (stressed) districts included Amudat, Nakapiripit, and Abim.

Food insecurity was attributed to the poor harvest caused by poor rainfall performance in 2014, with a dry spell being experienced in June to July and heavy rain received towards the end of the cropping season. This led to destruction of mature crops and caused honey dew and mildew in sorghum growing areas. Though land areas cultivated were reported to have increased, crop production was generally below normal. Pasture and browse were available for most of the year, however the high prevalence of livestock diseases such as FMD, and PPR, tick infestation affected livestock production and eventually household incomes. Currently household food stocks are exhausted with the lean season at its

peak for the majority of households. Households are mostly involved in cultivation activities and are surviving on market purchase, vegetables, wild foods, income from labour opportunities resulting from cultivation activities, firewood, charcoal and exploitation of natural resources. The most extreme limiting factor to food security in the region is utilization followed by access. Utilization of food is affected by poor sanitation, poor child care practices (low feeding frequency for children, poor dietary diversity, and poor food preparation methods), low per capita water usage below 15 litres per person per day and poor food storage. Access to food is affected by high prices, low purchasing power and incomes. Food availability is a minor limiting factor, because despite crop harvests of the previous season being dismal, food is available in the markets due to fair road network, stable security and active social safety nets.

### IPC Protocols for classification of Chronic Food Insecurity

IPC is a set of protocols to classify chronic and acute food insecurity. The IPC consists of four mutually reinforcing functions, each with a set of protocols (tools and procedures). The core IPC parameters include consensus Building, convergence of evidence, accountability, transparency and comparability. The analysis was carried out by members of the IPC Technical Working Group and representatives from Local Governments, NGOs and UN agencies. This analysis was compiled at a workshop held at Mt. Moroto Hotel from 22<sup>nd</sup>-26<sup>th</sup> June 2015. It was attended by 43 participants; 21 from all seven Districts of Karamoja, and 22 were members of the IPC Technical Working Group representing relevant NGOs, UN agencies and Ministries that handle food security, water and sanitation, health and nutrition related activities at national and Karamoja level. The approach drew together all available food security information from reliable data sources. Classification was based on convergence of evidence of current or projected most likely conditions, including effects of humanitarian assistance to arrive at a 'big picture' analysis, or meta-analysis, of the overall food security situation.

### Sources of data included;

- » Karamoja Seasonal Food Security Assessment (FAO, MAAIF June 2015)
- » Uganda Monthly Market Monitor, Bulletin April 2015 Issue 13 (WFP April 2015)
- » Karamoja Health and Nutrition Assessment (WFP, UNICEF December 2013),
- » Karamoja Food Security and Nutrition Assessment (FSNA). WFP, UNICEF. June 2014
- » National Population and Housing Census 2014 (UBOS 2014)
- » Karamoja HEA baseline report- Overview and profiles (FAO, 24 March 2014)

### Limitations

1. The ISS is still a new tool; more training is needed at country level to equip more analysts with skills on how to use it.
2. Lack of up to date data from different sources to allow for triangulation of data to allow for better understanding of the situation

### Recommendations for Next steps for analysis, Monitoring and updates

1. Disseminate information to policy makers for action
2. Provide inputs for improvement of the ISS
3. Provide training in the use of the ISS for IPC analysis
4. **Publication of the findings.**

## Key Information Relevant for Response Analysis and Decision Making

Acute food insecurity phases	Districts	Immediate causes	Recommended Response
Phase 3	Kaabong Moroto Napak Kotido	<ul style="list-style-type: none"> <li>» Poor harvest caused by poor rainfall performance in 2014.</li> <li>» Below normal food production hence low household food stocks</li> <li>» High prevalence of livestock diseases affecting livestock production and household incomes.</li> <li>» Poor hygiene and sanitation</li> <li>» Poor food utilization ( tastes and preferences and preparation methods)</li> <li>» Poor child care practices</li> </ul>	<ul style="list-style-type: none"> <li>» Protect livelihoods, reduce food gaps and reduce acute malnutrition</li> </ul>
Phase 2	Nakapiripit Abim Amudat	<ul style="list-style-type: none"> <li>» Poor harvest and below normal food production</li> <li>» Low household stocks</li> <li>» High prevalence of livestock diseases affecting livestock production and household incomes.</li> <li>» Poor hygiene and sanitation</li> <li>» Poor food utilization ( tastes and preferences and preparation methods)</li> <li>» Poor child care practices</li> </ul>	<ul style="list-style-type: none"> <li>» Action required for disaster risk reduction and protection of livelihoods</li> </ul>

### Risk factors to Monitor from July- November 2015

- » Rainfall performance
- » Rising food prices
- » Crop and Livestock diseases
- » Human disease (malaria, diarrhoea, Hepatitis E, cholera)

## Part 3: Population Tables

A detailed population table is elaborated based on total population figures drawn from the Uganda National Population Census 2014. Using both direct and indirect evidence provided the basis of the distribution of households among the four phase for the different districts. An area level classification was employed where the district was the unit of analysis. The criterion for classification was that at least 20 percent of the population had to be in a particular phase or higher. In areas where more than one phase has at least 20 percent of the population, the most severe phase was chosen to categorize the area.

Name of District	Population (UBOS census 2014)	Phase 1		Phase 2		Phase 3		Phase 4	
		Number	% of pop'n	Number	% of pop'n	Number	% of pop'n	Number	% of pop'n
Abim	109,039	15,256	14	77,417	71	16,356	15	-	0
Amudat	111,758	37,999	34	64,818	58	8,941	8	-	0
Kaabong	169,274	13,711	8	52,306	31	79,599	47	23,698	14
Kotido	178,909	22,689	13	70,009	39	63,275	35	22,936	13
Moroto	104,539	27,180	26	51,747	50	25,612	24	-	0
Nakapiripit	169,691	30,544	18	125,572	74	8,485	5	5,090	3
Napak	145,219	17,135	12	87,131	60	36,307	25	4,646	3
<b>Total</b>	<b>988,429</b>	<b>164,514</b>	<b>17</b>	<b>529,000</b>	<b>54</b>	<b>238,575</b>	<b>24</b>	<b>56,370</b>	<b>6</b>

Contact for Further Information  
 IPC Technical Working Group chair, [maaifewu@yahoo.co.uk](mailto:maaifewu@yahoo.co.uk)  
 IPC Global Support Unit: [www.ipcinfo.org](http://www.ipcinfo.org)



Food and Agriculture  
 Organization of the  
 United Nations

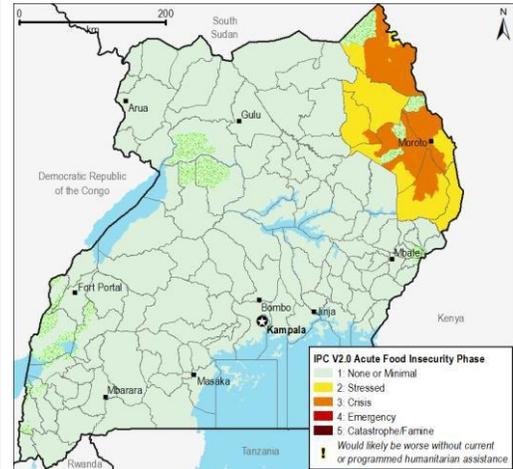


*Below average rainfall in Karamoja likely to worsen Crisis (IPC Phase 3) food insecurity*

**KEYMESSAGES**

- Despite delayed onset and below average rainfall since early April, germination and early vegetative growth occurred in both bimodal and unimodal Karamoja. With likely continued below-average rainfall, crop growth may be retarded, delaying and reducing green harvests to July and reducing potential yields for the dry harvests in Karamoja. Continued rainfall in bimodal areas will likely result in near-average harvests.
- In Karamoja, below average rainfall in comes for poor households will likely constrain food access. Households have increased their use of coping strategies since January, but are unable to meet their minimum food needs. Crisis (IPC Phase 3) outcomes are expected in April, and will likely become more acute until the harvest occurs, as late as August, four months longer than usual.
- In bimodal areas, staple food prices increased between March and February, as anticipated with increased demand from Kenya and South Sudan for maize, beans, and sorghum. In Karamoja, the livestock terms of trade with respect to sorghum are favorable while firewood, charcoal, or daily wages to sorghum have worsened. Low household purchasing power will constrain food access through July, minimal green harvest may relieve some of the household needs.

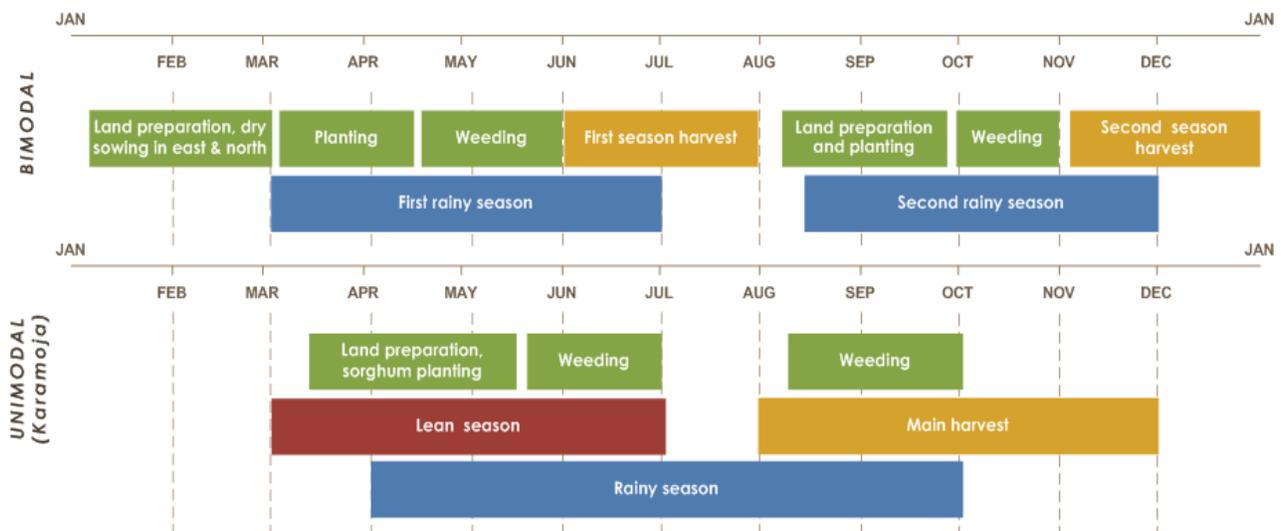
Current food security outcomes, April 2015



Source: FEWSNET

This map represents acute food insecurity outcomes relevant for emergency decision-making. It does not necessarily reflect chronic food insecurity. Visit [www.fews.net/IPC](http://www.fews.net/IPC) for more on this scale.

**SEASONAL CALENDAR FOR A TYPICAL YEAR**



Source: FEWSNET

**NATIONAL OVERVIEW**

*Current Situation*

- **Land preparation and planting activities are almost complete in bimodal areas despite below-average rainfall performance.** Seasonal rains began 10 to 14 days later than normal and early rains were below-average. Soil moisture levels are minimally adequate for crop development, but cumulative rainfall remains below average and erratic in distribution, particularly in eastern, central, and southwestern districts as well as northeastern Uganda. Despite below-average rainfall performance, land preparation and planting continue in April and are nearly complete. Early planted crops have reached the vegetative stage. In Karamoja, area planted has declined by an estimated 25 percent compared to normal due to a combination of reduced access to seed purchase for poor households and a poor seasonal outlook.

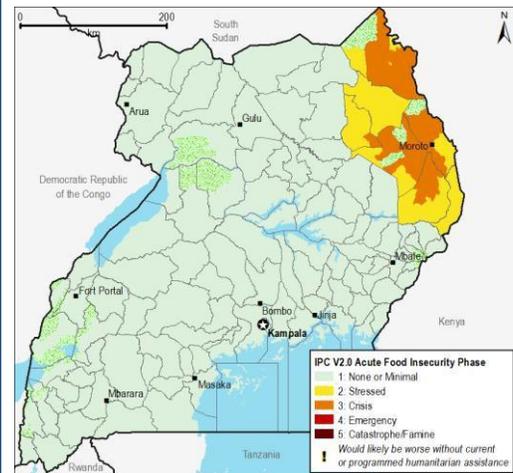
- **Livestock body conditions are improving due to pasture regeneration.** Rainfall in April improved pasture availability and grazing conditions, although water resources are not yet fully replenished. Livestock are steadily recovering from the impact of atypical dryness and poor pasture availability in recent months, especially in corridor districts where conditions were driest.

- **Staple food prices increased in March due to increased local and regional demand.** Grain exports, particularly maize increased significantly in the first quarter of this year due to increased demand from Kenya and South Sudan. Wholesale prices for cooking bananas, cassava chips, sorghum, bean, and maize prices have generally increased as stocks from the previous season begin to decline.

- **Minimal (IPC Phase 1) food insecurity continues in bimodal areas.** Households and market food stocks are supplied to their usual levels. While there is increasing regional demand, food availability and access for the poor is still favorable throughout the country. The onset of the first season will enable farmers to grow quick maturing crops and vegetables that can be used as food and income sources. With the normal progress of seasonal activities supplying day labor, poor households have been able to meet their minimum food requirements.

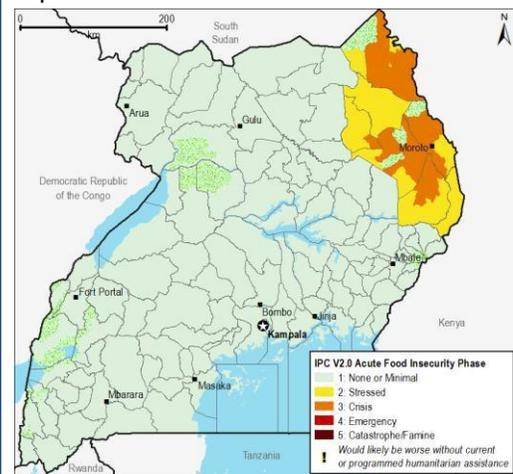
- **Food security deteriorated to Crisis (IPC Phase 3) in Karamoja.** Food availability and access continued to decline in Karamoja since the lean season began in January, four months earlier than normal. Household purchasing power, already very low, declined further in recent months due to increased reliance on markets for food. The combination of last year’s extended lean season and poor 2014 production have eroded coping capacity among the poor and many households are unable to meet minimum food needs.

Current food security outcomes, April to June 2015



Source: FEWSNET

Projected food security outcomes, July to September 2015



Source: FEWSNET

These maps represent acute food insecurity outcomes relevant for emergency decision-making, and do not necessarily reflect chronic food insecurity. Visit [www.fews.net/IPC](http://www.fews.net/IPC) for more on this scale.

*Assumptions*

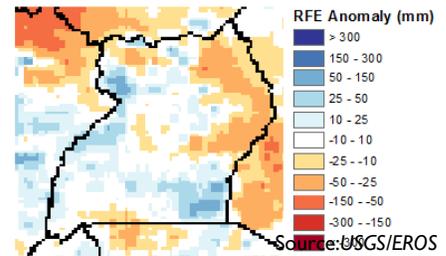
Between April and September 2015, the projected food security outcomes are based on the following key assumptions:

- **Average rainfall is expected in bimodal areas as from April to July.** Despite a late start of season and erratic rainfall distribution in April, cumulative seasonal rainfall totals are expected to be near normal.
- **Harvests are expected to be near-average in bimodal areas.**  
Increased

rainfall from May to July will likely compensate for the early season deficits enabling normal crop development. Erratic rains at the beginning of the season during flowering and grain filling stages may cause small production deficits of up to 10 percent. Main harvests will likely begin on-time in July/August.

- **Livestock body conditions are expected to remain average** in both bimodal and unimodal rainfall areas. As a result, average milk production is also likely.
- **Staple food prices will follow seasonal trends, but remain above Average in many markets.** Prices of cooking bananas, beans, and maize will increase from April to May and decline in June as harvests become available. Prices will remain above average, but are not expected to exceed 2014 levels.
- Trade with Kenya, South Sudan, Rwanda, and the Democratic Republic of Congo are likely to follow seasonal trends. Exports to South Sudan will remain well below average, but higher than last year.
- **Conditional cash and food transfers for 44,000 people will continue through June through the Northern Uganda Social Action Fund (NUSAFII).** Participants will receive cash for work, the equivalent of six kgs of sorghum or maize per month for three cycles. The total assisted number is lower than 2013, but equivalent to last year. **The World Food Programme will target 155,000 people in poor and vulnerable households** with half rations available throughout the lean season.

**Figure 5.** Rainfall anomalies for the ten day period between 11<sup>th</sup> - 20<sup>th</sup> April (2<sup>nd</sup> dekad)



*Most Likely Food Security Outcomes*

Food availability and access will decline over the next two months as the lean season progresses, but households in bimodal areas will be able to meet minimum food and non-food needs without engaging in irreversible coping strategies. Food availability will begin to improve in June/July as green harvests become available. Main harvests in July/August will enable households to replenish food stocks. and acc Green harvesting in July/August will improve food availability and access for the poor during the lean season in June/July, and will boost household food in take before the main harvest in July/August. Average livestock conditions and milk production are likely with average pasture availability through September. Prices are expected to increase seasonally through May. In June, the new harvest will likely be available on the market. Most households will be able to meet both their food and non-food needs without engaging in coping strategies. Minimal (IPC Phase 1) acute food insecurity is expected through September 2015.

In Karamoja region, poor households will likely not meet their household food needs due to insufficient income through July. Below-average harvests are likely if below average rainfall continues through June, as anticipated. Consumption gaps and malnutrition levels will likely be most acute during the Peak of the lean season in May/June. With poor food intake, malnutrition levels are expected to increase among children five years and under through June/July. Some green harvest in July and subsequent dry harvest in August and September could provide food stocks for four or five months, depending on the seasonal performance. Crisis (IPC Phase 3) is expected in most of Karamoja through August, while Stressed (IPC Phase 2) is expected in the western mixed farming zone through September for the most likely scenario.

**AREAS OF CONCERN**

**Central Sorghum and Livestock livelihood zone in Karamoja**

This zone includes parts of Northern Nakapiripirit, Moroto, Kotido, Napak, and Kaabong Districts with an estimated population of 824,104 persons. About 54 percent of the households are estimated to be in the poor wealth group.

*Current Situation*

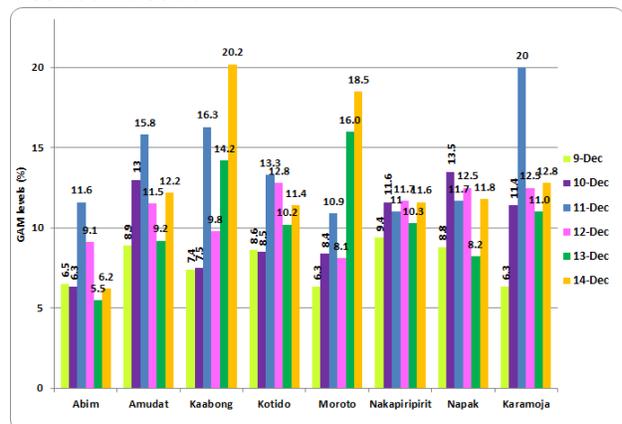
**Households started the 2015 lean season with higher malnutrition prevalences, lower food and assets than previous years due to three consecutive below average seasons since 2012:**

- **Most poor households have had a livelihood protection deficit:** For some households food stocks were depleted as early as December and others by late February, leading to an early start of the lean season between one and four months.
- **Most households had minimal income to spend on agricultural inputs and investing in their livelihoods.** This has reduced the area planted by households, affecting future food security as well as demand for agricultural labor.
- **Households have limited methods to increase their coping capacity during these extended lean seasons.** Traditionally, natural product and livestock sales have been the method to stretch income and food consumption, but after multiple years of using these extensively their assets may be eroded. Households have reported they are moving further distances to find firewood and it is likely that flock sizes are smaller than in past years.
- **Karamoja region had GAM prevalences above 10 percent in December,** before they entered the traditional lean season up to four months early in some areas. Dietary intake for both adults and children is below the minimal and poor households are only able to access one meal in a day.
- **Food supplies from harvest in 2014 were well below average:** Many households consumed all their production before the dry harvests, while others had at least one to two months of food stocks.

**Seasonal rains were delayed and below average but have rejuvenated rangelands and started crop progress:**

- **The start of season was abnormal:** Pre-season rains that typically fall from late March in to early April did not occur this year, delaying the land preparation. After seasonally above-average rains in the first 10 days of April, rangelands and livestock conditions have improved and seasonal activities are underway. February and March were a typically dry and hot, resulting in delayed land preparation. The heavy rains in early April initiated bush clearing, land preparation, sowing, and planting activities. With the return of livestock from the dry season grazing areas, oxen were available for ploughing.

**Figure 6. Historical GAM prevalence in Karamoja from Dec 2009-Dec 2014**



Source: WFP, UNICEF

- **Rangelands and livestock conditions have improved:** While the pasture conditions have been below-average since mid-January, the recent heavy rains have allowed pasture regrowth from the burned areas and grazing areas near homesteads.
- **Pasture is recovering steadily and water resources are gradually replenishing.** Livestock body conditions remain near average. Improved pasture conditions are 56 coinciding with the peak birthing period in April/May for cattle. Peak production typically occurs from April-August. Endemic parasites are more common during the April to June period, mainly from contagious bovine pleural pneumonia, endemic tickborne diseases, and worm infestations.
- **Agricultural area planted is likely below average:** Households were likely unable to save seed from the previous season and with the current low seasonal incomes seeds purchase with has led to a reduction in area planted, afield estimate of 70 to 90percent of normal. Delayed onset of rains also hindered the start of land preparation and planting activities that contributed to lower acreage planted.

**Most crops are at the germination stage:** however a few areas in Nakapiripirit that dry planted are at the early vegetative stage. The more advanced crops are benefiting from the seasonal rains which will give them a better chance of surviving the dryspell expected in June/July.

**Most households are not meeting their minimum foods needs because household purchasing power is low:**

- **Seasonal opportunities for on-farm casual labor are below average** owing to the delay of rains from mid-March to April. Wealthier households also have less disposable income to hire labor, but additionally have less demand for laborers because the area opened up for planting is lower than normal due to a lack of seed and seasonal uncertainty. While some household members search for domestic labor in near by towns/trading centers, the opportunities are limited.
- **Most poor households intensified firewood and charcoal sales and increased labor supply resulting in lower terms of trade.** This also in turn brought down the terms of trade for firewood to grain. Despite the availability of staples on the market and stable food prices, the low household purchasing power had constrained food access.
- **Households with a disposable livestock are able to meet minimal food needs through this season.** The most recent survey of livestock holdings in December found 40 percent of poor households did not hold any livestock.

**Declining Terms of Trade (TOTs) further constrain food access:** with the exception of Kaabong and Napak where sorghum and maize prices were stable, prices of these staples increased in March. The reduced prices for wages, firewood, and charcoal contributed to the overall decline in TOTs with respect to sorghum from February to March.

- The TOTs remain favorable, for instance around trip sale of firewood to sorghum can purchase two to five kilograms (kg), charcoal to sorghum can purchase 18-28kg, and a daily wage to sorghum can purchase three to six kgs in Napak, Moroto, and Nakapiripirit districts.
- Households can typically manage two trips for firewood a week, a bag of charcoal in a month and may find work once a week. The average household of five to seven members consumes three kg of sorghum every two days. One kg of sorghum is the equivalent of 3,390 kcal. Households may include beans and maize in their diets in addition to wild foods, which are uncharacteristically low at this time.
- Livestock prices were mostly stable though they moderately increased in Kotido and Kaabong between February and March.

**Other supplementary food sources not available to many poor households, widening the food gap.** Households consume wild foods during the lean season but leafy vegetables, which are more abundant during the rains, were inadequate due to the delays. The quantities available are likely to increase as the rains progress.

- **Consumption of milk and milk products in the household diet is improving** as the peak milk production period established with their turn of livestock from the dry season grazing areas. This is only available to households with at least a lactating cow or goat, **roughly a third of the poor wealth group.**
- **The NUSAFII program will target 155,000 people beneficiaries this year.** Poor and vulnerable households will receive cash for work or half rations for young mothers, the equivalent of six kgs of sorghum or maize per month for

three or five cycles depending on the urgency. The total assisted number however is lower than 2013, but equivalent to last year.

**This population is in Crisis (IPC Phase 3).** At least 20 percent of the households are marginally able to meet minimum food needs only with accelerated depletion of livelihood assets. Nutrition prevalences are “Critical” in Moroto and Kaabong districts, while “Serious” in four other districts. These households are likely consuming only one meal a day, which is less than normal for this time.

### *Assumptions*

Between April and September 2015, the projected food security outcomes are based on the following key assumptions:

- The April to September rains are expected to be **near-to below-average cumulatively**.
- **Adequate pasture will be available for near average milk production** for the peak period from April to July. Karamoja will likely have average pasture availability and average livestock condition.
- The **dryspell in May/June is expected to occur at a near normal time but likely be a typically long**, causing wilting among the younger plants. Erratic rainfall during this time may cause honeydew fungus on the sorghum heads at flowering stage which severely disrupts grain filling.
- **Labor opportunities will continue to be slightly below average** due to the delayed rainfall and lower ability to pay wages. Demand will likely increase as ploughing and planting continue through May. Weeding activities will be available thereafter. Wages, either cash or in kind, are likely to be similar or slightly lower than recent years.
- **Households will likely plant below average acreage**, 75 percent of normal, due to seasonal uncertainty and low income for agriculture inputs.
- The price of **firewood and charcoal is low currently but will likely increase seasonally through June**, but not dramatically. Thereafter, supply will decrease because households will likely divert labor to harvesting their own crops and food access will increase at this time.
- **Green crop availability in July will likely be delayed or below average** due to delayed and below average cumulative rainfall. Seasonal progression is slightly delayed with near-to below-average rainfall. The **lean season may be extended into August** if green harvests are late and minimal as expected.
- Wild foods, especially those associated with the start of the rainy season like the leafy vegetables, **will likely become more available with increased rainfall. Wild crop availability is low**. Household food consumption will likely be inadequate in quantity and quality through August. Harvests may provide less food stores than normal.
- **Livestock diseases will continue at their current endemic levels**, but no additional widespread outbreaks of disease are expected among small or large ruminants. Periodic Newcastle’s disease outbreaks are likely among chickens with the wet season.
- **Cash/Food-for-Work is expected to continue for 155,000 households**. In the case of elevated need food is available in the warehouses for five cycles of the program. **Normal assistance for extremely vulnerable households in Karamoja region through WFP and its implementing partners is expected to continue throughout the scenario period as well as the conditional cash and food transfers** through the Northern Uganda Social Action Fund (NUSAFII).
- **Livestock prices will remain near their current levels** with possibility for livestock supply to be slightly higher than usual due to the extended lean period. With the current extended lean season, households with livestock started to sell livestock earlier than usual. The poor who are food insecure likely have exhausted their disposable livestock, additional sales would erode their assets.
- Prices for maize and sorghum, supplied from Mbale and Lango sub-districts **will likely rise through June, at least 20 percent** due to poor road conditions and increased local demand and in neighboring countries. This increase would be more than usual, though not as high as 2012. (Sorghum ~900-1,100UGX and 650-1200UGX for millet). Maize, beans, and sorghum trading flows are expected to be normal and continue to occur uninterrupted.
- **Labor migration may increase, especially if rains continue to be below-average**. Some household members will likely relocate to rudimentary mining areas. Migration to towns in search of day labor is occurring in some households. This can contribute up to 40 percent of annual incomes.
- **Poor households are likely to have insufficient planting material** as a result of the below average harvests and a limited access to food.

*Most Likely Food Security Outcomes*

**Below average seasonal incomes will likely continue to constrain food access for the poor and limit access to seed.** With no food stocks and a longer than usual lean period on-going since December, households have increased market purchases as their major food source. Market purchases mainly comprise of the main staple sorghum and minimal amounts of other food groups. Though incomes are not expected to be higher than usual, the typical coping strategies namely wage labor, livestock sales, and sale of natural products, will be pursued at higher levels than usual. The increase in intensity will not be enough to meet the food gaps. Terms of trade for natural product sales will likely worsen as additional households pursue coping strategies.

Some wild food gathering will continue through June, especially for vegetables but availability is likely to be below average with the below average rainfall. Other smaller sources of food will likely be accessed through begging from relatives and better off households. Local brew and the "spent grain" will continue to be a food source for both adults and children. A small amount of milk will be available through September for households that own lactating animals. Agricultural labor opportunities which typically contribute 18-23 percent of total income will supplement incomes through June but at lower levels, contributing around 15 percent, with below average rainfall and low demand.

Poor households will continue to consume one meal a day and daily calorie intake will likely be below 2100 kilocalories through July. Inadequate food consumption will likely result in higher levels of malnutrition especially, among the children through July. The dietary diversity of the households will likely remain poor. Children’s nutritional status will likely deteriorate further as malnutrition levels remained serious through December 2014, when the early lean period had begun. During the peak of the lean season in May/June, food security outcomes will be most acute as more households fall to Crisis (IPC Phase 3) food insecurity. This food insecurity may continue through September unless the rains become more favorable in terms of distribution in space and time. This would likely result in better harvest outcomes than is expected currently. Humanitarian food assistance through Food-for-Work and the usual Safety Net NUSAFII support to poor households may mitigate the most severe declines in the food security before the arrival of green harvests, although not all households or household needs will be covered.

**Western mixed crop farming livelihood zone in Karamoja**

This zone includes parts of western edge of the Karamoja region beginning with southwestern parts of Nakapiripirit, Napak, Abim and parts of Kotido and Kaabong Districts. It has an estimated population of 268,520 persons of which about 55 percent of the households are estimated to be in the poor wealth group.

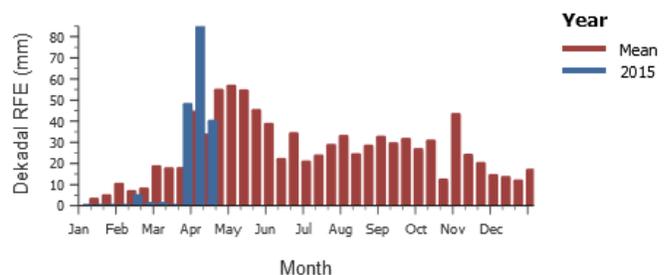
*Current Situation*

**The zone has experienced heavy rainfall in the last 30-day period** since the end of March, however, seasonal cumulative totals are below average. The rains were delayed by at least 10 days, but this zone has experienced more rain compared to the other zones in Karamoja. The Soil Water Index in the second middle of April showed that soil moisture is satisfactory to meet crop requirements. The seasonal forecast though is similar with near-to below-average cumulative totals through May.

**Ploughing and planting are dominating the season.** Despite the delayed onset of rains, farmers are aggressively aiming at completing all planting through May to take advantage of the rains while they continue. The timing for land

preparation and planting remains within the normal seasonal window. Typically a variety of crops are planted throughout the season until June, including maize, groundnuts, sorghum, and simsim. As with other zones of Karamoja that experienced

**Figure 7.** Rainfall in millimeters (mm) in Abim District by 20 day period (dekad), 2015 and 2000 to 2012 mean



Source:USGS/FEWSNET

recent below average harvests, poor households are citing lack of seed/ planting materials as a constraint for production this season.

**Below-average vegetation and pasture compared to the long-term.** Regrowth and restoration of pasture has been slower than usual due to the delayed onset of the rains. However, both water and pasture are steadily replenishing enough to support livestock production. Livestock are in average conditions, small ruminants are giving birth, and milk production is normal.

**Despite low livestock holdings, some minimal livestock being sold to access food.** Compared to other zones in Karamoja, this zone has less livestock, averaging zero to three small livestock and one to two cattle per household in up to half of households. Some households are able to sell poultry or a small ruminant in order to purchase food.

**Households are using supplementary sources of income to access food.** Typically during the lean season, households sell firewood and charcoal, engage in on-farm casual labor, and collect wild foods. Owing to the early start of the lean season in January/February and the late onset of rains, these strategies have been pursued longer than usual. Prices of the natural products have slightly decreased due to increased supply. Casual labor income has been below average as farmers delayed to prepare their fields due to the uncertainty of the weather. Wild food availability is lower than usual but is expected to increase as the seasonal rains continue.

**Stressed (IPC Phase 2) food insecurity prevailing.** In December, the zone had the least number of households employing coping strategies, lowest Global Acute Malnutrition (GAM) prevalence and the highest population with acceptable food consumption. Food stocks lasted at least through February for these households, longer than for all other zones. Although some households may present Crisis (IPC Phase 3) outcomes, the majority in the 20 percent rule are Stressed (IPC Phase 2). The household food intake remains inadequate in diversity and quantity although households can have 1.5 meals a day with the children able to eat left over food in the morning on an irregular basis. Food access is constrained by seasonally low incomes.

### *Assumptions*

The most likely scenario in forth is livelihood zone for the period April to September 2015 is based on the following assumptions:

- The **rains are expected to peak slightly earlier** than normal in May. Cumulative rainfall will likely be near-to below-average.
- Labor demand will likely be below normal levels due to the delayed onset of rains. **Farmers are likely to use less acreage** due to economic constraint to purchase seed for planting. Wages, both cash and in kind, are likely to be similar or slightly less through June than in recent years.
- **Lean season is expected to be a typically long**, at least six months, as food stocks were depleted two to three months earlier than usual. Dietary diversity and total kilocalorie consumption will be poor through July.
- The seasonal dryspell in June/July is expected to occur near normal time and be longer than usual due to the below average rainfall in the forecast.
- The **timing and quantity of green crops will likely be delayed** due to delayed rains, but crops are growing steadily.
- **Households will likely have insufficient planting material** for the current season as a result of the below average harvests and extended lean season in 2014.
- **Livestock diseases will continue at their current endemic levels**, but no additional widespread outbreaks of disease are expected among small or large ruminants. Periodic Newcastle's disease outbreaks are likely among chickens during the wet season.
- **Cash/Food-for-Work is expected to continue at near normal levels.**
- The ToT for sorghum with respect to small ruminants, agricultural wages, firewood and charcoal will remain near their current levels.
- Prices of sorghum and other substitute foods for the market not expected to rise more than usual although likely to stay high through June/July. The increase will be no more than usual. (Sorghum ~900-1, 100UGX).

*Most Likely Food Security Outcomes*

**Below-average rainfall may slightly retard crop growth and subsequently delay availability of green harvest to end the lean season.** Households are likely to continue to be Stressed (IPCPhase2) through September. With households having an early lean season, they are likely to increase the intensity in pursuing the coping strategies. Households will mostly sell natural products, poultry, and try to increase their casual labor supply to supplement their incomes since the zone is predominantly agricultural. A few households own livestock that can be sold. Daily food intake will likely be reduced, in both quantity and quality, to one meal a day for the adults by May/June. Households will likely be involved in migratory labor in surrounding urban areas and engage in wild food collection as their availability increases with the rainfall.

Continued below average rainfall will likely not be sufficient to enable households to grow the normal quick-maturing crops like vegetables and beans to supplement their market purchases. The timing and arrival of the green harvest in June/July, which marks the end of the lean season is likely to be delayed through September. The ToTs are expected to be near-to below average, but firewood prices and daily wages will likely decline leading to poor household purchasing power. Other supplementary incomes and food from humanitarian assistance through CFW/FFW programmes will likely mitigate the food gap during this time until new harvests come in June/July. No livelihoods change is expected over either periods of the scenario.

**EVENTS THAT MIGHT CHANGE THE OUTLOOK****Table1:** Possible events over the next six months that could change the most- likely scenario.

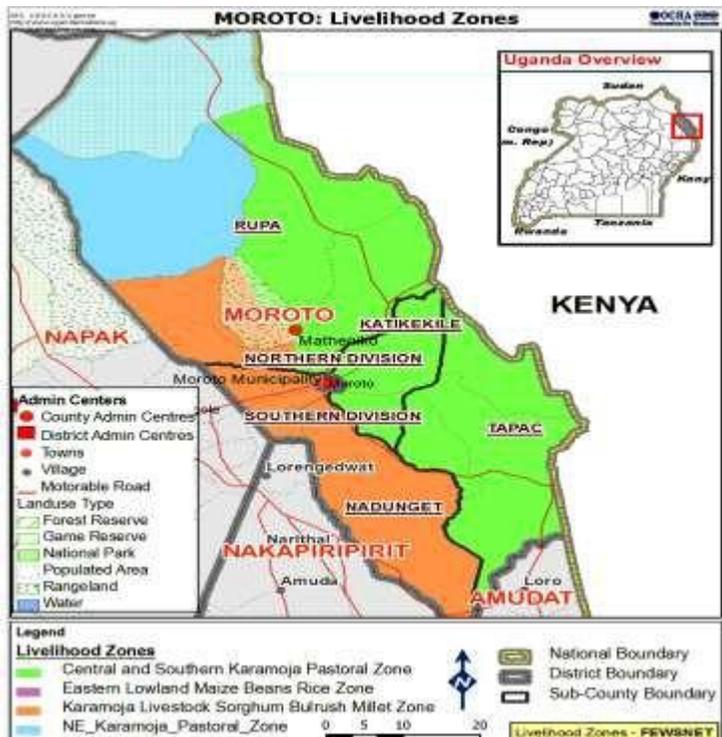
Area	Event	Impact on food security outcomes
Karamoja	A break in WFP's food or funding pipeline, or if food were to be diverted from supplying Karamoja to supplying South Sudanese refugees in northern Uganda or other parts of East and Central Africa.	An increase in the food gap resulting in households having less quantities of food or missing meals during the extended lean season could result in more serious nutrition outcomes. More poor households would deteriorate into Crisis (IPC Phase 3)
Karamoja	Significantly below average seasonal rainfall	Low rainfall would reduce the length of the growing Period and reduce harvest yield, especially for long-cycle sorghum, expected harvest in August/September/October. Poor households would likely lose opportunities for labor to earn income to access food
Karamoja	The late start of green consumption as a result of an atypical dryspell or insufficient moisture to support crops to maturity	A widened food gap as a result of a prolonged lean Period would strain the households. The lean season would be extended on account of unavailability of green consumption. Households would accelerate asset stripping in order to purchase food thus eroding livelihoods further. Could be more than the anticipated three weeks
Western Mixed Cropping Zone	Heavy erratic rains	Significant waterlogging in the low-lying cultivated Areas will likely damage the planted fields and may provide a vector for fungal attack on the crops
Karamoja	If the long-cycle sorghum planted in April does not flower before the start of the temporary dry spell in June/July due to moisture stress	This will provide opportunity for the <i>honeydew</i> disease in long cycle sorghum. Loss of planted/harvested acreage by some households to the disease and an inability to replant would significantly affect yield.
Karamoja	Abnormally high prices for staple foods	Market food access would be severely limited for Poor households

Refugees Arriving from South Sudan	Lack of funding to scale up humanitarian programs	Humanitarian organizations would have to prioritize their assistance within the country. One solution, smaller food rations, would likely lead to use of additional household coping mechanisms in addition to the distress migration to Uganda that refugees have already done.
National	Unexpected, unplanned local, or regional Procurement of food assistance	Unusually large and unexpected purchases in markets Could lead to increasing food prices and reduce the purchasing power of households whose staple foods
National	Below average first season rains during the crop Development phase of the season	As crop production prospects become less favorable, Price increases of affected crops are likely in some markets. Lost or delayed agricultural labor opportunities may also deprive some poor households of a necessary source of income at this time of year.

### ABOUT SCENARIO DEVELOPMENT

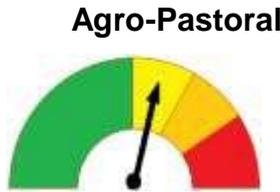
To project food security outcomes over a six-month period, FEWSNET develops a set of assumptions about likely events, their effects, and the probable responses of various actors. FEWS NET analyzes those assumptions in the context of current conditions and local livelihoods to develop scenarios estimating food security outcomes. Typically, FEWSNET reports the most likely scenario.

# DROUGHT BULLETIN MOROTO JANUARY 2014



**Alert**  
Trend; Worsening

SECTORS	
Livestock	<b>Alert</b>
Crops	<b>Alert</b>
Water	<b>Alert</b>
Livelihoods	<b>Alert</b>



**Alert**  
Trend; Worsening

SECTORS	
Livestock	<b>Alert</b>
Crops	<b>Alert</b>
Water	<b>Alert</b>
Livelihoods	<b>Alert</b>

### SITUATIONAL OVERVIEW

Overall, the district is considered to be **ALERT** in both livelihood zones. This is mainly attributed to the fact that the climate prediction models indicates that there are high chances that Karamoja region is expected to remain sunny and dry up to the end of the forecast period, depletion of food stock from most of the household, the Purchasing power of the different communities continuing to deteriorate yet most of the food is being obtained from the market, the food prices are high, increased animals disease incidences as noted on page 6 of this document, pastures have greatly depleted from the near by grazing areas, and water sources drying up causing animals to move to far grazing areas in search of water and pastures. The District expects the situation to continue until the end of the forecast period.

**Recommendations: please refer top age 2.**

The data presented in this Drought Bulletin was collected in the sub-counties of Nadunget, Rupa, Katikekile and SouthDivision in Moroto District.

<b>LIVESTOCK</b>	 <b>Alert</b>	 <b>Alert</b>	<p>The livestock sector is considered to be in the ALERT stage. This was mainly attributed to the livestock diseases that were affecting the animals during the month, depletion of water and pastures due to the long dryspell which has greatly affected the livestock body condition.</p> <p><u>Recommendation:</u></p> <ul style="list-style-type: none"> <li>-Communities are encouraged to spray their animals against ticks.</li> <li>-livestock owners are encouraged to present their animals for vaccination when called upon.</li> <li>-Farmers are encouraged to buy drugs to treat the farmer managed livestock diseases.</li> <li>-Farmers are also advised to move animals to the areas where there is enough water and pastures since most of the water and pasture has greatly depleted from the near by grazing areas.</li> </ul>
	Body condition <b>Normal</b> Livestock Migration <b>Normal</b> Disease incidence <b>Alert</b> Access to pasture <b>Normal</b> Animal in the market <b>Normal</b>	Body condition <b>Normal</b> Livestock Migration <b>Normal</b> Disease incidence <b>Alert</b> Access to pasture <b>Normal</b> Animal in the market <b>Normal</b>	
<b>CROPS</b>	 <b>Alert</b>	 <b>Alert</b>	<p>The crop sector is considered to be in the ALERT stage. This is mainly because of the low crop yield realized during the previous harvest period. Currently most of the food has depleted from household level forcing communities to mainly access food from the market.</p> <p><u>Recommendations:</u></p> <ul style="list-style-type: none"> <li>-Avoid selling of the little food available at household level.</li> <li>-Prepare farm tools for the season</li> <li>-Sort and keep the seeds ready for the planting season.</li> <li>-Start clearing of the land and land preparations for the planting period.</li> </ul>
	Sorghum planted N/A Germination N/A Plant Color N/A Pests and diseases N/A Crop Yield <b>Alert</b>	Sorghum planted N/A Germination N/A Plant Color N/A Pests and diseases N/A Crop Yield <b>Alert</b>	
<b>WATER</b>	 <b>Alert</b>	 <b>Alert</b>	<p>The water sector is considered to be in the ALERT stage across all the two livelihood zones and it was because the time taken to fetch water was increasing because of the stress in water boreholes. This is So because currently its only boreholes that are the main source of water:</p> <p><u>Recommendations:</u></p> <ul style="list-style-type: none"> <li>-Communities are encouraged to keep their water sources clean.</li> <li>-Communities are advised to report any water quality problems.</li> <li>-Water user communities are encouraged to support in the maintenance of the water sources especially since it's the only source of water this time.</li> </ul>
	Water fetched <b>Alert</b> Borehole usage <b>Normal</b> Time to fetch <b>Alert</b>	Water fetched <b>Alert</b> Borehole usage <b>Normal</b> Time to fetch <b>Alert</b>	
<b>LIVELIHOOD</b>	 <b>Alert</b>	 <b>Alert</b>	<p>The livelihood sector remained on <b>ALERT</b>. This is attributed to the high GAM rate at 15.7%. Such occurrence is attributed to poor health seeking behavior and dietary practices within the communities, It was also noted that there are very poor hygiene practices as well within the communities. However, therapeutic feeding program have been established in health units to check on the situation.</p> <p><b>Malnutrition Emergency</b></p> <p>Price of firewood <b>Normal</b>            Price of charcoal <b>Normal</b>            Price of labor <b>Normal</b> Price of bull <b>Normal</b>            Price of sorghum <b>Emergency</b>            Animal Market <b>Normal</b>            Movement <b>Normal</b></p>
	<b>DROUGHT RISK</b>	Malnutrition <b>Emergency</b> Price of firewood <b>Normal</b> Price of charcoal <b>Normal</b> Price of labor <b>Normal</b> Price of bull <b>Normal</b> Sorghum price <b>Emergency</b> Animal Market <b>Normal</b> Movement <b>Normal</b>	
<b>VULNERABILITY STAGE</b>			<p>The vulnerability stage is considered to be in the ALERT across all the livelihood zones. This is mainly attributed to the fact that the four sectors above were in alert stage.</p>
			





## Contacts

**PARM Secretariat**

**International Fund  
for Agricultural Development (IFAD)**

 Via Paolo di Dono 44 - 00142 Rome (Italy)

 [parm@ifad.org](mailto:parm@ifad.org)

 [www.p4arm.org](http://www.p4arm.org)

 [@parminfo](https://twitter.com/parminfo)