

KARAMOJA FOOD SECURITY ASSESSMENT



MARCH 2014



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Acronyms

CAO	Chief Administrative Officer
CBPP	Contagious Bovine Pleuro Pneumonia
CCPP	Contagious Caprine Pleuro Pneumonia
DHS	Demographic Health Survey
EA	Enumeration Area
ECF	East Coast Fever
FAO	Food and Agriculture Organization of the United Nations
FGD	Focus Group Discussion
FMD	Foot and Mouth Disease
HH	Household
KII	Key Informant interview
LCV	Local Council Five (District Chairperson)
MCHN	Maternal, Child Health and Nutrition
MAAIF	Ministry of Agriculture Animal Industries and Fisheries
NCD	Newcastle Disease
RFE	Rainfall Estimate
WFP	United Nations World Food Programme
NDVI	Normalised Difference Vegetation Index
PPR	Peste des Petits Ruminants
UNHS	Uganda National Household Survey
UNPS	Uganda National Panel Survey

Executive Summary and Recommendations

Following the long dry spell that hit Karamoja in mid-May to mid-July 2013, the Government requested the Food and Agriculture Organization of the United Nations (FAO) and the World Food Programme (WFP) to carry out a rapid assessment in the region between July and August 2013. The assessment was carried out by staff from FAO, WFP, the Office of the Prime Minister (OPM) and the Ministry of Agriculture, Animal Industry and Fisheries (MAAIF). The results released in August 2013 indicated that yields were expected to be below normal in most of the areas as a result of the general poor crop performance. It was also recommended that a post-harvest crop and food needs assessment be carried out later in the year to facilitate planning and timely decision making.

The Ministry of Agriculture Animal Industry and Fisheries anticipated carrying out this assessment at the end of 2013 and beginning of 2014, but was not able to do this because of resource constraints. This prompted FAO and WFP to support the MAAIF Early Warning Unit to carry out this assessment in February 2014. This assessment together with the FAO/GIEWS Livestock and Market Assessment mission (2-17th February 2014)¹ was also intended to complement the just concluded Household Economy Analysis (HEA) baseline survey (March 2014) in generating a holistic view of food security at household level for the region.

The main causes of current household food insecurity in Karamoja can be attributed to a combination of reduced access to food and insufficient food production (availability) across the region.

Key Findings:

1) Food Availability: *The inability of farmers to increase agricultural productivity*

- (a) Very low productivity due to several factors was the leading cause of poor harvests of key cereals and pulses (sorghum, maize, beans). In 2013, low crop productivity was aggravated by dry spells, diseases and pests.
- (b) The relatively high access to, and cultivation of, land (average size of 1.3 hectares cultivated per household) does not translate into greater food availability for the household primarily due to lack or limited access to agricultural inputs and technical support that would increase in both production and productivity levels.
- (c) The key constraints to crop production faced by the households include the inability to access key agricultural inputs (seeds, tools, labour, and fertilizers) and climate change and variability (prolonged dry spell).
- (d) Similarly, the major constraint to livestock production is the inability to protect livestock from diseases – due to the inadequate access to the necessary drugs and veterinary services.

¹ FAO/GIEWS Livestock and Market Assessment Report available on : <http://www.fao.org/giews/> and <http://www.wfp.org/food-security/reports/CFSAM.>)

- (e) It needs to be emphasised that, although the households had some food stocks at the time of the assessment, these were expected to last for a duration of only one month on average. Most households expect the highest food deficits to occur in between April and July.

2) Food Access: *The lack of employment opportunities and the inability of most households to generate sufficient income*

- (a) The average family size in Karamoja is 7 (compared to the national average of 6). However only 32 percent of the population are adults i.e. are between the ages of 18 and 63 years. This translates into a dependency ratio of 2:1 (as compared to a national dependency ratio of 1:1) and which impacts on the attainment of household food security (either through agriculture and/or other income and livelihood options) given the higher percentage of non-working dependants within the community.
- (b) The sale of charcoal or firewood and brewing of local alcohol were the most common sources of income reported across Karamoja, followed by agriculture and wage labour; the sale of crops was not reported as a main source of income by households from any district. This underlines the lack of employment opportunities across districts and further attests to low agricultural productivity and inability of households to derive incomes from it.
- (c) Over 30 percent of households report incurring debt purposely to purchase of food. This makes borrowing a continuous form of “coping strategy” and not a mechanism that a household will resort to only occasionally, which creates a very high risk of the majority of households becoming trapped in a debt cycle since expenditure on food is a constant demand on the household.
- (d) Various coping strategies were applied across the region. When unsustainable coping strategies were included in the analysis, the highest levels of coping were found in Kotido, Nakapiripirit and Napak. Households that rely on livestock as a major livelihood (in the *Southeastern Maize Cattle Zone* and Amudat district specifically) were found have to coped better to the effects the dry spell experienced in June than those in the predominantly crop production.

3) Other Factors:

Poor health

Forty four percent of households sampled in this assessment reported that they had had an ill member in the last three months. Abim and Kaabong had the highest percentage of households which had had ill adults while over 60 percent of the households in Kaabong had had one of their adult members falling ill in the past three months. This level of morbidity is extremely high and has severe implications on a household’s ability to source food and income in terms of reduced labour (ill adults cannot work) and increased spending on health/medical treatment.

Household Food Stocks and Post-Harvest Losses

A more in-depth analysis on household level stocks especially in relation to post harvest losses and the main causal factors could not be attempted due to the data collection design (with respect to this particular question). It is however clear that, there is considerable loss of yields following harvest and this is a crucial factor adversely affecting household food availability. It is thus recommended that stakeholders, in particular FAO and MAAIF, obtain more in-depth information related to household food stocks and post-harvest losses. This will provide decision makers with a more complete picture on the extent of post-harvest food loss and form the basis for more effective interventions in this area.

Food Consumption

There are very clear variations with respect to food consumption in Karamoja. A little more than half the sampled households (52 percent) exhibit **Acceptable** levels of consumption. This is a decline from the 60 percent having acceptable food consumption (survey conducted by Makerere University) in November or December 2013. The remaining 48 percent of the sample are evenly distributed as having **Poor** and **Borderline** consumption. In other words half of Karamoja is markedly better-off (in terms of consumption of food). The proportion of households with inadequate food consumption is highest in Kaabong and Napak.

In conclusion, the outcomes of the 2013/2014 production and livelihood processes have been inadequate to cater for both the current and immediate future food and income needs of the households in the region. This deduction can be generalized across the entire region, though the districts of Kaabong, Kotido and Napak exhibit a significantly poorer performance across various key food security indicators.

Recommendations

Any assistance initiative will necessarily have to *simultaneously* target three main facets of household food security in Karamoja.

1) Increase food availability by reducing farming input costs and increasing crop and livestock productivity.

- a) MAAIF should be supported to expand or initiate extension activities that help propagate better practices and advise farmers on managing pests and disease outbreaks, soil and water conservation and minimize post-harvest losses.
- b) Stakeholders consider assisting farmers by increasing their access to key agricultural inputs. Such interventions should include Moroto, Kaabong, Kotido and Napak districts.
- c) It is recommended that agencies, obtain more in-depth information related to household food stocks and post harvest losses. This will provide decision makers with a more complete picture on extent of food loss after harvests and form the basis for more effective interventions. It can be noted here that WFP has currently initiated a project to improve household food stocks in Northern Uganda and following the pilot phase, introduction of a similar project in Karamoja region can be considered.

- d) Stakeholders to ensure there are no pipeline breaks in food assistance in the months of June and July – during which time households across the region are expected to face highest food deficits.
- e) Expansion of Food-for-Work (FFW) interventions that can encourage communities to build and rehabilitate agriculture related community infrastructure.
- f) Provision of veterinary support for treatment and prevention of livestock pests and diseases through improving access to vaccines, drugs and acaricides.

2) *Increase access to food*

Stakeholders should consider the introduction or expansion of Food and Cash-for-Work programs in Moroto, Kaabong and Kotido – in these 3 districts poor food access as the main driver of food insecurity. The cash for work interventions through public works would be one option to assist households earn some income that can boost their purchasing power while generating community assets.

- a) Increase formal and semi-formal access to credit across districts.
- b) Encouragement of the Non-food sector so as to provide households with greater income generating opportunities especially in Nakapiripirit district.
- c) Replenishment or restocking of larger livestock- cattle beginning with Abim, Napak and Moroto districts.
- d) Continue monitoring the markets and market prices of staple food commodities across Karamoja and update stakeholders accordingly for immediate action where necessary.

3) *Increase household food consumption and nutritional status*

- a) The proportion of households with inadequate food consumption is highest in Kaabong and Napak. It is thus recommended that stakeholders analyze the feasibility of expanding food assistance interventions in these districts
- b) Since the scope of this assessment did not cover details on health and disease health, it is strongly recommended that more information on these issues be collected at the household level – particularly from Abim and Kaabong.
- c) WFP should carry out a further analysis of food consumption patterns in Abim (Note: Abim depicts an unusually high proportion of households in poor and borderline food consumption categories in contrast to its performance with regard to other key indicators; this extremely poor food consumption pattern does seem to be an anomaly).

1 Introduction

1.1 Background

The recurrent threats to food security in Karamoja sub-region are influenced by several factors including unpredictable climatic conditions, insecurity, crop and livestock pest, parasite and disease incidences, and poor social and economic capital among others. This necessitates the need for frequent surveys and studies by government, its development partners and other stakeholders in order to understand the situation, and make appropriate and timely interventions.

Following the long dry spell experienced in Karamoja region between mid-May and mid-July 2013, the Government requested the Food and Agriculture Organization of the United Nations (FAO) and the United Nations World Food Programme (WFP) to carry out a rapid assessment to determine the impact of this mid-season climatic shock on agriculture and food security. This assessment was meant to triangulate findings from earlier studies by Government and humanitarian partners to come up with a coherent picture on the situation obtaining in the region. The assessment was carried out by staff from the (FAO) and (WFP); the Office of the Prime Minister (OPM); and the Ministry of Agriculture, Animal Industry and Fisheries (MAAIF).

The results released in August 2013 indicated that the crop yields were expected to be below normal in most of the areas as a result of the general poor crop performance. The dry spell had resulted in less than optimum acreages of sorghum and finger millet being planted in the northern districts of Karamoja, whereas for the southern districts, the planted crop, whose acreages were considered to be within the normal range, was affected during its growth stages. This was expected to result into generally poor harvests across the region, which would eventually lead to an early lean season being experienced by the population by as early as February 2014 compared to April in normal times. In order to avert this situation, a recommendation was made on the need to continue monitoring the rainfall distribution and also ensure that a post-harvest crop and food needs assessment was out later in the year to ascertain crop yields and household food stocks to facilitate planning and timely decision making.

The Ministry of Agriculture Animal Industry and Fisheries planned to conduct a crop harvest assessment in Karamoja at the end of 2013 and beginning of 2014, a period which aligns well with the harvest period in the region, but was hampered by resource constraints. This prompted FAO and WFP to support the MAAIF Early Warning Unit, to carry out this assessment which is meant to give an indication of the levels of production (estimating yield per unit area), level of stocks available with households and the associated constraints limiting expansion of production in terms of acreages cultivated, stocks, or productivity (production efficiency). This assessment is also intended to complement the just concluded Household Economy Analysis (HEA) (March 2014) baseline survey in generating a holistic view of food security at household level for the region.

1.2 Objectives of the Assessment

The overall objective of this post-harvest assessment was to determine the level of crop and livestock production and output in Karamoja during the 2013 season and the resultant implications for the current and projected food security situation in the region in 2014. This assessment follows up on the recommendations of the joint rapid food security assessment² conducted by FAO, WFP, OPM and MAAIF in August 2013, and is therefore intended to inform the short-term and intermediate (2014) planning and response analysis processes among government, donors, UN, NGO and other stakeholders in the food security sector.

The assessment was structured around three objectives which guided the choice of methodology and definition of data collection parameters:-

- (i) To determine the level of average household and regional total crop and livestock production and productivity in Karamoja for the 2013 production season in terms of *acres, planted quantities (by crop), yields, harvests, livestock numbers, pasture and water availability/quality, reproduction (calving/kidding) rates, lactation/milk yields*;
- (ii) To analyse and project household food availability and access (*harvest sales/exchange, food stocks, alternative food sources, markets, prices, household incomes*), for the 2013/2014 consumption period;
- (iii) To quantify the projected levels of household food deficits (*relating food availability/access to household demographics*) and identify surplus and deficit areas for the 2013/2014 consumption year;

1.3 Key Assessment Parameters

The assessment parameters (shown in **Table 1**) form the basis of the approaches and methods chosen, and guided the development and pre-testing of the data collection instruments (questionnaires, checklists and guidelines), as well as the orientation and training of the assessment teams.

² Karamoja Rapid Crop and Food Security Assessment (OPM, MAAIF, FAO, WFP), August, 2013

Table 1: Objectives and assessment parameters

Objectives	Assessment Parameters	Approach/ Method
(i) To determine the level of average household and regional total crop and livestock production and productivity in Karamoja for the 2013 production season in terms of <i>acres, planted quantities (by crop), varieties, yields, harvests, livestock numbers, pasture and water availability/quality, reproduction (calving/kidding) rates, lactation/milk yields;</i>	<ul style="list-style-type: none"> • Crop and livestock production calendars; • Key crops (staples and cash-crops) grown in 2013: acreage, performance, harvest quantities, sold quantities, post harvest losses; • Food stocks comprising own production, exchange and market purchases; • Livestock numbers and herd dynamics (breeding, calving/kidding), body condition, productivity (product quantities per herd/flock) • Pastures and water quality throughout the production year • Seasonal constraints to production vis-à-vis the reported rainfall regime (dry spells, intermittent rains, seed loss, pest and diseases) 	<p>Household interviews;</p> <p>Community focus group discussions (FGDs); Key informant (KI) interviews;</p> <p>Secondary data analysis / literature review</p>
(ii) To analyse and project household food availability and access (<i>harvest sales/exchange, food stocks, alternative food sources, markets, prices, household incomes,</i>) for the 2013/2014 consumption period;	<ul style="list-style-type: none"> • Crop and livestock/product sales, exchange, terms of trade/exchange; • Food sources • Income sources, amounts, wage rates, opportunities (reliability/duration – temporary/seasonal or permanent) • Market supply situation, prices and access 	<p>Household interviews;</p> <p>FGDs; KI interviews;</p> <p>Market/trader surveys</p>
(iii) To quantify the projected levels of household food deficits (<i>relating food availability/access to household demographics and standard dietary requirements</i>) and identify surplus and deficit areas for the 2013/2014 consumption year;	<ul style="list-style-type: none"> • Computation of: <ul style="list-style-type: none"> • Household food needs using household demographics/family size, migration, feeding patterns, food preferences, dietary diversity, and food consumption scores; • Household net food supply situation using stocks, purchases, income sources/amounts and expenditure patterns, terms of trade, coping strategies; 	<p>Household interviews;</p> <p>FGDs; KI interviews;</p> <p>data and literature</p>

2 Methodology

2.1 Survey Approach

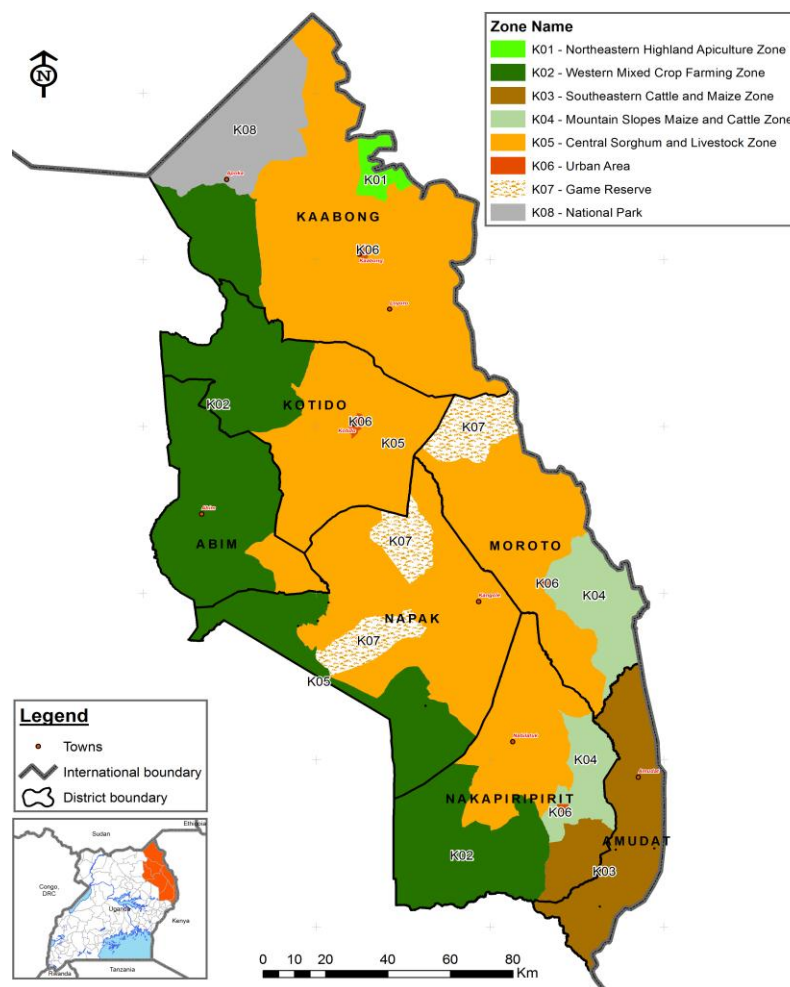
The survey adopted a participatory approach combining “**qualitative**”³ and “**quantitative**” techniques. Semi-structured **household interviews** were conducted to collect data on the demographics of households, crop and livestock production at household level, household incomes, income sources, expenditures, food sources, consumption and coping strategies. **Focus group discussions** with community representatives were held to obtain insights on their common livelihood options, opportunities, challenges and coping or adaptation measures employed. **Key informant interviews** with selected officials from the district local government departments were used to obtain aggregate information on the administrative demographics (populations), main food and income sources, constraints to production and to identify deficit and supply areas. **Market surveys** were used to obtain data on the supply situation and prices for essential food and non-food commodities as well as access and other structural constraints.

These primary data collection approaches were supplemented with analysis and compilation of secondary data from both the rapid assessment (referred to above) and the nutrition assessment⁴ conducted by WFP/Makerere University in December 2013.

³ These definitions are assigned based on the traditional perceptions that, despite collecting both numeric (quantitative) and descriptive/attribute (qualitative) data, household interviews/questionnaires are considered «quantitative» while key informant indepth interviews and focus group discussions are considered «qualitative» following other considerations like sampling, analysis (statistical vs. non-statistical) and interpretation of results.

⁴ Food Security and Nutrtn Assesment in Karamoja Region- December 2013

Figure 1: Administrative boundaries and revised livelihood zones



2.1.1 Sampling design and sample size

The Uganda Population and Housing Census (PHC, 2002) conducted in September 2002 provided the sampling frame. The assessment was planned to generate regional and district levels estimates and, to achieve this, a sampling scheme of 190 enumeration areas (EAs) (clusters) and 10 households in each selected EA (cluster), leading to 1,900 households, was adopted. The sample size was determined based on the severity of food insecurity an indicator (predicted value of indicator) derived from the previous assessments.

A two stage stratified sample design was used; at the first stage Enumeration Areas (EAs) were selected with Probability Proportional to Size (PPS) and at the second stage, households which were the ultimate sampling units were selected using Systematic Random Walk ⁵(SRW). A total of 1,900 households were interviewed using a structured questionnaire. In instances where the EA comprised of several *manyattas* (homesteads), segmentation method was used.

⁵ Systematic Random Walk is a method which entails (1) randomly choosing a starting point and a direction of travel within a sample cluster, (2) conducting an interview in the nearest household, and (3) continuously choosing the next nearest household for an interview until the target number of interviews has been obtained

Table 2: Table showing the sample size by district

Districts (strata)	Predicted value of indicator (<i>r</i>)	Number of households (Sample Size) (<i>n</i>)	Cluster size	Number of clusters (EAs)
Abim	0.25	400	10	40
Amudat	0.13	390	10	39
Kaabong	0.38	220	10	22
Kotido	0.44	190	10	19
Moroto	0.38	230	10	23
Nakapiripirit	0.36	240	10	24
Napak	0.38	230	10	23
Total		1 900		190

Sample selection was also guided by the need to meet the following requirements/criteria:

- Using UBOS Enumeration Areas (EAs) to facilitate proper alignment, and therefore accurate referencing, of assessment results with other national studies (Uganda Census of Agriculture, UNHS, DHS, UNPS⁶, National Livestock Census, 2008, etc.)
- Obtaining a representative sample for each district and all livelihood zones as depicted in **Figure 1**.
- Resource constraints: the urgency of availing results to stakeholders while considering time; logistical resources and the vast nature of Karamoja region with scattered settlements and very low population density.

Focus-Group Discussions (FGD):

In order to validate household interview data one to two focus group discussion (FGD) were done per sub-county with members of the community and their leaders (or elders) to obtain insights into livelihoods, challenges/crises and adaptation measures at community level. A total of 40 FGDs was carried out.

Key Informant Interviews (KIIs):

At least three key informant interviews/discussions were held with technical staff from the production departments (district production and marketing coordinators, district agricultural officers, district Veterinary Officers) in each district giving a survey total of 21 KIIs. In some of the districts, political and administrative officials (CAOs, LCVs and Secretaries for Production) were also considered.

Market Surveys:

Complementary to secondary data obtained from WFP's market price monitoring system⁷ in Karamoja, market surveys were conducted in all the main and livestock markets in Karamoja and some weekly markets identified through KII and FGD interviews. The main markets covered included:

- Moroto district: *Moroto market*

⁶ National surveys periodically conducted by UBOS: DHS = Demographic and Health Survey; UNHS = Uganda National Household Survey; UNPS = Uganda National Panel Survey.

⁷ The quality and accuracy of information from this system needs to be verified.

- Napak district: *Matany and Iriri markets*
- Nakapiriprit district: *Namalu market*
- Kotido district: *Kotido and Kanawat markets*
- Kaabong district: *Kaabong market*
- Abim district: *used to be Abim market*
- Amudat district: *Amudat Market.*

Secondary price data collected by WFP helped in building trends for analysis and comparison with current prices. Since market assessment is indicative, 2 to 5 traders were interviewed per market depending on their availability and willingness of traders to be interviewed.

2.1.2 Quality assurance

For purposes of quality assurance and consistency, the country teams comprising technical officers from MAAIF, UBOS, FAO and WFP were supported by technical officers from FAO headquarters in Rome and WFP's Regional Bureau for East and Central Africa who participated in, backstopped and provided oversight to the planning processes, secondary data and literature compilation, field data collection, data processing, report compilation, and stakeholder discussions and presentations. This, in addition to facilitating advocacy among the donors and the wider food security stakeholder community, ensured that the assessment teams adhered to the set schedules and standards.

2.2 Fieldwork and Data Processing

2.2.1 Structure of field assessment team

The data collection was done by a team of 40 enumerators who were supported by guides and translators (although all efforts were made to engage locally based enumerators who could communicate directly with the respondents). Each district had at least one team leader and five enumerators. Districts with large sample sizes, like Abim and Amudat, were allocated two team leaders and eight enumerators each. Enumerators were trained to probe the respondents until they were satisfied with the veracity of the responses given before they were recorded in the questionnaire. The first check of the questionnaires was therefore done by enumerators in the field, followed by a. second check done by the team leaders and finally by the Regional Supervisors. Inconsistencies encountered were corrected and, where necessary, a revisit to the respondent was made by the enumerator in the presence of the team leader to obtain the correct information.

2.2.2 Data collection tools

Household interviews were conducted using a pre-tested semi-structured questionnaire. The data collection process was done within seven (7) days. An FGD checklist and Key Informant checklist were formulated and used to collect data from the communities and selected officers in their respective districts.

2.3 Report Aggregation and Compilation

2.3.1 Data analysis

Analysis for household interview data was done using several applications STATA, and SPSS; MS Excel pivot tables, exploratory analysis and plotting charts: frequency counts and descriptive statistics.

2.3.2 Report compilation

The joint team of FAO, MAAIF, UBOS and WFP experts were responsible for compilation and consolidation of the draft and final reports and presentations to both internal and external stakeholders.

3 Findings

3.1 Household Demographics

Regarding household size, the average for the sample was seven members per household with little difference between the zones, though Abim, Kaabong, Nakapiripirit and Kotido districts had the biggest household sizes. The average family size in Karamoja is higher than the national average of six.

Table 3: Household size

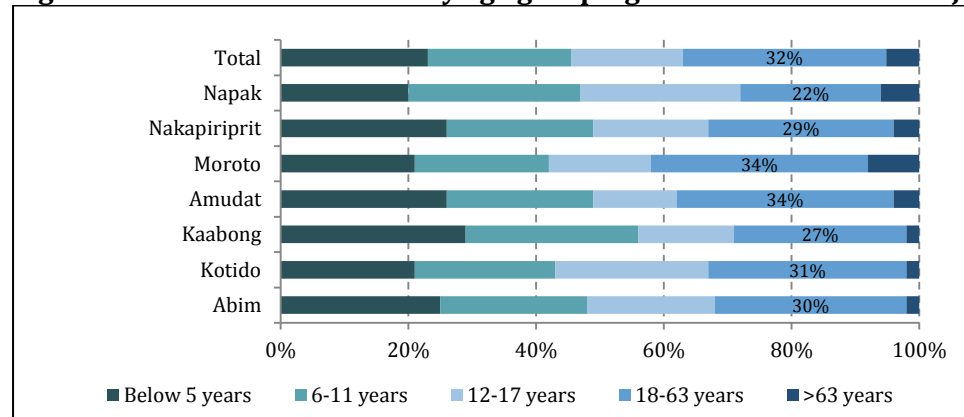
District	Average household size (n)
Amudat	6
Kotido	8
Kaabong	8
Moroto	6
Napak	7
Nakapiripirit	8
Abim	8
Average	7

Figure 2 shows the household composition for the different districts disaggregated by age-group. These demographics indicate that a large proportion (68 percent) of the household members are either below 18 (children) or above 63 (elderly), compared to only 32 percent who are between 18 and 63. Adult active household members (between 18 and 63 years of age) constitute the bulk of the agricultural workforce⁸ in Karamoja, and are therefore the mainstay of livelihood and economic activity in the region. The dependency ratio is an economic indicator which shows the age-population ratio of those typically not in the labour force (the *dependent* part) and those typically in the labor force (the *productive* part), and is used by the World Bank⁹ (among others) to measure the pressure (or “dependency”) on the productive population. Extrapolating the household composition in Karamoja (i.e. where only 32% are productive adults) to the entire population would therefore imply a dependency ratio of 2:1 which is higher than the national average of 1:1. This disproportionately high number of dependants significantly impacts on the attainment of food self-sufficiency at household and community level; for instance, 32 percent of the community members who fall within the economically productive age group need to source sufficient food and income to cater for the needs of the entire community, majority of whom are non-productive members (i.e. children or the elderly).

⁸ The exception are the young boys who engage in herding especially goats and sheep around the homesteads.

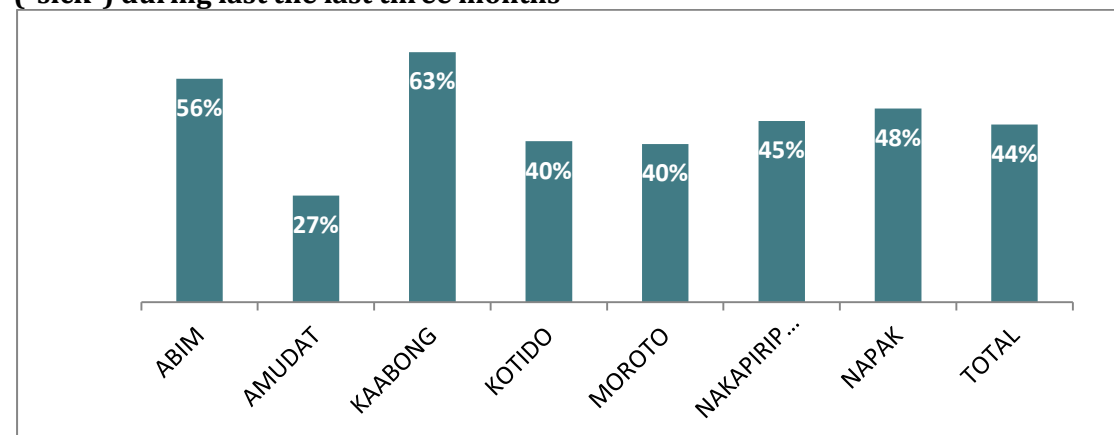
⁹ <http://data.worldbank.org/indicator/SP.POP.DPND>

Figure 2: Household members by age grouping for districts in Karamoja



The labour shortages at household level are made worse by high incidences of morbidity; 44 percent of the households sampled reported that they had some adult members who had been ill (“sick”) in the last three months (**Figure 3**). Abim and Kaabong had the highest percentage of households whose adult members had been ill during the past three months. However, the scope of the assessment did not cover detailed information about the type of ailments causing this morbidity. It is thus strongly recommended that, in subsequent assessments, more information be collected on health and disease at the household level – particularly from Abim and Kaabong.

Figure 3: Households which had some adult members (18-59 years) being ill (“sick”) during last the last three months



Two thirds of the households (65 percent) are headed by men implying that one third are female-headed (

Table 4). This proportion of women-headed households is extremely high by normal standards and implies that one third of the sampled households depend on women as the sole income and/or livelihood earners. However, this anomaly is probably a reflection of the nomadic pastoralist livelihood setting where at certain times of the year the men adults migrate with their livestock in search of water and pasture and are thus “absent” from their households. This inference seems to be supported by the fact that the level of female-headed households is the lowest in Abim, where there are more crop farmers than livestock herders. The livelihoods of female-headed households, especially when they have so many unproductive dependants (alluded to in the dependency ratio above), are especially constrained by gender-related resource access problems, and this definitely impacts on household food security.

Table 4: Gender of household head

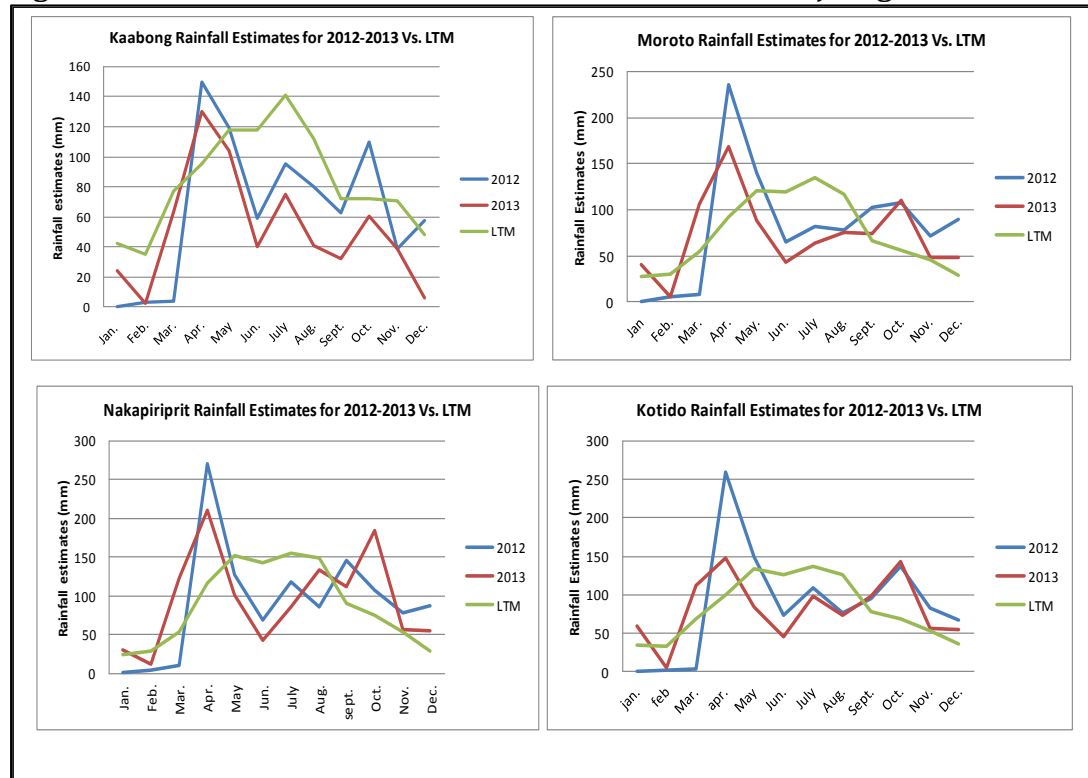
District	Female household head (%)
Amudat	44
Kotido	32
Kaabong	32
Moroto	34
Napak	33
Nakapiripirit	42
Abim	25
Overall	34

3.2 Crop Production

3.2.1 Rainfall distribution

Though rainfall estimate (RFE) data for Karamoja (**Figure 4**) showed that in 2013, average to above-average rainfall amounts were received in all the districts between March and April 2013, in May the rainfall started to reduce rapidly, falling below the long term mean with a dry spell being experienced in mid-May to June when most of the crop was at the flowering stage. This affected the crop performance as confirmed by the rapid assessment done in August 2013. The rains started peaking again towards the start of the harvest period, but by this time most of the crop that had survived (the dry spell) was already badly affected exhibiting poor grain-filling and stunting, leading to delayed and/or poor harvest in almost all districts.

Figure 4: Rainfall estimates for some districts in the Karamoja region

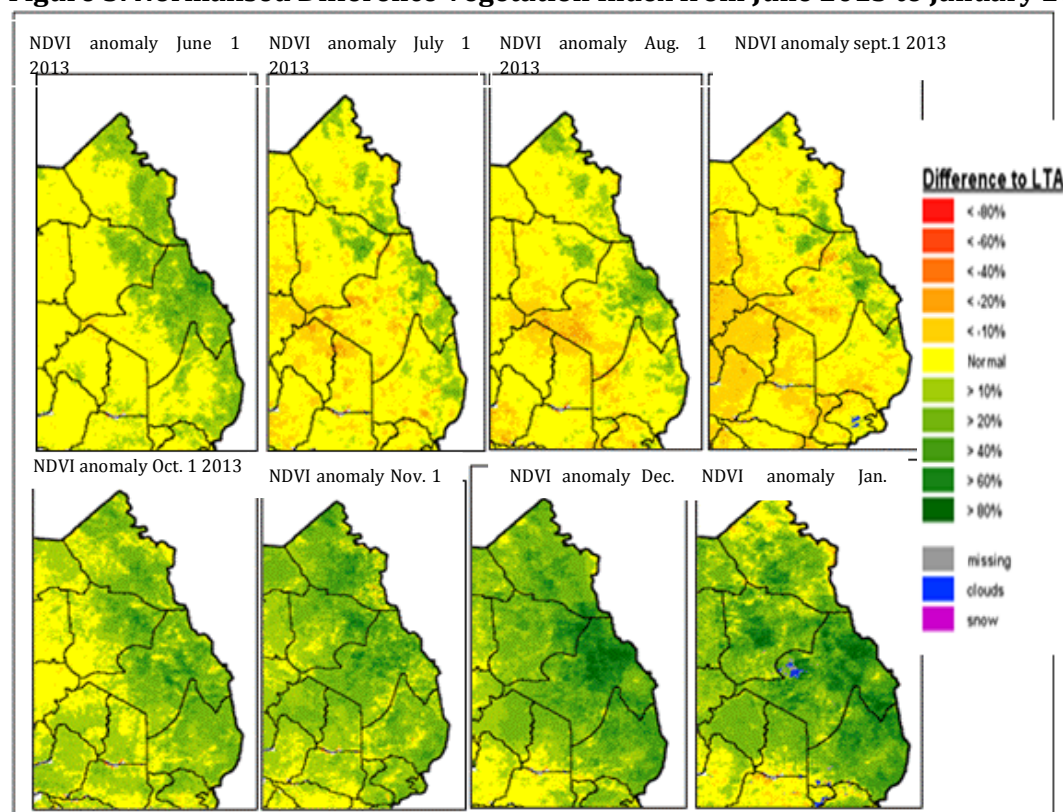


Source: GIEWS NOAA/FEWS; FAO/SDRN-Agro-meteorology January 2014

3.2.2 Vegetation cover (growth & quality)

The Normalised Difference Vegetation Index (NDVI) picture since June 2013 shows that the vegetation condition from July to about September 2013 did not fall below the normal range; it even improved to more than 20 to 40 percent of the long term mean for most of Karamoja (**Figure 5**). The vegetation appeared greener than normal in the last quarter of the 2013, a period when the rainfall amounts exceeded the long term mean indicating some consistency between the RFE (shown in Figure 4) and the NDVI patterns. A quick interpretation of this is that the rainfall distribution, despite the mid-season dry spell which affected crop performance, did not have a negative overall effect on the growth or health of other vegetation (including pastures).

Figure 5: Normalised Difference Vegetation Index from June 2013 to January 2014



A cropping calendar (**Figure 6** below) was generated out of farmer responses to compare the seasonal crop production activities for the 2013/2014 production/consumption year with the usual occurrence during typical/normal years. The rains started on time but were interrupted by the prolonged dry spell experienced in May to June which affected the flowering and subsequent grain-filling of cereals and led to delayed and diminished harvests (lower than normal averages). Though rains could have been sufficient to give positive NDVIs (crops still looked green) the damage had already been done for the case of cereals leading to poor yields.

Consequently, there was inadequate food available for stocking (i.e. the food stocks were smaller than usual) and this resulted in an early start of (and therefore) a longer-than-normal lean period or hunger gap.

Figure 6: Crop production calendar 2013 also showing status of foodstocks in 2013/2014

Year	Parameter	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sept.	Oct.	Nov.	Dec.
Normal		Dry		wet			Dry		wet			Dry	
2013	season	Dry		wet			Dry		Wet			Dry	
Normal	Agric. Activities		Planting		Crop development				Harvesting				
2013	Activities		Planting		Limited crop development				Harvesting				
Normal	food stocks	Good		Declining			Increasing						
2014		Declining		Exhausted			No food stocks						

Source: Key Informant Interviews

3.2.3 Land area cultivated and crops grown by households

The majority (above 90 percent) of households sampled had access to cultivable land. **Table 5** shows that the average land that was cultivated by each household in 2013 was 1.2 hectares (Ha). This implies that there is a relatively high level of access to land by the households in Karamoja region (since the land cultivated is usually just a portion of all the land accessed by the household, some of it being put to other purposes, like grazing). However, this impressive land access (≥ 1.2 ha per household) did not translate into greater food production and availability for the surveyed households, due to various factors that lower agricultural productivity in Karamoja.

As can be seen from the analysis of income sources of (Section 3.4.5) – despite over 90 percent of sampled households having access to land, income derived from sale of crops was not reported as a main source of income by households from any district. This could probably have been due to the poor harvests or the fact that agriculture is largely subsistence.

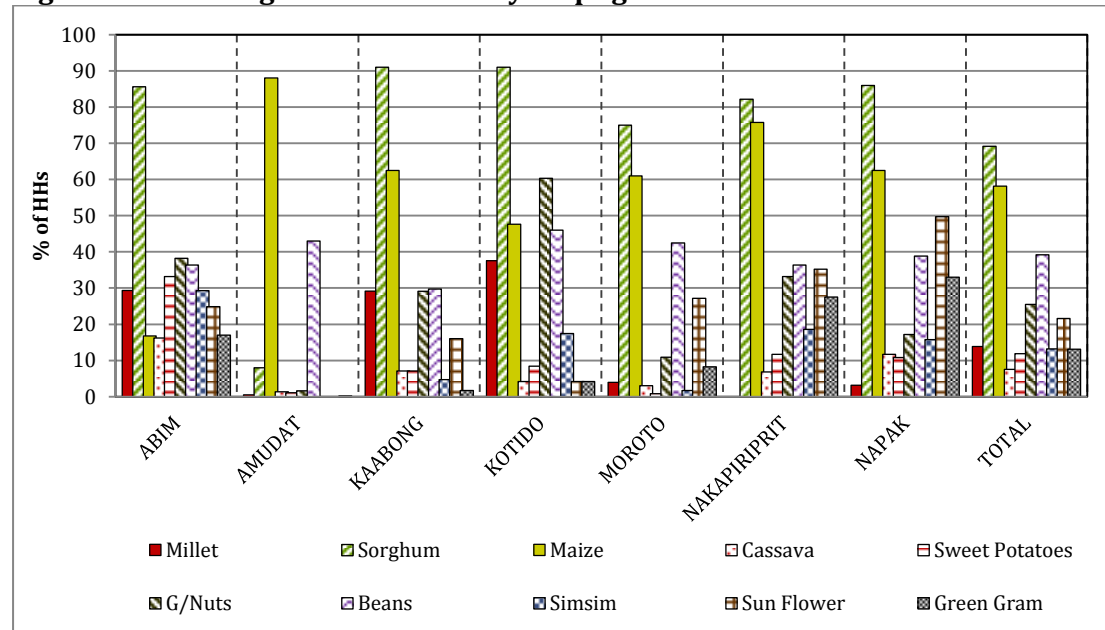
Table 5: Average land area cultivated per household in 2013

District	Average area cultivated per household (ha)
Abim	1.5
Amudat	0.6
Kaabong	1.5
Kotido	1.2
Moroto	1.3
Nakapiripirit	1.4
Napak	1.2
Overall	1.2

Though the averages of the area cultivated per household were highest in Abim and Kaabong, these figures were lower than what the household in these districts cultivate in a normal/typical year (based on information obtained through the FGDs). The relatively lower averages posted by the other four districts were actually higher than those usually cultivated in a normal/typical year, and this expansion was attributed government support towards land-opening reportedly received by these.

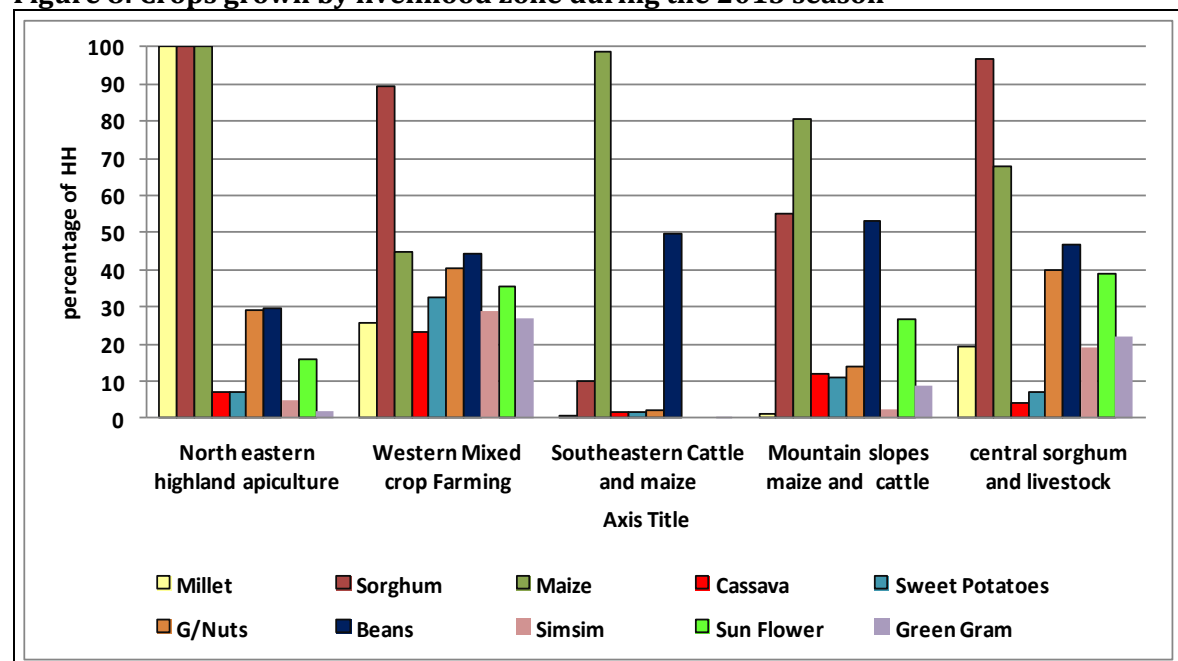
The key crops grown by most households in the 2013 season were sorghum, maize, beans, groundnuts and, to a lesser extent, simsim, sunflower, bulrush millet, cassava and sweet potatoes, especially in the wet belts of Nakapiripirit, Napak and Abim (**Figure 7**). Sorghum and maize were the most popular crops for all the districts except Amudat where maize and beans were the predominant crops. Amudat also had the least crop diversity as compared to the other districts, while Abim, Nakapiripirit and Napak had the widest diversity of crops grown during the 2013 cropping season.

Figure 7: Percentage of households by crops grown for season 2013



Similarly, analysis of crops grown by livelihood zone (**Figure 8**) showed that maize and sorghum were the major cereals grown in all livelihood zones, though in the *Northeastern Highland Apiculture Zone* bulrush millet was added to this list as it was grown by all the households sampled. In the *Western Mixed Crop Farming Zone*, 90 percent of households grew sorghum while in the *Southeastern Cattle and Maize Zone*, maize was grown by more than 90 percent of the households. In the *Mountain Slopes Maize and Cattle Zone*, the majority of households (80 percent) grew maize while about 50 percent grew sorghum and beans. In the *Central Sorghum and Cattle Zone* about 95 percent of the households grew sorghum while 60 percent grew maize.

Figure 8: Crops grown by livelihood zone during the 2013 season



3.2.4 Crop productivity

Productivity refers to the amount of output per unit input and indicates the efficiency at which the farmers or producers convert their limited resources into harvests. As an indicator of the level of productivity, the estimated yields of the crops grown in Karamoja in 2013 were computed by dividing the average harvested quantity (Kg) by the average area planted (hectares) for each crop using data from the households that grew that particular crop.

On average, the households that planted sorghum harvested 210 Kg per hectare, while those that planted maize and bulrush millet reaped 206 Kg and 85 Kg per hectare respectively (**Table 6**). A comparison of crop yield obtained for the Karamoja 2014 assessment and the farm surveys (*Fermont and Benson, IFPRI, 2011*) indicate that the yields in Karamoja were very low (between 4 and 19 percent of average yields of selected crops for Northern Uganda) and this is probably the primary reason for low production and food availability in the region.

Table 6: Computed yields of major crops in 2013 in Karamoja, and comparison with average yield and yield ranges for Northern Uganda

Crop	Karamoja 2013 Yield (Kg/ha)	Northern Uganda		Current yield as % of average yield
		Average yield (Kg/ha)	Yield range (Kg/ha)	
Sorghum	210	1 100	400 – 1 500	19%
Maize	206	1 300	600 – 2 000	16%
Millet	85	900	500 – 1 100	9%
Rice	116	1 600	1 400 – 1 900	7%
G.nuts	103	900	500 – 1 500	11%
Beans ¹⁰	97	600	400 – 800	16%
Cassava	208	5 900	5 500 – 6 200	4%
Sweet potato	190	4 200	3 900 – 4 600	5%

Source: Anneke Fermont and Todd Benson (June 2011) IFPRI Discussion Paper 01097: Estimating Yield of Food Crops Grown by Smallholder Farmers ; A Review in the Uganda Context

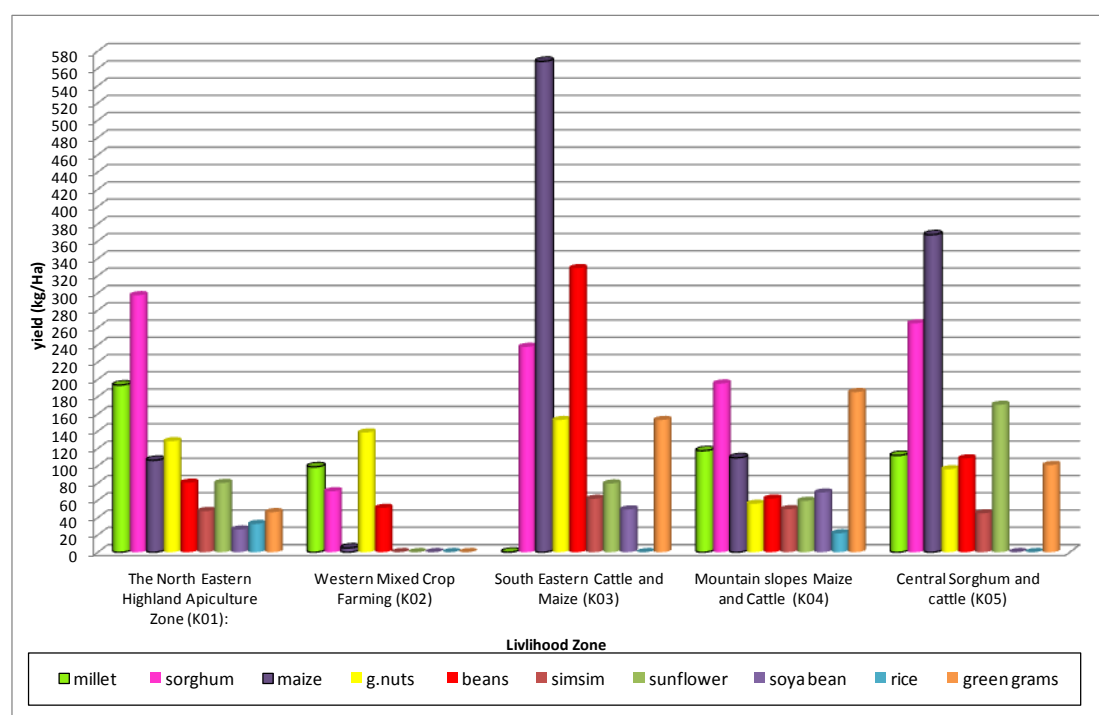
Through focus group discussions, the consensus among farmers was that the crop harvests realised in 2013 were generally significantly lower than that in normal times, and that the yields ranged between 20 to 40 percent of what farmers had expected to harvest (**Annex 1**). This poor crop performance and subsequent diminished harvest has been attributed to the erratic rains and prolonged dry spell experienced during the middle of the growing season, and heavy pest and disease infestation, especially honey dew which affected the late-planted sorghum.

The analysis shown in **Figure 9** and **Figure 10** illustrates the suitability of different crops for production in the different livelihood zones. Though all crops performed poorly in the 2013 season and productivity is low in Karamoja as already stated, the *Southeastern Cattle and Maize Zone* posted the highest relative maize yields for the region (568 Kg/ha), followed by the *Central Sorghum and Cattle Zone* (367 Kg/ha), while the lowest yields were recorded in the *Northeastern Highland Apiculture Zone* (106 Kg/ha). Sorghum, which is the main staple and is grown in all livelihood zones, yielded

¹⁰ National average yield and yield ranges quoted because of lack of Northern Uganda data for this particular crop.

poorest (70.5Kg/ha) in the *Western Mixed Crop Farming Zone* and this was attributed to flooding in the low lying areas which was followed by a dry spell and attack by sorghum smut and honey dew even affecting the late planted sorghum. Sorghum was observed to have performed relatively better in the *Northeastern Highland Apiculture Zone* (297 Kg/ha) followed by the *Central Sorghum and Cattle Zone* (265 Kg/ha). For pulses, the beans performed relatively better in the *Southeastern Cattle and Maize Zone* (329 Kg/ha) than in the other livelihood zones. In summary, these yields, which are roughly 7 to 19 percent of the average yields for Northern Uganda, further emphasise the level of poor crop performance experienced in Karamoja in 2013.

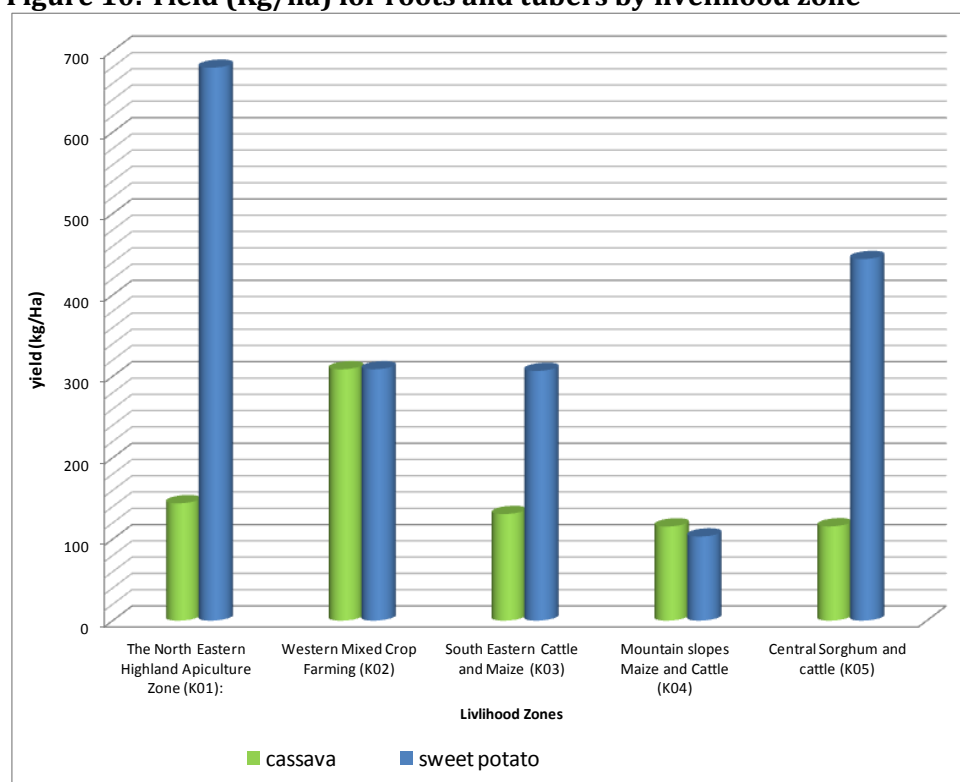
Figure 9: Yield (Kg/ha) for cereals and pulses by livelihood zone



The results also show that although the households in the *Western Mixed Crop Farming Zone* grew the most diverse number of crops, they obtained the lowest yields for all the crops, and most especially the cereals (millet, sorghum and maize). The most plausible inference from this is that this traditionally crop-producing zone was affected the most by the prolonged dry spell as selection of crops for drought tolerance and adjustment of agronomic responses to erratic climatic patterns have not yet been adopted as coping mechanisms in this zone compared to the other relatively more semi-arid zones.

Figure 10 shows that sweet potatoes and cassava were cultivated in all the zones, which implies that these two crops, whose introduction into Karamoja is relatively recent, can be successfully grown across the entire region. Sweet potatoes were reported to have performed better in the *Northeastern Highland Apiculture Zone* and the *Central Sorghum and Cattle Zone* where the yields were 679 Kg/ha and 444 Kg/ha respectively.

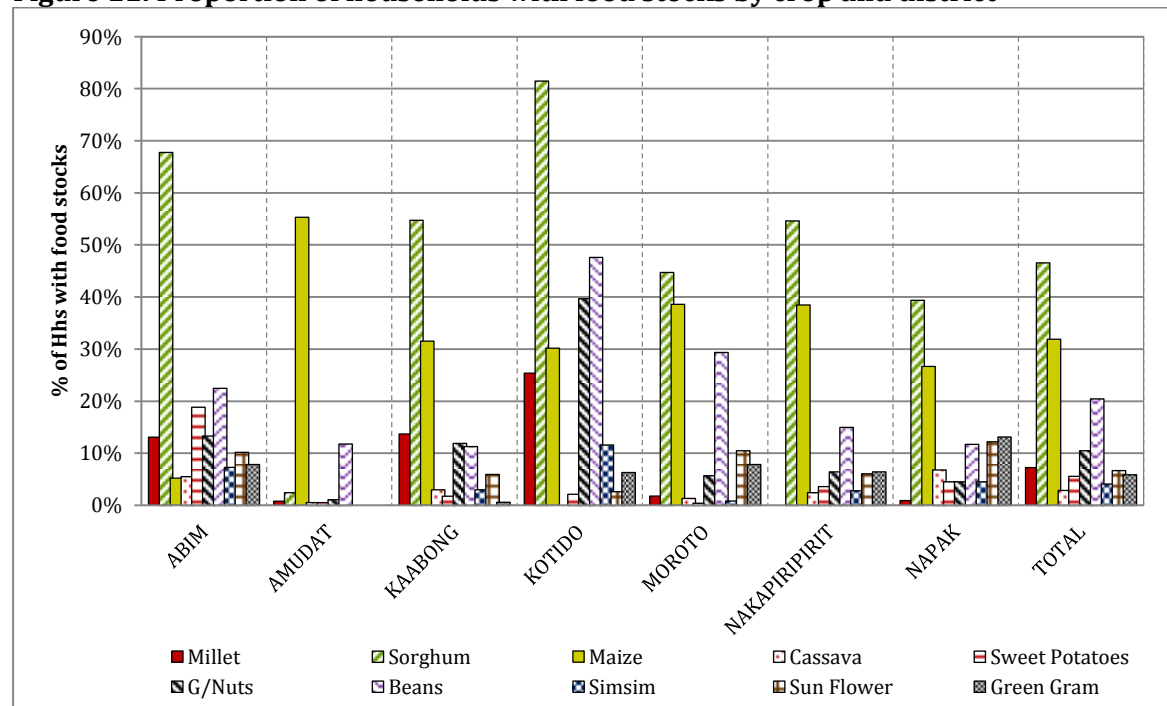
Figure 10: Yield (Kg/ha) for roots and tubers by livelihood zone



Though the cassava and sweet potato crops were able to withstand the unfavourable climatic conditions that characterised the 2013 cropping season, the yield ranges obtained for both crops are still very low and are about only 4 to 5 percent of the average yields for Northern Uganda. Cassava yielded better (309 Kg/ha) in the *Western Mixed Crop Farming Zone* but did not perform well in the other zones giving a yield range between 103 and 144 Kg/ha which was a dismal two percent of average yields for northern Uganda. The fact that these crops are harvested piecemeal even across the dry season mean that they significantly supplement grain food stocks in the region. For instance, the cassava planted in April, would be ready for consumption around the same time in the following year and would therefore go a long way in bridging the food gap during the lean season or times of drought. The promotion of these tuber crops should therefore be considered while planning interventions to increase household food availability.

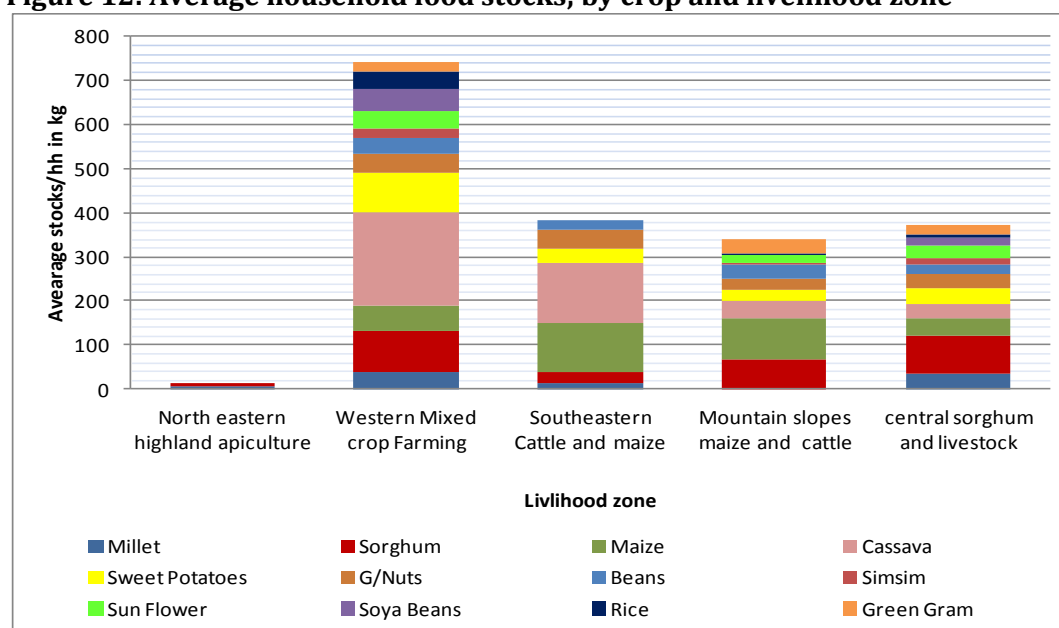
The poor yields resulted in low harvests from the crops grown, which this in turn lowered the level of food stocks held by households and subsequently worsened the food security situation of the Karamoja region. **Figure 11** shows the percentage of households that had stocks during the time of the assessment.

Figure 11: Proportion of households with food stocks by crop and district



Results of the analysis of food stocks held by the households at the time of the assessment (February 2014) revealed that close to half of the households (47 percent) in Karamoja had some sorghum stocks, 32 percent had some maize stocks while 20 percent had some stocks of beans. Disaggregating these results by livelihood zone (**Figure 12**) shows that the households in the *Western Mixed Crop Farming Zone* had the highest total quantities of food stocks, as the relatively higher level of production of cassava and, to a lesser extent, sweet potatoes, the two tubers which are harvested piecemeal and are therefore easier to conserve for future consumption, greatly supplemented the grain stocks. Conversely, the lowest household food stocks were recorded in the *Northeastern Highland Apiculture Zone*.

Figure 12: Average household food stocks; by crop and livelihood zone



The household food stock situation described in above presents only half of the picture on food availability at household level; the other half is the expected duration of these stocks vis-à-vis the current household food consumption requirements. This analysis shows that the food stocks held by the households at the time of the assessment were projected to last for an average of only one month (after the assessment date), and this further underscores the extent of the impact of poor crop performance and the resultant low harvests in 2013 on household food security (**Annex 2**). Through focus group discussions, most of the communities stated that they expected to face food deficits by as early as February¹¹ (indicating an early start to the lean period which usually begins in April), and these deficits were supposed to last till July and August when the earliest planted crops were ready for harvest or “green consumption”¹² (**Table 7**).

Further analysis into the nature and type of food storage structures showed that, although the majority of households (79 percent) had some grain storage structures in the form of traditional cribs post-harvest losses ranged from 5 to 20 percent.

Crop harvest sales per household averaged less than 10 percent portion of the harvested quantities. This is obviously attributed to the fact that the harvests were insufficient to cover the household consumption needs and also generate a surplus available for sale. The level of post-harvest losses, and their effect on household food availability, could not be accurately quantified during this assessment, but are assumed to be negligible for the 2013/2014 production and consumption years since the harvests and food stocks were too low to take any significant losses. However, due to the evident importance of post-harvest losses as a recognized threat to household food stocks, especially when the storage facilities are not secure or hermetic as is the case in Karamoja, recommendations were made to MAAIF and FAO in particular to conduct a more in-

¹¹ This implies that some were already facing deficits, while others would exhaust their food stocks within the assessment month.

¹² This is a term borrowed from the Household Economy Analysis, and refers to the consumption of especially cereal crop ears before the entire crop field has fully matured/ripened and is ready for harvest.

depth study on the level household food stocks and post-harvest losses experienced in Karamoja under different seasonal performances. This will provide decision-makers and other stakeholders with a more complete picture on the extent of food loss after harvest and will form the basis for more effective interventions in the food security sector.

Table 7: Months in which deficits are expected by district

Districts	Months in which deficits are expected	Most affected
Kotido	February – August	Women headed households Child headed households Poor households in central sorghum and livestock zone of Napak
Kaabong	May – July	
Abim	February – May	
Napak	February – July	
Nakapiriprit	March – July	
Moroto	February – July	
Amudat	March-July	

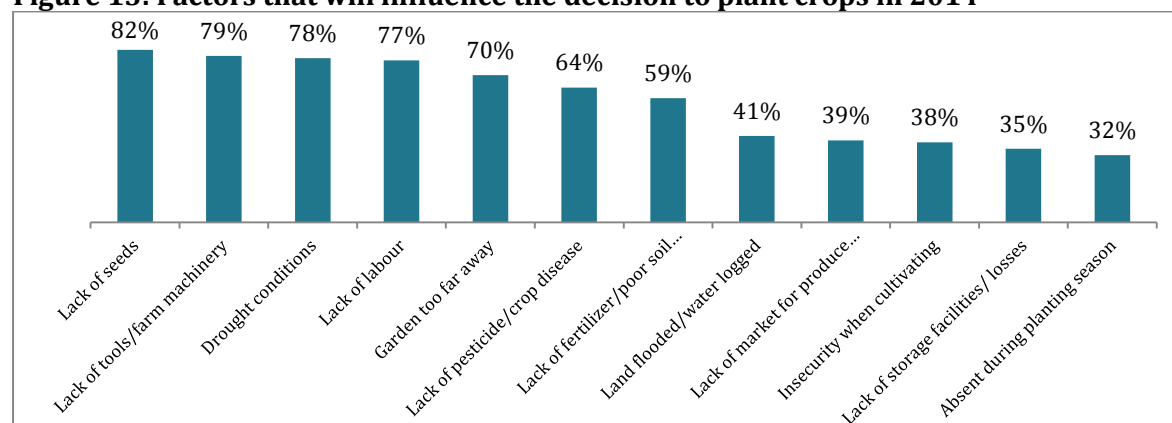
The major constraint to crop production in 2013 was the inadequate access by farmers to key agricultural inputs (quality seeds, tools, labour, and fertilizers) (**Table 8**) which exacerbated the effects of the erratic rainfall patterns.

Table 8: Crop production constraints

Districts	Causes of poor harvest/crop production in 2013
Abim	Long dry spell, and poorly distributed and heavy rainfall led to crop failure.
Kotido	Late planting, dry spell, poor quality seeds, and crop pests and diseases (notably sorghum midge, bean fly, simsim webworm, aphids, stalk borer in cereals and rosette disease in groundnuts). Recurrent floods in the river valley of Dopeth.
Kaabong	Prolonged dry spell which led to late planting and was followed by flooding.
Moroto	Prolonged dry spell, and late planting.
Nakapiriprit	Flash floods and dry spell; inadequate planting materials e.g. cassava cuttings and sweet potato vines; crop diseases and pests e.g. midge, honeydew, maize streak, cassava mosaic and brown streak diseases, and wild animals.
Napak	Late rains, crop diseases (especially mildew) and delayed harvest.
Amudat	Heavy rains and prolonged dry spell, crop diseases and pests such as the midge and honey dew.

These constraints were also listed among the leading factors that will influence the decision of farmers to plant crops in the 2014 season (**Figure 13**). Inadequate access to inputs (for example seeds, tools or farm machinery) as well as drought feature prominently on this list.

Figure 13: Factors that will influence the decision to plant crops in 2014



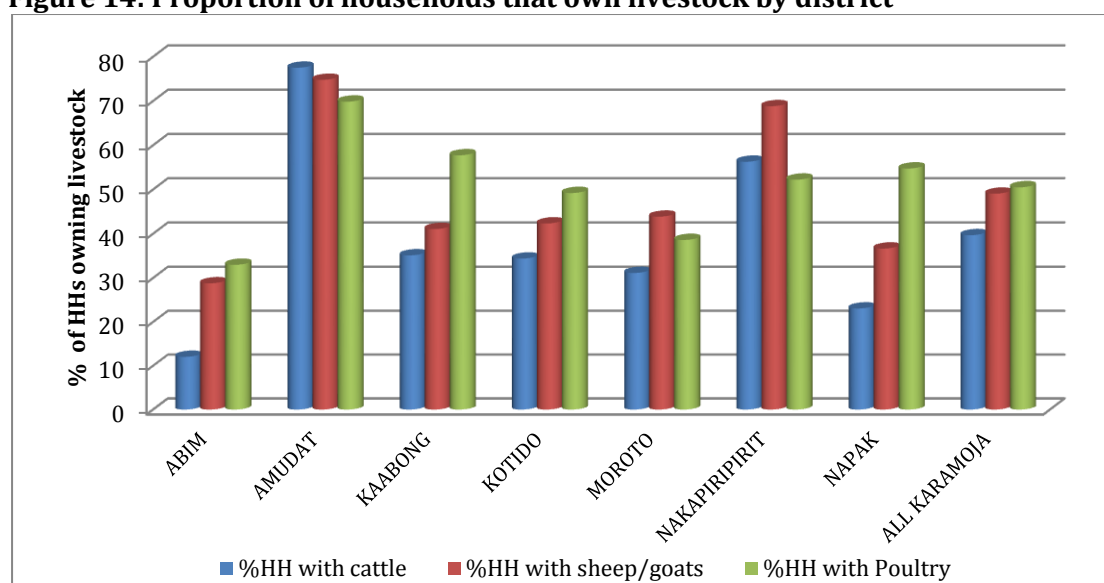
3.3 Livestock Production

The livestock kept in Karamoja include cattle, goats, sheep, pigs, donkeys, turkeys, ducks and chicken. The assessment results indicate that at least 40 percent of the households in Karamoja own cattle, 49 percent own sheep and goats and 50 percent own poultry.

3.3.1 Livestock ownership

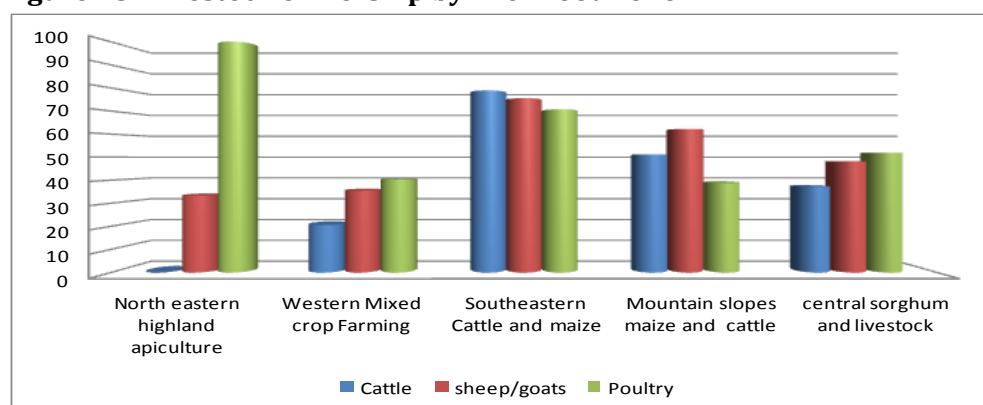
Figure 14 shows the distribution of livestock ownership by district. Amudat district registered the highest proportion of households that own livestock; 78 percent own cattle and 75 percent own sheep and goats. Abim had the lowest proportion of households that own livestock (only 12 percent own cattle, 29 percent own shoats and 33 percent own poultry).

Figure 14: Proportion of households that own livestock by district



Analysis by livelihood zone (**Figure 15**) shows that the *Southeastern Cattle and Maize Zone* has the highest proportion of households owning cattle and other types of livestock that include cattle, sheep and goats. The *Western Mixed Crop Farming Zone* has the least proportion of livestock-owning households.

Figure 15: Livestock ownership by livelihood zone



During the assessment, respondents were asked to state the number of livestock they currently owned compared to what they owned 3 months ago, and 91 percent reported that there had been a decline in their livestock numbers over the past 3 months. The decline in numbers was majorly attributed to selling of livestock (81 percent of households) to get money to pay school fees and also meet other needs. About 28 percent of households reported that they had lost an animal and the leading cause of death was attributed to diseases and parasites.

3.3.2 Pasture, water availability and livestock body condition

Despite the fact that February is a dry month in Karamoja and the vegetation in the rangelands is usually at its lowest by around this period the communities (through FGDs) asserted that pasture and browse had been abundant in 2013/2014 and the animals could still access them as standing hay. This is consistent with the NDVI results described in Section **Error! Reference source not found..** During the assessment, it was observed that the practice of bush-burning meant to regenerate fresh pasture and browse was widespread. The late rains received near the end of 2013 have sustained water availability for livestock within the grazing areas, as has the increased number of boreholes that have been sunk in the region.

The attendant effect of this pasture and water availability is that the current livestock body condition is good and ranges between body score 3 and 4. The levels of calving and lactation were reported to have been highest from June to August, but suppressed by the high prevalence of tick-borne diseases (Anaplasmosis, East Coast Fever (ECF) and Contagious Bovine Pleuropneumonia (CBPP). The current levels of milk production (both in terms of numbers of lactating animals and milk yields per animal) are within the typical range for this part of the season in Karamoja.

3.3.3 Livestock diseases

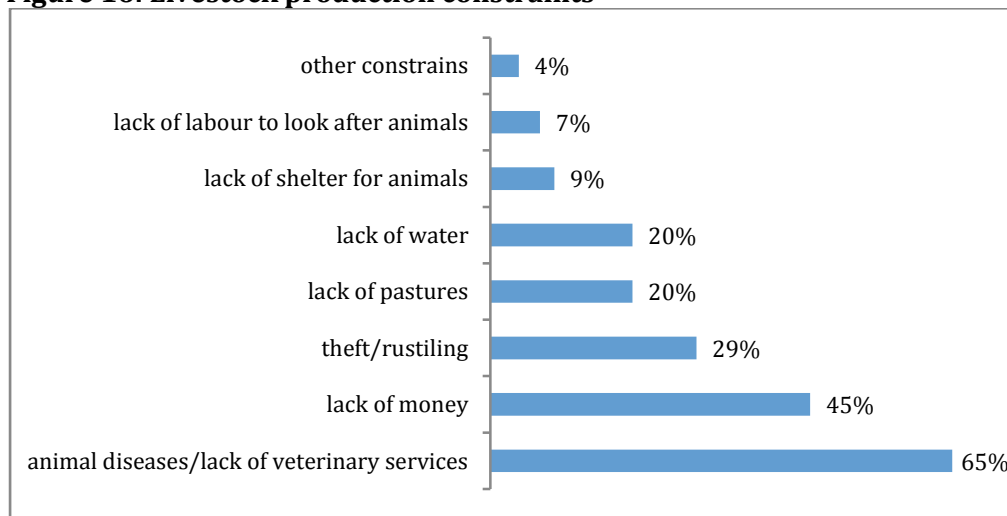
The reduction in livestock population densities and congestion (as a result of reduced numbers and the disbandment of the protected kraal system) has considerably reduced incidences of disease infestation associated with large herds in communal grazing and at watering points. However, diseases like ECF, Trypanosomiasis, Foot and Mouth Disease (FMD), CBPP, Brucellosis, Nagana and Anaplasmosis among cattle; Contagious Caprine Pleuropneumonia (CCPP), Peste des Petits Ruminants (PPR), and foot-rot among sheep and goats; and Newcastle Disease and Coccidiosis among poultry, are still prevalent.

3.3.4 Livestock movements

The improvement in security in Karamoja has reduced the restrictions on livestock movement, and grazing has resorted back to being done along the traditional livestock migration routes. This has reduced pressure on the available pasture and water. In recent months, the livestock migration patterns reported include herds from Kenya coming into Kaabong district, and the Pokot from Kenya grazing their animals in Nakapiripirit district. There have also been reports of livestock migration from Kotido into Abim district (with the pastoralists concentrated in the border sub-counties of Alerek and Nyakwae) and Pader district (in neighbouring Acholi subregion). The standing hay and the sprouting pasture and browse as a result of bush-burning and the light showers received in December 2013 and January 2014 have been sufficient to largely confine livestock migration to within Karamoja region, though this situation is

likely to change in the next 3 months as the pastoralists migrate with their livestock to neighbouring districts outside the region.

Figure 16: Livestock production constraints



The major constraints to livestock production are parasites and diseases, the lack of money to buy livestock drugs and or pay for veterinary services and theft (**Figure 166**). The pastoralists are reliant on services provided by Government, UN and NGOs and do not buy drugs to treat even the simplest diseases affecting their livestock. Inadequate access to water and pastures were reported as constraints by only 20 percent of livestock-owning households.

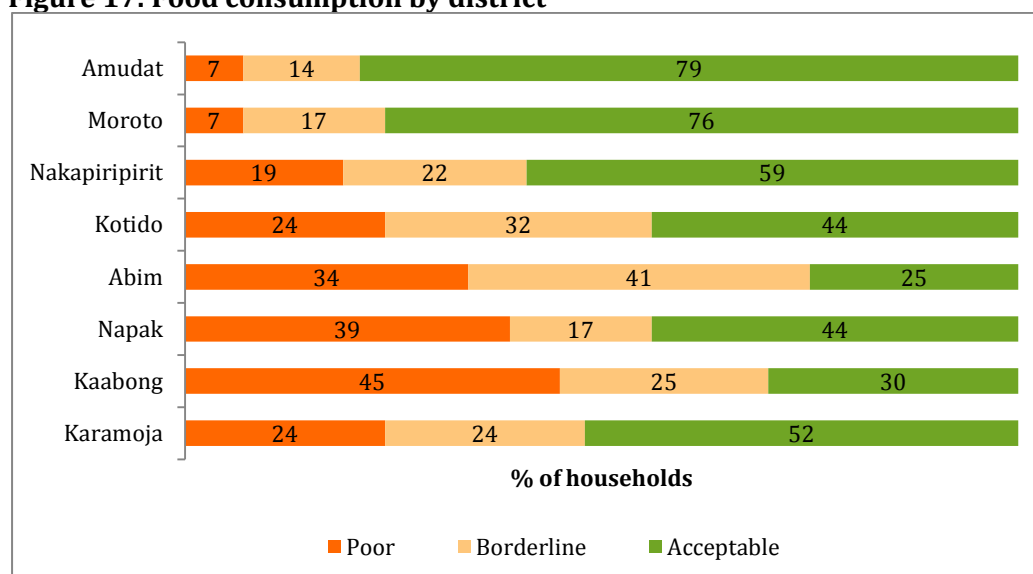
3.4 Food Security Situation

3.4.1 Food consumption

The food consumption patterns in Karamoja showed distinctive variations between households. . A little more than half of the sampled households (52 percent) had **acceptable** levels of consumption while the remaining 48 percent of the sample were evenly distributed between **poor** and **borderline** consumption. In other words half of Karamoja seem to be doing adequately well (with respect to food consumption). The proportion of households with inadequate food consumption is highest in Abim, Kaabong, Kotido and Napak and lowest in Amudat, and Moroto (**Figure 17**) , and this is largely consistent with the findings on household food availability (except for Abim whose food consumption results do not seem to tally with its food availability situation – see explanation and recommendation below).

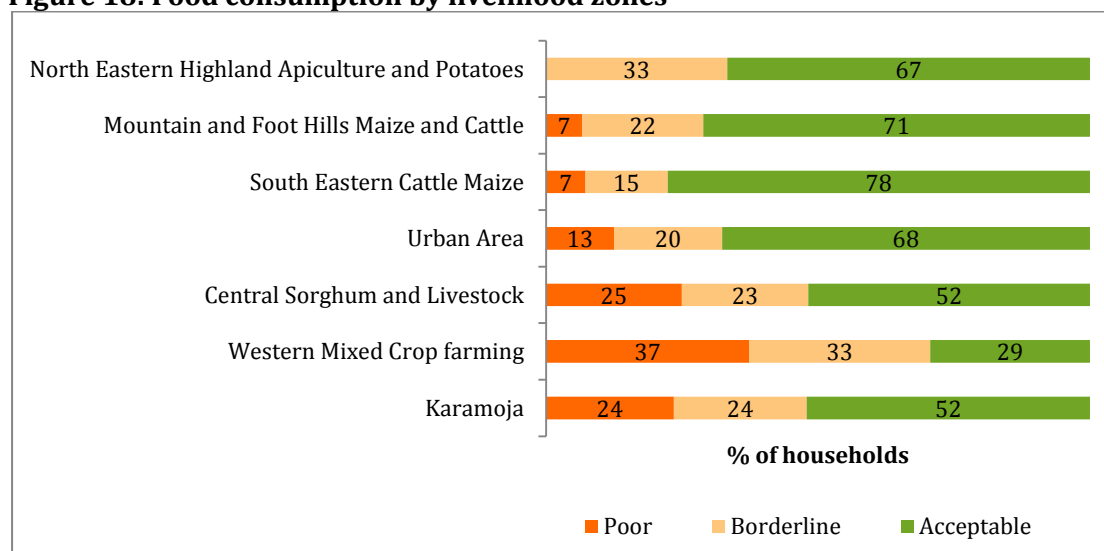
Note on Abim: Abim depicts an unusually high proportion of households in poor and borderline food consumption category. Given the performance of Abim on other key indicators, the extremely poor food consumption pattern does seem to be an anomaly. It is thus recommended that WFP carry out a further analysis of food consumption patterns in Abim.

Figure 17: Food consumption by district



Disaggregating food consumption by livelihood zone (**Figure 18**) further indicates that, besides the *Western Mixed Crop Farming Zone*, the *Central Sorghum and Livestock Zone* had a high proportion of food insecure households while the *Southeastern Cattle Maize Zone* had the best food consumption, which supports the argument that households whose source of livelihood is predominantly livestock-based coped better with the effects of the long dry spell that affected crop production in 2013.

Figure 18: Food consumption by livelihood zones

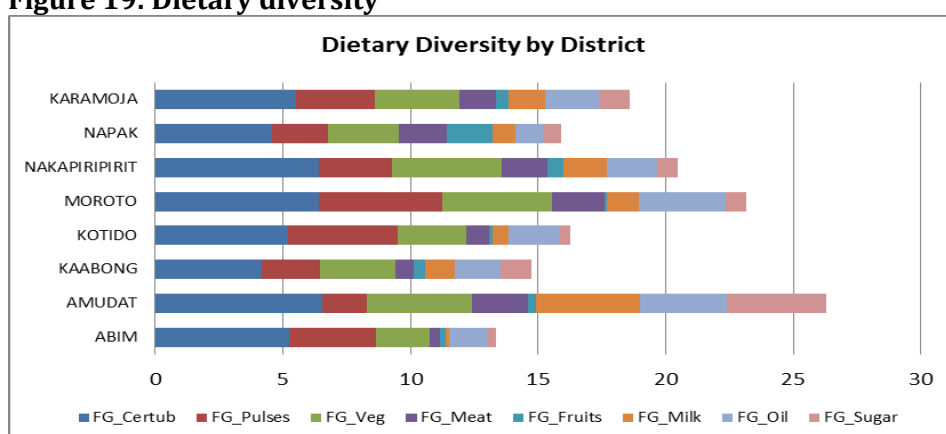


3.4.2 Household dietary diversity

Figure 19 shows the dietary diversity of the households sampled, based on the extent of variety in the food groups the household members ate over the seven-day recall period. This variety is measured by the average number of days that each food group was eaten over the seven day recall period.

The best dietary diversity was recorded in Amudat, Moroto and Nakapiripirit districts while the worst dietary diversity was recorded in Abim, Kaabong, Napak and Kotido. The lowest dietary diversity was observed in districts with negligible consumption of meat, milk, eggs, and fish and also mostly among households falling in the poor and borderline food consumption category.

Figure 19: Dietary diversity



3.4.3 Shocks and coping

The respondents were asked to rank the shocks that affected their livelihoods in 2013, and the findings are shown in

Table 9 below categorized as 1st major, 2nd major and 3rd major.

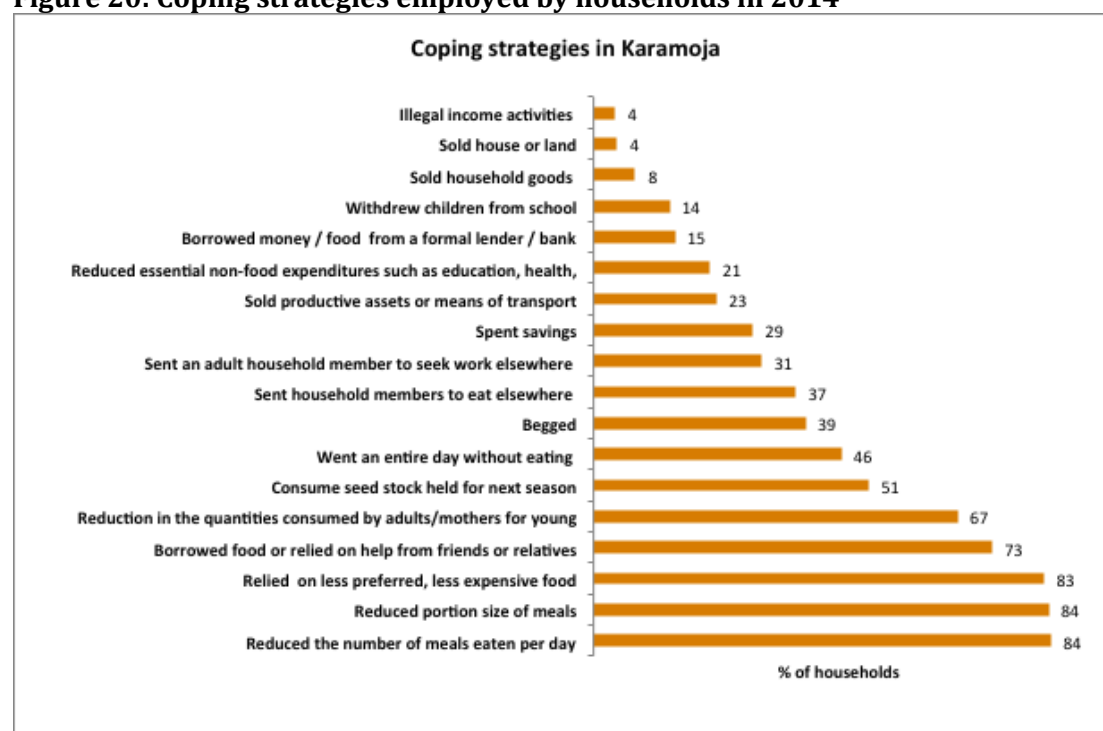
Table 9: Main shocks reported

Shocks	1 st major	2 nd major	3 rd major
Poor harvest/ drought	41.3%	26.5%	12.7%
Sickness/health expenditures	28.1%	26.7%	16.3%
High food prices		21.9%	28%
Pest and diseases			20.5%

As expected, drought, dry spells and associated poor-harvests were ranked as the 1st major shock by the majority of households (41.3 percent), and were also ranked by a significant proportion of households as the 2nd and 3rd major shock. Poor health, and therefore increased expenditure on health, was ranked as the second most significant shock.

The households employed various coping strategies to mitigate the effects of the shocks they experienced in 2013. Based on the Reduced Coping Strategies Index, which considers only the sustainable and reversible strategies that do not damage the future livelihood options of the households, Napak, Nakapiripirit, Kotido and Moroto districts posted the highest level of coping. However when unsustainable and distress coping strategies (e.g. reduction in quantities consumed by adults / mothers, begging, etc) are included in the analysis (**Figure 20**), Moroto joins the list of districts with the highest coping strategy index.

A significant increase in the level of coping between 2013 and 2014 was observed for all the districts, though the highest proportional increase was in Nakapiripirit and Napak districts where the level of coping doubled, whilst the lowest change was seen in Abim and Amudat.

Figure 20: Coping strategies employed by households in 2014

The coping strategies most employed by the households were the consumption-based ones; notably, relying on less preferred less expensive food, borrowing food or relying on help from relatives and friends, reducing the number of meals eaten per day, reducing portion sizes as well as reducing quantities consumed by adults /mothers for young children (**Figure 20**). It is important to note here that not all food-based response strategies are “coping” in the strict sense of the word. Rather, these actions are mostly aimed at consumption smoothing and are likely to be employed regardless of whether households have faced a shock or not. Such strategies are practiced in high-income, food secure countries as well.

Among the livelihood-based coping strategies, consuming seed stock held for next season and begging were the most used strategies. The former may have a negative impact on crop production in the 2014 season unless some interventions that provide seeds are put in place, while the latter erodes the social standing of the household since it is considered shameful by community members.

3.4.4 Humanitarian Assistance

The most common form of assistance received by the communities in 2013 was **free health care** which 53.1 percent of the respondents reported to have received, followed by **mosquito nets** (34.6%), food for school children (eaten at school or at home) (33.9%), food for young/malnourished children or for pregnant and lactating women (23.8%); **food and cash transfers** through food-for-work (23.4%) and cash-for-work (17.5%); **free agricultural tools** (14.4%); free seeds, and fertilizers (10.4%) (**Annex 3**). Kaabong district had the highest proportion of households that received food and cash-for-work assistance with four out of every ten households benefitting from at least one of the food assistance programmes.

Table 10: Priority requirements

Requirements	Proportion of household that ranked the requirement		
	1st Priority	2nd Priority	3rd Priority
Food for the household in general	52.5	12.4	-
Increased wage, increased pension	13.3	32.4	-
Agricultural tools	10.1	-	-
Agricultural tools	-	17.7	19.2
Seeds	-	-	16
Veterinary Drugs	-	-	10
Health services	-	-	13.9

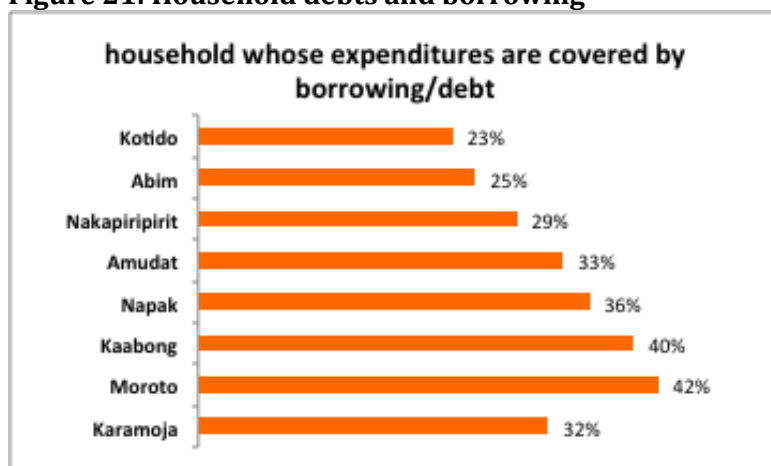
Table 10 shows how the respondents mentioned the assistance in table above as the priority interventions. Food for the household in general was the most prevalent priority requirement followed by increased wage or pension. Support to agriculture, both crop and livestock, also came out prominently among the priority requirements.

3.4.5 Household debt, income and expenditure

The findings show that an unusually high proportion of households borrowed money to meet their cash needs, and this was most pronounced in Moroto, Kaabong and Napak (**Figure 21**). The main reason for borrowing was to buy food to offset the shortfall from the usual food supply sources (production and exchange). These results imply that:

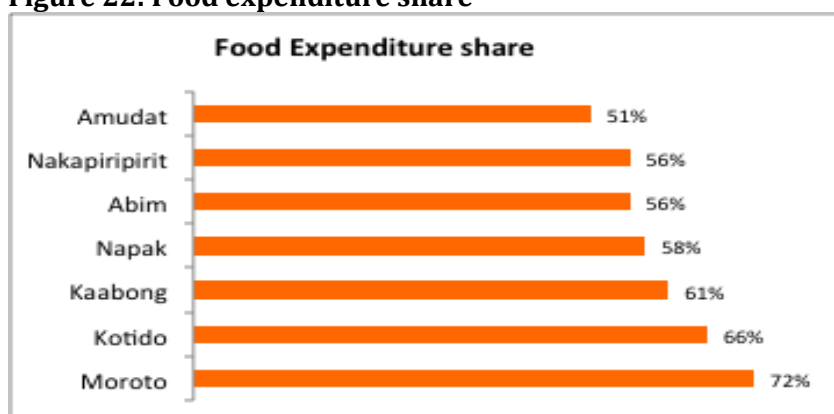
- Households incur debt mainly to meet food needs (by definition a short term objective) and not to achieve longer term goals, such financing small income-generating projects or as an investment in productive assets (land, livestock, equipment, etc.);
- Borrowing thus becomes a “continuous coping strategy” and not a mechanism that a household will resort to only occasionally;
- There is a very high risk of the majority of households being trapped in a debt cycle as expenditure on food becomes a perpetual requirement.

Figure 21: Household debts and borrowing



Citing Engel's Law¹³ (i.e. the greater the share of total expenditure on food, the more food insecure the household) in this context, it is clear that the major cash concern for households across all districts is trying to meet food needs, and this is supported by the findings on debt, shocks and agricultural sector constraints. Moroto, Kotido and Kaabong had the highest expenditure share on food. A possible factor for Moroto's better than average food consumption patterns could be related to the extremely high food expenditure share at the household level (**Figure 22**).

Figure 22: Food expenditure share



¹³ Engel's law is an observation in economics stating that as income rises, the proportion of income spent on food falls, even if actual expenditure on food rises (*Wikipedia*). Paraphrased, poorer households spend proportionately more on food than wealthier households.

3.4.6 Income sources

Table 11 below shows the current sources of household income in Karamoja ranked by order of importance (i.e. the extent to, or regularity at, which the household relies on them, not the amount of cash they earn the household), disaggregated by district.

Table 11: Income sources

Income source	Abim	Amudat	Kaabong	Kotido	Moroto	Nakapiripirit	Napak	Karamoja
Sale of livestock/animal products								
Agricultural wage labour								
Non-agricultural labour/unskilled wage labour								
Petty trade (small scale)								
Unemployment benefits/SAGE								
Brewing								
Sale of firewood/charcoal								
Quarrying								
Cash for work								
Gifts/Begging								
Sale of handcrafts								

Most important source



Second most important source



Third most important source



From the tabulation above, the following general observations can be made:

1. The sale of charcoal or firewood and brewing are the most common sources of income for households across Karamoja. This underlines the lack of employment opportunities across the districts and the reduction in dependency on livestock sales, except in Amudat where there is still a high reliance on livestock for income.
2. Agriculture and wage labor related to agriculture are reported as a main sources of income in only 2 districts – further attesting to the low agricultural productivity and inability of households to earn incomes from production.
3. Income from livestock production was reported as an income source only in Amudat district where the sale of livestock and their products seems to be a trade rather than just a coping strategy; however analysis into the role of livestock requires some further investigation.

3.5 Markets and Market Analysis

Karamoja is a net food deficit area and is therefore highly dependent on markets to supply the food required to meet the daily household needs, especially during the lean season. The main staples analyzed in this report include sorghum, maize and beans, while cattle and goats are the main focus of the livestock market analysis. Though market questionnaires were administered in Abim and Amudat, there was insufficient secondary data to conduct detailed trend analysis. For the analysis, the qualitative information from all districts in Karamoja has been used along with information from the household questionnaires.

3.5.1 Crop market structure

3.5.1.1 Demand and supply

A high demand for food crops was exhibited in the market in March 2014. Results show that 49 percent and 62 percent of the households in Karamoja currently depend on markets in order to access cereals and pulses respectively (for districts like Napak the figure is as high as 70 percent).

Unlike other parts of Uganda that have two cropping seasons, Karamoja has a single cropping season from March to August with harvesting beginning done from September to November. This means that if harvests for this one season are not adequate then the dependence/reliance on markets and/or humanitarian assistance is greatly increased. It is well known that the 2013 cropping season did not perform well in Karamoja and therefore currently the majority of the households in Karamoja are highly dependent on markets for their access to staple foods.

The market survey indicated that 19 percent of the traders got supplies of maize grain from within Karamoja districts, 37 percent from outside Karamoja districts while 43 percent reported to have got their supplies from within and outside Karamoja districts. For sorghum grain, results indicated that 23 percent of the traders got their supplies from within, 23 percent from outside and 54 percent from both within and outside the Karamoja districts. The notable supply areas outside Karamoja include Kitgum, Pader, Lira, Soroti and Elgon region (Mbale). It is clear that these external sources are critical to food supply systems of the region, and therefore any delays or cancellations of food delivery will have considerable adverse effects on both food availability and accessibility.

During the assessment traders were asked to rank the availability of some food commodities on market. More than half of the traders interviewed indicated that sorghum was unavailable on the market while nearly half indicated that maize was relatively scarce (**Table 12**).

Table 12: Availability of cereals in the market

	Easily Available	Relatively Scarce	Unavailable
Sorghum	14%	31%	55%
Maize	7%	48%	45%

The reasons given for the scarcity of cereals on the market were related to the poor harvests of 2013 and transportation/logistical challenges (for instance due to the bad

roads few truck drivers are willing to carry goods to Karamoja at reasonable costs). This is further exacerbated by the low purchasing power of the population.

3.5.1.2 Prices

i. Maize grain:

The price data analyzed indicate that, compared to the same period last year (February 2013), maize grain prices increased by about 40 percent in Karamoja this year. At local level, the increase was attributed to poor crop performance in 2013 as compared to 2012. At national level this can be attributed to inflation as shown in the CPI¹⁴ report by UBOS¹⁵.

Table 13: Nominal price changes in maize grain (January 2013 and January 2014)

Market	Current (Feb 2014)	% Change from:	
		Jan-14	Feb-13
Moroto	1,050	-21.2%	35.5%
Nakapiripirit	967	-3.3%	-3.3%
Napak	1,000	0.0%	48.1%
Kotido	1,175	12.5%	193.8%
Kaabong	932	2.3%	15.0%
Average	1,025	-3.1%	40.0%

The February 2014 CPI report indicated that the annual food crop inflation increased by 25.1 percent.

Compared to January 2014, average nominal retail prices for maize grain reduced slightly by 3 percent. However the decrease was noticeable in Moroto and Nakapiripirit due to

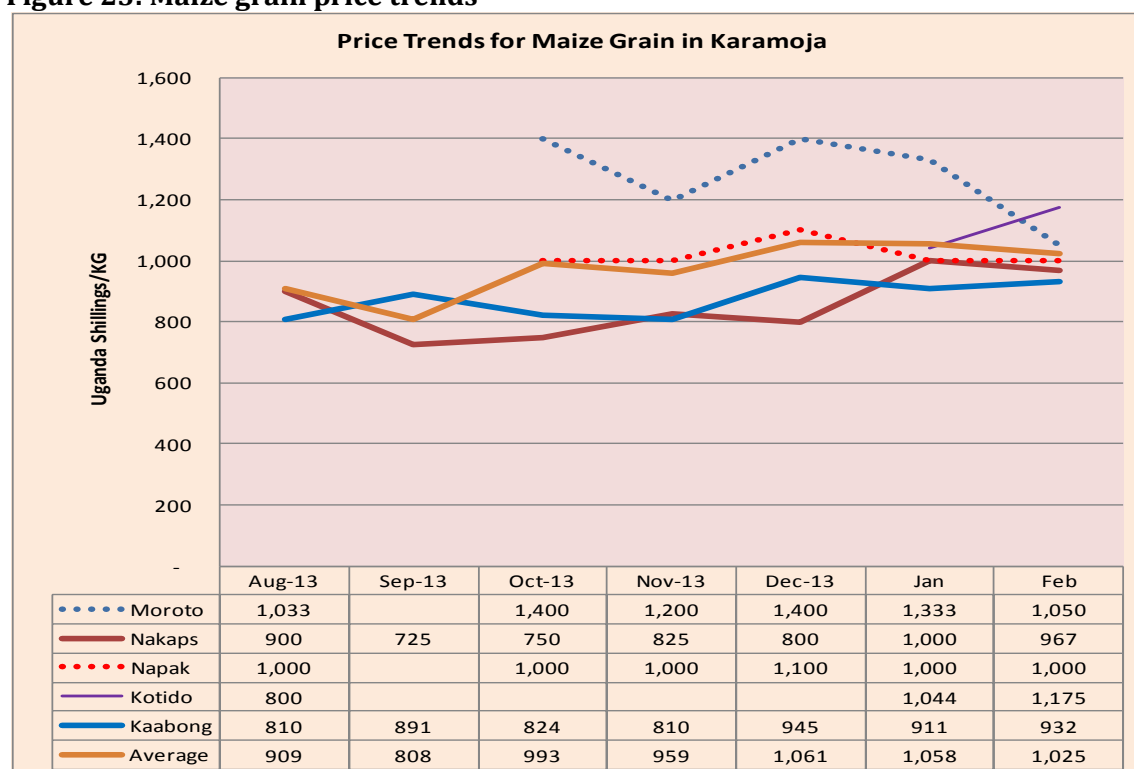
increased supply of maize grain on the market from Mbale.

The results in **Figure 23** indicate that maize grain prices have been within close range since August 2013 across the different districts in Karamoja except Moroto that has had higher prices till February 2014.

¹⁴ Consumer Price Index report for the month of February, 2014

¹⁵ Uganda Bureau of Statistics

Figure 23: Maize grain price trends



ii. Sorghum grain:

Compared to the same period in 2013 (February 2013) and January 2014, sorghum prices increased in February 2014 by about 36 percent (**Table 14**). Similar to maize grain, the higher price changes are attributed to low crop harvests in 2013 and inflation.

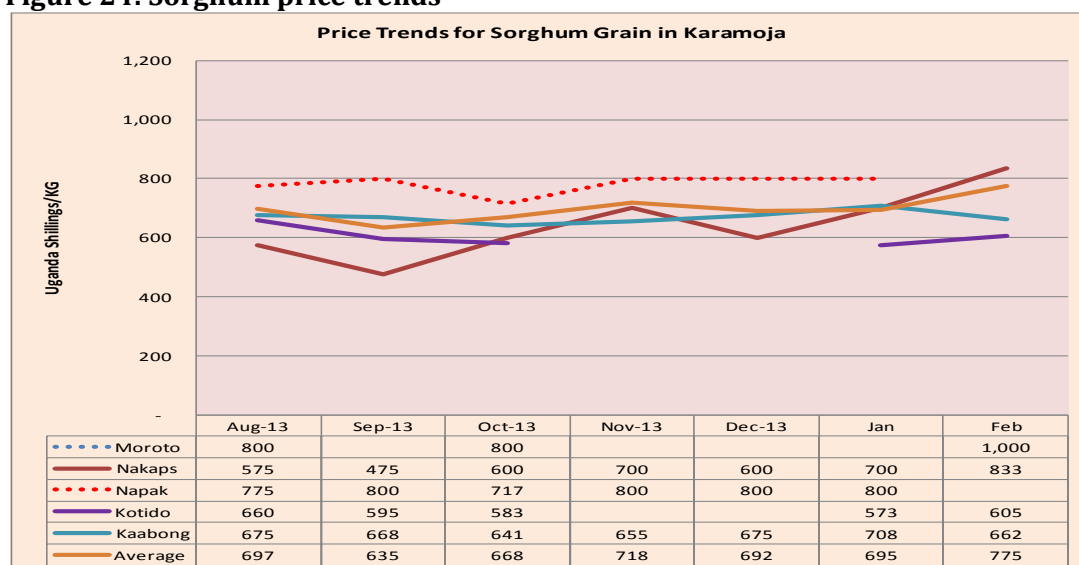
Table 14: Nominal price changes in sorghum (January 2013 and January 2014)

Market	Current (Feb 2014)	% Change from:	
		Jan-14	Feb-13
Moroto	1,000	-	42.9%
Nakapiripirit	833	19.0%	38.9%
Napak	-	-	-
Kotido	605	5.6%	51.3%
Kaabong	662	-6.6%	8.9%
Average	775	11.5%	35.6%

Note: - Data unavailable

Analysis of the sorghum price trends (**Figure 24**) shows that Kaabong has consistently had relatively stable prices compared to other districts while Napak and Moroto have been experiencing the highest sorghum prices in the past six months. Which could explain the high household expenditure exhibited in Moroto when compared to other districts. This can partly be explained by high market demand for cereals since households in Napak and Moroto get about 70 percent and 66 percent of their cereals through market purchase respectively.

Figure 24: Sorghum price trends

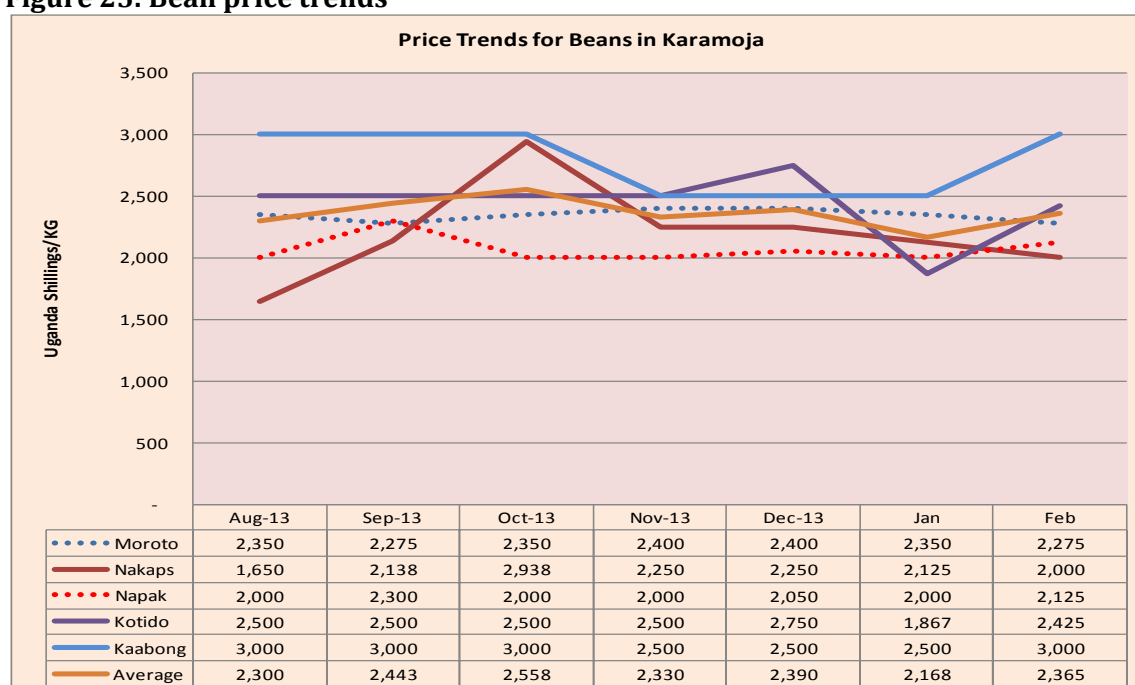


iii. Beans:

The dietary diversity figures show that, on average, households in Karamoja consumed pulses three days a week and about 62 percent of the pulses consumed are accessed through market purchase making it important to include beans in this analysis.

The results in **Figure 25** shows that on average Kaabong has been experiencing the highest prices for beans in Karamoja and this could be the reason as to why household in this district can only afford to eat pulses for only two days in a week.

Figure 25: Bean price trends



It is believed that currently almost all beans on the market in Karamoja are imported from other districts. Despite Karamoja reporting 39 percent of the households cultivating beans (highest grown crop among pulses), the harvests have been low and at the time of assessment only 20 percent of the households reported some stocks (on

average 29 Kg per household). Therefore, bean prices are likely to remain high till the next harvest.

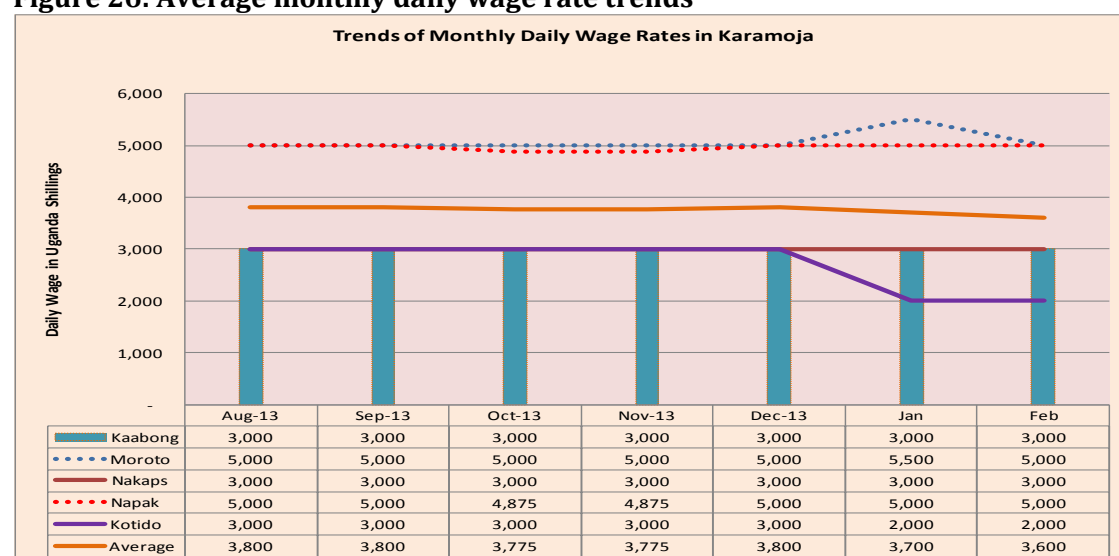
iv. Labour markets:

By the time of the assessment, there were few, if any, labour opportunities in the villages. Responses enlisted from sampled households showed that labour opportunities are usually available in the villages only during the cropping season. Unlike in other areas where the forces of demand and supply determine the daily labour wage rate; in some parts of Karamoja the wage rate is attached to the price of a can of cereal grain (3.7Kg), especially for sorghum or maize grain. Thus if a can of sorghum costs UGX 3 000, then that will be the wage rate for that day.

Average monthly daily wage rates

The average monthly daily wage rate trends show that labor wages have been relatively stable in the last part of the year 2013 (see **Figure 26** below).

Figure 26: Average monthly daily wage rate trends



Labor wage rates against cereals

Table 15 indicates that, on average, the Terms of Trade (ToT) for labour compared against sorghum have remained stable over the three months prior to assessment basically due to stable daily wage rates in most districts across Karamoja. On average a day's payment for casual labour would enable the household to purchase 5Kg of sorghum. However, when compared to August 2013, it is seen that there is a worsening in the ToT ; for example in Moroto district, a day's wage payment in August 2013 could enable the household to purchase 6Kg of sorghum as compared to 5Kg in February 2014.

Table 15: ToT labour vs. sorghum grain – in kilograms

District	Aug-13	Sep-13	Oct-13	Nov-13	Dec-13	Jan-14	Feb-14
Moroto	6	-	6	-	-	-	5
Nakapiripirit	5	6	5	4	5	4	4
Napak	6	6	7	6	6	6	
Kotido	5	5	5	-	-	3	3
Kaabong	4	4	5	5	4	4	5
Average	5	6	6	5	5	5	5

The terms of trade for labour against maize have remained been largely stable though the labourers in Napak have had a relatively fairer deal in that their labour has been able to consistently procure them 5Kg of maize (**Table 16**).

Table 16: ToT labour vs. maize grain - in kilograms

District	Aug-13	Sep-13	Oct-13	Nov-13	Dec-13	Jan-14	Feb-14
Moroto	5	-	4	4	4	4	5
Nakapiripirit	3	4	4	4	4	3	3
Napak	5	-	5	5	5	5	5
Kotido	4	-	-	-	-	2	2
Kaabong	4	3	4	4	3	3	3
Average	4	5	4	4	4	3	4

In conclusion, while the markets are the main source of staple food access for a substantial number of households in Karamoja, it is clear from trader reports that these food commodities are relatively scarce and at times unavailable on market. Due to the poor crop harvest in 2013, the major supply source in the coming months will be from outside Karamoja. Keeping in mind the various transaction costs involved in transporting food to Karamoja, especially due to poor roads whose condition is likely to worsen during the coming rainy season; it can be expected that the supply of key food staples will likely be low. The high dependence on markets combined with a lower supply will drive staple food prices up – further limiting household access to food. Therefore, there is need to continue monitoring the markets across Karamoja and update stakeholders accordingly for immediate action where necessary.

Though daily wage labour rates are relatively stable, job opportunities are scarce and the few available are mainly in trading/urban areas. Therefore cash for work interventions through public works would be one option to assist households earn some income that can boost their purchasing power while generating community assets as well as facilitating market development.

4 Conclusion and Recommendations

See Executive Summary.

ANNEX 1: Harvests (Kg) per Household for Major Crops Grown in 2013

CROP	Abim			Amudat			Kaabong			Kotido			Moroto			Nakapiriprit			Napak			All karamoja		
	Actual yield	Expected	Actual yield as % of expected	actual yield	Expected	Actual yield as % of expected	Actual yield	Expected	actual yield as % of expected	actual yield	Expected	actual yield as % of expected	actual yield	Expected	actual yield as % of expected	actual yield	Expected	actual yield as % of expected	actual yield	Expected	actual yield as % of expected	actual yield	Expected	actual yield as % of expected
Millet	77	274	28%	10	50	20%	42	282	15%	68	278	25%	10	214	5%				24	63	38%	38	194	20%
Sorghum	184	477	39%	42	279	15%	133	532	25%	143	637	23%	129	423	31%	235	585	40%	82	343	24%	136	468	29%
Maize	58	309	19%	221	669	33%	65	447	15%	42	175	24%	100	228	44%	160	385	42%	56	217	26%	100	347	29%
Cassava	264	686	39%	125	306	41%	38	122	32%	25	82	31%	3	112	3%	64	127	51%	184	344	54%	101	254	40%
Sweet Potatoes	209	367	57%	65	110	59%	21	239	9%	45	195	23%	4	50	7%	108	223	49%	198	709	28%	93	271	34%
G/Nuts	47	521	9%	37	110	34%	59	323	18%	64	228	28%	48	72	67%	37	228	16%	27	162	17%	46	235	19%
Beans	56	216	26%	27	177	15%	44	235	19%	25	82	30%	33	90	36%	96	141	68%	20	84	24%	43	146	29%
Simsim	22	179	12%	0	0	0%	15	125	12%	21	60	34%	12	55	21%	17	117	14%	8	35	23%	16	95	16%
Sun Flower	69	183	38%	0	0	0%	54	185	29%	19	189	10%	24	73	34%	18	72	26%	26	77	34%	35	130	27%
Beans	47	179	26%	0	0	0%	35	125	28%	0	0	0%	10	50	20%	0	50	0%	13	20	66%	21	85	25%
Rice	0	0	0%	0	0	0%	0	0	0%	0	0	0%	0	0	0%	84	142.2	59%	15	50	30%	33	64	52%
Green Gram	59	170	35%	0	100	0%	11	32	34%	33	66	50%	62	109	56%	16	83	19%	79	98	81%	37	94	40%

ANNEX 2: Percentage of Households with Stocks; Quantity and Duration of Stocks

CROP	ABIM			AMUDAT			KAABONG			KOTIDO			MOROTO			NAKAPIRIPIT			NAPAK			ALL DISTRICTS		
	%of HH with stocks	stocks (kg)	Duration of stocks (mths)	%of HH with stocks	stocks (kg)	Duration of stocks (mths)	%of HH with stocks	Stocks (kg)	Duration of stocks (mths)	%of HH with stocks	stocks (kg)	Duration of stocks (mths)	%of HH with stocks	Stocks (kg)	Duration of stocks (mths)	%of HH with stocks	stocks (kg)	Duration of stocks (mths)	%of HH with stocks	stocks (kg)	Duration of stocks (mths)	%of HH with stocks	Stocks (kg)	Duration of stocks (mths)
Millet	13%	45	1	1%	15	0	14%	20	1	25%	43	1	2%	6	0	0%			1%	17	0	7%	24	1
Sorghum	68%	82	1	2%	25	1	55%	76	1	81%	58	1	45%	75	1	55%	176	2	39%	49	1	47%	77	1
Maize	5%	72	2	55%	112	2	32%	37	1	30%	23	1	39%	62	1	38%	81	1	27%	44	0	32%	62	1
Cassava	6%	268	3	1%	135	2	3%	25	1	0%			1%	37	1	2%	37	1	7%	141	1	3%	107	1
Sweet Potatoes	19%	104	2	1%	35	2	2%	20	0	2%	52	1	0%	50		4%	24	0	5%	33	1	6%	45	1
G/Nuts	13%	51	1	1%	31	1	12%	40	1	40%	32	1	6%	17	1	6%	40	2	5%	30	0	11%	35	1
Beans	23%	39	1	12%	25	1	11%	43	1	48%	14	0	29%	26	1	15%	35	1	12%	22	0	20%	29	1
Simsim	7%	25	1	0%			3%	7	0	12%	12	1	1%	5	2	3%	43	1	5%	11	0	4%	17	1
Sun Flower	10%	47	1	0%			6%	43	1	3%	10	0	11%	35	1	6%	20	2	12%	32	0	7%	31	1
Soya Beans	3%	52	1	0%			1%	10	1	0%			0%			0%			1%	22	0	1%	28	1
Rice	0%			0%			1%	30	1	0%			1%	5	0	2%	18	1	1%	20	0	1%	18	1
Green Gram	8%	25	1	0%			1%	1		6%	9	0	8%	55	1	6%	23	3	13%	23	0	6%	23	1

Annex 3: Humanitarian Assistance

Humanitarian Assistance	% of Households reported to have been receiving Humanitarian Assistance by District							
	ABIM	AMUDAT	KAABONG	KOTIDO	MOROTO	NAKAPIRIPIT	NAPAK	KARAMOJA
<i>Food for school children (eaten at school/or taken home)</i>	23.0	8.2	59.5	34.9	36.8	68.4	33.5	33.9
<i>Food for young/malnourished children or for pregnant/lactating women</i>	12.8	15.1	38.7	29.1	22.4	46.2	18.1	23.8
<i>Free food ration for the household</i>	3.9	0.0	13.1	3.7	16.7	3.2	3.6	5.4
<i>Food for work</i>	5.0	6.6	73.2	51.3	14.0	15.8	39.8	23.4
<i>Cash for work</i>	11.5	13.2	23.2	8.5	30.3	36.4	4.1	17.5
<i>Cash transfers (grants)(from NGOs, government social assistance</i>	1.1	1.1	10.1	1.6	18.4	22.3	13.6	8.6
<i>Free health care</i>	62.0	23.3	66.7	64.6	48.7	92.3	27.2	53.1
<i>Micro-credit</i>	1.8	0.8	4.8	1.6	5.7	16.2	17.7	6.3
<i>Jerricans</i>	1.6	1.6	16.7	14.3	10.5	4.1	1.8	5.8
<i>Free seeds, fertilizer</i>	8.9	8.2	11.3	24.3	11.0	12.6	0.9	10.4
<i>Free agricultural tools</i>	7.3	10.1	29.2	39.7	10.1	17.4	2.3	14.4
<i>Free animal feed</i>	0.3	0.3	1.8	4.8	0.9	2.0	0.0	1.2
<i>Free veterinary services</i>	1.8	8.5	14.3	19.6	0.9	15.0	0.5	7.7
<i>Plastic sheeting, tent or other housing</i>	0.0	0.0	1.8	0.5	0.9	9.3	0.0	1.6
<i>Cooking utensils, stove, kitchen set</i>	0.3	0.3	0.6	0.5	0.9	1.6	0.0	0.6
<i>Clothes, blankets</i>	0.3	0.0	0.0	1.6	0.4	1.2	0.9	0.6
<i>Mosquito nets</i>	14.1	66.3	16.1	42.3	10.1	74.5	5.4	34.6
<i>Other assistance</i>	1.6	1.6	4.8	2.1	0.9	1.6	0.5	1.7