

# Baseline Study

## The Status of Implementation of the East African Standard for Maize Grains and Development of a Standard for Sesame Seed in Uganda.





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# Table of Contents

<b>List of Figures</b>	<b>I</b>
<b>List of Tables</b>	<b>II</b>
<b>List of Acronyms</b>	<b>III</b>
<b>Executive Summary</b>	<b>V</b>
<b>Section 1: Introduction</b>	<b>1</b>
1.1 Background and Rationale	1
1.2 Objectives of the study	2
1.3 Approach and Methodology	3
1.3.1 Approach	3
1.3.2 Methods	3
1.3.3 Scope and Coverage	3
1.3.4 Survey Organisation	4
1.4 Limitations of the study	5
<b>Section 2: Legal, Policy and Institutional Frameworks on Standards for Agricultural Products in Uganda</b>	<b>6</b>
2.1 Legal Framework	6
2.2 Policy Framework	7
2.3 Institutional framework	8
2.4 Strengthen and Weakness of the Legal, Policy and Institutional frameworks	9
2.4.1 Strengths	9
2.4.2 Weakness	10
<b>Section 3: Maize and Sesame Production and Trade in Uganda</b>	<b>12</b>
3.1 Maize Production and Trade	12
3.2 Sesame Production and Trade	14
3.3 Rejection of Maize Grains	15
3.3.1 National Level	15
3.3.2 Local Government levels	16
<b>Section 4: Status of Implementation of Standard for Maize Grains in Uganda</b>	<b>19</b>
4.1 EAC Level	19
4.2 Stakeholder's Awareness, Perceptions, and Attitudes towards Standards	20
4.3 Willingness and Capacity of Stakeholders to Implement Standards	24
4.3.1 Status of implementation of standards in Masindi, Nakaseke and Lira districts	28
4.3.2 Challenges of implementing standards in Masindi, Nakaseke and Lira districts	29
4.4 Good practices on the implementation standards for grains	31

<b>Section 5: Conclusion and Recommendations</b>	<b>32</b>
5.1 Conclusion	32
5.2 Recommendations	33
5.2.1 Central Government	33
5.2.2. Local governments	35
5.2.3. SEATINI and Partners	35
<b>References</b>	<b>36</b>
Annexes	39
Annex 1: Key Informant Respondents	39
Annex 2: FGD Participants	40
Annex 3: Characteristics of Respondents (Quantitative survey)	44

# List of Figures

Figure 3.1: Traders/Dealers who rejected Maize grains from Producers	17
Figure 3.2: Major reasons for Rejection of Maize grains by Traders/Dealers	17
Figure 3.3: Number of times trades/ dealers rejected maize grain	18
Figure 4.1: Percentage of respondents aware of specifications of standards for maize grains	21
Figure 4.2: Traders rating the quality of maize produced by farmers over the last two years	22
Figure 4.3: Farmers Responses on the enforcers of Standards	26

# List of Tables

Table 1.1: Sample size	4
Table 2.1: EA Maize Grain Specific Requirements	7
Table 3.1: Uganda Maize Production and Export (000 Tons)	12
Table 3.2: Top five Export Markets for Ugandan Maize in 2014	13
Table 3.3: Uganda Sesame Production and Export	14
Table 3.4: Rejection of Maize grains by traders/ dealers – amounts (Kgs)	18
Table 4.1: Percentage of traders/ dealers aware of specifications of standards for maize grains	21
Table 4.2: Percentage of farmers aware of specifications of standards for maize grains	22

# List of Acronyms

AATF	African Agricultural Technology Foundation
AMS/P4P	Agriculture Markets and Purchase for Progress
BoU	Bank of Uganda
BRAC	Bangladesh Rural Advancement Committee
CAA	Civil Aviation Authority
CBO	Community Development Organization
CITES	Convention on International Trade in Endangered Species
CLUSA	Cooperative League of the USA
CSO	Civil Society Organization
DAO	District Agricultural Officer
DPO	District Production Officer
EA	East Africa
EAC	East African Community
EAS	East African Standard
FAO	Food and Agriculture Organization
FAOSTAT	Food and Agriculture Organization Corporate Statistical Database
FGD	Focus Group Discussion
GLOBALGAP	Global Good Agricultural Practices
ICRISAT	International Crops Research Institute for the Semi-Arid-Tropics
IDPs	Internally Displaced Persons
IITA	International Institute of Tropical Agriculture
ISO	International Organization for Standardization
ITC	International Trade Commission
JAICAF	Japan Association for International Collaboration of Agriculture and Forestry
LC	Local Council
MAAIF	Ministry of Agriculture, Animal Industry and Fisheries
MADFA	Masindi District Farmers Association
MT	Metric Ton
MTIC	Minister of Trade, Industry and Cooperatives
NARL	National Agriculture Research Laboratories
NGO	Non Governmental Organization
NSB	National Seed Board
NSCS	National Seed Certification Service
SADC	Southern African Development Community
S/C	Sub County
SEATINI	South and Eastern African Trade Information and Negotiations Institute
TGCU	The Grain Council of Uganda
UBOS	Uganda Bureau of Statistics
UCDA	Uganda Coffee Development Authority

UCE	Uganda Commodity Exchange
UCFA	Uganda Coffee Farmers Alliance
UDC	Uganda Development Corporation
UNBS	Uganda National Bureau of Standards
UNCE	Uganda National Commodity Exchange
UNEPB	Uganda National Export Promotion Board
UNFFE	Uganda National Farmers Federation
UNFFE	Uganda National Farmers Federation
UOSPA	The Uganda Oil Seed Producers and Processors Association
USAID	United States Agency for International Development
UWRSA	Uganda Warehouse Receipt System Authority
VEDCO	Volunteer Efforts for Development Concerns

# Executive Summary

The Southern and Eastern Africa Trade Information and Negotiations Institute (SEATINI) conducted this study to establish the status of implementation of the East African Standard for Maize Grain (EAS 2:2013) and assess the prospects for development of a standard for Sesame seeds in Uganda. The study was conducted in Nakaseke, Masindi and Lira districts.

This study is aimed at informing policy development, implementation and advocacy regarding development and application of agricultural standards and improvement of agricultural trade for Uganda. Standards are an important tool for trade policy in ensuring that goods for export meet quality and safety requirements of the destination markets, and therefore promote market access.

Uganda's export potential for maize is estimated between 200,000 and 250,000 MT per year.

At the moment, there are concerns amongst traders that maize grain supplied by producers for trade often does not meet the market requirements embedded in the EAC maize grains standard. There have thus been efforts by various stakeholders towards improving adherence to this standard but efficacy of these efforts is challenged by absence of clear information about the present "status quo" regarding Uganda's readiness to implement the standard in terms of both policy and practice. This baseline study therefore set out to address this information gap.

Sesame is one of the 'upcoming' oil seed crops in Uganda that is enjoying increasing demand on the regional and global market. Formal sesame exports fetched a total of USD 28.5 million in 2013 for Uganda. However at the moment there is no standard for sesame at both Uganda and EAC levels. This poses a challenge to meeting the market requirements of the targeted export destinations, and in turn affects market access for sesame. The study therefore set out to establish the prospects for development of a sesame standard.

The study found that implementation of standards for agricultural products including maize grain is very weak. The institutions mandated to enforce standards have overlapping and conflicting mandates, leading to poor coordination and collaboration. There are gaps in human resources, inspection services, certification and accreditation services and geographical coverage of these institutions. The issue of understaffing came out strongly in UNBS and MAAIF and this challenge has resulted in these institutions not being visible or efficient in monitoring the implementation of standards especially at the Local Government levels. Therefore, enforcement of standards for grains especially maize is done by the private sector other than by the government agencies.

The level of awareness of the harmonized EA standard for maize grain is low at the borders, with only 10% of border officials aware of the EAC maize grain standards while at the national/policy level it is high at 90%. At the local level, 90% of the farmers and 77% of the traders interviewed in Masindi were aware of the standards. In Nakaseke 52% of the farmers and 70% of the traders interviewed were aware of the standards while in Lira, 44% of the farmers and 48% of the traders interviewed were aware of the standards. However this awareness is limited to a few parameters of the standard such as foreign matter, rotten and diseased grains, moisture content and discoloured grains, and not on all 13 parameters of the standard.

Regarding cross border trade, although respondents noted that they have experienced rejections of Maize grain due to poor quality, there is no readily available documented data to evidence this. Only World Food Programme had some information on this issue, that showed that about 15,000 MT of their maize grain was rejected by Tanzanian authorities in 2013. The lack of data on rejection can be attributed to high levels of informal cross-border maize grain trade which makes it hard to capture information on rejection, lack of gazetted places where rejected maize grain is deposited, laxity of laws and poor enforcement mechanisms on grain trade and the fact that data on rejections is considered confidential by a number of private dealers.

Nevertheless, the study found that majority of the respondents (buyers); 80%, 72% and 60% in Masindi, Lira and Nakaseke respectively reported to have rejected maize grains from producers (farmers) due to poor quality during the last 12 months prior to the survey. The highest percentage of rejection by traders/ dealers was reported in Nakaseke which was followed by Lira and Masindi. The main reported reasons for the rejections were: discoloured grains, presence of foreign materials, many damaged grains and high moisture content.

A number of stakeholders including UNBS, MAAIF, MTIC, WFP, EAGC, TGCU, UOSPA, and SEATINI are working to ensure that standards especially for maize are effectively implemented in Uganda. However, there are numerous challenges in implementing and enforcing the standards which pose limitations to these efforts. These include inadequate capacity by the relevant agencies (UNBS and MAAIF) to monitor enforcement, limited government laboratories equipped to undertake timely micro-biological and mycotoxin tests (and where present, testing was limited to moisture content only) lack of appropriate technologies by most value chain actors such as traders, inadequate capacity at local government levels to enforce standards and high post-harvest handling costs which most farmers cannot afford.

The study recommends that the Central Government increases financial support to UNBS and MAAIF to enable them recruit staff and increase coverage towards enforcement of standards. The study also recommends that MTIC disseminates and popularises the harmonized East African Standard for maize grains, establishes the National Grains Board, fast tracks the implementation of the National Grain Trade policy and expedites the development of the standards for sesame, as well as fast tracks the operationalization of the warehouse receipt system.

For Local governments, they should develop and enforce relevant by-laws and ordinances on implementation of standards, disseminate and sensitize value-chain actors on the EAC standard for maize grains and on proper post-harvest handling. Local Governments should also direct more funding to the District Production Offices for uptake of agreed policies on structured trading systems.

Development Partners and Civil Society Organisations should support both the national and local level government agencies to effect implementation of the standards through awareness creation, sensitisation, policy analysis, advocacy and monitoring.

# Section 1: Introduction

## 1.1 Background and Rationale

The East African Community (EAC) in 2013 harmonized standards to establish requirements governing products and services in the East African Community. This move was in line with the Treaty for establishment of the EAC in Article 110 (b) where partner states undertook to harmonize quality standards of inputs and products including food additives. It was envisaged that through harmonized standardization, trade barriers (such as rejection of agricultural products for instance maize grain) that are encountered when goods and services are exchanged within the community will be removed.

Maize is among the crops with high export potential within the EAC region owing to its high demand by the partner states. For example in Kenya the annual demand for maize is estimated at 3, 670,000 MT with an annual deficit of 600,000 MT. Uganda can be able to tap into this market; Uganda's export potential is estimated between 200,000 and 250,000 MT annually (USAID, 2010). However even while this seems low, the country formally exports only half of this amount, a situation that is attributed to high post-harvest losses. African Postharvest Losses Information System (APHLIS), estimates post-harvest losses at 30% in maize, and 15% in sesame) as well as failure to meet quality standards, which results in rejection of produce during formal cross border trade.

Sesame/Simsim is one of the 'upcoming' oil seed crops in Uganda that is enjoying increasing demand on the regional and global market in Europe, Middle East, China and Far East. Production of this crop is done mostly by women small scale farmers who also engage in its trade. In fact, sesame is referred to as white gold in northern Uganda due to its high income generating activity. Almost every household in northern Uganda is involved in sesame production (Elepu G and Dalipagic I., 2014). In the northern region of Uganda, oil processing companies have been set up and provide the main local market for this crop. However, despite its importance, at the moment there is no standard at either national or regional levels set to regulate the quality of what is produced and sold. In most cases, the big value chain actors dictate on the standard for sesame they want. This puts the producers on the mercy of the traders/ dealers, since they are not able to negotiate better prices for better quality. However the standards for Sesame are being developed.

While Government should play a key role in enforcing standards across the value chains to foster increased market access, there is minimal awareness, understanding, and appreciation of standards at both national and local levels amongst both the government officials and the value chain actors themselves. There is also absence of proper legislative frameworks at the local levels to enforce the standards. This is worsened by the lack of coordination between the standards setting policy framework at the national level and the implementers at the grassroots.

A number of stakeholders including SEATINI-Uganda have come up to engage on implementation of standards, through awareness creation, capacity building and policy advocacy. However, these interventions are hindered by the absence of information/data on the actual situation on the ground in terms of levels of awareness of the value chain actors and their perceptions and attitudes towards standards to inform interventions and impact assessment. Absence of evidence based information on actual amounts of maize rejected vis-a-vis the overall exported volumes also hinders articulation of policy advocacy. On the other hand, the increasing potential of sesame and absence of a harmonized standard for the crop calls for the development of a sesame standard.

It is against this background that SEATINI-Uganda conducted a baseline study to establish the status of implementation of the East African Standard for Maize Grain and development of standard for Sesame seeds in Uganda. The study sought to inform policy advocacy, development and implementation, and awareness on standards for maize grain and development of standards for sesame grains.

## **1.2 Objectives of the study**

The main objective of the study was to establish the status of implementation of East African Standard for Maize Grain and development of standards for Sesame seeds in Uganda.

The specific objectives were to:

- a. Review the existing legal, policy and institutional frameworks for the implementation of East African standards for maize in Uganda.
- b. Assess the levels of awareness, perceptions, attitudes amongst stakeholders on the importance, existence and practices that are necessary for meeting the EA standard for maize grain and development of standards for sesame seeds.
- c. Examine the willingness and capacity of stakeholders to meet the EA standards for maize grain.
- d. Provide baseline data on actual volumes of maize from Uganda rejected in other partner states as a result of standards/quality limitations.
- e. Identify good practices on the implementation standards for agricultural products (especially maize and sesame) that can be applied in the Ugandan context.
- f. Identify challenges / constraints in the implementation of East African standards for maize grains in Uganda.
- g. Provide recommendations for policy and practice under each of the objectives.

## 1.3 Approach and Methodology

### 1.3.1 Approach

The study employed both quantitative and qualitative methods. The quantitative methods was used to analyse volume of maize and sesame produced, sold and rejected due to poor quality or failure to meet the standards. The qualitative approach provided insights of stakeholders and farmers in regards to their awareness, perceptions and attitudes towards standards.

### 1.3.2 Methods

The following methods were used in undertaking the study:

- a) Document Review: This involved comprehensive literature and statistical review to capture information on legal, policy, and institutional frameworks on the implementation of standards for agricultural products in Uganda and EAC countries. The study made use of policy documents, studies and other publications from Ministries of Trade, Agriculture, EAC Affairs; agencies such as UNBS, World Food Program (WFP), East Africa Grain Council, USAID, among others. The list of documents reviewed is reflected in the references.
- b) Key Informant Interviews: Interviews were held with key stakeholders in three districts (Lira, Nakasongola and Masindi) and at national levels with government officials, value chain actors, traders/ dealers, grain councils, and WFP. The list of key informant respondents interviewed is attached in Annex 1.
- c) Focus Group Discussions (FGDs): Six FGDs were organised with farmers groups in three districts (Lira, Nakasongola and Masindi). Each FGD was attended by at least 15 people, who were selected by the research team with the help of SEATINI-Uganda partners in the districts. The list of FGD participants is attached in Annex 2.
- d) Quantitative survey: In addition to the above, a survey targeting farmers and traders/ dealers was conducted. Farmers and Traders in six sub counties (Semuto & Nakaseke in Nakaseke; Pakanyi & Bwijanga in Masindi; and Ogur & Agweng in Lira) were purposely selected to participate in the survey. Due to the absence of a complete listing of farmers and traders, the research targeted the leading producers and major traders in the sub-county who were identified by local leaders. Main characteristics of respondents are attached in Annex 3.

### 1.3.3 Scope and Coverage

At local government levels, the study was conducted in three districts of Masindi, Nakaseke and Lira. The selection of the districts was purposive, based on the following criteria:

- Project operational districts
- Among the leading producers of Maize in Uganda

- Masindi in among the districts that produce good quality maize grain.
- Lira is among the leading producers of sesame in Uganda.

### 1.3.4 Survey Organisation

Survey instruments: Three survey instruments – a structured key informant interview questionnaire, survey questionnaire and focus group discussion guide were used to collect the relevant data. The draft tools were pre-tested before the actual full-scale data collection exercise, after which the chronology and appropriateness of the questions on the first version of the tools was revised in order to collect the rightful information from the respondents.

Sample Size: The study conducted interviews from 376 respondents in the three districts and at national level as shown in Table 1.1. The respondents were national level stakeholders, local government officials (Sub county and district), value chain actors, traders, and farmers. The sample size was dictated by time and budget constraints which limited covering the entire population in the sub counties of interest.

**Table 1.1: Sample size**

Level	Key Informants		Traders	Farmers	FGDs		Total
	National	District & S/C			F	M	
Nakaseke		08	40	42	04	29	123
Masindi		12	40	40	09	28	129
Lira		10	31	39	16	16	112
National	12						12
Total	12	30	111	121	29	73	376

Data Collection: Data was collected during the month of April to May, 2015. A research team composed of 6 people<sup>1</sup> gathered data from the field through interviews, enumeration of traders and farmers and conducting FGDs.

Data Analysis: The study involved a critical review of information gathered to identify answers to the study objectives. Quantitative data analysis was carried out using STATA and Microsoft Excel. A data entry screen was developed and customised using EpiData software. Descriptive statistics, frequencies, percentages, cross-tabulation are used in the report. In the report, quantitative data is mainly presented in tabular and graphical formats. The qualitative data was analysed using the content analysis procedure where verbal data was categorised for

1 Three Researchers and three Research Assistants

purposes of classification and summarisation. Qualitative data is presented as text analyses and explanations of the responses. Data from document reviews is likewise presented as referenced texts. Instances where tables and graphs from any of the document reviews are presented in the report, the source is duly acknowledged.

## **1.4 Limitations of the study**

The following were the limitations of this study:

- Field work in Masindi, Lira and Nakaseke was done in April and May, which is not harvesting time for most agricultural products such as Maize and Sesame. Therefore, the study was not able to vividly encounter any post-harvest practices by farmers; in addition, most of the small-scale maize stores were closed due to lack of maize grains.
- Though all respondents noted that there are rejections of Maize grain due to poor quality, however, there is no credible documented data on this. The fact that no instance of having poor quality maize destroyed has been recorded, gives the impetus to the farmers and traders that all grain can be consumed; thus, in most cases it ends up in the market. In addition, in some cases the maize traders negotiate lower prices, to avoid their maize being rejected

# Section 2: Legal, Policy and Institutional Frameworks on Standards for Agricultural Products in Uganda

In this section we examine the existing legal, policy and institutional frameworks and how they facilitate or impede the implementation of standards for agricultural products in Uganda.

## 2.1 Legal Framework

A number of laws exist in Uganda on maintenance and enforcement of standards for agricultural products. Some of them include: East Africa Standardization, Quality Assurance, Meteorology and Testing Act 2006; Uganda National Bureau of Standards Act 1983 (amended, 2013); and East African Standard (EAS). Other complementary laws and regulations include: Seed and Plant Act 2006; Local Government Act 1997 (amended, 2010); Food and Drugs Act, Cap 278; Weights and Measures Act, Cap 103; National Environment Act, Cap 153 and accompanying Regulations (1998); Local Governments Act, Cap 243; Adulteration of produce Act, Cap 27 and enabling Regulations of 2003; Sale of Goods Act, Cap 82; and Control of Agricultural Chemicals Act, Cap 29.

- a) East Africa Community Standardization, Quality Assurance, Meteorology and Testing Act, 2006  
Section 22 states that Partner States have to ensure that their public and appointed regulating authorities suspend products across borders that do not conform to compulsory standards as agreed upon by EAC.
- b) Uganda National Bureau of Standards Act, 1983 (amended, 2013)  
The act establishes the Uganda National Bureau of Standards (UNBS). Articles 26 and 27 of the Act outlines the possible offences and penalties (fines, convictions and imprisonment) for failure to comply with standards.
- c) East African Standard (EAS)  
The standards provide requirements, specifications, guidelines or characteristics used consistently to ensure that materials, products, processes and services are fit for their purpose during cross border trade. EAC standards were established in 2005<sup>2</sup> in Arusha, Tanzania by the EAC's Director General of Customs and Trade. The East African Community (EAC) in 2013 developed standards to harmonise requirements governing of products and services in the East African Community. This move was in line with the Treaty for establishment of the EAC in Article 110 (b) where partner states undertook to harmonize quality and standards of inputs and products including food additives. It was envisaged that through harmonized standardization, trade barriers (especially no-tariff barriers) that are encountered when goods and

<sup>2</sup> Catalogue of East African Standards 2010

services are exchanged within the community will be removed. Specific requirements for Maize are shown in Tables 2.1.

Uganda has a maize grain standard since 2005. However, the harmonization with the East African Standard for maize grain has enabled Uganda to benchmark with other EAC countries and has enabled the country to compete in regional and international markets.

**Table 2.1: EA Maize Grain Specific Requirements**

Characteristics	Grade 1	Grade 2	Grade 3
Foreign matter, % m/m	0.5	1.0	1.5
Inorganic matter, % m/m	0.25	0.5	0.75
Broken kernels, % m/m	2.0	4.0	6.0
Pest damaged grains, % m/m	1.0	3.0	5.0
Rotten & diseased grains, % m/m	2.0	4.0	5.0
Discoloured grains, % m/m	0.5	1.0	1.5
Moisture, % m/m		13.5	
Immature/shriveled grains, % m/m	1.0	2.0	3.0
Filth, % m/m		0.1	
Total defective grains, % m/m	3.2	7.0	8.5
Total aflatoxin (AFB1, + AFB2+AFG1+AFG2), ppb		10.0	
Aflatoxin B1, ppb		5.0	
Fumonisin, ppm		2.0	

Source: UNBS (2013)

## 2.2 Policy Framework

Policies that facilitate implementation of standards for agricultural products mainly include: National Standard and Quality Policy 2012; National Agriculture Policy 2011; and Grain Trade Policy (2014 -draft).

- a) National Standard and Quality Policy, 2012  
The policy focuses at developing and sustaining a national Standards development, Metrology, Conformity Assessment and Accreditation (SMCA) system, which is robust and able to achieve the requirements for high quality goods and services. The policy also aims to strengthen the national technical regulation regime to protect the people and the environment from unsafe products without restricting trade.

The Ministry of Trade, Industry and Cooperatives coordinates the implementation of the policy in collaboration with other Ministries, affiliated Institutions, Development agencies/partners and the private sector. Under the policy, the UNBS should become the apex national standards organization with the sole mandate to publish national standards.

b) National Agriculture Policy, 2013

Inter alia, the policy states that: Government shall establish and enforce safety standards and quality assurance to ensure that agricultural products from Uganda compete effectively in domestic, regional and international markets; Strengthen national capacity for quality assurance, regulation, and safety standards to promote increased trade at all levels.

The policy provides for implementation of standards through among others:

- Enhancing certification, regulatory system, standard and quality assurance for agriculture products to compete in domestic, regional and international markets. However it is obstructed by limited capacity among regulatory institutions.
- Supporting and encouraging Local Governments to enact standards by-laws and ordinances.

c) Grain Trade Policy, 2014 (Draft)

The Ministry of Trade, Industry and Cooperatives developed a grain trade policy in November 2014 with the vision of “a globally competitive sub sector for food security, income generation and industrialization” and a mission of, “to ensure consistent quantity and quality supply of grains and grain products to the market to improve incomes of the actors through efficient postharvest handling, value addition, and effective regulation”. However, it is still in draft form and has been tabled to Cabinet for approval, and thus it not well known by most grain value chain actors.

## 2.3 Institutional framework

Technical regulation, standards, metrology, accreditation and conformity assessment (inspection, laboratory testing and certification) activities in Uganda are carried out by both the public and private sectors. In addition to Uganda National Bureau of Standards (UNBS), there are other institutions which develop standards, and administer technical regulations which include: Ministry of Agriculture, Animal Industry and Fisheries (MAAIF); Ministry of Trade, Industry and Cooperatives (MTIC); and Local Governments (LGs) [MITC, 2012]. Other key stakeholders involved in ensuring standards include: Uganda Commodity Exchange (being revived as Uganda National Commodity Exchange); The Grain Council of East Africa; and Food and Agricultural Organisation (FAO).

a) Uganda National Bureau of Standards (UNBS)

The UNBS was established by the Uganda National Bureau of Standards Act, 1983. The mandate of UNBS is to develop and promote standardization; quality assurance;

laboratory testing; and metrology to enhance the competitiveness of local industry, to strengthen Uganda's economy and promote quality, safety and fair trade.

- b) Ministry of Agriculture, Animal Industry and Fisheries (MAAIF)  
MAAIF is responsible for managing and coordinating agricultural policies and interventions. In regards to standards, MAAIF is supposed to:
- Formulate and review national policies, plans and legislation, standards and programmes supporting the agricultural sector
  - Regulate and monitor private providers of services in the agricultural sector to ensure compliance with national standards
  - Intensify regulatory services to ensure that all actors adhere to rules and standards;
  - Establish technical specifications and quality assurance standards for agricultural infrastructure.
- c) Ministry of Trade, Industry and Cooperatives (MTIC)  
The MTIC coordinates the implementation of the National Standards and Quality Policy in collaboration with other Ministries, Affiliated Institutions; Development agencies/ partners and the private sector. The ministry is supposed to integrate standards and quality issues in implementation of national development plans and over all supervision of the national quality infrastructure among others.
- d) Local Governments (LGs)  
At LGs, the District Commercial Office (DCO) is responsible for providing market information service, enhancing the quality of goods and services, supporting farmer organizations through mobilization and training, planning, guiding and advising on the development of the commercial services. On the other hand, the District Agricultural Officer (DAO) is responsible for training farmers in modern productive methods, use of appropriate technologies, and providing technical assistance to LLGs among others.

## **2.4 Strengths and Weaknesses of the Legal, Policy and Institutional frameworks**

### **2.4.1 Strengths**

- The government policy of liberalization of the economy has encouraged private sector laboratories and firms to offer conformity assessment services; a number of these are accredited. Currently, there are a number of private laboratories (such as Chemiphar Uganda Ltd and Inter Tek Ltd) that undertake activities such as testing, measurements that support the standards and quality infrastructure.
- Strengthening the Public Private Partnership (PPP) arrangement through Uganda Warehouse Receipt System Authority (UWRSA) and Uganda Commodity Exchange (being revived as

Uganda National Commodity Exchange). MTIC, through Uganda Development Corporation (UDC) is holding 20% of the shareholding while 5 private sector organizations (TGCU, UCA, UCTF, UCFA and UNFFE) are holding the 80% shares. Each of the 5 entities has 16% of UNCE's shareholding. UWRSA has commenced work while UNCE will commence work around February 2016. In addition, the Grain Council of Uganda (TGCU) has created grain hubs where they facilitate storage facilities established by private sector actors to have more capacity in storage and grain handling.

- The national standardization system has achieved significant accomplishments. These include inter alia; establishment and development of standardization institutions, development and issuance of over 1200 National standards (75% of these standards are based on regional and international standards) and about 1,100 standards have been harmonized at EAC, pending gazetting, compliance enforcement of technical regulations and issuance of certificates of approval/conformity to quality requirements for goods and services.
- The Government of Uganda has provided financial support for human resource development in Standards development, Metrology, Conformity Assessment and Accreditation (SMCA) among various government institutions. This provides the basis on which to build the required capacities for managing the diverse standards and quality assurance programmes.

#### **2.4.2 Weakness**

- The key institutions (mainly UNBS and MAAIF) mandated with the enforcement of standards have unclear and sometimes conflicting mandates. Consequently, the coordination and collaboration among these institutions is presently very weak making enforcement of standards impossible. To make matters worse, enforcing standards for maize is not among the top priorities of UNBS. Therefore, enforcement of standards for maize is done by producers' and exporters' associations other than the regulating agencies.
- There are gaps in areas of human resource, inspection services, certification and accreditation services, and related support services. Government does not have laboratories for undertaking micro-biological tests such as testing for aflatoxins to ascertain some quality standards. The government institutions (such as the Army, Prisons, Police, Public schools etc) do not buy graded grain, which further dents efforts to promote standards. Worse still, the reagents used to carry out aflatoxin tests are expensive making it difficult to carry out such tests. Analysis of one sample for only total aflatoxin parameter can cost an equivalent of 0.2 MT worth of grain. A trader or farmer will certainly not test the maize unless they surely must. However, some cheap and mobile aflatoxin kits are available although they do not quantify the levels present.
- The turnaround time for analysis is high (at least four weeks in a competent government laboratory). This implies that if maize samples were to be submitted with intention to trade, by the time results are out, market prices could have changed. Some of parameters (fumonisin and Aflatoxin B1) included in the maize standard cannot be analysed by most laboratories in Uganda. In addition, EAC lacks regional reference laboratories to confirm quality of the grains in case of trade disagreements. Furthermore, there is a duplication

of roles between different government agencies who perform tests of grain commodities (mostly measuring moisture content), thus creating unnecessary bureaucracies and varying results.

- The regulatory capacity is limited in terms of; coverage and outreach, number of personnel and facilitation to do market surveillance and inspection. For instance, UNBS has only four staff that cannot cover the entire country. As a UNBS official noted, “government can’t afford a UNBS official in each district.” Consequently, both UNBS and MAAIF are not visible at local government levels and unable to provide technical support to the local governments. Thus, LGs have left the issues of implementation and enforcement standards for maize and other agricultural produce to the private sector that self regulate themselves.
- Compliance to technical regulations is low in many areas. This is due to inadequate regulatory regimes. The existing laws do not provide for deterrent penalties. Most offenders are not punished according to the law due to unethical practices and corruption by staff of enforcement agencies. For instance, in 2013, the Minister of Trade, Industry and Cooperatives (MTIC) Amelia Kyambadde issued a stern warning to inspection officials at UNBS, against taking bribes that hinder control of sub-standard goods entering the market.<sup>3</sup>
- There is low level of awareness among value chain actors and consumers, and in some cases lack of adequate technologies. There is a general perception that good quality grain is only a WFP requirement. Often the farmers/traders perceive maize standard as a WFP standard and not appreciate the fact that WFP only draws its requirement from the EAS standard, which (EAS Standard) should by all means be observed by stakeholders involved in the commodity handling and trade. Other buyers (schools and government agencies e.g. police and or the Army) never purchase maize grain on a basis of grading. This creates a perception that standards are only for a particular market.

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3 Red Pepper, 11thFriday January 2013.

# Section 3: Maize and Sesame Production and Trade in Uganda

## 3.1 Maize Production and Trade

Maize is produced predominantly by small-scale farmers on a subsistence level, except for a few emerging commercial farmers. Small-scale farmers account for up to 75% of maize production and contribute over 70% of marketable surplus. Medium and large-scale farmers account for 25% of maize production; however, their share is growing because of the increased regional demand and structural reforms in the maize international trade (USAID, 2010). Since women are the major players in the agriculture sector; four out of every five women in Uganda are employed in agriculture (Republic of Uganda, 2013). They play a critical role in maize production in Uganda.

Over the last decade both maize area and production in Uganda increased dramatically. Maize production has been increasing from 1,080,000 MT in 2004 to 2,748,000 MT in 2013 (see Table 3.1). Most of the production increase is the result of area expansion rather than yield improvement as crop yield stagnated at around 2.4 t/ha in recent years (FAOSTAT, 2015).

**Table 3.1: Uganda Maize Production and Export (000 Tons)**

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Production (MT)	1,080	1,237	1,258	1,262	1,266	2,355	2,374	2,551	2,734	2,748
Formal exports (MT)	90.6	92.8	115.3	101.2	66.7	94.4	166.3	89.3	174.8	122.1
Formal Exports by Value (US Mn)	17.9	21.3	24.1	23.8	18.3	29.1	38.2	26.8	56.9	42.3
Formal exports as a % of Production	8.4%	7.5%	9.2%	8.0%	5.3%	4.0%	7.0%	3.5%	6.4%	4.4%

Source: UBOS Statistical Abstracts (various years)

Uganda's maize grains export market is mainly regional, comprising of markets within Eastern and Southern Africa, Kenya, Rwanda, Tanzania, the Democratic Republic of Congo and South Sudan (see Table 3.2). Uganda's export potential for maize is estimated between 200,000 and 250,000 MT per year (USAID, 2010). However, Uganda has only managed to formally export half of this amount, reflecting a low level of penetration into the regional markets majorly due informal trade, poor quality standards, poor rural road network, and limited business exposure (ibid, 2010).

**Table 3.2: Top five Export Markets for Ugandan Maize in 2014**

Countries	Value (USD '000)	Quantity (MT)
Kenya	15,332	56,719
Sudan (North + South)	9,071	24,530
Rwanda	4,243	30,463
Burundi	274	1,016
Tanzania	56	200

Source: BoU, UBOS & UEBP

The major challenge of maize trade is the increasing informal (unofficial) cross-border trade with neighboring countries which creates difficulties in controlling both quantity and quality standards (MAAIF, 2010). Maize is sold informally across borders through Mutukula for Tanzania, Busia, Malaba, Lwakhakha and Suam for Kenya; Gatuna for Rwanda; Koboko and Nimule are for South Sudan; and Rwenzori Mountains into the DRC. Therefore, there is no accurate data on volume and values of exports to these countries. Consequently, the share of formal maize exports to total production has been declining from 8.4% in 2004 to 4.4% in 2013 (see Table 3.1). This can partly be attributed to the fact that WFP Uganda, one of the largest buyers of maize grain (even though still consumed in Uganda is considered as exports) reduced its purchases in 2013 and 2014.

In 2009 and 2010, maize grains trade was estimated to have generated over USD 29.07 and 38.21 million respectively. However, the value of informal (unofficial) maize grain exports exceeded the formal (official) exports, the value of informal maize grain and flour exports to neighboring countries in 2009 and 2010 were estimated at USD 36.67 and 45.83 million respectively (Bank of Uganda, 2011).

According to USAID (2010), NRI & IITA (2002), and World Bank (2009) studies, maize trade in Uganda is complex but the main channels for the commodity flow include: a) from farmer (farm gate) to agents / traders store/rural market in rural areas, b) from rural market to urban market, c) from urban market to major buying centres outside the district, and d) the export market. Each of these transaction functions involves a number of key players that include: Rural agents, Urban traders, Processors/ millers, Large scale traders/ exporters.

Uganda has always been known to produce the worst quality maize. In fact some Kenyan traders have branded Ugandan Maize “Chakula cha Kuku” loosely meaning poultry feed due to its poor quality. As a result Ugandan maize if accepted by partner states fetches the lowest price- Official from East African Grain Council

Most maize producers are not reaping from existing opportunities such as the Common Markets due to limited Uganda’s competitiveness in the regional agro markets. For instance, most maize producers in Semuto district complained of not reaping from existing opportunities such as the Common Market, which is attributed to poor quality maize. Most of the maize grown in the area

does not meet the EAC maize standards.<sup>4</sup>

### 3.2 Sesame Production and Trade

Sesame in Uganda is produced predominantly by small scale farmers with simple farming methods that have not changed over many generations majorly using animal draught for land preparation, broadcasting, planting and manual weeding, harvesting, drying and threshing. As such, sesame farming is characterized by low resource use with little mechanization or use of inorganic fertilizer and chemical pesticides (Munyua, B., & Okwadi, J., 2013). Farmers have been producing sesame for subsistence consumption and increasingly for income through the marketing of surplus production (ibid, 2013).

Sesame is a crop recognized for its nutritional attributes and its adaptability (Glucroft J. et al., 2012). Sesame can become one of the major cash crops for export and domestic use in Uganda. Besides being a major oilseed crop, sesame is also used for many traditional dishes as well as feed for livestock. Sesame is particularly important for women’s livelihood strategies. Since sesame is largely produced by women; weeding and harvesting is mainly done by women (Munyua, B., & Okwadi, J., 2013), they can generate income from the sale of sesame from their gardens and improve on their livelihoods.

Uganda was the world’s seventh biggest producer of sesame after Myanmar, India, China, Ethiopia, Sudan and Nigeria in 2011 (FAOSTAT data 2015). Unlike Maize, Simsim production in Uganda has stagnated over the last ten years averaging 142 MT. This was partly due to insecurity in the Northern region which is the main centre of production.

The share of formal sesame exports to total production has increased from 3.4% in 2004 to 17.8% in 2013. Consequently, the value of formal sesame exports has increased from USD 2.8 million in 2004 to USD 28.5 million in 2013 (see Table 3.3). Due to high volumes of formal exports, sesame generated relatively higher revenues (USD 1.3 million per MT in 2013) compared to Maize (USD 0.3 million per MT in 2013). This make Sesame seeds high value agricultural product.

**Table 3.3: Uganda Sesame Production and Export**

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Production (MT)	125	161	166	168	173	115	119	142	124	124
Formal exports (MT)	4.3	7.4	7.6	5.9	14.2	12.1	12.1	14.8	11.5	22.1
Formal Exports by Value (US Mn)	2.8	4.8	4.5	5.4	15.9	13.4	12.9	17.3	11.7	28.5
Formal export as a % of production	3.4%	4.6%	4.6%	3.5%	8.2%	10.5%	10.1%	10.5%	9.3%	17.8%

Source: UBOS Statistical Abstracts (various years)

4 <http://www.newvision.co.ug/news/664796-semuto-farmers-pass-by-law-on-maize-standards.html>

European markets pay the highest value per MT for Ugandan sesame. However, these countries account for only a small share of the total volume of sesame exported (Munyua, B., & Okwadi, J., 2013). The highest volume of Ugandan sesame is exported to United Arab Emirates and China which pay the third lowest and the second lowest prices per MT, respectively. Hence, Uganda has potential to realise higher value per MT by changing export destination from the far-east to higher value European markets. The main challenge for such re-orientation is to overcome non-trade barriers to European markets, through certification of compliance to a variety of codes of conduct, such as Global Good Agricultural Practices (GLOBALGAP) (ibid, 2013). This requires increasing traceability of farmers and addressing phyto-sanitary concerns in post-harvest handling. However, markets in the far-east and China do not discriminate based on quality and have little if any requirements for entry (ibid, 2013).

Sesame trade is therefore characterized by numerous transactions involving small volumes, and equally as many traders with variable capacity, which makes implementation of standards challenging. Considerable effort is required to assemble sesame into economically viable volumes for trade. Traders can be categorized based on their location, volumes handled and hierarchy along the sesame marketing value chain.

Since there are currently no quality standards for sesame, different sesame value chain actors use quality standards required by the countries where they export. However, the attitude of farmers towards sesame is affecting its standards; most farmers grow sesame for food with very little for selling. Sesame is only considered as a source of income in times of need and this is usually during the dry season; few cups are drawn from the granary and sold at the local markets to mainly traders. This was confirmed by a female farmers during FGD meeting in Agweng S/C, Lira district who said that "...for me I plant sesame in view of feeding my family but because of the over whelming need for money to cater for basic needs, I sell some. Thus, I don't consider quality standards at all". The same view as expounded further by the District Commercial Officer in Lira who noted that "The major limitation in the production of sesame is the nature of the farmers who only grow sesame as a traditional food crop for home consumption... its only due to cases of family basic needs that create the need to sell as an alternative source of household income."

### **3.3 Rejection of Maize Grains**

The East African Standard for maize grain stipulates 13 quality parameters for maize quality which have been harmonized by the EAC partner states (see Table 2.1). Some of the parameters can be met through physical tests and micro-biological tests. Maize grains can be graded in three levels: Grade 1, Grade 2 and Grade 3, the best grade being Grade 1.

#### **3.3.1 National Level**

This research found that the rejection of any Grade depends on the buyer of the maize, and that there is no standard formulae being applied in rejecting poor quality maize grains. The issue of rejections was noted by some key informant respondents as being 'political', in that some EAC partner states use it to create non-tariff barriers and also under cut the price of maize from other countries.

The World Food Programme (WFP), one of the leading purchasers of maize in Uganda only accepts Grade 1 and Grade 2 maize grains; which has met all the 13 specifications (undergone both physical and micro-biological tests). They are accredited laboratories (such as Chemiphar Uganda Ltd and Inter Tek Ltd) that undertake the micro-biological tests. Therefore, before any one supplies to WFP, they should have met all the 13 parameters with regard to grade 2. The costs of the micro-biological tests are born by the suppliers.

Though all respondents noted that there are rejections of Maize grain due to poor quality, there is no credible documented data on this. Only WFP provided some information on rejections, they noted that about 15,000 MT of their maize grain was rejected by Tanzanian authorities in 2013 due to poor standards. The lack of data on rejection can be attributed to:

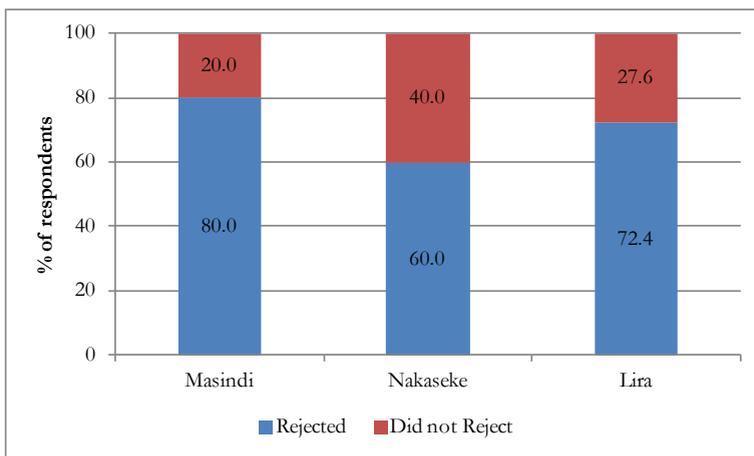
- High levels of informal cross-border maize grain trade, which makes it hard to capture information on rejection. In addition, in most cases, maize traders negotiate lower prices, to avoid their maize being rejected. An official from EAGC noted “Traders do not keep information on rejections they instead negotiate the prices ...with no documentation at the border you cannot trace where the maize was coming from.”
- Lack of gazetted places where rejected maize grain is deposited; thus, in most cases it ends up in the market as maize flour or animal feeds.
- Data on rejections is considered confidential by a number of private dealers, who were not willing to provide it to research team. Laboratories contracted to test for quality standards enter into agreement with their clients with a clause of confidentiality hence were not able to share to share their data without permission from their clients.
- Though data on total maize production is available; it is not categorised by grades, making it hard to infer any possible rejections from that kind of data. In addition, warehouses in Uganda are unable to categorise grains. As an official, from Warehouse receipting project, MTIC, noted “Warehouses don’t register poor quality rejected grains. That is one area where government should put emphasis and build capacity for farmers and traders to record rejected maize”.
- Policy restrictions from Kenya that emphasise retaining of raw materials that are of substandard quality; once goods are rejected in raw material format they are not supposed to cross back to the country of origin. However, the research team could not obtain such data from the Kenyan side.

### **3.3.2 Local Government levels**

Through a mini-survey of farmers, traders and dealers of Maize in Nakaseke, Lira and Masindi district, this study obtained some information on rejection of maize grains. The rejections are largely based on physical tests which traders and dealers applying while purchasing maize grain from the producers (farmers). Some of the physical parameters they look at include among others: moisture content, foreign matter, discolouring, damaged grain, and rotten grain.

As shown in Figure 3.1, majority of the respondents (buyers); 80%, 72% and 60% in Masindi, Lira and Nakaseke respectively reported to have rejected maize grains from producers (farmers) due to poor quality during the last 12 months prior to the survey.

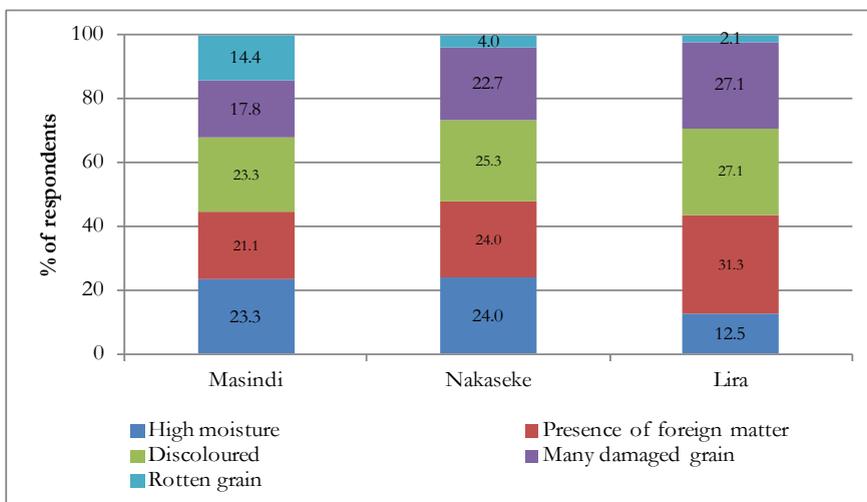
**Figure 3.1: Traders/Dealers who rejected Maize grains from Producers**



Source: Survey data

The main reported reasons for the rejections were: discoloured grains, presence of foreign materials, many damaged grains and high moisture content (see Figure 3.2).

**Figure 3.2: Major reasons for Rejection of Maize grains by Traders/Dealers**



Source: Survey data

The highest percentage of rejection by traders/ dealers was reported in Nakaseke, where about 0.5% of the total estimated production (based on Uganda Census of Agriculture data 2008/09) was rejected, this was followed by Lira at 0.18% and Masindi at 0.19% (see Table 3.4).

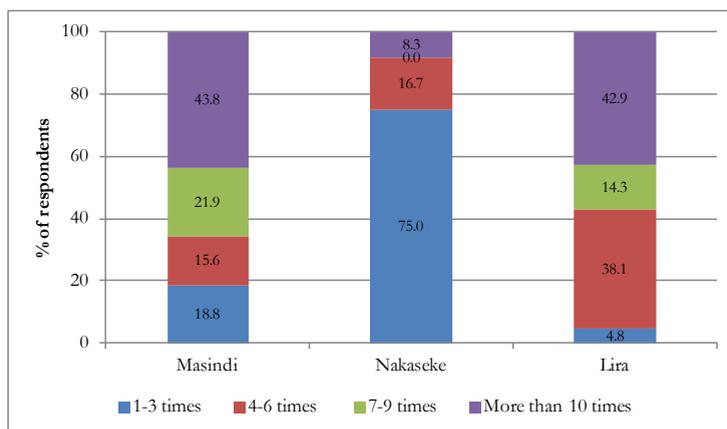
**Table 3.4: Rejection of Maize grains by traders/ dealers – amounts (Kgs)**

Districts	Minimum	Maximum	Mean	Total	Total Production (est) -UCA 2008/09	Percentage of Rejections
Masindi	100	9,000	3,656	117,001	61,715,000	0.19%
Nakaseke	80	9,523	1,333	31,983	6,375,000	0.50%
Lira	70	6,000	1,476	30,990	17,156,000	0.18%

*Source: Survey data & UBOS Statistical Abstract, 2014*

The highest numbers of rejections were by traders/ dealers was reported in Masindi where 44% of the respondents noted that they rejected maize grain more than 10 times, this was followed by Lira at 43% and Nakaseke at 8% (see Figure 3.3).

**Figure 3.3: Number of times trades/ dealers rejected maize grain**



*Source: Survey data*

# Section 4: Status of Implementation of Standard for Maize Grains in Uganda

In 2011, the East African Community (EAC) developed harmonized standards for maize grains outlining the specification and parameters for ensuring trading of good quality maize among EAC partner states. This section analyses the status of the implementation of these standards. Focus is made at national and local government levels in the three districts of Masindi, Nakaseke, and Lira.

## 4.1 EAC Level

According to the Eastern Africa Grain Council Communique of 29th April 2015, there are several issues regarding interpretation, domestication by EAC partner states, deficiencies in technical specifications, sampling and testing methods, and implementation of the standards at border points. For example:

- Deficiencies in technical specifications; There are several technical deficiencies that include missing parameters on some specification table and in definitions, while there are ambiguous definitions of key terms in the specifications such as total defectives and discoloured grains. This causes ambiguity in interpretation of such parameters and consequently a challenge in grading. It is common that one sample graded by different persons or laboratories could give very variant results.
- Domestication by Member States; There are varying stages of domesticating the standards. Kenya and Tanzania have already begun implementing the Standards but their formal adoption has not been gazetted as required. In Burundi, neither implementation of the Standards nor official gazetting has taken place. Rwanda and Uganda are implementing the Standards and have gazetted them. However in Uganda, a Legal Notice had not yet been issued by April 2015.
- With the exception of Tanzania, all Member States have duly altered their cataloguing of the Standards to indicate the adoption of EAS; Tanzania is implementing the Standards using catalogue codes that do not reflect the EAS, thus creating confusion for grain sector actors.
- Status of Grain Laboratories; Laboratories were also found not to be standardised for some tests, which creates avoidable variances in test results. There is lack of harmonisation on testing methods, laboratory standards and equipment at regional level. There were also no reference labs for arbitration on conflicting test results.

## 4.2 Stakeholder's Awareness, Perceptions, and Attitudes towards Standards

### a) Border Crossings

The awareness of the existence of EAS 2013 by government border officials was very low; according to the EAGC (2015), only 10% of border personnel interviewed were aware of the Standards, the highest in the region. This partly due to:

- Border posts didn't have promotional materials for the Standards or manuals.
- Border officials were not adequately equipped to enforce the standards. There were no laboratories to conduct thorough testing and grading, and where present, testing was limited to moisture content only.
- There is a duplication of roles between different government agencies who perform tests of grain commodities, thus creating unnecessary bureaucracies and varying results.
- Some border officials send samples to headquarters for testing and/or verification of test results due to absence of adequate laboratories. The process takes several weeks and at the same time the consignment is allowed to enter a country before results arrive.

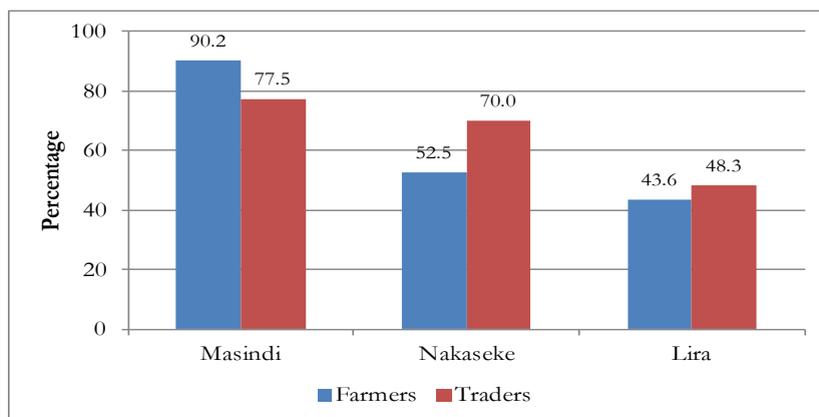
### b) National Stakeholders

Majority of the stakeholders interviewed were aware of the EA standard for maize grain and most of them participated in their development. For instance, WFP and EAGC were key in advocating and facilitating the harmonization of standards for maize in EAC countries. Since the EA harmonized standards for maize grain are not well understood by most value chain actors, some stakeholders especially UNBS, WFP, USAID, EAGC and SEATINI have developed training manuals and IEC materials and are disseminating them to all value chain actors. However, most of them are sceptical about the implementation and enforcement of the East African Standard for maize. There is minimal government involvement on enforcing standards due to limited financial and human capacity at UNBS and MAAIF. Therefore, the implementation of standards has been left to the private sector and NGOs.

### c) Local Government Level stakeholders

The level of awareness of specifications of standards for maize grains among the value chain actors is relatively high in Masindi compared to Nakaseke and Lira. In Masindi, 90% of the farmers and 77% of the traders interviewed were aware of the standards. However, in Nakaseke 52% of the farmers and 70% of the traders interviewed were aware of the standards and in Lira, 44% of the farmers and 48% of the traders interviewed were aware of the standards (see Figure 4.1).

**Figure 4.1: Percentage of respondents aware of specifications of standards for maize grains**



*Source: Survey data*

However, it should be noted that this awareness is not on all parameters of the EA standard for maize grain, however, traders/ dealers know a few such as foreign matter; rotten and diseased grains; moisture; and discoloured grains (see table 4.1).

**Table 4.1: Percentage of traders/ dealers aware of specifications of standards for maize grains**

Parameters	Masindi	Nakaseke	Lira
Broken grains	2.9	7.4	3.5
Foreign matter	27.1	22.2	13.8
Free of moulds	2.9	9.3	
Free of rotten grains	10.0	13.0	6.9
Moisture content	25.7	29.6	37.9
No discolouring	15.7	16.7	20.7
Single grain variety	7.1		10.3

*Source: Survey data*

The level of awareness of some parameters of the EA standard for maize grain was lower among farmers compared to traders/ dealers. For example, farmers in Masindi were only aware of moisture, discolouring, and damage control. In Nakaseke they were aware of: foreign matter, moisture, and discolouring, whereas in Lira they were aware of only foreign matter and moisture (see Table 4.2). This is partly due to the fact the EAS has not been widely disseminated. This was expounded by CLUSA Agri-Business Advisor, who noted that “generally some farmers know little about East African Standard since they have not been publicized, but can tell good maize through physical appearance.”

**Table 4.2: Percentage of farmers aware of specifications of standards for maize grains**

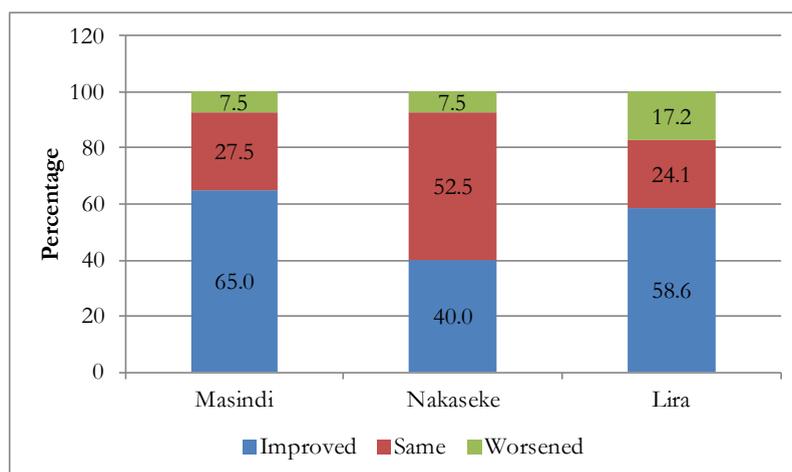
Parameters	Masindi	Nakaseke	Lira
Foreign matter		12.0	10.0
Moisture	13.7	28.0	50.0
Discolouring	2.0	56.0	
Pest damage	7.8		

*Source: Survey data*

There have been efforts by NGOs (such as MADFA, VEDCO and BRAC), WFP, and seed companies (such as FICA seeds, Victoria seeds, BRAC Seed Company) to sensitize farmers and retailers traders/ dealers on ensuring standards of grains especially maize. They use a number of approaches including: training, radio talk shows and field visits. This was confirmed by a District official in Masindi who noted that “organisations like MADIFA have uplifted the quality of maize in the district through promoting good quality seeds and also training farmers on proper post-harvesting handling.” A participant in a FGD meeting in Bwijanga S/C Masindi districts added that “I have heard about quality standards through a radio talk show by MADFA.”

Due to the efforts of NGOs and companies, there has been some improvement in the quality of maize being produced by farmers in Masindi and Lira. This was as confirmed by the traders that were interviewed: 65% and 59% in Masindi and Lira respectively reported improvements in the quality of maize being produced by farmers over the last two years (see Figure 4.2). This was also confirmed by the EAGC RATING Price mapping study which showed that several grain traders in Mbale, Jinja, Busia, Lira and Kenya reported that Maize from Masindi is of better quality and is thus “expensive”.

**Figure 4.2: Traders rating the quality of maize produced by farmers over the last two years**



*Source: Survey data*

The processors and exporters are aware of the EA standard for maize grains and endeavour to comply. However, majority of them only apply 9-10 parameters (that mainly require physical tests). They play a critical role in ensuring farmers are aware of quality standards. They sensitize farmers and retailers/ dealers through disseminating information on maize and other grain standards. Since the retail traders/ dealers carry out discriminate purchase of maize grains, processors and exporters like Mukwano, Olam, Rwenzori commodities in Lira, Joseph initiative and AfroKai in Masindi, Namukekera agro-processing centre in Nakaseke endeavour to process and grade the maize. A participant in the FGD in Pakanyi S/C Masindi district expounded on this issue by saying, “I used to sell maize to our dealer without sorting it, however, when those people of Joseph initiative started buying maize from the dealer, he told us he can’t buy our maize unless it was well dried and cleaned.”



*FGD with farmers in Sembwa Village, Nakaseke S/C, Nakaseke district*

Apart from Nakaseke district, over 80% of the LG officials especially at sub county levels were not aware of the East African Standard for maize grain. For instance, officials in Agweng Sub County in Lira district noted that the issues of standards were secondary; the primary concern was to ensure food security, since people were still adjusting from IDPs attitude. They noted that issues of standards for grains should be addressed by producers and traders. An official in Agweng S/C, Lira district noted that “the people here are adjusting from the IDPs, so they are focused on having enough food with little attention to produce for the markets; quality standards are only known by traders.”

The level of awareness of quality standards is higher in Nakaseke due to interventions by Namukekera Agro-Processing Centre which is being supported by Gen Salim Saleh; interventions by SEATINI-Uganda through training farmers and LG officials; and the forth-coming by-law that is being developed.

There are differing views among the farmers on issues of standards. Some noted that standards are important for them since they are key in ensuring good health for the people and also help in ensuring stable markets and prices for their maize produce. Because of good quality maize, farmers have been able sell their produce to large scale traders and also able to negotiate better prices. This was elaborated by a farmer during FGD in Nakaseke S/C Nakaseke district, who

noted that, “We have observed quality standards and thus been able to sell to big buyers like Ugachick, World Food programme and Uganda Grain Traders over the years.”



*FGD in Acelela Village, Agweng S/C Lira District*

On the other hand, some farmers perceive meeting quality standards as useless. They argue that activities like drying on tarpaulins, sorting of grain and winnowing require a lot of time and labour. In addition, there is minimal financial benefit since there is no premium price for good quality maize; this is partly due to the unstructured nature of grain business in Uganda. This was expounded during a FDG in Semuto S/C Nakaseke district where a youthful farmer noted that, “Since there is no exclusive price for quality maize grains, many farmers like me do not endeavour to address concerns of quality after all, we all sell at the same price.” Another farmer in Nakaseke S/C added that “I cannot go through the necessary steps of grading and sorting to achieve quality standards yet the buyers always have no premium price for such worthy maize.” Furthermore, they noted that producing good quality maize leads to losses since little quantities can be sold due to drying, and cleaning. Another farmer in Semuto S/C Nakaseke district noted that: “Farmers look at quality assurance as a way of losing money for instance during the drying of maize to reduce the moisture content a lot of grain weight is lost, thus many farmers do not want to totally dry their maize in view of this kind of loss”.

### **4.3 Willingness and Capacity of Stakeholders to Implement Standards**

#### a) National level

There are stakeholders at national level dealing with issues of standards, which include among others: Uganda National Bureau of Standards (UNBS), Ministry of Agriculture Animal industries and Fisheries (MAAIF), MTIC, World Food Programme (WFP), Eastern Africa Grain Council (EAGC), The Grain Council of Uganda (TGPU), Uganda Oil Seed Producers and Processors Association (UOSPA), UNFFE, and SEATINI. All these agencies are willing and have in some way supported the development and implementation of standards for grains in Uganda.

The UNBS is the lead agency in developing and enforcing quality standards in Uganda. The bureau was instrumental in developing the harmonized East African Standard for Maize grain. It has a state of the art laboratory capable of conducting all relevant quality confirmation tests. However, the bureau is faced with a number of challenges which hinder its ability to effectively enforce standards in Uganda. Major challenges include: inadequate funding and staffing to enable the bureau perform its mandate. Therefore, the bureau cannot reach the entire Uganda, thus, it has to prioritize with standards to enforce vigorously; unfortunately, maize standards is not among the top priorities. This as exemplified by a UNBS official, who noted that “We are just three staff at the bureau, who are supported to cover the entire Uganda when it comes to enforcement of all quality standards including maize...so, we cannot be everywhere.”

MAAIF is the lead agency for certifying planting materials in Uganda. With the liberalised agricultural sector, there are a number of seed breed in Uganda that are largely imported. However, the National Seed certification service (NSCS) is understaffed and cannot effectively monitor and enforce quality standards of seeds which greatly contribute to poor quality seeds on the market. This was confirmed by a senior official in MAAIF who said that, “You cannot imagine NSCS has only 2-3 staff and tell me are we doing justice to these people? Do you think they can travel around the country to implement their mandate? That is why am not surprised of the increasing numbers of fake seeds in the markets”

The MAAIF has acknowledged this and is starting to act. A senior official in the ministry noted that this year the MAAIF started monitoring quality standards right from the production levels to the market through sensitising and dissemination of standards to farmers, processors and traders. However, this research found that there is no presence of and support from MAAIF in the three districts covered.

The East Africa Grain Council (EAGC) is a regional membership organization of the grain stakeholders (including traders, farmers and processors) operating in 11 countries. The council promotes trade facilitation linkages through Structured Grain Trade (STS) that excludes middlemen; Promotes warehouse services using warehouse receipt system; advocates on issues of grain trade related policies; negotiates on tariffs and non-tariff barriers; and promotion of grain standards especially the EAS through training and use of IEC materials. The council provides various actors with relevant information on grain in Uganda and EAC. The council advocated for harmonization of standards for improved intra-regional trade and harmonization of standards for 22 grain commodities in EAC region. EAGC trained over 2,500 farmers in EAS standards in June 2015 at the Annual Agribusiness Expo 2015. EAGC through its capacity building wing the Eastern Africa Grain Institute (EAGI) trains graders, warehouse operators in a wake to promote standards. The council is also setting up a grain analysis reference laboratory.

World Food Programme (WFP): Through its Purchase for Progress (P4P), the organisation has been working on ensuring grain quality. WFP has been instrumental in developing the harmonized East African Standard for maize grain. Since 2010, WFP has been purchasing maize based on the East African Standard (that which meets all the 13 parameters). WFP is also building the capacity of farmers and traders to meet the quality standards. They have also worked with USAID to develop some manual on the East African Standard.

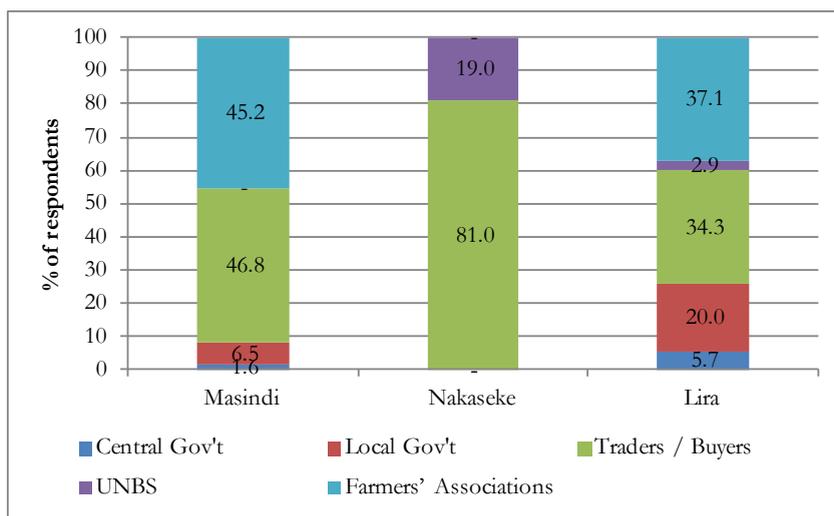


b) Local Government Levels

The implementation of standards at local government levels is the mandate of the District Production department with support from MAAIF headquarters. Unfortunately, none of the officials interviewed was in possession of a copy the East African Standard for maize grain. This means they have not familiarized themselves with aspects of the standard. This means, they are not able to create awareness and or enforcement of standards. Lack of adequate funds and staff makes it hard for the District Production department to perform its mandate in regards to standards. In addition, lack of relevant laws such as by-laws makes its hard for the district officers to enforce the standards.

This is confirmed by the farmers and traders interviewed, who reported that standards are enforced by mainly traders/ buyers, farmers' Associations, and to some extent by local governments. Enforcement by UNBS was only reported by a few respondents in Nakaseke and Lira (see Figure 4.3).

**Figure 4.3: Farmers Responses on the enforcers of Standards**



Source: Survey data

Large scale buyers and companies: These always reject poor quality maize especially that which does not meet physical parameters of moisture content, foreign matter, discolouring, damage, and are rotten. This practice has encouraged farmers and retail traders to improve standards of grains. Some large scale buyers and companies provide the suppliers with information on the standards that are required. Planting good quality seeds improves yields and has a direct bearing on the standards. Therefore, some large scale buyers and companies (such as Joseph Initiative and Rwenzori Commodities) in Masindi and Lira districts have also encouraged farmers to plant improved variety of seeds that are quick maturing and can be harvested in time.

Retail traders / dealers: In most cases, these buy maize grains regardless of quality; however, they have to first dry and clean the maize before they sell it to larger scale buyers and companies. This was expounded by an official in Bwijanga S/C Masindi district who noted that, "...so many times retail traders / dealers just buy any grade of grains regardless of the quality; however, they later on have to dry and clean the grains before selling it to large scale buyers and companies who can do further quality control."

The retail traders / dealers in most cases negotiate lower prices for the maize grain that does not meet the required standards. In some cases, they even cut off 3-5 kilograms to compensate for losses which they incur when cleaning and further drying of the grain. This was confirmed by a farmer in a FGD in Nakaseke S/C who noted that, "when your maize grain does not meet the standards, the buyers buy it at less price, and in some cases have to cut off 3-5 kilograms." Although this practice has forced some farmers to observe standards, others believe they are sometimes cheated by buyers who in most cases apply the price indiscriminately. This was explained by a farmer in Pakanyi S/C, Masindi district who noted that "...they check mainly moisture content, and foreign matter, but they sometimes deduct too many kilograms and reduce the price too much; we end up receiving little money than expected".

Farmers: Some farmers have embraced and adopted better post-harvest handling practices such as proper drying and using clean materials in a bid to enhance quality standards. The use of tarpaulins in drying of both sesame and maize is increasing. Some farmers are now adopting the use of shelling machines to improve the quality of maize. With support from NGOs and large scale buyers and companies, some farmers have been supported with motorised shelling machines. This was explained by a participant in FGD in Pakanyi S/C, Masindi district who noted that "...back then before appreciating the need for quality standards, I would hire men to beat the maize for shelling...however, now we have change the methods."

There are also efforts by some NGOs to support farmers to adapt to modern agronomic practices and planting of high yielding and drought resistance maize. Through this, farmers are able to grow maize even during dry spells, when maize demand is high and can thus fetch better prices. An official from MADIFA expounded on this by saying, "...through our (MADFA) interventions aimed at enhancing the quality of planting seed stocks variety, we devised the DTMA (Drought Tolerant Maize for Africa) which has shown good results for those Volunteer farmers where we established demonstration farms that also focus on enhancing good modern agronomic practices."

### 4.3.1 Status of implementation of standards in Masindi, Nakaseke and Lira districts

Among the three districts, Nakaseke district has made some strides towards the implementation of standards for maize grains. Nakaseke district is in the process of enacting a by-law on quality standards. The by-laws are being developed using the bottom-up process right from the sub county. By the time of the study, Nakaseke S/C council had already passed a resolution for the development of a by-law and Semuto S/C council was in the process of reviewing and passing similar resolutions. However, these by-laws have to be approved by the district council; and this was the next step. Though the By-law has not been passed, there are already dividends in terms of improvement of standards by maize farmers. This was confirmed by a participant during FGD in Nakaseke S/C, who noted, "...due to the by-law, farmers are beginning to act responsibly on issues of quality standards in fear of falling prey to the long arms of law...it will help to weed out improper practices." Another farmer in Semuto S/C added that, "...last season I reported a farmer to the LC III Chairman. The farmer was spraying weed master on maize so that it could dry faster in order to fetch higher prices. The farmer was apprehended."

#### **Box 4.1: Effect of Maize quality By-law enactment in Nakaseke District**

- Some community members are reporting farmers that are applying bad agronomic practices that lower the quality standard. It has been a custom of some farmers to spray herbicides to maize to allow it dry fast. Of recent any farmer seen applying herbicides the maize crop to induce drying is reported to the authorities
- Encouraged drying on tarpaulins since most farmers witnessed fellow coffee farmers being arrested and taken to court then imprisoned. Most maize farmers are conscious and avoid drying on the ground and adding stones or cobs in maize due to the by-law.

According to the District Production Officer (DPO), Lira district has a food security ordinance; however, it is silent on issues of standards. The implementation of standards was left to the private sector especially large scale buyers and companies such as Mukwano, Mt. Meru, Olam Ltd and Rwenzori commodities. In some cases, the district collaborates with NGOs (such as Welthungerhilfe, USAID –feed the future, VEDCO and Sasakawa Global 2000), to sensitize farmers and traders on standards. In addition, the DPO noted that the district plans to use funds from PRDP and ALREP to build grain storage facilities, which is hoped to improve the quality of grains produced in the district since only good quality grains will be accepted in the stores.

Masindi district does not have any by-law on standards. Implementation of standards is handled by the private sector especially large scale buyers, companies and NGOs. NGOs such as Masindi District Farmers Association (MADIFA) are intervening on issues of standards. MADIFA is spearheading the formation of the district Maize platform where local government officials and other stakeholders hold discussions on issues of standards. They also organise weekly radio shows and community outreach events that sensitize farmers improving the standards of their produce. This was confirmed by a woman participant in FGD in Bwijanga S/C, Masindi district

who noted that, “...every week I listen to BBS Fm and MADIFA people always teach us about maize standards; because of that I built a crib for storing my maize produce. I also no longer sell maize that is not properly dried.”

#### **4.3.2 Challenges of implementing standards in Masindi, Nakaseke and Lira districts**

Poor implementation of standards by local governments: In the three districts visited, there is no LG official responsible for enforcing quality standards. The implementation of standards is left to the value chain actors who in most cases cannot effectively enforce standards.

Some farmers are inclined to a thought that whatever is produced will ultimately be consumed. Embracing good handling practices that promote good quality are perceived as a waste of time and they associate it with more costs. The high cost of purchasing machinery such as driers and electricity in running machines makes it harder for most small and medium buyers and processors to meet the required standards. Most farmers cannot manage post-harvest handling costs especially drying and storage. In most cases, the weather conditions do not favour proper drying of maize. Most farmers in Nakaseke and Masindi noted that drying maize to the required moisture content is very challenging due to changes in the onset and cessation of rain because of climate change.



*Both animals and human walk through maize being dried*

To make matters worse, farmers are also aware of the interacting effect between bad management practices and changes in climate. Most farmers do not have proper storage facilities; maize is commonly stored in houses, kitchen or at the veranda which lack the appropriate ventilation and shelter from rain. Most of them can not apply effective pest control chemicals (fumigants) due to high levels of toxicity. This leads to high levels of contamination as explained by a participant in FDG in Ogur S/C in Lira district, who noted that, “Quality is lost due to poor post-harvest handling especially due to poor storage that makes maize susceptible to pests’ attacks and foreign substances.”

Ignorance, high levels of poverty and subsistence farming makes it harder for most farmers to meet the standards. Most farmers sell their maize grain quickly after harvest to buy household needs, pay off debts and labourers, as well as to cover the costs of production for the next season. Farmers tend to all sell at the same time, which brings down the price that they receive. In order to benefit from higher prices (before the bumper harvest starts) some unscrupulous farmers sometimes spray maize with chemicals to facilitate quick drying, some harvest it when it is still immature and wet leading to aflatoxins. This was confirmed by a farmer during FGD in Semuto S/C, who noted that: "...I can't wait for the maize to dry when I don't have money; I spray the crop with a herbicide it dries and sell moreover at a higher price since no one is harvesting." EAGC Official also noted that, "...ignorance and poverty has made farmers desperate to the extent that they apply chemicals to quicken the drying process rather than using the natural methods."



*Poor post harvesting handling- affects quality*

Lack of a premium price for superior quality demotivates farmers and traders to pursue good quality. Majority of the farmers interviewed noted that there is no need to invest time and extra money ensuring quality maize grain, when there is no premium price for good quality maize grade. Most retail buyers do not base their prices on quality of maize; they instead opt to cut some kilograms from each bag. This discourages some farmers from ensuring quality.

Lack of consistent quality in maize production is largely due to the seeds that are used. There are many benefits associated with procuring seeds through certified seed companies. However, most farmers tend to get their seeds through informal networks. In fact, the majority of smallholder farmers use their own saved seeds for planting. The presence of poor quality seeds coupled with counterfeit agricultural inputs such as herbicides, pesticides and fertilizers has greatly affected the quantity and quality of maize grains produced. When farmers produce less they get less money and are unable to improve on the standard of grains produced the next season. In addition, the poor quality pesticides affect the quality of stored grains.

## 4.4 Good practices on the implementation standards for grains

EAC partner states and other African countries especially in the SADC block are undertaking a number of initiatives that Uganda can benchmark from. Some of them are discussed below:

- **National Grains Board.** Kenya has a National Cereals and Produce Board (NCPB) that focuses on a commercial business and certain social roles. The commercial roles of the Board constitute commercial grain trading, which is its core business. The Board procures, stores and maintains a Strategic Grain Reserve (SGR) stock of up to four million bags on behalf of the Government to be used for food security. On the social side, the Board facilitates the procurement, storage, maintenance and distribution of famine relief food to deficit areas, under the National Famine Relief Program, on behalf of the Government.
- **Government Warehouses:** Governments of Kenya and Tanzania have government owned warehouses managed by Kenya National Cereals and Produce Board (NCPB); and Tanzania National Food Reserve Agency (NFRA) respectively. These warehouses and silos help in improving quality standards through; grain drying, weighing, fumigating, grain cleaning, grading, warehousing, clearing and forwarding.
- **Government Food reserves:** The Government of Zambia has a Food Reserve Agency (FRA) with the mandate of stockpiling certain amount of food including maize in preparation for food shortage in the country (JAICAF, 2008). The FRA also influences the prices and distribution of maize by buying and selling a certain percentage of gross domestic maize production at fixed prices. The purchasing activity is focused on small farmers in disadvantaged areas, where private merchants and companies do not operate due to the poor transport infrastructure.
- **Price ceilings for certain agricultural commodities:** The Rwanda Commodity Exchange and the Kenyan, Tanzanian and Burundian governments set prices for traders to limit price exploitation by traders and middlemen.
- **Export fund:** Kenya Export Fund, Tanzania Export Fund and Rwanda Export Fund are managed by their respective central banks. Such funds are used for value addition, expansion and easy diversification of exports to meet international market requirements and demand.
- **Competition Commission:** Competition Authority of Kenya, Rwanda Competition Commission and Fair Competition Commission (FCC) of Tanzania have developed an enabling environment in which local enterprises have competitive edges for global competition.
- **Agricultural input voucher system:** Zambia, Zimbabwe and Malawi have agriculture input (seeds, fertilizers) vouchers system so to enhance the quality of agricultural produce through lowering the production costs.

# Section 5: Conclusion and Recommendations

## 5.1 Conclusion

The study found implementation of standards for agricultural products including maize grain is very weak. In addition, institutions mandated to enforce standards have overlapping and conflicting mandates, leading to poor coordination and collaboration. There are gaps in human resources, inspection services, certification and accreditation services and geographical coverage of these institutions. For instance, both UNBS and MAAIF are not visible at local government levels. Therefore, enforcement of standards for grains especially maize is done by the private sector other than the government agencies.

The level of awareness of the harmonized EA standard for maize grain was low (10%) among officials at the borders and relatively high at the national/policy level at 90%. In the three districts that were surveyed, the level of awareness of specifications of standards for maize grains among the value chain actors is higher in Masindi compared to Nakaseke and Lira. However, it should be noted that this awareness is not on all parameters of the EA standard for maize grain, however, traders/ dealers know a few such as foreign matter; rotten and diseased grains; moisture; and discoloured grains. The level of awareness some parameters of the EA standard for maize grain was lower among farmers compared to traders/ dealers. This is partly due to the fact the EAS has not been widely disseminated.

The study also found that although all respondents noted that there are rejections of Maize grain due to poor quality, there is no credible documented data on this. Only WFP noted that about 15,000 MT of their maize grain was rejected by Tanzanian authorities in 2013. The lack of data on rejection can be attributed to: high levels of informal cross-border maize grain trade, which makes it hard to capture information on rejection; lack of gazetted places where rejected maize grain is deposited; and data on rejections is considered confidential by a number of private dealers. Nevertheless, the study found that majority of the respondents (buyers); 80%, 72% and 60% in Masindi, Lira and Nakaseke respectively reported to have rejected maize grains from producers (farmers) due to poor quality during the last 12 months prior to the survey. The highest percentage of rejection by traders/ dealers was reported in Nakaseke, where about 0.5% of the total estimated production was rejected, this was followed by Lira at 0.18% and Masindi at 0.19%.

A number of stakeholders at national level such as UNBS, MAAIF, MTIC, WFP, EAGC, TGCU, UOSPA, and SEATINI are working hard to ensure that standards especially for maize are effectively implemented in Uganda. However, there still challenges that hinder effective implementation of standards which main due among others: inadequate capacity by key government agencies (UNBS and MAAIF); lack of appropriate technologies by most value chain actors; inadequate

capacity at local government levels; and minimal incentives for farmers to ensure quality standards.

## 5.2 Recommendations

In view of the above findings, this study recommends the following:

### 5.2.1 Central Government

- a. EAC implementation framework: Government should advocate and work with other EAC countries to develop a regional implementation framework for EAS standards. This will address the challenges of interpretation, technical specifications, sampling and testing methods.
- b. Improve the coordination and harmonization of the institutions that enforce standards. This will address the challenge of duplication of roles by different government agencies who perform tests of grain commodities, thus creating unnecessary bureaucracies and varying results.
- c. Increase financial support to UNBS and MAAIF in enforcement of standards: This will address the current gaps in human resource, inspection services, certification and accreditation services, and limited geographical coverage. Financing of these institutions can further be improved by allowing them to retain and use its internally generated revenue. In addition, the activities of these institutions should be decentralised to enforce standards in the entire country.
- d. Establish government testing laboratories: This will lower the cost of undertaking micro-biological tests such as testing for aflatoxins which are currently done by private agents. The existing government laboratories should be equipped with essential laboratory equipment required to become credible reference laboratories so as to attain accreditation and the laboratory staffs require to be trained to improve their skills. In addition, government should work with EAC partner states to establish regional reference laboratories to confirm quality of the grains in case of trade disagreements.
- e. Support establishment of private laboratories and subsidizing or waiving taxes on grain laboratory/grading equipment e.g. weighing scales, sampling spears, moisture meters etc. Waiving taxes on grading equipment will enable them to be affordable so that farmers and traders can afford these equipment and put them to use.
- f. Wide dissemination of harmonized East African Standard. The standard is written in English and overall, the general masses do not easily comprehend the content. The MTIC needs demystify the standards through production of popular versions in different languages, posters for dissemination among stakeholders. USAID started this but the government should continue to support such initiatives for continuity.

- g. Decentralization of services. Currently the district commercial officers are not capacitated to enforce standards, in essence the role is left to the central agencies, which leaves technical persons in districts paid but redundant. Therefore, government needs to fully decentralize enforcement of standards.
- h. Furthermore, UNBS should develop a roadmap for the process of reviewing the specific standards that have gaps and the government (through UNBS, MAIF and MTIC) should develop standards implementation guidelines for all the staple foods.
- i. Establishment of National Grains Board. The board will procure, store and maintain the Strategic Grain Reserve (SGR) stock on behalf of the Government to be used for food security. These reserves can be used in case of emergencies and acute grain shortages in the country. It will also facilitate the coordination of quality standards for grains and also monitor the behaviour of value chain actors to eliminate anti-trade behaviour. This could be as well serve as a platform for knowledge sharing and collaboration among stakeholders and development partners that support the implementation of EA standards for agricultural products.
- j. MTIC need to expedite the operationalisation of the Grain trade policy: Grain exports are vital to the Uganda's economy and the balance of payments. The Uganda government must develop a clear, consistent grain trade policy that responds to changing regional and international market needs.
- k. Enact the Produce Protection Bill 2014 into law. Enforcement should be emphasised at all levels including farmers, traders, transporters, exporters, millers and other value adding activities.
- l. Expedite the development of the standards for sesame. Sesame has become one of the most important non-traditional exports; according to UBOS 2014, formal sesame exports fetched a total of USD 28.5 million in 2013 for Uganda. Unfortunately, there are no quality standards for sesame; different value chain actors apply varying quality standards, which are affecting sesame trade.
- m. Reduce bureaucracy at border points. This will minimize informal cross- border trade of grains and also help to capture credible data on grain trade. Similarly the Customs Act should be amended to discourage informal trade by lowering the mandated tonnage to qualify formal and informal grain trade.
- n. Provide support to Local Governments to enforce standards. Currently, LGs are not enforcing any quality standards due to lack of human resources and funds. The enforcement of standards is left to the private sector actors who in most cases cannot effectively enforce standards.
- o. Strengthen the warehouse receipt system where grading of grain is routinely done. With operational warehouse receipt system, the grain can easily be traded on a basis of grade and consequently premium prices offered for superior quality. The government should demonstrate commitment by first strengthening the existing Warehouse receipt

system for those warehouses initially licensed

### **5.2.2. Local governments**

- a. Enact and enforce relevant by-laws and ordinances on standards where necessary. Article 38 of the Local Government Act (1997) empowers the district council to pass local ordinances. Masindi and Lira should use this provision to enact and implement by-laws and ordinances on standards on agricultural produce especially maize and sesame. Nakaseke district should expedite the process of enacting the bye-law / ordinance on standards for agricultural produce and ensure its implementation.
- b. Increase financial support towards District Production Office (DPO): The DPO is mandated with the enforcement of standards for agricultural produce; however, the office is not fulfilling its mandate mainly due to lack of funding and limited staffing.
- c. Dissemination and Sensitisation of EA standard for maize grains: The harmonized East African Standard for maize grain have not been widely disseminated, thus, most value chain actors are not aware of them and cannot apply them. LGs should work with other stakeholders to ensure that the standards are widely disseminated.
- d. Sensitise farmers on proper post harvest handling: LGs should ensure that agricultural extension services focus on providing information on how farmers can improve on the post-harvest handling of agricultural produce especially grains.
- e. Support/encourage structured trading mechanisms such as the warehouse receipt system and trading maize grains through the commodity exchange.

### **5.2.3. SEATINI and Partners**

- a. Dissemination and Sensitisation of EA standard for maize grains. Work with LGs and other stakeholders to simplify, translate and disseminate the standard to all value chain actors.
- b. Sesame standards. Sesame is among the high value crops in Uganda; however, it does not have harmonized standards. SEATINI and partners should work with the relevant agencies especially UNBS to develop and disseminate standard for sesame.
- c. By-laws on standards. Support LGs in development and implementation of by-laws on ensuring quality standards of agricultural produced in the areas of jurisdiction.
- d. Awareness creation. The study found that there is limited awareness on standards by most stakeholders especially the local levels, therefore, there is need to increase awareness on the East African standards.

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# Annexes

## Annex 1: Key Informant Respondents

### National Level

	<b>Names</b>	<b>Position</b>	<b>Institutions</b>
1	Abong Peter	Senior Agriculture Officer	MAAIF
2	Namaloba Beatrice	Senior Agriculture Officer	MAAIF
3	Kyarasime Deborah	Warehouse Receipt System Officer	MTIC
4	Eboku David	Manager Standards Department	UNBS
5	Germain Akoubia	Manager, AMS/P4P	WFP
6	Mabala Moses	Trade Promotion Officer	UNEPB
7	Mathais Okurut	Technical Officer	TUGC
8	Agong Ray Bruno	Chief Executive Officer	UOSPA
9	Kisambira Peter	Programs Manager	UNFFE
10	Mayama Helen	Quality Supervisor	Agro Ways Uganda Ltd
11	Ratila Jain	Sesame Manager	Olam Uganda Ltd
12	Jan-Alex Fokkens	Project Manager	Shares
13	Benjamin Ajuuka	Program Manager	East African Grain Council

### Local Government Level

	<b>Name</b>	<b>Position</b>	<b>District</b>
1	Dr. Okwir Wilson	District Production Officer	Lira
2	Ario Mike	District Commercial Officer	Lira
3	Abako Harriet	SAS-Agweng Sub county	Lira
4	Okello Richard	LC3 Chairman Agweng S/C	Lira
5	Ogwang Denis	Secretary Production Agweng S/C	Lira
6	Ojok Ambrose	Parish Chief Agweng	Lira
7	Okello Joe	Secretary Production Ogur S/C	Lira
8	Engol Peter	Sec Finance & Administration Ag LC3	Lira
9	George Obia	SAS -Ogur S/C	Lira
10	Robert	Olam	Lira
11	Jack Byaruhanga	Asst Secretary	Masindi

12	Byaakama Blasio	District Production Officer	Masindi
13	Byaruhanga Jo	District Agric Officer	Masindi
14	Aliganyira Zezaphor	Program Officer MADIFA	Masindi
15	Byairungu Hellen	Sec. Production Bwijanga S/C	Masindi
16	Bahigaomu Hellen	Vice Chairperson-Bwijanga S/C	Masindi
17	Bukenya Edward	Sec. Social Services	Masindi
18	Kyamiza K Mukasa	SAS-Bwijanga S/C	Masindi
19	Ayebaziwe Agrey	CDO-Bwijanga S/C	Masindi
20	Gloria Muheirwe	NCBA-CLUSA	Masindi
21	Awor Betty	Agricultural Officer- Pakanyi S/C	Masindi
22	Serunjogi Abdul	Ag.SAS, Parish Chief -Mpakanyi S/C	Masindi
23	Mohamed Kabuye	District Commercial Officer	Nakaseke
24	Edrisa Ssebaale	District Production Officer	Nakaseke
25	Malugge Charles	CDO-Nakaseke S/C	Nakaseke
26	Kadiida James	SAS-Nakaseke S/C	Nakaseke
27	Mugerwa Charles	Chairperson LC3-Nakaseke S/C	Nakaseke
28	Mubiru James	Ag. SAS-Semuto S/C	Nakaseke
29	Mugambazi John	Parish Chief- Semuto S/C	Nakaseke
30	Nswemu Henry	Chairperson LC3-Semuto S/C	Nakaseke

## Annex 2: FGD Participants

### Nakaseke Sub-County, Sembwa Village, Nakaseke District

	NAME	SEX	VILLAGE
1	Kirabira George	M	Sembwa
2	Kamya Siraje	M	Kifumbe
3	Nvuge Thomas	M	Kifumbe
4	Silver Kakeeto	M	Sembwa
5	Mpanga Godfrey	M	Sembwa
6	Walusimbi Godfrey	M	Sembwa
7	Nakyeyune Regina	F	Sembwa
8	Namirembe Christine	F	Sembwa
9	Sekyan Peter	M	Sembwa
10	John Kizza	M	Sembwa
11	Naggita	F	Sembwa
12	Nalwanga. E	F	Sembwa
13	Ezekiel Kawesi	M	Kifumbe
14	Munyigwa Emmanuel	M	Sembwa

**Semuto Sub-County, Namirembe Village, Nakaseke District**

	<b>NAME</b>	<b>SEX</b>	<b>VILLAGE</b>
1	Kawesa Paul	M	Bulema
2	Kabwama Brian	M	Namirembe
3	Lukyamuzi Julius	M	Namirembe
4	Senyanga Abdu	M	Namirembe
5	Kisitu Francisc	M	Namirembe
6	Tumwesigye Robert	M	Namirembe
7	Kiyimba Godfrey	M	Namirembe
8	Musoke Francisc	M	Namirembe
9	Mukiibi David	M	Namirembe
10	Sekimpi Kikomeko	M	Kiteredde
11	Segawa Ivan	M	Namirembe
12	Ssennoga Denis	M	Namirembe
13	Lwanyaga Denis	M	Namirembe
14	Richard Katamba	M	Namirembe
15	Ssembatya Farooq	M	Namirembe
16	Nswemu Henry	M	Namirembe
17	Sembaga Wasswa	M	Namirembe
18	Segujja Adam	M	Kiteredde
19	Ben Sekatte	M	Kibe

**Pakanyi Sub-County, Nyakasagazi Village, Masindi District**

	<b>Name</b>	<b>SEX</b>	<b>Village</b>
1	Opar Geoffrey	M	Nyakasagazi
2	Oting Charles	M	Nyakasagazi
3	Munguaciel Chrsitopher	M	Nyakasagazi
4	Oloya Edison	M	Nyakasagazi
5	Onegu Patrick	M	Nyakasagazi
6	Focumbe Philips	M	Nyakasagazi
7	Thokuyii Fastin	F	Nyakasagazi
8	Okecha Robert	M	Nyakasagazi
9	Ocirican Innocent	M	Nyakasagazi
10	Wamok James	M	Nyakasagazi
11	Thumungo Alex	M	Nyakasagazi
12	Nikumu Patrick	M	Nyakasagazi
13	Kisa John	M	Nyakasagazi
14	Ayerango Janet	F	Nyakasagazi

15	Ruva William	M	Nyakasagazi
16	Oprytho Charles	M	Nyakasagazi
17	Obedgu Richard	M	Nyakasagazi
18	Ojutho	F	Nyakasagazi
19	Betty Natukunda	F	Nyakasagazi

### Bwijanga Sub-County, Byerima Village, Masindi District

	Name	SEX	Village
1	Rosemary K. Joseph	M	Byerima
2	Magambo Victor	M	Byerima
3	Sentalo Sam	M	Byerima
4	Kajura Benedicto	M	Kyamaroleke
5	Kiirya Joseph	M	Kyamaroleke
6	Mukungu Alifunsi	M	Byerima
7	Asaba Christine	F	Byerima
8	Kaija	F	Byerima
9	Gahwera George	M	Byerima
10	Baguma Barnabas	M	Byerima
11	Byarugaba George	M	Byerima
12	Kaaluha Benard	M	Babanda I
13	Katusabe Gorret	F	Namurembe
14	Aheebwa Jane	F	Byerima
15	Biingi Olivia	F	Babanda I
16	Mugume Fred	M	Kyamaroleke
17	Bendebule Charles	M	Babanda I
18	Kaahwa John	M	Babanda I

### Ogur Sub-County, Canpeciki Village, Lira District

	NAME	SEX	VILAGE
1	Kimira James	M	Canpeciki
2	Okello Samuel	M	Canpeciki
3	Rumano Angel	F	Canpeciki
4	Atala Lucy	F	Canpeciki
5	Esta Nyangakori	F	Canpeciki
6	Evaline Otim	F	Canpeciki
7	Sophia Allemo	F	Canpeciki
8	Acen Jupin	F	Canpeciki

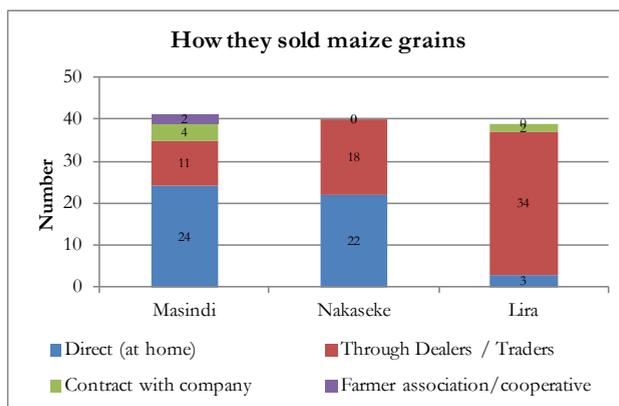
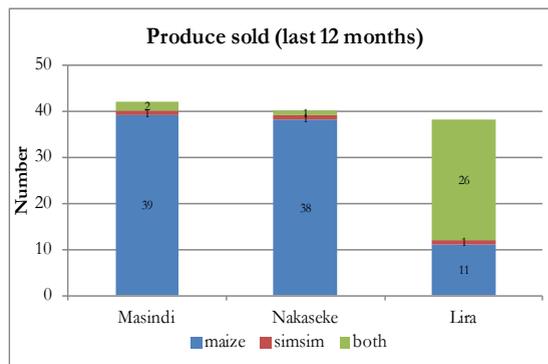
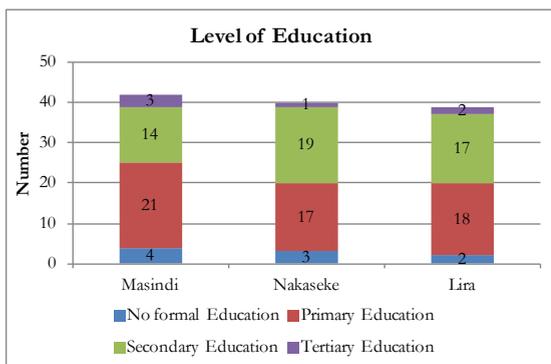
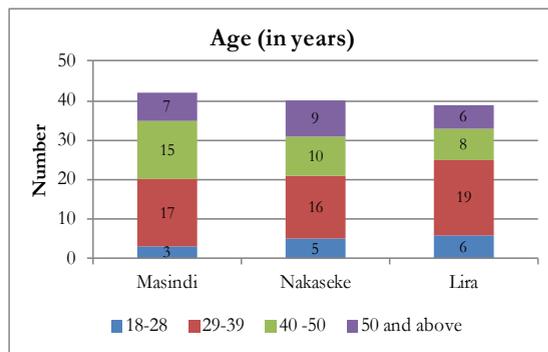
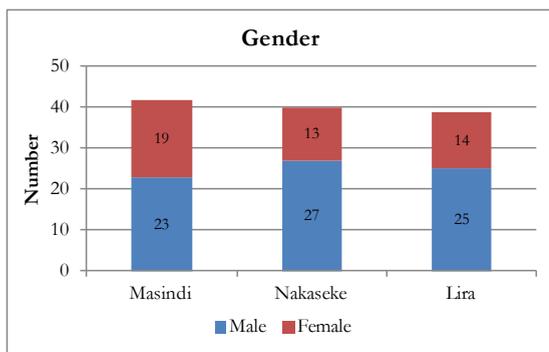
9	Atino Molley	F	Canpeciki
10	Hellen Edward	M	Canpeciki
11	Okello James	M	Canpeciki
12	Ajok Hellen	F	Canpeciki
13	Ookema George	M	Canpeciki
14	Ayo Agnes	F	Canpeciki
15	Odyek Dick	M	Canpeciki
16	Esther Olwa	F	Canpeciki

### Agweng Sub-County, Acelela Village, Lira District

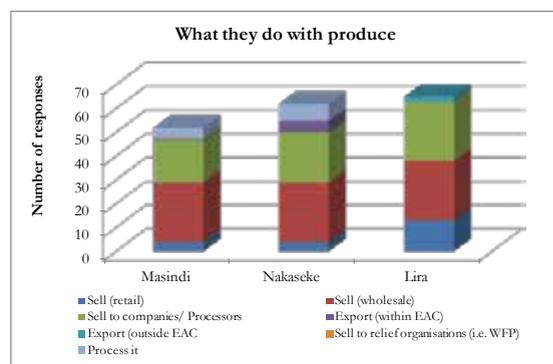
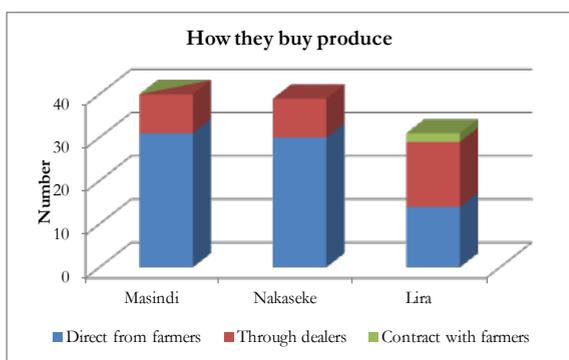
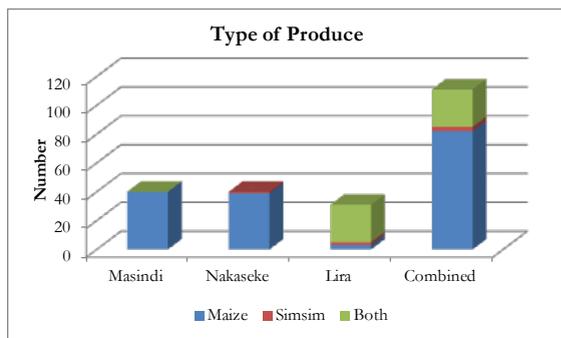
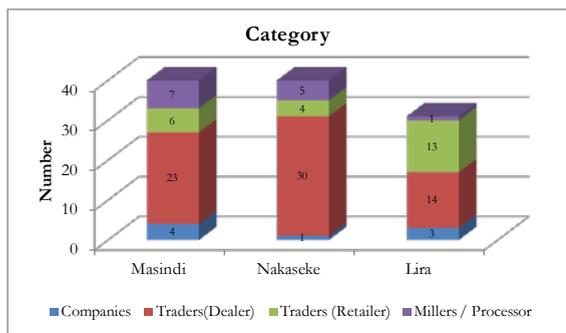
	NAME	SEX	VILAGE
1	Okeng Simon Peter	M	Te-Oburu
2	Owang Wilfred	M	Agak
3	Ochen John	M	Te-Oburu
4	Ogwal Terence	M	Baroganda
5	Oyar Constance	M	Abala
6	Ongom Bob Bosco	M	Abala
7	Angwa Morins	M	Acelela
8	Ogwang David	M	Baroganda
9	Ogwal Denis	M	Baroganda
10	Dorcus Otyek	F	Angolocom
11	Angom Teddy Kevine	F	Abala
12	Santa Okello	F	Angolocom
13	Ajok Girata	F	Acelela
14	Amen Patrick	M	Acelela
15	Akidi Haida	F	Angolocom
16	Akello Sarah	F	Abala

## Annex 3: Characteristics of Respondents (Quantitative survey)

### a) Farmers



**b) Traders**



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