COMPARATIVE ANALYSIS OF FARMER ORGANISATION FOR VALUE CHAIN DEVELOPMENT IN ISRAEL’S AGRICULTURE AND THE MAIZE VALUE CHAIN IN KAMWENGE DISTRICT

BY

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OCTOBER 2017
DECLARATION

I Arinaitwe Mark, hereby declare that this research report is my original work and has never been submitted to any institution of higher learning for any award.

Signature.................................. Date........................................

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APPROVAL

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(SUPERVISOR)
DEDICATION

Great gratitude goes to my beloved parents Mr. Sekazuba James and Mrs. Gorreti Sekazuba for their effort to push me at the university. Equally I dedicate this piece of work to all my family members, friends, and colleagues for their spiritual and financial support rendered to me to finish this research report.
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<td>FNACU</td>
<td>Farmers' National Alliance and Cooperative Union</td>
</tr>
<tr>
<td>GDP</td>
<td>Gross Domestic Product</td>
</tr>
<tr>
<td>ROU</td>
<td>Republic of Uganda</td>
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<tr>
<td>GoU</td>
<td>Government of Uganda</td>
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<td>GVCs</td>
<td>Global Value Chains</td>
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<tr>
<td>ICRISAT</td>
<td>International Crops Research Institute for the Semi-Arid Tropics</td>
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<td>MAAIF</td>
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This study a comparative study between farmer organization for value chain development in Israel’s agriculture sector and the maize value chain in Kamwenge District, Western Uganda. It was guided by three objectives; to examine farmer organisation in Israel’s agricultural sector, identify the stages and challenges of the maize value chain in Kamwenge, and then draw lessons from farmer organisation for value chain development in Israel agriculture sector that can enhance the maize value chain in Kamwenge district.

The study was designed in two parts; first, a review of documents to discuss farmer organisation in Israel is supplemented by observations on four Israeli farms that were made in 2014-2015 during Agro-studies Internship in Israel. Secondly across sectional study of 190 respondents in Kamwenge district. The respondents included 160 maize farmers, 20 traders and 10 millers. Data was collected using questionnaires and analysed qualitatively when comparing farmer organisation for value chain development in Israel and Kamwenge and descriptively using SPSS.

The study found out that in Israel farmers were organised using cooperative principles, right from production at community level (kibbutz) through regional level to final consumption and export at national level. Farmers in Israel receive government social support; free child education, medical care and accommodation. Child education is tailored to imparting skills for agricultural production and development. Government provides organised input supply for each enterprise of kibbutz choice, with advanced technologies and services along the value chain.

On the contrary, the maize value chain in Kamwenge consists of numerous unorganised actors, some operating in groups and others individually. The value chain then faces a lot of challenges due to uncoordinated processes and stages; poor road infrastructure, poor quality inputs and stiff competition among the millers. While farmers in Israel are well organised, Government should strengthen social support to farming communities and strengthen vertical coordination of value chain activities.
CHAPTER ONE
INTRODUCTION

1.1 Background

Farmer organisation has existed for a long time, since the time of an organized agrarian economic movement among American farmers that developed and flourished in 1875. The movement included several parallel but independent political organizations such as the National Farmers' Alliance, Industrial Union among the white farmers of the South, the National Farmers' Alliance among the white and black farmers of the midwest and high Plains and the Colored Farmers' National Alliance and Cooperative Union. This Union consisted of the African American farmers of the South (Bennin & Oketcho, 2008). One of the goals of farmer organisation was to end the adverse effects of crop farming in the period following the American Civil War.

Farmer organization in many countries, consists of formal or informal (registered or unregistered) membership-based collective action institutions serving their members, who are mostly rural dwellers that get part or all of their livelihood from agriculture (crops, livestock, fisheries and/or other rural activities) (Sarpong, 2011). Services provided by any form of farmer organisation aim to improve the livelihoods of members, and these may include; access to advice, information, markets, inputs and advocacy (Stockbridge, 2003).

Any farmer organization will have a defined membership, purpose for assembling and organizational structure, established to support members in pursuing their individual and collective interests (Salisbury, Robert H. 1969). Some of the functions of any farmer organisation include; to organize relations with the external world, to mediate between members and others who act in their economic, institutional, and political environment. (Selznick, Philip, 2011.). Farmer organization differs in terms of: scale and character of membership (national federations to local associations), function (policy/advocacy,
economic/technical, local development), legal designation (registered cooperatives vs unregistered clubs/groups/associations), among other dimensions (Stringfellow and Coulter 2007).

Globally, farmer organization has been adopted as a major strategy of improving agricultural production especially among small scale farmers. For example in Vietnam, the government has given increasing attention to the formation of farmer organizations (Eakin, et al 2009).

The reasons for this increased interest in farmer organizations is that while the farmers' demands for government support on agricultural modernization is increasing, the capacity to answer all these requests is very restricted due to lack of budget and human resources. (Pryor, Frederic L, 2014) Farmer organization then makes it easier for the government to provide services to the farmers. (Glover et al, 2016.) Part of the government's tasks that can be taken over by the farmer organization include; transfer of information, distribution of fertilizers, production and distribution of seeds, vaccination of animals, among others.

In Israel, agricultural cooperatives are the major form of farmer organization, responsible for approximately 80% of agricultural production and services (Willner, Dorothy, 2015).

They have been prevalent in Israel since the beginning of the 20th century, allowing individuals with limited means to pull together and establish stable and successful production and service cooperatives, laying the foundation for some of Israel's most valuable resources, quality agricultural produce and innovation (Zheng, et al. 2016).

Israel is a major exporter of fresh produce with agricultural production three times more than its population growth (Siegel, Karen R., et al. 2014) While more than half of the land area is desert and the climate and lack of water resources do not favor farming, Israel produces 95% of its own food requirements. A world leader in agricultural technologies, it is likely that farmer organization in Israel greatly contributes to its world class performance in the agriculture sector.
In Africa, before the era of liberalization in 1990s, cooperatives thrived as the main form of farmer organization. Following the structural adjustment programmes of the mid-1980s, in which several Sub-Saharan Africa governments relinquished support to state controlled cooperatives, farmer organization has emerged in the policy agenda to fill the institution vacuum (Mwaura, 2012). Overall, farmer organization is an important avenue through which farmers can access market and credit information as well as other important agricultural information like new agriculture technologies. Farmer organization also forms important avenues for mobilizing farmers around a common objective especially in delivery of services and formulation of policies that support agriculture development (Adong, A., Mwaura, F., & Okoboi, G. 2013)).

In Uganda, the use of farmer organisation remains central to the agriculture transformation process. Uganda is one of the countries in Africa with a long history of farmer organisation (MAAIF, 2011). Farmer organisation in Uganda forms avenues in which smallholder farmers can be reached by the government, the private sector and the development partners to improve agriculture productivity and improve food security. The government has targeted farmer organisation as an important means of increasing uptake of agricultural technologies to enhance agricultural productivity, commercialization and linking farmers to markets (MAAIF, 2010). Farmer organization is formed to facilitate access to better agricultural technologies (Maddala, 2013); to improve access to better earning markets for produce (MAAIF, 2010); facilitate produce transport to markets (Mwaura, 2012); for financial security and household investments (Mutoro 1997); access to credit where organisation members act as collateral for each other (Mutoro, 2007); to invest in agricultural value addition and milk processing plants; in infrastructural development e.g. rural roads, small power generation projects, schools and health facilities and also in natural resources management and conservation (Nyakaana & Baker, 2008).
The National Agricultural Advisory Services (NAADS) had its implementation strategy based on the farmer organization concept. Farmers were expected to join existing organizations or form new organizations within the village and then merge to form the village farmer forum. NAADS used these organizations for recruitment, selection of food security enterprise and distribution of multiplied planting and stocking materials (Sarpong, 2011). The Operation Wealth Creation (OWC) that replaced the NAADS program operates using the same principles.

Kamwenge district is among the leading producers of maize in Uganda (UBOS, 2010). The district has a deep loamy well drained soil type that supports maize production and close to 50% of the rural population in the district depend on maize production as their sole economic activity (Kuteesa, et al., 2013). Currently, farmer organization in Kamwenge district as well as other local governments in Uganda, is used as a base for mobilizing financial resources aimed at improving agriculture, advocating for farmers sovereignty in agriculture, negotiating for better prices, provision of knowledge and skills to small scale farmers, fight against pests and diseases, among many activities (Martiniello, Giuliano. 2013). It focuses on the common goal of improving the agricultural productivity in local communities. Farmer organization there form forms the basis for the development of agricultural commodity value chains in the country (ROU, 2015).
1.2. Problem statement.
Farmer organisation globally has been recognized as a major strategy of improving agricultural production especially among small scale farmers. It make it easy for governments to provide services to the farmers, by acting as tools for information transfer, distribution of inputs like fertilizers and production among things. While more than half Israel’s land is desert and the climate and lack of water do not favour farming, Israel produces 95% of its own food requirements and is major exporter of fresh produce. Although a world leader in agricultural technologies, it is equally likely that the long term history of farmer organisation in Israel has made impact on the performance of the country’s agriculture sector.
While farmer organisation in Israel has had spectacular performance on the agriculture sector, studies that show evidence of such organisation from developed countries, and how it can be used to draw lessons for value chain development in developing countries, are limited. It is against this background that the researcher assessed farmer organisation for value chain development in Israel’s agriculture to draw lessons for the maize value chain in Kamwenge district.

1.3. Objectives of the study

1.3.1. Overall objective
Assess farmer organisation for value chain development in Israel’s agriculture and draw lessons for the maize value chain in Kamwenge district.

1.3.2. Specific objectives.
The study was conducted to;

1. Examine farmer organisation in the agricultural value chain development in Israel.

2. Identify the stages of the maize value chain in Kamwenge.

3. Draw lessons from farmer organisation in the agricultural value chain development in Israel that can enhance the maize value chain in Kamwenge.
1.3.3. Research questions.

1. What are farmer organisations in the agricultural value chain development in Israel?

2. What are the stages of the maize value chain in Kamwenge?

3. What lessons do you draw from farmer organisation in the agricultural value chain development in Israel that can enhance the maize value chain in Kamwenge?

1.4. Scope of the Study

1.4.1 Geographical Scope

The study takes a review of documents about Israel, a country in the Middle East, on the south eastern shore of the Mediterranean Sea and the northern shore of the Red Sea. It has land borders with Lebanon to the north, Syria to the northeast, Jordan on the east, the Palestinian territories of the West Bank and Gaza Strip to the east and west, respectively, and Egypt to the southwest and the farms visited were; Hishtil Ashkelon, Prior Silver, Hazera Genetics Farm and Natafim. In Uganda, the study was conducted in Kamwenge district and covered three sub-counties that include; Bwizi, Nkoma and Biguli. The district is bordered by Kyenjojo District to the north, Kyegegwa District and Kiruhura District to the northeast, Ibanda District to the east and southeast, Rubirizi District to the southwest, Kasese District to the west and Kabarole District to the northwest. The coordinates of the district are: 00 11N, 30 27E. Like the majority of the districts in Ugandan, agriculture is the mainstay of the economy of Kamwenge District. Both crops and livestock are raised in the district primarily on a subsistence level. Crops grown include, maize, Matooke, millet, Beans, Sweet Potatoes, Irish Potatoes, Sorghum, Millet, Tomatoes, Groundnuts and Passion fruits.

1.4.2 Content Scope

The study made an assessment of farmer organisation for agricultural value chain development in Israel’s agriculture implications for the maize value chain in Kamwenge by examining
farmer organisation in the agricultural value chain development in Israel, identifying the stages of the maize value chain in Kamwenge and drawing lessons from farmer organisation in the agricultural value chain development in Israel that can enhance the maize value chain in Kamwenge.

1.5. Significance of the study

The study will provide data about the importance of Farmer Organisations on commercial maize farmers and this may encourage farmers who are not in groups to join the groups and improve commercial maize production in the area.

Proper management of the soils and good agronomic practices in the production of maize is the key to increase the productivity of the crop. Also value chains are key to the marketability of maize. The study will help the actors to take good management of the maize value chain so as to increase on the food security and household income.

This study will identify the major gaps in the maize value chain and state the key strategies of addressing so as to enhance that marketability of the crop.

This information will be use full to agricultural development agencies and farmers who are fighting hunger and poverty though maize growing and value chain development.

The study will also be significant in that it will set an agenda for other scholars interested in the subject.
1.6. Conceptual Framework

**Farmer organisation**
- Group membership
- Group marketing
- Bulking/collection
- Number of farmers

**Dependent Variable**

**Benefits**
- Income
- Productivity/product
- Collective marketing
- Input access
- Savings and credit
- Information sharing
- Reduced costs

**Intervening Variables**
- Government policy
- Infrastructure development
- Supportive extension services
- Seasonality
- Level of economic activity
- Flexible taxes
- Ready market
- Access to information
- Socio-economic characteristics of the farmers like;
  - Age
  - Level of Education
  - Level of income
  - Trainings attended
  - Distance to market
  - Size of land

Source: (Fischer, 2012)
CHAPTER TWO
LITERATURE REVIEW

2.0. Introduction

This chapter focused on the existing literature that was advanced forward by other scholars in relation to the research problem. The researcher focused on literature that related to the study objectives that included; examining farmer organisation in the agricultural value chain development in Israel, identifying the stages of the maize value chain in Kamwenge and drawing lessons from farmer organisation in agricultural value chain development in Israel that can enhance the maize value chain in Kamwenge.

2.1. The Concept of farmer organisation in Agricultural sector

Globally, farmer organisation is a method of organizing individual farmers together to solve their individual problem. This method is used by the governments, NGO's and other institutions worldwide to improve agriculture productivity and in other sectors. Farmer organisation approach dates back to the 1870s. Its adoption was seen as a way of increasing the farmer's market power and competitiveness in business. The use of farmer organisation approach to deliver development services to small holder farmers has proven to be an effective institutional device for lowering the delivery costs of these services, and for `promoting small farmer self-development. They are useful in mobilizing small farmer collective self-help actions aimed at improving their own economic and social situations and that of their communities

Consequently, farmer organisation play an important role in tackling the systemic causes of poverty because it gives farmers a legitimate voice in shaping pro-poor rural policies. By articulating farmers’ interests to public and private institutions, they encourage those institutions to tailor their strategies, products, and services to their needs. Given a supportive policy framework, farmer organization is well able to drive balanced social and economic development (Bennin & Oketcho, 2008).
2.1.1 Characteristics of Farmers’ Organisations that make Successful Partnerships

In a study by Stringfellow & Coulter, (2007) they revealed that farmer organisation was more successful in expressing and satisfying farmers’ needs in the areas of technology generation and dissemination and had one or many of the following characteristics:

Possessing several organisational levels (at least three) from base groups (villages or districts) to Federation level; this included one or several intermediate levels of representation.

Based on free membership around common interests. Access to diverse sources of funding. It is recognised that in order to gain the power to demand specific services suited to their members’ needs, farmers need to have access to resources that enable them to commission and finance agricultural research and extension. In order for farmer organisation to be able to do this, it either need to build up her own income (through membership fees, economic activities which are sustainable and yield clear material benefits to members, and relationships with government or international donors) or gain access to research funds, via such mechanisms as competitive research grants or jointly managed research and extension funds.

Based around successful and remunerative economic activities (sesame production in The Gambia; fruit and vegetable production, storage and marketing in Cameroon)

Benefitting from the animation, capacity-building (training, business management) and input/marketing support of external organisations. Based on traditional modes of organisation, respecting agreed social rules on interaction and authority (FUGN, Burkina Faso) or based on legally recognised rules and responsibilities for associations (e.g. 1990 law of association in Cameroon and subsequent legislation).

2.2 Agricultural Value Chain Development

The agricultural value chain concept has been used since the beginning of the millennium, primarily by the organizations working in agricultural development in developing countries.
Although there is no universally accepted definition of the term, it normally refers to the whole range of goods and services necessary for an agricultural product to move from the farm to the final customer or consumer (Bennin & Oketcho, 2008).

The term value chain was first popularized in a book published in 1985 by Michael Porter who used it to illustrate how companies could achieve what he called “competitive advantage” by adding value within their organization (Gibson & Kayongo, 2008). Subsequently the term was adopted for agricultural development purposes and has now become very much in vogue among those working in this field, with an increasing number of bilateral and multilateral aid organisations using it to guide their development interventions. At the heart of the agricultural value chain concept is the idea of actors connected along a chain producing and delivering goods to consumers through a sequence of activities (Kuteesa, et al., 2013).

Globally, relationship between integration into value chains and innovations for smallholder farming is endogenous and mutually reinforcing. Integration in value chains offers smallholders the opportunity to innovate through information exchange and learning. Sustained integration of smallholders in value chains also critically depends on their ability to acquire, absorb, and apply new technological, organizational and institutional innovations. The existing inter-relationship has further strengthened with the structural transformation in agricultural value chains and the emergence of new perspectives in innovation systems over the last decades (Loevinsohn & Nkusi, 2004).

Since the 1980s, agricultural value chains have increasingly been restructured. These structural changes were characterized by market liberalization, increased consolidation, and the rise of concentrated buyer power in the chains (Magala & Lwasa, 2007). These dynamics transformed the way agricultural production and trade used to function. As typical “buyer-driven” chains, agricultural value chains are coordinated by lead firms who largely determine the conditions for production processes and products. They require suppliers to comply with those
requirements irrespective of their production scale. This buyer-driven organizational structure is no longer limited to markets in developed countries. With the rapidly growing urban markets inside Africa, it is increasingly becoming common in retail markets serving the burgeoning large cities in Africa. In these chains, the small scale of production constrains smallholder competitiveness. Whatever productivity or production cost advantage smallholder farming might have would remarkably be eroded by the high transaction costs they face in input and product markets of the value chains (Lwasa, 2007).

Influenced by these relationships, patterns of technology development and adoption have also been reshaped. The centres of research and development have shifted from public institutions to private businesses. In these organizations, the constellation of the value chain actors not only sustains information flow and the generation of knowledge about the production technologies but also largely influences patterns of innovation (Nyakaana & Baker, 2008). For producers in developing countries, innovation often involves technology import and adaptation in local contexts. Global value chains (GVCs) not only provides access to these sources knowledge and innovation but also integrates producers to national, regional and global markets. In this context, farming is considered as a business and the signals for the adoption of certain production technologies are derived from and linked to market requirements (Munyua, & Okwadi, 2013).

2.2.1 Agricultural Value Chain Development in Sub-Saharan Africa

Agriculture and agribusiness contribute significantly to the economy of sub-Saharan Africa (SSA) accounting for nearly 45 of Gross Domestic Product (GDP) (Muasya. 2013), 65 per cent of employment and 75 per cent of its domestic trade (Uliwa & Fisher, 2004). The value of SSA’s agriculture and agribusiness will reach a US$ 1 trillion by 2030 compared to US$ 313
billion in 2010 (Nyakaana & Baker, 2008). Smallholder farmers are the backbone of that effort as the number of small farms in Africa reaches approximately 33 million representing 80 percent of all farms in the continent (Munyua, & Okwadi 2013). Women farmers make crucial contribution in agriculture in Africa. They provide significant share of the agricultural labour force which varies from 36 percent in Côte d’Ivoire and the Niger to over 60 percent in Lesotho, Mozambique and Sierra Leone (Magala & Lwasa, 2007).

The strong growth potential provides a significant opportunity for agriculture and smallholders in Africa. The growth prospect shows a divergence from the declining competitiveness, measured in terms of its share of global exports, which characterized the continent’s agriculture over the last decades of the 20th century. Africa’s share of global agricultural exports has declined from nearly eight percent to about two percent between 1970 and 2009 (Davis et al., 2012). The future growth will be driven by agro-food markets inside Africa. The rapidly growing urban population generates demand for more and higher quality agricultural commodities (Glendenning & Babu, 2000). Urban food markets are projected to increase four fold to exceed US$ 400 billion by 2030 (Bennin & Oketcho, 2008). In large cities across Africa, the change in consumption patterns will also increase demand for processed agricultural products, so adding value to farmers’ outputs will provide further income and employment opportunities (Bennin & Oketcho, 2008).

A major step in realizing these potential opportunities is recognizing smallholder farms as agribusinesses and integrating them to the centre of national strategies for growth and poverty reduction. Commercial agriculture by smallholders requires enhanced productive capabilities. In Africa, yields are typically low and smallholder farmers rarely generate marketable surpluses, because they generally lack access to improved inputs and productivity enhancing technologies as well as market linkages that facilitate learning and innovation. As a risk mitigating strategy, smallholder farmers prioritize growing subsistence food crops over
growing crops for market because rural food markets are also risky with wide seasonal price variations (Davis et al., 2012).

2.3. Farmer organization along maize value chain

2.3.1. Smallholder Farmers

Smallholder farmers are defined as those that cultivate less than 10 acres of land largely for subsistence, although some produce surplus for sale. Maize is grown by an estimated 97% of the 3.5 million smallholder farmers in Kenya, which translates to some 3.4 million farmers (Nyakaana & Baker, 2008). They operate in low-inputs and low yields systems but produce about 70 percent of the national maize output. Because of the small per capita volumes of maize produced by this category of farmers, they have limited access to important services such as finance, warehousing and drying services. Lwasa (2007) found only 2 percent of small-scale farmers accounted for 50 percent of national maize marketed by smallholders. The vast majority of smallholder maize producers are actually net buyers.

Smallholder maize sales go largely to small-scale assemblers or brokers, who collect and bulk for onward sale to large wholesalers. Most small-scale farmers sell their maize at low prices immediately after harvest to meet immediate cash demands, such as school fees, health and other household requirements. Many also lack storage facilities that would enable farmers to potentially obtain higher prices during the off-season. Warehousing has been proposed as a potential solution, but the majority lack quantities to utilize this opportunity (the minimum receipt is available at 10 MT). This raises the potential to identify storage alternatives suitable to the small-scale farmers (Maddala, 2013).

2.3.2. Medium-Scale Farmers

Medium-scale farmers produce for home consumption as well as surplus for sale. They cultivate between 10 to 25 acres of maize, and are responsible for about 5-10 percent of Kenya’s total maize output. Medium scale farmers sell about 46 percent of their production,
while the rest is consumed at home (44 percent), stored as seed or lost (10 percent) (Gibson & Kayongo, 2008). They tend to be better capitalized than small-scale farmers, use a combination of both family and hired labour, and source their inputs more from agro dealers. These farmers can generally access financial services, warehousing facilities and can negotiate better prices for their maize depending on the volume on offer.

2.3.3. Large-Scale Farmers

Large-scale farmers cultivate for commercial purposes and are heavy users of commercial inputs such as fertilizer, improved seeds, chemicals and machinery. They rely more on hired labour and cultivate over 25 acres and account for the remaining 20-25 percent of national maize production. Most are found in the main maize producing areas of Rift Valley. Large-scale farmers are able to minimize their inputs cost by purchasing from wholesalers or distributors and are better placed to access financial services, warehousing facilities, and negotiate direct sales to large millers because of their large volumes. According to Asante & Sarpong, (2011), large-scale farmers sell 99 percent of their maize output to both large-scale maize millers and the NCPB. The benefits of such economies of scale and the attendant market power are immense, and include better prices for maize. These farmers form a powerful political lobbying group and are the main drivers of government maize policies, specifically those related to NCPB and international trade policy. Together with medium-scale farmers, they are also the main proponents and the largest beneficiaries of the government-subsidized fertilizer strategy.

2.4. Maize Value Chain Actors

2.4.1 Producers

The farmers in northern Uganda opt for the most common maize seed, “Longe 5” and “Longe 4”, Open Pollinated Varieties (OPVs) which are grown all over the country. However, in most cases farmers use home saved seeds instead of buying them, which can negatively affect
the yield after several seasons of cultivation. After the harvest, organized farmers bulk the
maize in local stores that have been provided by ACF and WFP as part of the Purchase for
Progress (P4P) program. As a group, farmers bulk up their maize at the collection point and
then sell it to local traders which are the main buyers. As individuals, farmers sell their maize
directly at the farm gate where the local traders and sometimes wholesalers come and pick it
up. Another marketing channel which is used by mainly unorganized farmers is to bring the
maize to local millers after covering the cost of transportation (bicycle or “boda boda”: Ush
1 000-3 000 per bag depending on the distance) and milling (around Ush 300/kg) (ITAD,
2008).

2.4.2 Local traders

These local traders go around the remote rural areas that are usually difficult to access and
buy the maize from farmers; they either go to the local storage facilities or directly to the
farmers’ gates. These traders move from collection point to another and bulk up the maize
until they accumulate a sufficient amount, which usually consist in filling up the truck. Once
the maize is collected, local traders bring the maize to the millers for it to be processed or sell
it as grain to wholesalers (Kuteesa, et al., 2013).
2.4.3 Small/medium scale millers

Small millers can be found at a local level near trading centres and rural markets whereas medium scale millers are usually found in towns such as Lira and Gulu. These millers operate in the same way but at a different scale. They receive the maize grain and process it into flour for direct consumption. The processing of maize is an important stage in the chain because it adds a significant amount of value to the maize. The flour can be sold for a retail price of about Ush 1 600/kg; with a flour extraction rate of 55% (550g for 1kg of milled maize). The bran issued from the milling is then sold for animal feed at a price of about Ush 450/kg. Processors set a fixed price for milling the maize (around Ush 300/kg) and proceed to the milling according to customers’ demands (Loevinsohn & Nkusi, 2004).

2.4.4 Wholesalers.

Wholesalers buy and sell maize grain destined to Kampala and regional markets (Kampala, South Sudan and Kenya) where the maize will be eventually milled for final consumption. Wholesalers either go directly to collecting points such as trading centres and storage facilities or else they pass through local traders that bring the maize directly to them in the local towns (Lira, Gulu). Once the merchandise is bulked in large quantities, they transport it straight to the main market in Kampala or export it within the region (South Sudan and Kenya) (Glendenning & Babu, 2000).

2.5 Challenges along the maize chain

In all the studied value chains, the following cross-cutting issues were identified: lack of capital; poor and limited access to rural credit; poor infrastructure; lack of market information; gender issues; and climate change. Each of these issues is systematically discussed below.
2.5.1 Lack of capital

Small farmers are poor and lack sufficient capital in order to make medium to long term investments (a bull can cost up Ush700,000 and an ox plough can cost up to Ush250,000; need four (4) bulls to pull a plough). Most farmers have an immediate need for cash to meet their basic needs (buying food, paying for school, buying clothes, etc.) which cannot coincide with the requirements of the agricultural sector. Indeed, agriculture requires medium or long term investments by definition; it is a bet on the future (PMA Secretariat, 2009). There is a large time gap between the initial investments and the expected results, between the moment when the seeds are put into the ground and the moment when they are harvested and sold. Farmers are constantly making long term choices and planning while at the same time confronted with immediate needs, thus making it difficult to establish long term strategies to better access the market.

2.5.2 Limited access to rural credit

One of the major problems that smallholders face is that the majority of them do not have access to credit from commercial banks, the main reason being that most of them are not viable and lack collateral. In Northern Uganda a lot of farmers are not members of farmers’ association, although the situation is improving due to the work of NGOs and government’s favourable policies towards farmers’ associations (Sarpong, 2011).

Generally speaking, a majority of smallholders in Northern Uganda do not have access to any kind of loan from financial institutions. Among all the farmers interviewed during this study in Amuru, Nwoya and Otuke, a very small number had access to financial institutions, such as the Centenary Bank. The ones who had access were located in Lamogi (18 farmers out of 484 members) and the loans they contracted were individual loans linked to their property with high interest rates (21% for 6 months). To contract a loan, farmers must be able to link their property as a guaranty for the bank in case of non-payment. This first step can
be an important obstacle since the land can be linked to multiple owners; also, ownership can be differentiated with the rights over the land such as the right to sell the land for example. The process of selling land can be complicated and involve many stakeholders e.g. community, local chiefs and members of the family. Furthermore, most farmers do not own property certificates or land titles for that matter (Kuteesa, et al., 2013).

Loans are granted according to the farmer’s nature and scale of operation, the crops that are cultivated, area, yields, etc. Therefore many farmers are not considered viable by financial institutions as they do not fulfil the minimum requirements of making sufficient profit.

When seeking for liquidity, farmers usually have access to Village Savings Loan Associations (VSLAs), locally known as Bolcops, which are usually constituted of 30 to 40 members that each pays a monthly fee. The association then agrees or not agrees to grant a loan to the demander and, this loan cannot exceed 200% of the demander’s contribution. Another form of loan is to informally borrow from neighbouring farmers or local millers at very high rates of 100% per season, which corresponds to 6 months, e.g. if a farmer borrows 1 bag of rice or its value in money, at the end of the season after the harvest he will have to reimburse 2 bags of rice. In case of a bad season, repayment is deferred to the next season. The rates and the time frame can fluctuate according to the relationship, the geography, the climate (Lwasa, 2007).

2.5.3 Poor infrastructure

The poor condition of roads in Uganda increases transportation costs, resulting in lower returns for farmers and higher prices for consumers. The cost of transportation is a major issue and especially in isolated areas where farmers simply do not have access to the markets or local millers and are forced to sell their commodities at the farm’s gate level without any added value (paddy rice vs. milled rice). This situation can hinder the bargaining power of
producers whom are dependent, as they wait for buyers to come to them (Gibson & Kayongo, 2008).

2.5.4 Lack of market information

The access to market information can be described as being generally poor. In fact, most farmers receive their information on prices through the local informal network: other farmers, local market and word of mouth. The farmers within the P4P program have access to information through AgriNet which provides weekly updates on prices in the neighbouring markets (Lira, Gulu, Kitgum, etc.). These prices are then written on white boards throughout the districts usually in trading centres or in the local storage facilities. This information is considered useful by farmers, but unfortunately having access to this information does not necessarily imply they can sell their produce at the best price since farmers have limited access to markets in terms of means of transportation. So, even if the prices are better in some areas, farmers cannot benefit from it. The extent to which this information on prices helps farmers make better decisions or have a stronger bargaining power when it comes to selling has still to be verified (Davis et al., 2012).

2.5.5 Climate change

Weather unpredictability is a major uncertainty for farmers since drought and floods can have a devastating impact on agricultural production (Loevinsohn & Nkusi, 2004). Yet, the Northern Region seems to be more and more prone to these natural disasters due to climate change impacts, that is: drought, flooding etc. Changes in rainfall patterns over the years have been disturbing farmers increasingly; the consequence of this is that it becomes unpredictable for farmers to know when the next cropping season begins and whether or not they should start planting (Maddala, 2013). Recurrent drought as it last happened in the first season of 2013 leads to colossal or total loss of crops. Heavy and extended rains have also hindered
harvesting and postharvest processing of certain crops, such as cereals and legumes. At times, flooding has caused complete loss of some crops, such as groundnuts and cassava.

2.5.6 Technology Gap

There are significant gaps in the use of fertilizers, with only about 44 percent of farmers using any form of fertilization and significant variations across production zones (Mpembe & Mwanga, 2008). However, the gap in the use of hybrid seeds, although variable, is narrower. Narrowing the technology gap will require additional investment and higher recurring costs for fertilizers and other soil fertility management technologies (e.g., lime).

2.5.7 Farm Size

Farm size for maize producers is a serious constraint to significantly increasing household incomes as these land sizes are inadequate to meet minimum household livelihood needs (Munyua, & Okwadi, 2013).
CHAPTER THREE
RESEARCH METHODOLOGY

3.1 Introduction

This chapter provided an account on how this study was conducted. It consists of the area of study, research design, study population, sample size, sampling technique, sources of data, data collection methods, research procedure, validity and reliability, ethical considerations, and confidentiality, data processing and analysis.

3.2 Area of study

The study takes a review of documents about Israel, a country in the Middle East, on the south eastern shore of the Mediterranean Sea and the northern shore of the Red Sea. It has land borders with Lebanon to the north, Syria to the northeast, Jordan on the east, the Palestinian territories of the West Bank and Gaza Strip to the east and west, respectively, and Egypt to the southwest. And the farms visited were; Hishtil Ashkelon, Prior Silver, Hazera Genetics Farm and Natafim. In Uganda, the study covered Bwizi, Nkoma and Biguli sub-counties in Kamwenge district. The district is bordered by Kyenjojo District to the north, Kyegegwa District and Kiruhura District to the northeast, Ibanda District to the east and southeast, Rubirizi District to the southwest, Kasese District to the west and Kabarole District to the northwest. The district has a total population of 332,000 of whom 51.5% are female and 48.5% are male. Like the majority of the districts in Ugandan, agriculture is the mainstay of the economy of Kamwenge District. Both crops and livestock are raised in the district primarily on a subsistence level. Crops grown include, maize Matooke, millet, Beans, Sweet Potatoes, Irish Potatoes, Sorghum, Millet, Tomatoes, Groundnuts and Passion fruits.

3.3. Research design

The study was conducted in two parts. First, a review of documents about farmer organisation in Israel. This is supplemented by observations that were made by the researcher on four farms
during Agro-studies internship in 2014-2015. The focus farms were; *Hishtil Ashkelon, Prior Silver, Hazera Genetics Farm and Natafim*. The second part was a cross-sectional study of 190 respondents in Kamwenge district. The respondents included 160 maize farmers, 20 traders and 10 millers. Data was collected using questionnaires and analysed qualitatively and descriptively using SPSS.

### 3.4 Study population

In August 2014, the national population census put the population of Kamwenge at 332,000, and according to district production annual report (2015), Bwizi, Nkoma and Biguli sub-counties in Kamwenge district had an estimated population 87,356 of whom 37% (32,321) are maize farmers. The researcher collected data from members within maize producers, traders, processors and consumers from the three sub counties. The three sub counties had a total to 1260 households in maize farming as the main occupation.

### 3.5 Sample size

The study targeted a sample of 190 with 160 maize producers (farmers), 20 traders and 10 maize millers. This sample size was determined using Slovin's Formula which is used to calculate the sample size (n) given the population size (N) and a margin of error (e).

### 3.6. Sampling techniques

Purposive sampling was adopted to select different farmer and trader groups within each Sub County and random sampling used to select respondents from each group along the value chain. These subjects were selected because of their specific characteristics along the chain.

### 3.7. Sources of data

#### 3.7.1. Primary sources

Primary data was captured using questionnaires and conducting a series of interviews.

#### 3.7.2 Secondary sources
Secondary data was generated from published and documented sources that gave answers to the research problem. In this case secondary data sources included; books, internet, and newspapers among others.

3.8. Data collection

3.8.1 Questionnaires

The researcher used questionnaires to collect data from respondents.

3.9. Data quality management

3.9.1. Content Validity

Content validity was assured by consulting experienced researchers including the supervisor who guided the researcher about the appropriate content to include in a questionnaire.

3.9.2. Content Reliability

Reliability was assured by pre-testing the instrument and computation of the Cronback Alpha coefficient that was between 0.7 and 0.8. (Hof, 2012).

3.9.3. Confidentiality

The main ethical principles in research included issues such as no harm to respondents, informed consent, privacy and confidentiality, cooperation, competence of researchers and publication of findings, the researcher applied all the ethical principles.

3.10. Data management and Analysis

3.10.1. Data management

Data from the field was carefully classified, edited basing on clarity, completeness, accuracy and consistence to ensure dependability. This helped to remove errors and to ensure that a better quality report was produced.

3.10.2. Data Analysis

Qualitative data was collected through use of questionnaires and interviewing. After the field, responses were arranged under themes, this was done basically to search for the relationship
between various codes. To avoid value judgment and/or bias, the researcher carefully analysed the information by consciously cross checking and interpret research findings objectively. Quantitative data was got from analysing the responses from questionnaires with the help of Statistical Package (STATA version 13). Compiled data was analysed and presented in tables using frequencies, percentages.
CHAPTER FOUR

PRESENTATION OF RESULTS AND DISCUSSION

4.1 Farmer organisation for agricultural value chain development in Israel: A review

4.1.1 Background

Farmer organisation in Israel dates back in the second half of the 19th century that saw pogroms (mass killing) in Jewish communities in Eastern Europe, driving many to migrate westward and a small trickle went to Palestine which was then a Turkish Empire (Kislev, Lerman and Zusman 1989). The immigrants formed the first wave of the Zionist movement to repopulate the land which is the future Israel and the land of the Bible. Most of the newcomers did not join the small, existing Jewish communities in Palestine; they established separate towns and villages (Kislev 2000). Some brought capital from abroad but most were assisted in their efforts to purchase land and make investment in agriculture using money from the Jewish Diaspora, private philanthropy (donation of money for good causes) (Drabkin 1962).

At first, farmers did not come together in cooperative communities, but rather worked the land individually (Kedmon 2012). At the turn of the century, another wave of Jewish immigrants arrived in the Palestine, primarily idealists from the Russian Empire. They left their home countries mostly for financial reasons since the industrial revolution made many traditionally Jewish professions obsolete. Palestine was a harsh environment for example Galilee was swampy, the Judaean Mountains rocky, and the south of the country, the Negev, was a desert. These immigrants, most of whom were influenced by revolutionary ideals they were exposed to in eastern Europe, belonged to socialist movements such as Poalei Zion (meaning: "Workers of Zion") in their home cities. Their strong cooperative values and socialist ideology were the final ingredients needed to motivate the creation of agricultural cooperative Jewish settlements in Palestine (Prois 1956).
The first Jewish agricultural cooperative, *Kibbutz* was established in Palestine in 1909 (Bettelheim 2001). Since the settlers themselves had no personal equity, the land on which this settlement is located, at the southern end of the Sea of Galilee, was purchased with money donated by Jewish communities around the world (Baratz, Joseph 1956). This was the case with all the agricultural cooperative settlements established before Israel became a country (Kislev 1989).

Although in Israel there were various forms of farmer organisation like *Moshav* a type of planned smallholders’ cooperative settlement in which farmers work their individual parcels of land and draw income from their farms’ yields, while purchasing and marketing are conducted cooperatively (Haruvi and Kislev, 1984; Schwartz, 1999; Sofer, 2001). This study focused on *kibbutz* (meaning: “gathering” or “collective”). These two types of organisations (*Kibbutz* and *Moshav*) still exist in the current state and different value chains are developed in these arrangements (Kislev, 1992).

*Kibbutz* origin dates back in the beginning of the 20th century when the cooperative movement in the Jewish community displayed two distinctive branches: a "workers' sector," linked to the labour movement and a "private sector," linked to agricultural smallholders. The branch linked to the labour movement showed a substantial development in the period of the 1904-1914 (Infield 1946). Special organizational efforts were made in other fields including contracting and agricultural settlement. The first groups of organized contractors appeared during this period, accepting projects and carrying them out on a cooperative basis. Numerous groups of this kind, usually of a temporary nature, established themselves in *Moshavot* to undertake work in the orange groves and vineyards. Latter One of the latter groups, known as the "The Collective," undertook the cultivation of the training farm at *Sejera* in 1908 for the period of one year without a manager representing outside interests to direct it. The success of this enterprise received wide acclaim (welcome). A similar experiment was undertaken by the
farm at *Kinneret* in 1908, and the cooperative settlement *Deganyah*, which became the first kibbutz in Palestine and later – Israel, was founded there in 1909.

The main characteristics of *Kibbutz* life were established in adherence to collectivism in property alongside a cooperative character in the spheres of education, culture and social life (Rábiń, Albert Ć, 2013).

With this came the understanding that the *Kibbutz* member is part of a unit that is larger than just his own family. (The *Kibbutz* also which also farm 1.600 acres of crops, of which 1.1% acres are irrigated operates under the premise that all income generated by the *Kibbutz* and its members goes into a common pool. They do farming together (purchase inputs, production, postharvest handling and marketing) and the income is used to run the *Kibbutz*, make investments, and guarantee mutual and reciprocal aid and responsibility between members. Kibbutz members receive the same budget (according to family size), regardless of their job or position. In terms of education, all children start equally and are given equal opportunity (Lav, Yehuda.2009). The *Kibbutz* is governed by a system of direct participatory democracy, where the individual can directly influence issues and events in the community. In this mostly self-sufficient community, the collective as well as the work ethic play a major role (George, Victor. 2010.).

The *Kibbutz* also provide management and financial services to its members as well as consumer services (Somerville, Peter 2007) which include accommodation, child care, education and medicine on Accommodation, *Kibbutz* members are allocated homes within the *Kibbutz* with Child care, all children in the Kibbutz live together in a "children's home", separate from their parents and cared for by female *Kibbutz* members who are assigned to nanny duties at the child care facility and Education – a number of *Kibbutzim* in every area open their own school, sending certain *Kibbutz* members to their *Kibbutz* teaching seminar in order to professionalize them in agriculture among other skills, Medicine – some *Kibbutz*
members are sent to medical schools, paid for by the Kibbutz, so that upon the completion of their studies, they would return and provide the Kibbutz community with free medical services. It is important to note that all the aforementioned work assignments are not made by personal choice of each member but rather decided upon as a group, in accordance with Kibbutz needs (Rábiń, A. Í. 2013). On farming as already mentioned, several kibbutzim are involved in different sectors some in citrus others in poultry while others are involved in dairy, vegetables and different value chains have been developed for each enterprise (Leon, Dan, 2013). All these agricultural products after harvest, they are marketed as cooperative and therefore several centres are established by the cooperative to handle these large volumes. These centres include; the local level where farmers come together in cooperative to form a management body responsible for making decision about production after which produce is collected sorted at the packing house for that particular farm while another produce is taken to the regional level. The regional level provides sorting, grading, packing, processing and marketing. At national level, these regional cooperatives are responsible for marketing of the produce both to the local consumer through establishment of various supermarkets and retail outlets and export to Europe and other neighbouring countries like Egypt.

The above discussion was presented in figure 1 below;
4.2: The stages and actors of the maize value chain in Kamwenge district.
The main stages and actors in the maize value chain in Kamwenge include; input supply
production, trading, milling and consumption among others.

The main stages are discussed as below.

4.2.1 Production.

Production of maize in Kamwenge begin with input supply. The major inputs into maize
production include; seeds, fertilizers, and pesticides however a few use the manure which they
obtain from their animals. Producers prepare the land and sow the seed. They mostly use
family labour although a few use hired labour. The descriptive of the socioeconomic
characteristics of the producers are shown in the Table 1 below;

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Frequency</th>
<th>Percent (%)</th>
</tr>
</thead>
</table>

Table 1: Socioeconomic characteristics of producers
<table>
<thead>
<tr>
<th>Sex</th>
<th>Male</th>
<th>Female</th>
<th>71.2%</th>
<th>28.8%</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>114</td>
<td>46</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Type of maize grown</th>
<th>Local</th>
<th>Improved</th>
<th>85%</th>
<th>15%</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>136</td>
<td>24</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Group membership</th>
<th>Yes</th>
<th>No</th>
<th>91.25%</th>
<th>8.75%</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>146</td>
<td>14</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

All the respondents were maize growers. 71.2% of them were men this is because maize in Kamwenge is used as a cash crop. 85% of the producers planted local seed from previous maize harvest, they do not use improved maize because they are expensive to buy and even the agro dealers are located in trading centers which makes them distant from the farmers.

“The other challenge is that even the improved seed we are promised to get from government through operation wealth creation comes when it is in the middle of the season” as noted by a respondent from Nkoma Sub county. This is a disadvantage in the development of the maize value chain because production is likely to be lower than if they had used improved seed (Okoboi, 2011, Kasirye, 2013)

The producers belonged to the groups as represented by 91.25% and examples of these groups include; Ntonwa rural producer organization, Bwizi rural producer organization and in these groups, producers gain the following benefits; 21.9% claimed to share costs of operation. This happens when they purchase inputs the purchase inputs as a group whereas 19.4% mentioned that they get access to loans which are used during weeding their maize fields.

16.25% mentioned that they get access to agricultural extension services in a group especially NGOS (Non-governmental organizations) that work in Rwamwanja Refugee Settlement.

These percentages are shown in Table. 2

**Table 2: Benefits gained from producer organization**

<table>
<thead>
<tr>
<th>Benefits</th>
<th>Frequency</th>
<th>Percent (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Producers were asked the size of the land that they used to grow maize in the season of March-July season of 2017 and the quantity of maize harvested after that season. The results are shown in table 3 below.

**Table 3: Acreage of maize planted and quantity harvested.**

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Size of land under maize production (acres)</td>
<td>160</td>
<td>0.25</td>
<td>9.00</td>
<td>4.2422</td>
</tr>
<tr>
<td>Quantity of maize harvested (kg)</td>
<td>160</td>
<td>250.00</td>
<td>13200.00</td>
<td>4.6999E3</td>
</tr>
<tr>
<td>Quantity of maize harvested per acre</td>
<td>160</td>
<td>1000</td>
<td>1466.6667</td>
<td>1.107892</td>
</tr>
</tbody>
</table>

The producers on average had planted 4.2 acres each and obtained an average of 1100 kg/acre. This yield is however dependent on the season like the March-July season, it was characterised of dry spell and infestation with army worm that led to low yields but the yield on a good season of August-December the yield may go up to 1500kg/acre.

Producers were also asked about the challenges they experience in maize production and the results revealed that, the major challenge was inaccessibility to information with 35%, they lack information about the weather patterns. 21.3% claimed that they lack capital for investment this is why they do not invest in improved seed. Limited land for production was reported at 14.4% that is why their production is still low. These results were presented in Table 4 below;

**Table 4: Challenges encountered by producers.**

<table>
<thead>
<tr>
<th>Challenges</th>
<th>Frequency</th>
<th>Percent (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poor quality seeds and other inputs</td>
<td>14</td>
<td>8.8</td>
</tr>
<tr>
<td>Inaccessibility to information by producers</td>
<td>56</td>
<td>35</td>
</tr>
<tr>
<td>Limited capital for investment</td>
<td>34</td>
<td>21.3</td>
</tr>
<tr>
<td>Pests and diseases</td>
<td>12</td>
<td>8.1</td>
</tr>
<tr>
<td>Limited land for production</td>
<td>23</td>
<td>14.4</td>
</tr>
<tr>
<td>Seasonality</td>
<td>21</td>
<td>13.1</td>
</tr>
<tr>
<td>Total</td>
<td>160</td>
<td>100</td>
</tr>
</tbody>
</table>
4.2.2 Trading

Trading of maize in Kamwenge begins when producers after production they take them to traders but in most instances the trader visits the producer and collects maize using a bicycle a motorcycle and in some cases traders use lorry trucks for collecting maize from the producers. When asked whether traders belonged to groups, 90% revealed that they belonged to groups where they cited some of the groups as, Kataryeba Traders Association, Biguli Tukwatanise Traders Association.

Traders were also asked the benefits they gained from the groups and 40% claimed that they shared costs of operation for example buying a thresher for the group in order to rise the quality of grains, while 30% claimed that they accessed loans from the group savings which is used to buy produce from farmers also 20% revealed that they get access to information about the price from other traders outside Kamwenge district.

I also went ahead to ask the challenges that they face during trading and 45% revealed that the major challenge was poor road network that makes it difficult to collect maize from producers, 25% reported that inadequate credit support was also a challenge that makes them operate on small scale. Also unstable market prices for maize 20% where they gave the example that in March 2017 the price of maize grain was 2000Ugx.shillings while in July 2017 it was 850Ug.sh. The above fore mentioned results were summarized in table 5 below.
Table 5: Characteristics of Traders, benefits and challenges

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Frequency</th>
<th>Percent (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Belonging to the group</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>18</td>
<td>90</td>
</tr>
<tr>
<td>No</td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td><strong>Benefits</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shared costs of operation</td>
<td>8</td>
<td>40</td>
</tr>
<tr>
<td>Access to loans</td>
<td>6</td>
<td>30</td>
</tr>
<tr>
<td>Information sharing</td>
<td>4</td>
<td>20</td>
</tr>
<tr>
<td>Storage facilities</td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td><strong>Challenges</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unstable market prices</td>
<td>4</td>
<td>20</td>
</tr>
<tr>
<td>Inadequate credit support</td>
<td>5</td>
<td>25</td>
</tr>
<tr>
<td>Poor quality road networks</td>
<td>9</td>
<td>45</td>
</tr>
<tr>
<td>Poor storage facilities</td>
<td>2</td>
<td>10</td>
</tr>
</tbody>
</table>

4.2.3 Millers.

10 millers were interviewed in groups and all of them belonged to miller groups. Examples of miller groups in Kamwenge include; Bwizi Maize Processors Association, Biguli Maize Millers Group. These millers were also asked the benefits that the gained from being in groups and 50% revealed that they get access to loans to boost milling for example increasing the turn over for the machines, while 40% replied that the obtained the reduced costs of operation and distribution of their flour. The above responses were summarized in table.6 below.
Table 6: Benefits obtained from miller groups

<table>
<thead>
<tr>
<th>Benefits</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reduced costs of operation and distribution</td>
<td>4</td>
<td>40.0</td>
</tr>
<tr>
<td>Easy access to loans to boost milling</td>
<td>5</td>
<td>50.0</td>
</tr>
<tr>
<td>Information sharing on technology</td>
<td>1</td>
<td>10.0</td>
</tr>
<tr>
<td>Total</td>
<td>10</td>
<td>100.0</td>
</tr>
</tbody>
</table>

The millers were also asked if there could be the challenges and 40% responded that completion from other millers was the biggest challenge followed by lack of well-established markets 30% this is especially after the harvest season where consumers have alternative foods like cassava and sweet potatoes and they do not buy flour. These responses were presented in Table 7 below:

Table 7: Challenges faced by millers

<table>
<thead>
<tr>
<th>Challenges</th>
<th>Frequency</th>
<th>Percent(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Competition from other millers</td>
<td>4</td>
<td>40</td>
</tr>
<tr>
<td>High cost of procuring maize grains</td>
<td>1</td>
<td>10</td>
</tr>
<tr>
<td>Lack of well established markets</td>
<td>3</td>
<td>30</td>
</tr>
<tr>
<td>High fuel and electricity costs</td>
<td>2</td>
<td>20</td>
</tr>
</tbody>
</table>

Other stages of the maize value chain in kamwenge include; wholesalers, retailers and finally consumers.

Traders in kamwenge take the maize grain and flour to other towns such as ishongororo in Ibanda district, to the city such as kampala to wholesalers and retailers and some is taken to animal feed processors although some is consumed locally another is exported to neighbooring countries of Kenya, Rwanda, Democratic Republic of Congo.

The stages of the maize value chain are summarised in the fig. 4.2 below.
4.3: Lessons from farmer organisation in agricultural value chain development in Israel that can enhance the maize value chain in Kamwenge district.

A number of lessons can be drawn from farmer organisation in Israel to inform the maize value chain development in Kamwenge.

First there is strong ideological commitment with farmers working together to achieve a common goal for the collective good of the whole community.

Secondly, social support where farmers are supported with accommodation and education for their children.

Also there is vertical integration among the stages of the value chain.

Thirdly the mode of operation of these cooperatives in which all produce is gathered and marketed together as a cooperative which provide sorting, grading among other services thereby raising the quality of harvested produce fetching high prices on both local and
international markets compared to Uganda where traders can purchase produce directly from farmers of which in most cases is of poor quality and fetches low prices to farmers.

The similarity between fig. 4.2 and fig. 4.1 is that both operate at local, regional and national levels and the difference between the two figures is that in fig. 4.2 producers start production instantly and even the value chain also starts as well with a lot of transaction costs when even the quality of the produce is still low whereas in fig. 4.1 the management of farmers decide what to invest in before venturing into production.

In figure 4.2 after production market starts instantly by selling to local traders, home consumption among other dimensions whereas in fig. 4.1 after production all the produce is carried to one collecting centre where it is sorted graded and packed for sale to local and international markets which increases the quality and the price.

It can also be deducted that these local traders sale to urban millers and consumers where as in fig. 4.1 the produce is packed and processed for export to both local and international markets.
CHAPTER FIVE
CONCLUSION AND RECOMMENDATIONS

5.1 Conclusion.
Farmer organisation in Israel is based on cooperative principles at local and regional levels as well as national levels with establishment of various outlets and export to Europe and neighbouring countries. All produce is handled, processed and marketed as a cooperative. Further farmers are supported with education, healthcare medication and agricultural inputs according to the enterprise that they are involved into to enable them produce maximally. However in Kamwenge farmers operate as individuals while others operate in groups and marketing starts at farm level where the quality is still low increasing transaction costs which in turn lead to low prices received by farmers hence low income and increased poverty.

5.2 Recommendations
Government should emphasize commitment to cooperatives through sensitization and recognising cooperatives as a cultural way of living so that even the young generations can grow up in that environment.

Government should support farmers in cooperatives with good quality education for their children especially in agriculture as well as providing them with inputs while helping them in construct structures to handle these large volumes of produce.

Strengthening vertical coordination to avoid farmers selling to traders at farm price in all enterprises.

Farmers in Kamwenge should work together for the collective good of their communities as this can enable them reduce costs of their operation.

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PMA (2009). Maize Value Chain Study in Busoga Sub region. PLAN FOR MODERNISATION OF AGRICULTURE (PMA) SECRETARIAT. Kampala, Uganda.


Stringfellow & Coulter (2007). Improving the access of smallholder to agricultural services in sub-Saharan Africa: farmer cooperation and the role of the donor community. Natural resources perspective 20. ODI. London


Dear respondent

My name is Arinaitwe Mark, a student from Bishop Stuart University in the Faculty of Applied Sciences pursuing a Master’s Degree in Agriculture and Rural Innovation. I am conducting a study to make “Assessment of farmer organisations for value chain development in Israel’s agriculture; implications for the maize value chain in Kamwenge district case study of Bwizi, Nkoma and Biguli sub-counties” therefore I am requesting that you give me views that may assist me get answers for my research problem. The information you give will remain confidential.

SECTION A: GENERAL INFORMATION

Questionnaire No ………………………… Date of interview ……………………

Name of interviewer ………………………… Sub - County …………………………

sParish ………………………………… Village …………………………………

Name ………………………………… Contact. Tel. No ………………………

Sex ………………………………………

1. Do you grow maize?
   a). Yes ( ) b). No ( )

2. If yes, which type of maize do you grow?

   ………………………………………………………………………………………………………

3. Size of land under maize production in acres…………………………………………

4. Quantity of maize harvested in kilograms………………………………………………

5. Do you belong to any farmer group?
   a). Yes ( ) b). No ( )

6. If yes, name of the group……………………………………………………………………

7. Type of the group?
a) Males group ( )  b) Female group ( )

c) Mixed group ( )  d) any other, specify………………………………………

8. Membership size……………………………………………………………………

9. Does the group have leadership structure?

a). Yes ( )  b). No ( )

10. If yes, give a brief description of the leadership structure

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……………………………………………………………………………………………………
……………………………………………………………………………………………………

11. What benefits have gained from your group?

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……………………………………………………………………………………………………
……………………………………………………………………………………………………

12. If no in 5 above, give the reasons why you are not in a group?

……………………………………………………………………………………………………
……………………………………………………………………………………………………
……………………………………………………………………………………………………
……………………………………………………………………………………………………

13. Could there be reasons why you formed a group?

a). Yes ( )  b). No ( )

14. If yes, mention them?

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……………………………………………………………………………………………………
……………………………………………………………………………………………………
……………………………………………………………………………………………………

15. Could there be any challenges you come across as a group involved in maize production?

a). Yes ( )  b). No ( )

59
16. If yes, what are some of the challenges encountered?

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17. What are the possible strategies for overcoming the challenges mentioned in 16 above?

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18. Any last remarks on the study?

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Thank you for your cooperation

APPENDIX II: SURVEY QUESTIONNAIRE FOR TRADERS

Dear respondent

My name is Arinaitwe Mark, a student from Bishop Stuart University in the Faculty of Applied Sciences pursuing a Master’s Degree in Agriculture and Rural Innovation. I am conducting a study to make “assessment of farmer organisations for value chain development in Israel’s agriculture; implications for the maize value chain in Kamwenge district case study of Bwizi, Nkoma and Biguli sub-counties” therefore I am requesting that you give me views that may assist me get answers for my research problem. The information you give will remain confidential.

SECTION A: GENERAL INFORMATION

Questionnaire No ......................... Date of interview .........................
1. Do you buy maize from farmers?
   a). Yes ( )   b). No ( )

2. Which type of maize do you usually?

3. Which form of maize do you buy?
   a). Dry ( )   b). Fresh ( )

4. How do you operate?
   a). As an individual ( )   b). As a group/association ( )   c). Not applicable

5. If you belong to a group, give the name of the group or association?

6. Type of group?
   a) Males group ( )   b) Female group ( )   
   c) Mixed group ( )   d) any other, specify……………………………………..

7. Membership size……………………………………………………………………

8. Does the group or association have a leadership structure?
   a). Yes ( )   b). No ( )

9. If yes, give a brief description of the leadership structure

.................................................................................................
10. What benefits have gained from your group as a trader?

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..............................................................................................................................
..............................................................................................................................

11. If you are not in any group or association in 4 above, give the reasons why you are not in a group?

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..............................................................................................................................
..............................................................................................................................
..............................................................................................................................

12. Could there be any reasons why you formed group/association?

a). Yes ( ) b). No ( )

13. If yes, mention them?

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..............................................................................................................................
..............................................................................................................................
..............................................................................................................................

14. What are some of the challenges you encounter as maize traders?

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..............................................................................................................................
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15. As maize traders how do you think you can be helped to overcome the challenges mentioned in 14 above?

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..............................................................................................................................
16. Any last remarks on the study?

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Thank you for your cooperation
APPENDIX 11I: SURVEY QUESTIONNAIRE FOR MAIZE MILLERS

Dear respondent

My name is Arinaitwe Mark, a student from Bishop Stuart University in the Faculty of Applied Sciences pursuing a Master’s Degree in Agriculture and Rural Innovation. I am conducting a study to make “assessment of farmer organisations for value chain development in Israel’s agriculture; implications for the maize value chain in Kamwenge district case study of Bwizi, Nkoma and Biguli sub-counties ” therefore I am requesting that you give me views that may assist me get answers for my research problem. The information you give will remain confidential.

SECTION A: GENERAL INFORMATION

<table>
<thead>
<tr>
<th>Questionnaire No</th>
<th>……………………………</th>
<th>Date of interview</th>
<th>……………………</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name of interviewer</td>
<td>……………………………</td>
<td>Name</td>
<td>……………………………</td>
</tr>
<tr>
<td>Sex</td>
<td>…………………………</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1. Do you belong to any millers group?
   a). Yes ( )  
   b). No ( )

2. If yes, name of the group…………………………………………………………

3. Type of the group?
   a) Males group ( )  
   b) Female group ( )
   c) Mixed group ( )  
   d) any other, specify…………………………………..

4. Membership size……………………………………………………………………

5. Does the group have leadership structure?
   a). Yes ( )  
   b). No ( )

6. If yes, give a brief description of the leadership structure
7. What benefits have gained from your group?

8. If no in 5 above, give the reasons why you are not in a group?

9. Could there be reasons why you formed a group?
   a). Yes ( )  b). No ( )

10. If yes, mention them?

11. Could there be any challenges you come across as a group involved in maize processing?
   a). Yes ( )  b). No ( )

12. If yes, what are some of the challenges encountered?

13. What are the possible strategies for overcoming the challenges mentioned in 12 above?
14. What measures have so far been put on ground to address the challenges?

15. Any last remarks on the study?

Thank you for your cooperation