

Contributions of Sugarcane Sharecropping to the Smallholder Farmers in Mayuge District

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of the Degree of Master of Arts in Public Administration and Management
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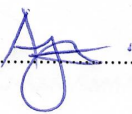
January 2023

DECLARATION

DECLARATION

I, Ayamo Ruth Eyobu, declare that this is my original work and that it has never been submitted for any award in any university or institution of higher learning.

SIGNATURE:



DATE:

13th / Jan / 2023

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APPROVAL

APPROVAL

This is to certify that this dissertation has been written under my supervision and it is submitted for examination with my approval as the supervisor.

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LIST OF ABBREVIATIONS

AFDB	-	African Development Bank Group
ANPPCAN	-	African Network for the Prevention and Protection against Child abuse and Neglect
EPRC	-	Economic Policy Research Centre
FAO	-	Food and Agricultural Organization
FARA	-	Foreign Agents Registration Act
ILO	-	International Labour Organization
IJRESS	-	International Journal of Research in Economics and Social Sciences
IPEC	-	International Programme on the Elimination of Child Labour
KESREF	-	Kenya Sugar Research Foundation
NUPAWU	-	National Union of Plantation and Agricultural Workers
SCOUL	-	Sugar Corporation of Uganda Limited
SASA	-	South Africa Sugar Association
SDG	-	Sustainable Development Goal

UCCA - Uganda Consortium for Cooperate Accountability

UN - United Nations

UNESCO - United Nations Educational, Scientific and Cultural
Organization UNFP - United Nations Population Fund

WFP - World Food Programme

ABSTRACT

This study set out to investigate the economic contributions of sugarcane growing to the households which were contracted to grow sugarcane through the sharecropping system in Mayuge District. It was guided by four objectives, namely to examine the impact of sugarcane farming on family household incomes in Mayuge; analyze the economic implications of sugarcane farming on land and food security in Mayuge; investigate how the sugarcane economy in Mayuge has assisted different social groups to meet their needs at household level; and investigate the drawbacks of sugarcane growing and how they can be mitigated. It was conducted in three sub-counties of Wairasa, Buwaaya and Malongo. It adopted a case study design and covered 100 respondents. The data from the primary sources were gathered using questionnaires, interviews and focus group discussions. Both qualitative and quantitative instruments were employed to analyse the data. The study found out that incomes from sugarcane growing were the main source of livelihood for the people of Mayuge District. These incomes would be received in one lump sum after a long time of waiting – sometimes taking up to three years. Many people would spend much of it purchasing expensive commodities and leave a deficit in the households' basic requirements. It found that women were the main providers of reproductive labour in the household agricultural activities, in sugarcane production and food production for household consumption. It discovered that they are least compensated for their contribution. Their access to sugarcane pay-off is paltry. This was in form of cash remittances from their husbands who are the registered holders of the land title deeds. The failure of the women to access sugarcane cash and land was greatly affecting their traditional role of food production. Another problem stemmed from the economic temptation of leasing out land to sugarcane sharecroppers with the hope of relying on the rent from the leased land. The farmers would rely on that money to purchase food and other household requirements. This seemed to be unsustainable. The households ended up experiencing constant food insecurity problems. The study ended making various recommendations on how to balance this cash economy that was creating more problems through cash crop production.

CHAPTER ONE

INTRODUCTION

1.1 BACKGROUND

Sugarcane is a highly productive C4 grass used as the main source of sugar. It is used to produce ethanol, a renewable transportation fuel (Oraby et al, 2010: 453). Sugarcane has been an integral part of African agriculture since the 15th century. Historically, sugarcane has been used in multiple ways, it has been to make to make sugarcane juice, and the sweet liquid contained in the stem of the sugarcane stalks can be processed into sugar. The increased numbers of sugar factories have led to an increase in the demand for the raw material. Other than sugar, products derived from sugar cane include; molasses, rum, cachaca (a traditional spirit from Brazil (Grivet et al, 1996). In some regions, people use sugarcane reeds to make mats; others eat it raw, steamed or even roasted. In Brazil and the United States (the largest producers of ethanol from sugarcane), sugarcane ethanol is used in the transport sector as a renewable fuel that cuts greenhouse gas emissions by an average of 90 percent as compared to gasoline (Sasri, 2017:21), Therefore the main driving force behind the expansion of land under sugarcane farming and increasing sugarcane monoculture is the constant rise in the world's demand for sugar and its byproducts. However, industrialization has led to more investments in sugarcane farming for production of clean fuels, like; ethanol and biogas (Akoth, 2016: 4). The new technological advances have ensured that nowadays, all parts of the sugarcane plant are converted into energy. Sugarcane is now diversifying into many value-added products that go beyond food, particularly bioethanol and bioelectricity. This has led to rapid Commercialization of the Sugarcane Crop.

The UN estimates that more than one billion people depend on commodity production for their livelihoods (Oxfam, 2002: 154). In Ethiopia almost half of the cultivated land is dedicated to Sugarcane farming, on which an estimate of eight million people depends either directly or indirectly for their livelihood (FAO, 2019). The studies state that the incomes are used for buying food and improving on health care. In a similar study still done in Ethiopia, large scale sugarcane farming was identified to have less economic benefits to the household communities (Dheressa, 2013).

Being a highly profitable enterprise, sugarcane plantations often displace other farming systems once introduced, marking the shift from agriculture as a way of obtaining food (Isabirye, et al, 2013). This has led to the declining growth of indigenous foods along sugarcane belts (Egeskog & Gustafsson, 2007) hence food insecurity. Without regulations, the expansion of sugarcane farming negatively affects the income of family farmers who grow sugarcane on a small scale (Egeskog & Gustafsson, 2007) and increased demand for land hindering production of staple foods for households (Isabirye, 2006). This is because sugarcane is a perennial and monoculture crop in nature which cannot be planted with other food crops. This also reduces the size of arable land for food production hence deepening the food security crisis. The long gestation period of sugarcane compromises its livelihood of its growers in terms of income and food security.

Food insecurity occurs in situations where food may be available but not accessible because of erosion in people's entitlement to that food. Risks in sugarcane farming erode smallholder farmers' livelihoods, and their inadequate capacity to manage risks, results in households

being trapped in a cycle of food insecurity (Borton and Shoham, 1991). However, diversity of assets is known to enable smallholder farmers to become more resilient to shocks and raise their incomes for enhanced food security. The more assets people have like land, access to credit, the less vulnerable they are, and the greater the erosion of people's assets, the greater their vulnerability (Moser, 1998). People in poor countries rely on land-based resources to generate most of their income. The uses of these resources are wide ranging and adaptable to varying circumstances. They often serve as a form of security against adverse shocks or as a facilitator to access new opportunities. Further still, traditional assets like land are predominantly owned by men and transferred intergenerationally to males (FAO, 2019). And because of that, women may lack access to land, user rights, ownership rights of land and livestock yet the (WFP, 2011) explains that women are responsible for half of the world's food production. In addition, even when they are able to access land, their land rights creates a disincentive to invest time and other resources into sustainable farming practices. This tends to lower production and results in less income and food for the household. Despite this problem, the (WFP, 2011) explains that women continue to be regarded as the assistants on the farm, and not as farmers and economic agents on their own merit.

Agricultural productivity and income gains are necessary but not sufficient to eliminate hunger and malnutrition. Women are responsible for nutrition in most homes, including the purchase and preparation of food. However, because of traditional norms, they often have limited access to education and control over resources. Studies show that when women are given the opportunity to manage household finances they are more likely to spend on their family's nutritional needs, healthcare, and school fees for children. Therefore, empowering women to increase access to and control over resources has more promises of attaining food

security in the developing world. Thus control over, and ownership of assets enables people to create stable and productive livelihoods (Meinzen-Dick, et al., 2011). This is also likely to help women to regain their traditional food provision roles in the homesteads. As is the case with most large scale agriculture activities, sugarcane production requires a large workforce especially for sugarcane mechanized harvest, loading and transport activities.

In South Africa, the South Africa Sugar Association (SASA, 2021) asserts that the sugar industry creates approximately 85000 direct jobs, which represents over 11 percent of the total agriculture workforce. In addition, there are the registered cane growers who supply sugarcane to the sugar mills for processing. Indirect employment is estimated at 350,000 jobs.

In Uganda, the Kakira sugarcane factory provides employment for 8,400 people directly (Madhivani, 2015), and through their supply chain. Its activities support the sugarcane out-grower farmers in the area, the sugarcane transporters, ancillary and support industries. This sugar factory provides means of livelihood to over 75,000 people. These are mainly from the South Busoga region. A similar study which was carried out in Malawi by Herrmann and Grote (2015) found out that the plantation workers there were better off than those who were not involved in the agricultural labour process. However, while these workers were able to avoid extreme poverty; they did not earn sufficient money to better their conditions and raise them from poverty.

The distribution of personal incomes in society is also strongly related to the amount of education achieved by the people (UN, 2000). The Kakira Sugar Factory established schools

like Muljibhai Madvani primary School in Jinja in a bid to improve on education. It later established the Muljibhai Madhvani Foundation scholarship program with an aim of benefitting the Ugandans who were pursuing university education at undergraduate and graduate level in Uganda (Madhvani, 2015).

However, this was not the cause of the rapid growth of the sugarcane industry in the area. Rather, it has been attributed to the high rate of school dropouts who have learnt about money and have great urge to get it and spend it. They want to offer cheap labour on sugarcane plantations and earn wages (Daily Monitor, 15th July 2021). At the same time, there has been an increase in cases of child labour. This anomaly has been linked to famines and high rates of school dropouts, In her research conducted in Kaliro District, Waluube (2015) found that lack of food in households was forcing parents to send their children to search for employment opportunities in the sugarcane plantations. They wanted those children to earn wages for purchasing food and other household requirements.

Sugarcane factories provide free medical services, free or subsidized housing, electricity and water to the employees and their families. Some of the larger estates provide home ownership schemes (UN, 2000).

Sugarcane growing is also linked to infrastructural development (Elsevier, 2016). Sugar factories are normally established near the sugarcane plantations. This concentration of sugar production activities results in the demand for infrastructural development in form of accommodation, roads, schools, medical facilities and recreational facilities for the people employed in the industries. These include the people involved in growing, cutting and processing of the sugarcane. There are also potential economic returns to scale depending on

the technology used. Sugarcane growing, harvesting and processing into sugar always require very high labour demand.

Sugarcane growing developed as labour intensive. Its growing in America led to the demand for slave labour from Africa (Sasiri, 2017:17; Valerie, 2009). When slavery was abolished in 1870s, it was replaced by sharecropping and the free labour economy (Guilherme, 2016; Shlomowitz, 1984). Sharecropping was a performance contract where labour earned a share of the final output at the end of the season. After selling the crop, the employer has to deduct all the resources advanced and consumption goods taken from the employer (Guilherme, 2016:9). The sharecropping mode spread to the whole world because of its advantages. In Egypt, Habtu (2000) found that the largest shares of over 80 percent of the sharecropped were from rich families, with oxen and labour endowments which the landless class could never have.

The settlement schemes funded by the World Bank in Africa wanted to relocate the peasants, and establish centralized processing facilities for the production of cocoa, palm oil, sugar and rubber (Martiniello, 2017). Their roles included redistribution of the population from high pressure to low-pressure areas, achieving economies of scale in agriculture, resettling the landless people, redistribution of land and multiethnic integration.

The main sugar producing countries in the world include Brazil, India, China, Thailand, South Africa and Mauritius (Masiga, 2011:13). The above seven countries produce up to sixty percent of total global output (USDA, 2006). When Europe colonized America, it intensified sugar production to fill the world market with affordable sugar (Glynn, 2004:1).

The world consumption of sugar was higher than production in 2005 and 2006. Africa, Asia, Eastern Europe and North America experienced largest sugar deficit (FAO, 2006). More than 60 percent of the global consumption of sugar takes place in the developing countries. Following this consumption pattern of sugar, the developing countries are expected to be the main sugar consumers in future (Sserunkuma and Kimera, 2006). India is the second largest producer of sugar, accounting for 15 percent of global output. It is followed by the EU (10 percent), China (7 percent), Thailand (6 percent), United States (4 percent) and Mexico (3 percent). Africa accounted for 6.1 percent of the world sugar output between 2009/10 and 2012/13, which was a fall from seven percent in the 1990/91-1994/95 sugarcane crop growing period (FAO, 2013:3). In Brazil and the United States of America, beyond consumption of sugar for consumption, medicine and alcohol brewing, it is used to produce ethanol in Brazil and the USA. Ethanol is used as a renewable fuel in the transport sector and running other machines in the industries (Sasri, 2017: 20). It cuts greenhouse gas emissions as compared to gasoline, which pollutes the environment. Biofuels contribute to the independence of fossil energy in the transport sector and its consequent negative effect on the environment, energy and economy.

Sugarcane growing was introduced in Africa as a cash crop by the European colonialists. Although its production is still low in Africa, it is being expanded due to its high production potential, low cost and proximity to the European markets (Sasri, 2017: 17). This is mainly due to the ideal conditions for sugarcane growing in the region - topography, good soil, constant availability of water for irrigation, wet/hot and cool/sunny/dry weather, which support high plant growth rates and sugar conversion (Soltan, 2008: 197). While Africa is a net importer of sugar, five African countries are consistently ranked amongst the lowest cost sugar producers in the world after Brazil and at the same level with Australia. Ideally,

Zimbabwe, Malawi, Zambia, Swaziland and South Africa are world class industries would have expanded. Most of these countries have reduced their core production capacity to meet the domestic requirements, exports under the available EU and US quotas and the regional markets.

The demand for sugar has also been growing in the Eastern African region. In order to achieve growth targets, the sugar industry has been classified as a sensitive industry that requires effective safeguard measures (Serunkuma and Kimera, 2006). In Kenya, the area under sugarcane was 151,014 hectares by the end of 2006 and the average yield was 71.46 metric tons per acre. The amount of cane crushed was 4,850,333 metric tons. The amount of sugar produced in the factories was 475,669 metric tons. In 2006, production further declined to 475 653 metric tons against the high demand of 718,396 metric tons (Kenya Sugar Board in the East African Standard, 2007). In Tanzania, the annual sugar production was about 115,000 tones, while the demand of sugar was estimated at 300,000 tones. As such, Tanzania continues to import about 200,000 tones per annum to offset the shortfall (Tanzania Ministry of Agriculture, Food and Cooperatives, 2007).

The acreage under sugarcane agriculture is set to expand as sugarcane monoculture is being favored at the expense of other food crops. This is likely to affect the availability and variability of food commodities in the market, their prices and the livelihoods of those who previously depended on those crops as a source of their income. This is further confirmed by how sugarcane growing in Afar, Ethiopia affected the people's livelihood. In this process, sugarcane growing encroached on the pastoral lands. This forced the pastoralists to supplement their livelihoods with subsistence-oriented cultivation of maize and sorghum or

they engaged in low paid wage labour such as picking cotton (Altare et al., 2010). This helped to reduce on the food security problems.

Sugarcane growing by its nature excluded intercropping and crop diversification. In addition, use of chemicals including fertilizers at different growth stages prompts varied responses. Due to the fact that sugarcane matures at 18 to 24 months, the farmers need to have other sources of income from other crops. However, research by the Kenya Sugar Research Foundation (KESREF) shows that only similar crops such as sugar beet, sweet sorghum and leguminous crops like beans due to the nitrogen fixing bacteria are crucial in sugarcane agriculture. It can be used to practice mixed farming (KESREF, 2012). Such crops lack a durable market or they will have an existing durable market nor have they been known to thrive in the study area.

Being a perennial crop, with a long gestation period and a duration of almost two years between harvests, this crop detains the land from cultivation of other crops food and cash. This is likely to create famines and poverty in households with less land. A similar situation is likely to happen when the prices of sugar fall.

While sugarcane farming promises to raise the standards of living of communities through job creation and profitable yields, it has been creating a cycle of poverty, famines, malnutrition and land shortage among the population who are growing it. Through this process, it has been threatening its very own existence and sustainability. In Brazil, which has been the world's largest producer of sugarcane over the years, the sugarcane industry employs over two million unskilled wage labourers (Fischer et al., 2008). Their wages are below their living standards and they are unreliable as they are casual labourers, normally

contracted for only six months a year. As such, they are unable to maintain their families, using the earned wages. This leads them to remain embroiled in debts as they borrow money to meet their cost of living. The net profits gained are normally minimal (Schneider, 2010). This is because the loans are offered at very high interest rates. So, by the time the loan period expires, the farmer is already impoverished.

Sugarcane production in Uganda traces from 1924 when Mehta established the Uganda Sugar Factory Limited. This was the first sugar factory in East Africa. He was an Asian investor. It has since expanded in acreage, machinery, labour employment, output and changed name to the Sugar Corporation of Uganda Limited [SCOUL] (Serunkuma and Kimera, 2006). The second sugar factory was opened at Kakira in 1930 by Muljibhai Madhvani. This was another Asian sugarcane plantation owner who had come to Uganda from India in 1908. Some years later, other two sugar production enterprises were established in the colony. One was set up at Sango Bay in Rakai district and another one at Kinyara in Masindi district (Masiga, 2011: 14). Sugar production at Sango Bay started in 1972 but was short-lived as it was shut down the following year after the expulsion of the Asians from Uganda by President Idi Amin's government after the declaration of the Economic War in 1972.

The country's fertile soil, constant rainfall, wet and warm equatorial and forest climatic conditions favoured sugarcane growing. In the 1950s and 1960s, with just SCOUL and Kakira sugar works, Uganda was one of the leading world sugar producers, to the tune of 140,000 metric tons of sugar annually (Masiga, 2011:14). Sugar production reached 152,000 metric tons in 1968. By 1969, Uganda was exporting about 48,000 metric tons of sugar.

The negative consequences of Amin's unplanned Economic War of 1972 plus political insecurity, other upheavals and serious economic decline during the regimes of Iddi Amin and Obote II destroyed the sugar industry in Uganda. Sugar production fell to almost zero by 1983. The sugar estates had been abandoned, machinery was either looted or it fell into disrepair, or was looted, and the physical and social infrastructure deteriorated (AFDB, 2002). These were complicated by state insecurity. The country became totally dependent on imported sugar. The sector has however partly recovered following the return of the Asian owners. They rehabilitated them and expanded the sugarcane acreage and installed new, faster and heavy duty machinery (Massage, 2011:20).

The total sugarcane production increased from 2002 to 2004 by over nine percent (FAO, 2007). By 2005, Uganda had three operational sugar factories - SCOUL, Kakira Sugarcane Factory (1985) Ltd, and Kinyara Sugar Works Ltd. These companies employed more than 21,749 employees on varying terms - permanent, contract or casual terms in the various levels and sectors (Serunkuuma and Kimera, 2006).

Instead of expanding the acreage of the sugar plantations, the sugar companies introduced the out-grower scheme. They began a new scheme of contracting people in the surrounding areas to grow sugarcane and sell it to those companies (Serunkuuma and Kimera, 2006). This out-grower scheme was embraced by the people in the neighbourhood. It is providing employment, social development, and infrastructure roll out plus diversification in activities in respective areas. Outgrower scheme makes small scale farming competitive and productive. Small scale farmers are able to access technology, credit, marketing channels and information while at the same time lowering transaction costs. The stable and fixed market for this helps in reducing market efforts and transactional costs so he channels that time and

energy to his farm thus the out-grower production strategy has allowed the industry to expand sugarcane production.

In 2006, a new sugar company - the G.M. Sugar Limited, was established at Nakibizzi, Mukono District. This was the fourth local sugar factory. Since then, other sugar companies have come up. Among them is the Kaliro Sugar Factory. The G.M. Sugar Limited does not have a nucleus sugarcane plantation. It instead buys all its sugarcane raw materials from the local out-growers. Its emergence pushed up the demand for the sugarcane while the supply fell. The sugar factories became so close to one another and their increased demand for the sugarcane attracted more people to use their land for sugarcane growing. There was a rush by many local people in the area to grow sugarcane. The people in Mayuge District also got involved in this sugarcane growing economy. Not long after, supply of sugarcane was more than the demand and the sugarcane out-growers had to complain to the President of lack of market for their "*Ebikadho Kamaala*" (a lot of sugar cane).

Mayuge became a district in December 2000 by an act of parliament. It was originally part of Iganga district. It is traversed by the Jinja~Iganga~Bugiri~Tororo road. Mayuge lies approximately 37 kilometers, east of the city of Jinja. Its neighboring communities include Bugadi, Bukanya, Bugoto, Wandegeya, Bemba, Namalege, Musita, and Ikulwe. It comprises of three constituencies Bunya West, Bunya East and Bunya South. It is divided into 12 sub-counties and one Municipality. It constitutes of 72 parishes and 497 village councils. It has a variety of natural resources. These include the Lake Victoria, sand and stone fields, wetlands and streams, hills and forests (Kakai, 2018). It is along the shoreline of Lake Victoria and it has six islands. Uganda's National Population Census of 2014 estimated Mayuge's population at 17,151 people. This had more than doubled from 8,720 people (The 2002

National Population Census Estimates). Fishing is a major source of revenue and food. Cash from these activities has been attracting children to abandon school and go to work for wages (Observer, 15th July 2017). It is inhabited by people of different ethnic groups. These include the Basoga, Balamoji, Bakenye, Bagwere and Banyole.

The main economic activity in this district is agriculture mainly for household consumption. Their food crops include millet, sweet potatoes, maize, beans and yams. The crops which are grown for cash include sugarcane, coffee, simsim, sunflower, cotton and cocoa. It has various forest reserves and they include Bukalebo, Namafuma and Wabulungu.(Kyarikunda, 2017). Given the shortage of gainful employment and other economic activities in the District, many households engage in charcoal burning to supplement their incomes.

As of 2019, Uganda was the largest producer of sugar in East Africa with an output of 514 thousand metric tons (Galal, 2021). Such growth in the sugar industry is expected and will likely affect the rural family farmers in the region. With the aggressive and forceful global trade liberalization, and uncontrolled search for money, the sugarcane industry is likely to continue expanding. This is likely to create problems which will affect the country negatively (Egeskog & Gustafsson, 2007). The main victims are likely to be the households and individual incomes, food security, land ownership, access and use, labour availability and costs, and child labour. It is also likely to affect the cultivation practices and relationship between the industry, its workers and the population around.

While the households engaged in sugarcane sharecropping are claiming that they are gaining from this commodity growing arrangement, different scholars have alleged that it is increasing abject poverty in Mayuga District (EPRC, 2021). This shows that there is a

knowledge gap on the effects of sugarcane sharecropping on the livelihoods of the households which are involved.

1.2 STATEMENT OF THE PROBLEM

Searching for sources of money to meet their requirements, the people of Mayuge District were attracted by the sugar industrialists to grow sugarcane and sell it to their industries. This was seen as the best way through which they would earn a lot of money to eradicate poverty at household level and educate their children. It would also give them gainful employment instead of spending their time wandering, wasting their time, land and other resources as they concentrated on food production for their subsistence. While these people have planted huge acreages of their fertile and well-watered lands with sugarcane for sale to the many factories in the region, and the sugar industries and factories have continued to purchase sugarcane, these people's conditions seem not to be improving in a corresponding way. The study therefore seeks to fill this gap by incorporating views and suggestions of sugarcane out-growers that may influence policy formulation as far as the their welfare is concerned.

As the sugarcane growing has very long gestation period and nearly the same time for the maturing of the crop after the harvest of 18 -22 months, and that the people lack any other source of income, food supply or livelihood, the question is how this cash cropping has been contributing to the livelihoods of the sharecropping households and their socio-economic conditions.

1.3 OBJECTIVES OF THE STUDY

1.3.1 General Objective

The general objective of this study was to investigate the contributions of sugarcane sharecropping to the smallholder farmers in Mayuge

1.3.2 Specific Objectives

1. To examine the impact of sugarcane farming on family household incomes in Mayuge.
2. To analyze the economic implications of sugarcane farming on land and food security in Mayuge
3. To investigate how the sugarcane economy in Mayuge has assisted different social groups to meet their needs at household level.
4. To investigate the drawbacks of sugarcane growing and how they can be mitigated.

1.4 SCOPE OF THE STUDY

In terms of content scope, the study analyzed the economic contributions of sugarcane growing in Mayuge District; determined the impact of sugarcane farming on family household incomes and in Mayuge; Assessed the impact of child labour over Education; Investigate how the sugarcane economy in Mayuge has assisted different social groups to meet their needs at household level; Analyzed the contributions of sugarcane growing to the sugarcane out growers: investigate the drawbacks of sugarcane growing and how they are mitigated; Investigated the drawbacks of sugarcane growing and how they can be mitigated.

In terms of geographical scope, the research carried out in Mayuge District. It was chosen because it's one of the districts in Busoga Region where sugarcane growing is at its peak.

The periodic scope of the study was 2005 to 2020. This is because Mayuge sugar factory was established in 2005 in Mayuge district. It was also aimed at bringing out a historical comparison of how the establishment of Mayuge sugar factory has affected the economic livelihood of the people in Mayuge district.

1.5 JUSTIFICATION OF THE STUDY

Carrying out such in-depth empirical research will have both basic (academic) and applied (practical) purposes. With regard to the practical purposes, the empirical findings may be utilized by planners for the formulation of new policies as well as policy reforms in the areas of sugarcane monoculture, environment, and agriculture and food security. The output obtained from this study may also be used to advise communities on how to attain sustainable livelihoods from such high value cash crops that always tend to take precedence over other crops, especially food crops and substitute economic activities where they are introduced with the promise of maximum benefits accrued, even without relaying the bigger picture to the relevant beneficiaries including farmers, government agencies as well as nongovernmental organizations involved in agriculture.

1.6 RESEARCH QUESTIONS

1. What is the status of sugarcane growing in Mayuge District?
2. What are the economic implications of sugarcane growing on land and food security in Mayuge District?
3. What are the economic contributions of sugarcane growing in Mayuge District?

4. What are the draw backs in sugarcane growing and how they are mitigated?

1.7 THEORETICAL FRAMEWORK

This study will be modeled on Karl Marx's theory of capitalist accumulation.

The Marxist theory of capital accumulation is a socioeconomic and political theory based on the works of Karl Marx who offers insights into the dynamics of capitalism. Marxism provides perspectives for understanding the dynamics of economic exploitation embedded in dialectical relationships between classes, surplus value or profit accumulation, materialism and its impact on socioeconomic relationships. Karl Marx examined capitalism in terms of bourgeoisie economy, wages, class formation, labour, landed property, foreign and world trade, and the deterministic nature of resources towards man's life (Marx 1859).

Marx argues that capitalism is driven by surplus value/profit motives. In order to maximize profit, capitalism engenders dichotomies by classifying people into '*haves*', namely the bourgeoisies,² and '*have-nots*' that is, proletariats³ or labourers (Marx 1977). These classes breed dialectical relationships in the sense that resource owners exploit workers to generate surplus value while the workers struggle to emancipate themselves from poor wages and conditions of work (Bakshi 2011, Fulcher and Scott 2011, Harvey 2006). These dialectical relationships engender exploitation, which results in profit for resource owners and pauperization for the workers. In this case, poverty is a result of powerful groups exploiting and disenfranchising the underclass (Wright 1994). The exploitation takes place within and outside of labour relationships.

The Marxist theory of capital accumulation was relevant for this study because small scale sugarcane farming resonates with market and profit. The theory was vital in explaining the inherent contradictions embedded in small scale sugarcane farming and its processes of income generation and profit maximization. In this study, Marxist theory provided both an analytical framework and an epistemological tool for generating knowledge about sugarcane farming and farmers' livelihoods. It is in cognizance of this that the assumptions of Marxist theory were applied to identify and explain the implications of sugarcane farming's impacts on livelihoods of the farmers.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter reviewed literature on economic contributions of sugarcane farming to households. Status of sugarcane farming in Uganda, examined the impact of sugarcane farming on family household incomes, analyzed the economic implications of sugarcane farming on land and food security, investigated how the sugarcane economy assists different social groups to meet their needs at household level. Investigated the drawbacks of sugarcane growing and how they can be mitigated.

2.2 Status of Sugarcane growing in Uganda

Up until 2006, sugar production in Uganda was in the hands of Kakira sugar Ltd, Kinyara Sugar Ltd and Sugar Corporation of Uganda Ltd producing 191,561 metric tons of sugar. As a result of increased capacity installation among the big three and the coming on board of six more factories. (Mayuge sugar Industries Ltd., G. M. Sugar Ltd, sugar & allied Industries Ltd., Kamuli sugar Ltd., seven star and Sezibwa) sugar production increased by 129 percent

to 438,360 metric tons in 2014 when compared to 2006 production (Meyer, 2017: 11). Much as new sugar factories have come on board, growth in sugar production is still largely driven by how much the big three produce.

Kakira sugar cane factory is the largest sugar factory in Uganda in terms of yield and output. The company accounts for forty two percent of overall national output and operates a nucleus estate of 12 000 hectares (Masiga 2011:16). The company also services up to 10,000 hectares of out-grower contract production. Kinyara sugar works factory produces more than 50,000 tons of sugar per year from over 500,000 metric tons of sugarcane. The company collaborates with over 800 out grower farmers operating over 4,600 hectares of cane plantation (Sserunkuuma and Kimera, 2006). Among the three major sugar factories, Kakira sugar cane factory has the largest nucleus estate and cane output. SCOUL has the lowest output.

From 1976-1995, political instability, expulsion of Asians, government mismanagement, economic decline, and destruction of the infrastructure at the estates led to very low production. In 1987, it became a state priority to restore the industry by increasing production and privatizing the firms. As of February 2006, the Kakira estate is 100 percent privately owned (having been restored to its original owners), the Lugazi estate is 76 percent private and 24 percent government owned, and the Kinyara estate is 100 percent government owned but currently undergoing privatization (Meyer 2017: 11).

2.3 Food security and Sugarcane Farming.

Economic development in any country is closely linked with increased productivity. Rising labour productivity despite technological advancement has its roots in the adequate provision of food for the working population (Mkandawire 1987: 136). Food is necessary in generating the required energy while working. For instance, in almost any large installation where substantial human energy is required food concession is given top priority. In this case proponents see sugarcane farming as a route to growth, diversification and prosperity for all. Other opponents see it as the manifestation of dependency, underdevelopment and immiseration (Maxwell 2003: 56). As far as cane cropping is concerned, the argument in favor of cane is they allow farmers to exploit comparative advantage thereby maximizing income and also generate linkages both upstream to the supply of inputs and downstream through the use of products which again generate growth and livelihoods. (Spooner, 1988) talks about the economic transformation made possible by sugarcane. Against this the critics of sugarcane growing (Collins, 1986) argue that comparative advantage is a poor guide to agricultural investment. Critics also charge that the alleged benefits of sugarcane farming are often leached out of local or even national economies by erroneous pricing policies or the repatriation of profits by foreign sugarcane factories.

The other point is that sugarcane farming has often been associated with plantations or large farms and that there are insurmountable barriers preventing small farmers from participating fully. In the short term, they may not have access to capital, technical skills or the markets necessary to participate in cane farming. (Maxwell 2003:5) emphasizes that Africa lags behind in the adoption of technology particularly, irrigation, fertilizers and improved varieties. This is partly because land has not historically been a scarce resource in much of

Africa, so that these land enhancing innovations have been a lower priority for African farmers. Land is becoming increasingly scarce which will encourage the adoption of high input, high output technology. Such challenges have made most African farmers to lose out because the initial profits of the first individuals to move into cane farming are used to acquire more land or adopt new and more competitive technologies. Research conducted in various parts of the world indicate that mechanized modes of production can enormously expand output (Mkandawire 1987: 133) Though mechanized farming, for example maize yields per hectare can increase approximately ten times and the expended man hours be reduced by almost 92 percent. such advantages have never been exploited instead policy - makers have always warned against the use of tractors because of the foreign exchange constraints.

These arguments are similar when it comes to food security but an important gender consideration must be included. If sugarcane farming is good for the incomes of the poor, and if they enable poor families to spread their risks (both production risk and marketing risk), then it might be expected that food security will be improved. However, cash cropping which comprises cane farming as well may result in a different allocation of resources within the household, so that the access to food of different individuals is altered (Maxwell 2003: 85). For example, it is infrequently alleged that an increase in sugarcane farming tends to increase male control over household resources and that this reduces the access to food of women and children. Only if sugar cane farming can be controlled by women, the argument goes, will it be good for food security and nutrition within the household.

We cannot talk about food production and forget the women's traditional food role in the household. (Maxwell 2003: 279) asserts that in Malawi men tend to monopolize available cash for work employment while women dominate on food for work projects (Devereaux 2000: 54). Also, since infrastructure projects tend to involve physically demanding manual labour - in order to maximize employment, the use of capital equipment is minimized. While gender quotas have been introduced on most public works schemes so that women and men can participate equally women either remain excluded from certain strenuous activities or face implicit wage discrimination, because equal payment for piecework favors men who can complete arduous tasks faster (Maxwell 2003: 99).

Moreover, women's domestic responsibilities are generally greater than men's so that working on public works projects might impose unfair additional burdens on their limited time and energy therefore a shift from food crop production to high valued crops like sugarcane further makes it harder for women to fulfill their traditional responsibilities since cash crop production often reduces the amount of land available to women for producing food crops (Victor et al, 2017). This has led to increased demand for land to produce staple foods for households and thus encroaching on fragile ecosystems like wetlands, forests and shallow stony hills which is a threat to food security (Isabirye et al, 2013). This monoculture land use is associated with loss of natural vegetation and cropland, thus undermining food security status. Maize, cassava, sorghum, sweet potato, bananas, Cassava, and groundnuts among others are grown by farmers for which the size of land under all indigenous crops per farmer has been decreasing of the total land (Netondo et al, 2010) which has led to a slow and steady increase in sugarcane yields. According to Uganda Bureau of Statistics, food production grew by only 1.1 percent in 2011/2012 whereas sugar cane growing increased by

16.2 percent implying that production of staple food like beans, cassava and sweet potatoes dropped by between 3 and 10 percent leading to reliance on import foods and increase in the food prices.

There exist mixed records of small-scale sugarcane out grower schemes however it should not be surprising that some researchers have raised concerns about negative effects on the food security of out grower households. This comes in when smallholders devote a significant proportion of their land to cash or commercial crops for example in Swaziland the sugar cane out growers particularly the poorer ones, were unable to meet their food requirements after converting all their land to rain fed sugarcane (Terry & Ryder, 2007). With the Mumias sugar scheme in Kenya, concern was expressed that a shift to cane by small-scale producers could result in increased food insecurity (Tyler, 2008). Specifically, women lose access to land for food crops and would also have less control over household income. Nevertheless, (Kennedy, 1989) could find no evidence that sugarcane production was associated with an increase in malnutrition.

According to Uganda Bureau of Statistics, food production grew by only 1.1% in 2011-2012 whereas sugar cane growing increased by 16.2% implying that production of staple food like beans, cassava and sweet potatoes dropped by between 3 and 10% leading to reliance on import foods and increase in the food prices. In Uganda, like in many African countries, food insecurity amongst poor households remains a serious problem, contributing to poor health, problems with learning in school, and lack of socio-economic development (Mwavu et al., 2018)

2.4 Land as a resource in Economic Development

Land is the most vital resource on earth from which human kind derives almost all its basic needs for survival (World Bank 2002: 6). Human society has moved through history and made advances within which land is confined through its knowledge of the most important sources of food and wealth. Land is also said to be the process of Production and our relationship with each other (Mkandawire 1987: 91). It can also mean the process of harnessing nature, of creating wealth and thus moving society forward, that people enter into social relationships with each other. Karl Marx in his own words says, In the social production which men carry on they enter into definite relations that are indispensable and independent of their will; these relations of production correspond to a definite stage of development of their material powers of production (Dunn 2009: 63).

The reliance upon the land for almost everything we need, from food, clothing and shelter to minerals with which to make tools or weapons has underpinned all the struggles in human history (Mkandawire 1987: 76). Poverty is therefore strongly associated with poor access to land either in the form of landlessness or because of insecure and contested land rights. Scholars have long recognized the importance of secure property rights for growth, and therefore for the poverty reduction which economic growth can bring. (Julian et al, 2006: 18). Increased land access for the poor can also bring direct benefits of poverty alleviation, not least by contributing directly to increased household food security and general economic growth to the community as well.

In countries where agriculture is a main economic activity, access to land is a fundamental means whereby the poor can secure household food supplies and generate income. This applies both to societies in which subsistence agriculture is prevalent, where access to land is essential for household food security; and to societies where agriculture is more market oriented, in which family farming provides a principal source of employment generating the income. Even where agriculture and land are becoming less important with the growth of alternative sources of income, secure land rights provide a valuable source of income for investment, retirement or security in case of unemployment (Julian et al, 2006: 7).

Secure rights to land are also a basis for shelter, for access to services and for civic and political participation. They are also a source of financial security, as collateral to raise credit or as a transferable asset that can be sold, rented out, mortgaged, loaned or bequeathed. Moreover, secure access to land creates incentives for the user to invest labour and other resources in it, so as to maintain or enhance its value and sustain its productivity, and to access social and economic development opportunities. Further still Research has documented a positive relationship between equitably distributed land and economic growth (Deininger & Squire 1999). Where land rights are highly concentrated, inequalities may spawn a sense of injustice, entailing risks of land occupations and even violent clashes over land. The distribution of land rights and opportunities for access to land will have implications for the distribution of wealth, rates of economic growth and the incidence of poverty, and the shape and direction of agricultural development will affect the incomes and returns from different types of farming activity, the value of land and demands for access to land resources (Cotula et al. 2004). The incentives and tenure structures that largely determine how land is used will profoundly affect the economic development in the community.

Whereas social justice and equity concerns demand that agrarian strategy support the struggles of poor people for access to land as a means of subsistence and livelihood, some critics argue that smallholder farming is inefficient and that the rural poor would be better off leaving the land and finding employment in the —modernl economy whether in commercial farms or in the non-farm sector (Julian et al 2006: 9). In practice, family farming competes with commercial demands for land and, given the context of increasingly globalized markets, sustaining rural livelihoods for smallholder farmers will depend on their continued modernization, with support from policy and resources to strengthen capacity and access to markets.

2.5 Women and sugarcane farming

Sugarcane is an annual crop which earns around 50m. farmers of which approximately half are women (Vijyan, 2015:119). Women also form the backbone of sugarcane cultivation; they still tend to exist as —the hidden farmers with almost negligible access on land, resources, technologies, financial services, markets and even education. Despite their exclusive inputs in agricultural operations like farm yard manure application, planting and treatments, hand weeding and de-trashing, cane bundling, disposal of trash and planting.

Most women are engaged in agriculture, though the livelihoods are insecure and wages are low (Vigyang 2015:120). There also exists a significant gender gap in terms of wages. However the greater involvement of female labour in producing cane does not correlate with a substantial increase in women’s income, owing to low wage-levels, and women’s

contribution to family income may actually decline (Joekes, 1999) this may further reduce her bargaining power within the household. In addition, since a large part of rural women's contribution to the household livelihood is not monetary, in order to estimate women's gains from job remuneration it is necessary to consider the opportunity cost of women's labour. The world's agricultural labour force is shrinking year by year. The result is that agriculture is more feminized than it was traditionally.

Estimates show that women represent a substantial share of the total agricultural labour force (FAO, 2019), as individual food producers or as agricultural workers, and that around two thirds of the female labour force in developing economies is engaged in agricultural work (Carr et al, 2000). Women in agriculture in most developing countries play important roles in household food security as income earners, nurturers, and managers of natural resources and biodiversity, although the success with which they are able to execute these roles is often mitigated by restricted access to land, labour, capital and technology. Women play a predominant role in the interconnected activities in the food security chain of food storage, traditional processing, marketing and transportation. It is estimated for instance that 80 percent of the work in food storage is done by women, and also that 92 percent of the operators engaged in traditional processing of foodstuffs and fish are women between the ages of 21 and 40 years and have not had formal education. (Ministry of Agriculture Ghana, 2001). Women therefore play a very vital role in food production.

It is believed that women produce at least half of the world's output of food (Adhiambo, 2005: 114) mostly in poor countries where they grow, harvest and prepare virtually all the food consumed by their families. In India rural women form the backbone of the agricultural

workforce (IJRESS, 2017). They produce the most tedious laborious works in production. In sugarcane agriculture, women are also active partners associated with almost all unit operations from land preparation, planting till harvesting. In Ghana, the ministry of agriculture study indicates that there are approximately 1.8million landholders i.e., independent farm operators who cultivate about 30 percent of the available farmland. Out of this number, the 62 percent are men and 38 percent are women (Min of Agriculture Ghana, 2001). The regional distribution of independent farm operators depicts interesting cultural characteristics. The index of independent farm operators undertakes the role of women in agriculture.

Food security and family well-being are clear reasons for protecting or enhancing women's access and control over land and other productive resources. Studies have shown that resources controlled by women are more likely to be used to improve family food consumption and welfare, reduce child malnutrition (Rossi Rocha et al, 2007). With the growing feminization of agriculture, there is need to develop specific strategies for women in agriculture. Apart from conferring land rights, it is also essential that the ministry of gender works in close cooperation with the Ministry of Agriculture to develop their skills and strengthen their capacities as well as access to cheap finance and other inputs.

2.6 Child labour in Sugarcane Growing Communities.

In Uganda, Child labour is a serious problem in Uganda with 2.048 million children engaged in some form of child labour, constituting 14percent of all children nationally (UBOS, 2019) Several factors contribute to the prevalence of child labour in Uganda, high levels of poverty, high and prohibitive costs of education, food insecurity which together make households and

communities vulnerable, threatening their livelihoods and thus pushing children into work (ILO 2017:4). The educational achievement of these children is at risk because they either do not attend school or their schooling suffers due to long hours dedicated to work and yet education plays an important role in production. Education is a factor of growth and productivity and a medium of faster adoption and diffusion of modern techniques and practices in agriculture (Mkandawire 1987: 127). It is through education that the children or students get to know about modern farming practices and how they help in improving crop yields. Education is the main pillar of human development and a major factor in agricultural development. Research shows that primary education attainments and literacy, training in basic skills and extension services have an immediate and positive impact on farmers' productivity (FAO 2002: 22). A farmer with four years of elementary education is, on average, 8.7 percent more productive than one with no education. Moreover, the better he is educated, the more he stands to gain in income from the use of new technologies and the more rapidly he adjusts to technological changes. The effects are beneficial to the whole population; more specifically, they enhance the capacity of the rural population. The quality of education and training in Low developed countries is low, and the institutional capacity to carry out reforms and improvements in education and training for agriculture and rural development is weak. As a result, Low developed countries have high rates of illiteracy and of children out of school, affecting most acutely the rural population.

Child Labour in sugarcane plantations has been reported in Mukono, Jinja, Luuka and Mayuge (ILO, 2017:6). Several NGO's have been into the fight against child labour. A qualitative study carried out by Busoga Poverty Alleviation Programme in 2013 highlighted that out of 244 families visited in the study with each of the household visited having an

average of 6 to 15 children, child labour was rampant, especially during harvesting of sugarcane. Further, as per ANPPCAN Uganda Chapter in 2018, at least 1008 cases of child labour were recorded in Mayuge, mainly from sugarcane plantations in the last 2 years. The Daily Monitor, 2020) reported about cases of children being trafficked from Mayuge to Kaliro district to work on sugarcane plantations. In a recent study conducted by Uganda Consortium for Cooperate Accountability (UCCA, 2021) on the impact of sugar production on communities in Luuka District, found child labour to be one of the dire effects of sugarcane growing were it was reported that Children—especially those working on out growers' farms were found to be exploited and these children were both planters and harvesters, a chore that affects their development and access to education.

Nearly 152 million children are engaged in child labour (ILO, 2017). and globally almost half of them are in a worst form of child labour, with 72.5 million performing hazardous work where they end even being denied the right to education since they spend most of their time in Plantations. (UNESCO, 2019) asserts that 95.4 percent of children aged 5-14 years are engaged in child labour in the agriculture sector. Child labour in supply chains is driven by poverty, lack of decent work opportunities for adults and inadequate wages (Kizito et al, 2019:1). Household poverty and economic vulnerability are important push factors for child labour. Poor households without access to credit can be less likely to be able to postpone children's involvement in work and invest in their education, and more likely to resort to child labour in order to meet basic needs and deal with uncertainty. In addition, rural families may have less access to financial and insurance markets, limiting their potential to increase or maintain productivity, and therefore influencing their dependency on child labour. In this context, children can also actively seek work opportunities to gain independence, glimpse into adulthood, earn an income, and escape parental control or school responsibilities. The

lack of access to basic and meaningful quality education and skills training or limited employment opportunities in rural areas can create little incentive for households to send their children to school.

2.7: Income and employment in sugarcane communities.

The sugar sector is a vast source of employment in any economy. The medium sized and large sugar holdings and their processing plants and ancillary activities employ at present 24 percent of the labour force in Mauritius (Mkandawire 1987: 146). Further still the Indian sugar industry also employs 7.5 per cent in Indian economy (Venkatesh, 2017). The expansion of the cane sugar industry in developing countries goes hand in hand with the establishment of small grower schemes and projects. Given the nature of plantation system, the indirect employment created as a result of direct employment within the sugar sector is substantial. A good number of ancillary industries have evolved around the processing and cultivation of sugarcane. Banks, Research institutions, Parastatal bodies, Insurance are all geared directly or indirectly to the production of sugar (Mkandawire 1987: 149).

Sugar production is an agro-industrial process that supports the development of a range of skills that transfer to other parts of the economy. The sugar industry in Uganda also employs about 21,749 persons on a permanent, contract and casual labor basis. Of these eighty to ninety (80–90) percent are members of the National union of plantation workers of Uganda (NUPAWU) (Uganda Land Coalition, 2006). In addition, the sugar industry engages approximately 40,000 workers, when both direct and indirect employment is considered, including out-grower farmers (Fashoyin et al., 2004). The economy has grown but almost half of the population is still living in poverty and the income differences between rural areas

and the cities are big, with the poorest living in the rural areas (Muntrakis, 2014). For instance, many farmers earn their income only to exhaust it on re-payment of debts accrued during the more than 24 months of waiting to harvest the sugarcane. Repayment of debts reduces the farmers' propensity to buy and/or grow food for their own subsistence, hence the persistent food insecurity and malnutrition. As a result, a cycle of poverty is born that continues on end (Akoth, 2016).

The sugar industry also provides market both directly for inputs, machinery and processing equipment and directly by virtue of the expenditure of the workers (Maxwell 2003: 37). It provides raw materials for the nascent industry for example Molasses which are used by the brewing industries in making Spirits. The wages paid to workers help to stabilize income and food consumption after poor harvest or during the annual hungry season (Maxwell 2003: 278). This multiplier effect boosts workers purchasing power created by the injection of cash into the local economy which attracts traders and increases the general level of economic activity. The insurance effects are achieved if poor households are confident that public works employment will be available to them if needed. The availability of alternative incomes also protects people against the need to adopt damaging coping strategies in times of stress such as selling assets or becoming indebted to money lenders Farmers save and invest in their communities. In rare cases their cash savings may be mobilized by the banking system for investment elsewhere. More commonly however governments look to the agricultural sector as a source of tax revenue to fund the public budget through construction of roads and health facilities.

Many countries in the world which produce sugarcane have also realized that although the production of sugar from sugarcane is the most paying proposition, it is better to produce many value added products by diversification and utilizing the by-products of the sugar industry instead of depending on just one product, sugar (Dotaniya & Datta, 2014). The main by-products of the sugar industry which have greater economic value are bagasse, molasses and filter cakes or press mud. Molasses is used as animal feed but it can also be sold as syrup to flavor rum and other foods or as additive for ethyl alcohol. Bagasse is burned as fuel for the mills and it can be used as a feedstock for ethanol production. But ethanol can also be made directly from sugarcane.

2.8: Infrastructure Development and Sugarcane Farming

The sugar industry in its role designed by imperialism to provide the existing and acquired infrastructure of the plantation economy (Mkandawire 1987: 153) Land, factories, management of large-scale enterprises, banks, insurance, harbors, roads, electricity, water etc. which were in the past developed for the production of sugar must now serve the needs of other sectors.

Sugarcane based ethanol has partially contributed to the achievement of several SDGs through a varied range of environmental, social and economic advantages over fossil fuels (Zuurbier and van de Vooren, 2008). These include improved social wellbeing through better energy services especially among the poorest; promotion of rural development and better livelihoods; this has been done through infrastructural development thus highest impact on poverty reduction is likely to occur where sugar cane ethanol production focuses on local

consumption, involving the participation and ownership of smallholding farmers and where processing facilities are near to the cultivation fields.

Approximately 23 percent of Botswana's total workforce was employed on the agriculturebased relief programme in 1986; while in Cape Verde in 1983 the figure was as high as 30 per cent (Dreze and Sen, 1989). Public works projects have been constructed or rehabilitated millions of dollars' worth of infrastructure mainly but not only in rural areas- feeder roads for transporting passengers and commodities; boreholes, pipelines and micro dams for domestic water and irrigation; Three - quarters of Lesotho's road network was constructed through food for work scheme (Shaw and Clay, 1999).

2.9: Draw backs faced in the sugarcane Industry.

Proper care to the sugarcane crop can lead to good harvests for at least three years after plantation and this can result in sizeable earning for farmers. Further, sugarcane can be grown also on land not suited for other crops, which is also advantageous to people with lands not good for other crops. Some of the major problems faced by Kapilvastu's sugarcane farmers are lack of technical knowledge on farming and lack of consultation mechanisms, agricultural loans, lack of access in policy reformation agendas and process, untimely and irregular payments from the sugar mills, difficulties in receiving governmental subsidy on time, and inability to increase sugarcane yield. This is confirmed by (FAO 2007:32) where the sugarcane farmers protested and the main demand was that they be paid the money that sugar mills owed them. The farmers returned after assurance of payment by the government. In Nepal similar instances occurred and Some banks had also issued notices of auction of collateral land that the farmers had provided for loans after they were not repaid. The

nonpayment by the sugar mills has even forced many to consider stopping cane growing altogether, and some have already begun shifting to growing bananas and vegetables.

Expansive sugar cane production is a monoculture, which is not part of a rotation scheme, it depletes the soil. Therefore, more fertilizers will be needed over time and the quality of the soil will diminish thus, laying the lands bare to plant them with. cane has a tremendous impact on the soil. The protective cover is being stripped away, the soils dry out and the essential microorganism diversity and mass is affected. Exposed topsoil is easily washed away, taking away essential nutrients (Thorburn et al, 2007). This leads to a loss of soil health and fertility. This, in turn, leads to an increased need for fertilizers and may again lead to soil acidification and further deterioration of microbiological soil life (Quirk et al, 2007). Soil depletion is also caused by the fact that all cane is removed from the land and none of the nutrients are returned to it (Noronha et al, 2006). A solution to this problem and for sustainable sugar cane production, however, lies in soil organic matter conservation which is most often gauged in the medium or long term through the use of animal and plant residues to supply a portion of the nutritional requirements of plants, and to address soil productivity in order to improve the consistency of continuous and expansive production as for sugar cane.

In 2010, sugarcane was cultivated on about 23.8 million hectares in more than 90 countries with a worldwide harvest of 1.69 billion tones (FAO, 2010). This acreage under sugarcane agriculture is set to expand as sugarcane monoculture is being favored at the expense of other food crops with resulting impacts on food prices, availability and variability of food commodities in the market and the livelihoods of those who had previously depended on the substituted crops as a source of income. This is because most of them have either rented out their land and already used the money paid to them buy the tenants thus becoming poor with

no money to buy food and other necessities. Adjusting expenditures is usually a first reaction. Spending less on food and delaying medical treatment, however, may have adverse effects especially for the children. Less nutritious foods are chosen. In a study conducted in Accra, by (Dijjik, 1996) Children were removed from private schools and eventually there was insufficient finance to send them to public schools. Girls' education was usually the first to go particularly at secondary or higher level.

The Constant use of large amounts of agrochemicals leads to run-offs and spillage. (Ogwang, 2008) in his survey revealed that majority of sugarcane farmers in Masindi apply different types of inorganic fertilizer in their fields at an average rate of 220 Kg per hectare. Local communities face health problems as they drink contaminated water or live too close to fields that are being sprayed. The areas at risk, with low population densities and enough fresh water are also the most important 'hotspots' for biodiversity. In addition to the loss of natural areas, biofuel production has negative local impacts on people downstream of the plantations. Biofuel like sugar cane consume large quantities of water because sometimes it requires irrigation. This will affect many people as many directly depend on water quantity and quality of nearby wetlands such as rivers and marshes. Locally, food production might be at threat by the establishment of sugar cane biofuel plantations (Sielhorst and Veen, 2008).

Rural infrastructure in most less developed communities is rudimentary, with semi subsistence farming often dominating agricultural activities (FAO 2002: 28). Lack of or difficult access to markets is common mostly during transportation of the cane to the factory. Even where rural markets exist they are notoriously imperfect since these re usually brokers who later sell to the factory, and when they are totally absent it is difficult for farmers to sell their produce and thus ensure food security for their families. An initial requirement is

frequently thus the development of these rural markets. Difficulties that have been cited in the operation of commodity markets include remoteness of producers from markets, poor quality of the produce, high transport costs (because of high energy prices and weak infrastructure), lack of competition among traders and poor organization of producers, lack of information on market conditions, lack of clear market rules and their poor enforcement, as well as sharp price fluctuations during the year.

Land management systems have changed over time. Where land used to be owned by the community, lineage or clan, the control and management of land is becoming increasingly individualized (FAO, 2012). In developing countries, poverty often forces parents to sell their land to outsiders, excluding younger community members from land access. Large-scale land deals are particularly unfair towards young people, given that they are often not even consulted on agreements which may bar their and the next generations' access to land (White, 2012). In densely populated countries such as Rwanda, land has been highly fragmented and laws adopted prohibiting any further division of land (FAO, 2012). In practice, this means that the eldest son is the sole family heir and the final decision maker. What is more, increasing land degradation further limits the arable land available for young people. It is unrealistic to expect youth to purchase land through acquired savings, given high rates of youth unemployment, low wages for most rural youth and high land prices. For young women in developing countries it is an even greater challenge to obtain the necessary capital to buy land as they often do unremunerated household work or subsist on low wages (FAO, 2011). In addition, loans to buy land are not easily accessible for rural youth. Furthermore, youth often lack knowledge on the existing land tenure systems in their area, which is not surprising as these systems can be a highly complex set of overlapping rules, laws, customs and traditions (World Bank, 2011). Youth are not always aware of acquisition,

registration and taxation measures, and so are disproportionately affected by corruption and the fraudulent activities of land dealers. Youth land rights are frequently not included in policy and legal documents and if they are included, no concrete implementation mechanisms are in place (World Bank, 2011). Young people are not involved in the drafting of policies and laws related to land and find these frameworks unresponsive to their needs. In response to this challenge (FAO, 2012) asserts that effective participation of all members, men, women and youth, in decisions regarding their tenure systems should be promoted through their local or traditional institutions. Such cases of land rights segregation have been spotted in Mexico as well where most of the land in Mexico used to be commonly owned and tradition dictates that the transfer of land rights from one generation to another is heavily restricted (World Bank, 2011) as a result, young households face land shortages, leading to youth migration to the United States. Cases of migration are also very common in less developed countries. The landless move to urban places where they become a nuisance to the community. Most of these are unemployed, they turn into thieves who disorganize communities.

The COVID-19 pandemic is also confirmed by (FAO, 2021) as a serious drawback which affected sugarcane industry and farmers at large as they could not even find work as wage laborers. It is said that the production of sugarcane has not been affected due to Covid-19 and lockdown. However, there are estimates that sugar consumption may have fallen by 1-1.5 million tons due to Covid-19 and lockdown (Solomon et. al, 2020). The lower demand from institutional consumption (such as hotels, restaurants and other miscellaneous food establishments) may have impacted the sugar demand, as the consumption of sugar in India from this section is estimated to be around 65 percent of total domestic sugar sales (USDAFAS, 2020). The lower demand has resulted due to fall in income and closure of

hotels and restaurants. The sugar mills are also affected, as they are already struggling to pay the cane arrears. There were apprehensions that the sugarcane farmers have been adversely affected due to Covid-19 and lockdown. The reasons provided were unavailability of labour for harvesting of sugarcane, non-availability of transport to carry the produce to the mill, and delay in payment from the sugar mills. The mill owners were affected due to non-availability of labour for processing of the sugarcane.

Primitive farming methods still dominate agricultural practices at household level (Mkandawire 1987: 120). Some of these practices have been very unproductive and destructive of the landscape. This type of farming is largely practiced in India (FAO, 2015). Primitive subsistence agriculture is practiced on small patches of land with the help of primitive tools like hoe, dao and digging sticks, and family/ community labour. It is a slash and burn' agriculture. Farmers clear a patch of land and produce cereals and other food crops to sustain their family. When the soil fertility decreases, the farmers shift and clear a fresh patch of land for cultivation. This type of shifting allows nature to replenish the fertility of the soil through natural processes; land productivity in this type of agriculture is low as the farmer does not use fertilizers or other modern inputs. The poor farming practices also involve the continuous cultivation of the same areas with the same crop for many years (the non-existence of crop rotation).

Financial services in most rural areas are often poorly developed. The channeling of cheap credit through state agricultural development banks was characterized by low repayment rates, poor targeting and low operational and managerial efficiency and thus was limited in terms of outreach and sustainability (FAO 2022: 30). Often subsidized credit has been

misused and channeled towards the introduction of technological packages that were not adapted to local farming systems and for which no effective demand existed. Poor assessment of marketing possibilities and profitability and the limited loan repayment capacities of the borrowers often explain the high rate of loan defaults, reinforced by periodic debt waivers advocated through political pressure (World Bank 2000: 34). In contrast, private commercial banks charge high interest rates, especially to small farmers in regions with low population densities. The consequently high costs of borrowing are further increased by an unstable macroeconomic environment involving, inter alia, high annual inflation rates.

Further still, poor rural infrastructure and communication systems, ineffective extension services, and inappropriate macroeconomic and sectorial policies raise the costs of inputs and marketing, further reducing the profitability of farming (Mkandawire 1986: 94). Linkages between farmer and trader and other arrangements with enterprises in the agribusiness chain, such as contract farming, can overcome many of these constraints. Experiences with microfinance institutions highlight the crucial importance of client orientation in the provision of financial services and the use of market-based interest rates that cover the full costs of lending. Poor people seem to prefer a reliable and timely availability of loan finance, even at higher costs, to an untimely and bureaucratic supply of subsidized credit that is tied to specific uses. However, the specific nature of agriculture, such as seasonal credit demand for annual crops and high risks, reduces the role of current microfinance institutions and their lending methods in financing the seasonal and on-farm investment needs of small farmers.

Information gathered through FAO 's Special Program for Food Security projects in 22 of the low-income food-deficit countries shows that a major problem facing farmers is the unavailability of fertilizers and agro-chemicals, and often of animal feed, on time or in the quantity required. This constraint is largely linked to the lack of credit, difficulties in

obtaining credit facilities, the seasonality of agricultural input requirements, spatial dispersion of farmers, poor transport infrastructure and, sometimes, to the marketing and management inefficiencies of the state-owned companies responsible for single-channel input supply and marketing.

The lack of quality seeds for growing is a serious challenge. Quality seeds are said to be available in insufficient quantities, particularly in Africa and Asia (World Bank, 200). The informal seed supply system is the dominant source of seed/planting materials for resourcepoor farmers in marginal areas and has proven to cope better with a disaster situation compared to the formal seed sector. Nevertheless, the informal seed supply sector has unfortunately received very little attention and financial support from policy makers, to the detriment of the productivity of small-scale farmers. Therefore, without strengthening seed supply systems in developing countries there will be little or no technology transfer to improve crop productivity and hence the livelihoods and well-being of poor and vulnerable households in rural communities. In some countries, there are worries that the genetic base of certain cereals has become too narrow, especially as local varieties have been given less importance or suppressed. Absence of improved animal breeds and insufficient livestock treatment facilities are also reported in some cases.

The institutional capacity for research and extension is weak in less developed countries (Fan et al, 2000) and as a result, the technology available is insufficiently adapted to local conditions and research results do not come up with a variety of technological solutions adapted to the range of socio-economic and agro-ecological conditions existing in the country, such as the differing technical needs of female and male farmers. Lack of

technological alternatives is often mentioned as a constraint to irrigation development for example different models of irrigation pumps, suited to the needs of different users. Where techniques and technologies developed by research are available, their dissemination is faced with a number of difficulties such as the poor delivery of the extension and training services that are not necessarily targeted to the appropriate users (FAO, 2002). Weak extension and training services and the consequent lack of technological knowledge of farmers are often considered to be the major factors behind the insufficient adoption of improved technologies. This constraint could be overcome by improving farmers' access to knowledge.

The development and adoption of high-production technology has also been constrained by a number of social and cultural factors, including Insecurity of land tenure and fragmentation of land holdings in most rural communities particularly in Africa, especially with regard to women, who may have little or no access to land, depending on custom or formal laws that regulate the tenure practices (Majumdar, 2002). The agricultural sector in Zimbabwe has also been performing poorly for over a decade due similar land tenure challenges and issues like poor rains, structural challenges, and consecutive years of drought, and as a consequence poor harvest. (UN, 2010). The situation in Zimbabwe was exacerbated by the fast-track land reform and the subsequent need for investment in the development and rehabilitation of irrigation systems, and post-harvest infrastructure that followed.

Further still, the low level of education is also an obstacle to raising the technological capacity of farmers from its currently low levels and to the adoption of new technologies. Education for both boys, girls and adult women is often lacking. This constraint is considered to be particularly acute for women (Thorat & Sirohi, 2002). For example, the lack

of farmers' bookkeeping skills makes it more difficult for them to appreciate the advantages of improved technologies. In developing most countries, access to information and education is often worse in rural areas than in urban areas, and this discrepancy is observable as early as primary school (FAO, 2014). In many rural areas children are hungry and do not have the energy to attend school or easily absorb the information provided yet this information is very important as far as the child's future is concerned. During seasonal peaks in the agricultural cycle, there can be labour shortages and parents may see no other option than letting their children contribute to household and agricultural activities instead of attending school. The physical infrastructure of rural schools is often bad and classroom materials are sometimes lacking. Schools can be far away from rural communities making access difficult for rural children (FAO, 2009). The United Nations Educational, Scientific and Cultural Organization (UNESCO) reports that rural children are twice as likely to be out of school as urban children (UNESCO, 2012).

Although gender disparities in access to primary education have been greatly reduced, girls are still more likely to be excluded from primary education when they are poor and live in rural areas (UN, 2009). Ensuring the transition of rural children from primary to secondary school is an even bigger challenge for many developing countries, especially in sub-Saharan Africa. Rural girls are less likely to attend secondary school than either rural boys and/or urban girls: early marriage limits girls' mobility and there tends to be a preference for the education of sons (World Bank, 2011). Moreover, the curriculum is often not relevant to the rural context, and in many schools in developing countries, agricultural curricula have disappeared or are outdated and inadequate. In most parts of the world, agriculture is seen as a less worthwhile subject or as a last resort for underachievers, and using agricultural activities as a punishment is common practice in schools and households in many parts of

Africa and the Pacific (FAO, 2012) attitudes that negatively influence the aspirations of rural youth. The quality of education is often low, and good, motivated teachers willing to stay in remote rural areas are hard to find (UNESCO, 2003) thus greatly affecting the quality of education in rural communities.

Vocational training and extension services are potentially effective tools for teaching agricultural skills and providing capacity-building trainings for rural youth, but they do not always transmit the necessary skills, and so can result in poor employment outcomes (Bennell, 2007). Training programs frequently lack funding and the capacities of service providers are rather weak. Low education levels among many rural youth further limit training possibilities. Furthermore, there is often a mismatch between the kind of training offered and the requirements of the labour market in an evolving agricultural sector (UNESCO, 2010). Rural youth often report lack of training in areas such as leadership and business management as well as the need for apprenticeship opportunities. (FAO, 2012). In addition to these general constraints, training programs mostly reach young men and do not cater to the needs of young women. This is particularly true in sub-Saharan Africa, the Arab states and in south and west Asia (Hartl, 2009). Root factors limiting young women's access to training include restricted mobility, young motherhood and limited schooling levels.

Further still literature reviewed by the Initiative for Social and Economic Rights (Education Baraza Report, 2018) stated sugarcane growing is one of the major attributes to school dropouts and poor performance of students in most sugarcane growing areas. Sugarcane is grown by many farmers and children are engaged in provision of labor on sugarcane plantations from planting, weeding, harvesting, loading and transportation from the

plantations to the factories. As a result of these activities, pupils attend school irregularly, which affects their learning and performance in examinations. The same case has been identified in Nigeria and some north African countries, the exact or overall numbers of child and slave labor are unknown, but it is clear that child labor is being used in sugar cane production elsewhere especially in Brazil the leading sugar cane grower in the world (Sielhorst and Veen, 2008).

Many low-income households in rural areas find it difficult to meet their immediate basic needs and to achieve sustainable livelihoods (FAO, 2015). This condition is particularly worsened by the impacts of climate change as they merely increase the already-prominent levels of vulnerability of rural communities relying on healthy ecosystems for their subsistence. They see no way other than to engage children to supplement or substitute adult labour. In many cases, children are pulled out of school to engage in agricultural labour, or their performance at school suffers. They are less likely to find decent work when they are older, less likely to adopt new practices and technologies and innovate if they remain in agriculture, and more prone to be trapped in poverty and suffer the long-term effects of the hazardous conditions they faced as children.

The risk-averse tendencies of farmers, which have been generally underestimated, particularly when they have not been involved in the decision-making process on the development and use of new products (Bhatia, 1999). Farmers have sometimes hampered the adoption of new technologies and management practices, especially when their traditional livelihoods and associated local traditions have been threatened. For example, high variability of yield of certain improved varieties has been a constraint to their adoption by poor farmers bordering on the subsistence level. It is essential that both male and female

farmers be involved in the entire process of developing new high-yield varieties and associated technologies, in order to ensure a greater acceptance and adoption by those who stand to benefit most.

2.10: Way forward to mitigate the drawbacks faced in sugarcane production

There is great potential for increased production of sugar cane in Uganda and most African countries. With little or no plans to ensure its sustainability, there seem to exist national and regional schemes and policies set to improve and standardize research and development on sugar cane production (FARA, 2008). Such bodies mostly exist on paper for lack of political will of governments for sustainable actualization. Problems like Infrastructural inadequacy for land development, limited technological skills for hectare yield increase in sugar cane production stress possible environmental pollution. There is need to set up deliberate policies backed with strong political will to set up and sustain infrastructures and technological structures by the government if we are to have sustainable and expansive sugar cane production. There is also need to ensure well- established research in biotechnology for the development of transgenic sugar cane varieties as a means of conferring suitable biotic and abiotic stresses which could contribute to sustainable expansion of the crop as is currently the case with the leading world cane growing country Brazil (Zuurbier and van de Vooren, 2008).

Higher education is very essential for the development of the sugarcane sector or agricultural sector at large. The creation of high-quality universities that focus on agricultural research and establish linkages with the farming community has proven beneficial for the development of the agricultural sector in countries such as Brazil, India, Malaysia and China (Blackie et al, 2010). Connecting universities with farming communities is essential in order

to broaden knowledge, increase research and development dissemination and enhance local problemsolving. It is equally important to connect educational institutions with labour market opportunities and to build strong partnerships with employers to ensure that the skills of agricultural professionals respond to labour market needs so that young graduates are employable (Paisley, 2012). Unfortunately, in most developing countries, such systems are rarely instituted and access to tertiary agricultural education is low (World Bank, 2011). In sub-Saharan Africa and Asia respectively, only 2 and 4 percent of university students are enrolled in agricultural studies (FAO, 2012). Gender-disaggregated data on agricultural science and technology are scarce, but a recent IFPRI (International Food Policy Research Institute) study shows that women are underrepresented in agricultural research and higher education (Beintema and Di Marcantonio, 2010). Ending child labour in agriculture can be achieved through prevention and reduction. Preventing can mean enabling rural children to benefit from healthy development, education and training (FAO, 2015) This allows them to have increased economic potential once they become youth and adult producers or employees, and be more likely to adopt new sustainable practices and technologies if they remain in agriculture. Skilled youth are in a better position to bargain and negotiate working conditions if waged workers, or to gain access for selling their commodities if young entrepreneurs (ILO, 2012). In turn, this will increase the productivity of the agricultural sector as well as the availability, quality and capacity of a skilled workforce leading to better incomes and enhanced food and nutrition security.

Practitioners could argue that the transitory involvement of children in food production is inevitable to reach a minimum level of production in the absence of mechanization and an available or affordable workforce. Another assumption is that once a threshold of productivity is reached, the coping practice to resort to child labour would automatically end with limited and short-lived negative effects on the child's capacity to access decent work

and secure sufficient income as a youth and adult. However, evidence points to the opposite (IPEC, 2015) Sustainable food systems and efforts to increase productivity to feed the planet and secure a decent income for food producers are about the implementation of strategies to reach productivity levels by investing in knowledge, technologies and innovative practices, and through income diversification, and by not relying on child labour.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter presents how the study was conducted. It explains the research design, area of study, study population, sample size, data collection methods, research tools, data management, data analysis and presentation of research findings, ethical considerations and limitations to the study.

3.2 Study Design

The research adopted a case study design. This design focused on an in-depth analysis of specific persons, groups, and community or event. The case study approach emphasizes replicability of studies (Neuman, 2005:47) whereby the researcher may repeat studies and get identical or similar findings if clear standards of objective scientific study and measurements are carried out.

The choice of the case study design was based on the assumption that the case under study was typical of cases of a certain type. After intensive analysis, the generalizations found were applicable to the entire district. Both qualitative and quantitative research methods were employed. This was aimed at getting opinions from the targeted population which were used to extract the meaningful context of the living experience of families participating in the sugarcane industry.

3.3 Area of Study

Mayuge District comprises of three Counties Bunya west, Bunya East and Bunya South. It's divided into twelve Sub-counties and one Municipality. It constitutes of 72 parishes and 497 village councils. The study was conducted in three sub-counties of Mayuge district namely: Wairasa, Buwaaya and Malongo.

Mayuge became a district in December 2000 by an act parliament. The district is located in the eastern region of Uganda. It was part of Iganga district. The district was selected because it was registered among the districts affected by poverty in busoga region because of sugarcane growing (Uganda National Household Survey report, 2016/2017). The major cause of poverty was said to be commercialization of sugarcane growing.

3.4 Study Population

The target population was actually about everyone in Mayuge because there was need for comparison of those who are growing sugarcane and those who are not growing sugarcane. The major focus area were areas where sugarcane is mostly grown both on small scale, sugar cane out growers, the owners of Mayuge sugar factory, credit facilities, cooperative unions and local governments.

3.5 Research Design.

A research design is the conceptual structure within which research is conducted (Kothari, 2007). This study adopted descriptive survey study design. Descriptive survey is a research design which seeks to ascertain respondents' perspective or experiences on a specified

subject in a predetermined structured manner (Gay, 1993). Descriptive survey design is a method of collecting information by interviewing or administering questionnaires to samples of individuals. This design not only offers descriptions and explanations, but it also identifies and predicts relationships between variables of the study (Mugenda and Mugenda, 1996). Descriptive survey design was appropriate for this study because it enabled the researcher to adopt both qualitative and quantitative approaches to data collection. By extension, through descriptive survey research design, the researcher was in a position to analyze data using both qualitative and quantitative techniques

3.6 Study Population.

The main study participants were small scale sugarcane farmers. In addition to the youth, the study engaged key informants' opinion, political and technical leaders at district and sub-county level, to obtain experiential and technical information about sugarcane farming and youth livelihoods in the different districts. The district technical leaders included community development officers, chief administrative officers, sub-county senior assistant secretaries, and welfare and probation officers. Political leaders included district youth representatives, sub-county youth leaders, parish chiefs and Local Council One (LC1) chairpersons who participated in key informant and in-depth interviews

3.7 Sample Size

The respondents were selected within the counties of Mayuge district. A sample of 100 respondents was selected using random sampling. The selected people represented the opinion groupings of the entire district. Three sub counties were selected through random

sampling, one from each county that comprise Mayuge district, that is Bunya East, Bunya West and Bunya South. To manage the data, three focus groups were conducted one in each subcounty comprising of majority women who were afraid to express themselves before their husbands and other men. The aim was to capture women's views on how sugarcane growing has affected household livelihoods and food security. Fifty households from the three sub counties were selected for interviews. Ten key informants were purposively selected for the study, and the 10 households were also used for observation. Random sampling method was used without any personal bias.

Table 3.1 1: Selection of Respondents

3 Focus Group discussions	Interviews	Key Informant Interview	Observation
Targeting women participants with each having 10 participants (10 * 3 = 30)	50 households	10 key informants	10 households

Source: Field Research

3.7.1 Sampling Technique

The study used three sampling techniques, that is, purposive, snowball sampling and simple random sampling. Purposive sampling was used in selecting Mayuge as the district of study.

The simple random sampling technique was used to select the three sub-counties to cater for the three counties where the research is to be carried out. Snowball sampling was also used to identify the key informants for the follow up of the study. In this case the unstructured interview method was adopted for this part of the study. A pre prepared interview guide was utilized in interrogating the informants like the Mayuge sugar factory Management, cooperative unions, sugarcane out Growers, non-out growers, and local government.

3.8 Research Tools

3.8.1 Qualitative Data

The study used an interview guide targeting key informants and a focus group discussion guide for focus group discussions. These were employed to get opinions from the targeted population that was used as a generalization applicable to the entire district

3.8.2 Quantitative Data

The study used semi-structured questionnaires in order to establish the meaningful context of the living experience of families participating in the sugarcane industry.

3.9 Data Collection Methods

The study employed both qualitative and quantitative methods. This is because the research is aimed at ensuring triangulation.

3.9.1 Qualitative Data

Interviews were employed targeting key informants because they had the technical information regarding the matter in question and these included the district technical leaders included community development officers, and welfare and probation officers. Political leaders included district youth representatives, sub--county youth leaders, parish chiefs and Local Council One (LC1) chairpersons who participated in key informant and in-depth interviews. Given their busy schedules brief interviews were conducted.

3.9.2 Quantitative Data

Semi-structured questionnaires were used. Sugarcane growers were selected conveniently specifically those who started growing sugarcane in Mayuge after the establishment of the factory in 2005 and those that have been growing it for decades. Families that are not into sugarcane growing were also selected for comparison. This was a deliberate attempt to collect data to achieve all study objectives.

3.10 Study Procedure

The researcher acquired an introductory letter from the Department of Political Science and Public Administration at Makerere University addressed to the district authorities seeking permission to conduct research in the area. The researcher then presented her credentials to the district authorities explaining the purpose of the study.

3.11 Ethical Considerations

During data collection and analysis, the rights of individuals and institutions were respected. Consent of all respondents was first requested and confidentiality was confirmed to them. All the necessary protocol was followed; the researcher got an introductory letter from the Makerere University authorities, which was presented to the different offices where information was collected.

3.12 Limitations to the Study

The major problem faced by the researcher was the fear of COVID-19, which had been declared a global Pandemic by WHO. Trouble came when one of the victims was in Wairasa one of the sub counties where the research was to be held. The researcher overcame this by following the COVID-19 SOPs and thus collected the data.

Further still the data was collected during the rainy season, which caused floods causing most of roads to be cut off. This was mostly in Wairasa where the respondents occasionally could warn the researcher that „*the road in front of you has been cut*“. Hence the researcher

had to foot to reach many other respondents in the villages since even the motorcycles or bicycles could not reach some places.

Transport to some sub-counties like Malongo was a nightmare since it involved use of water transport and it was the researchers first time to travel on water.

Communication was also a problem in cases where the researcher had to fix appointments with some local government officials for interviews, as they are some of the key informants.

This was overcome by making appointments with targeted respondent's days before the interview. In some remote areas, there was poor mobile telephone signal coverage for all mobile telephone network operators in Uganda.

CHAPTER FOUR

PRESENTATION AND DISCUSSION OF FINDINGS

4.1 Introduction

This chapter presents the data collected, analyses and interprets the findings in relation to the objective of the study. The objective of the study was to investigate the economic contributions of sugarcane growing to households in Mayuge; To examine the impact of sugarcane farming on family household incomes in Mayuge; To analyze the economic implications of sugarcane farming on land and food security in Mayuge; To investigate how the sugarcane economy in Mayuge has assisted different social groups to meet their needs at household level; To investigate the drawbacks of sugarcane growing and how they can be mitigated.

The findings were interpreted and discussed basing on the aim of the study. By use of qualitative and quantitative methods, the findings were presented using tables, pie charts, graphs and content analysis for easier understanding. This chapter combines both findings from FGDs, interviews and questionnaires. For the interviews and questionnaires, out of the 100-targeted respondents, 95 responded.

4.1.1: Sub-counties and Number of Respondents Selected for the Study

The study areas were selected from the counties within Mayuge district. Wairasa was chosen from Bunya County west, Buwaaya from Bunya county east, and Malongo from Bunya county south as shown in Table 4.1

Table 4. 1: Sub-counties and Number of Respondents Selected for the Study

County	Sub county	Frequency	Percentage	Cumulative percentage
Bunya west	Wairasa	61	64.2	64.2
Bunya east	Buwaaya	24	25.3	89.5
Bunya south	Malongo	10	10.5	100
Total		95	100	

Source: Field Research

4.2 DEMOGRAPHIC CHARACTERISTICS OF RESPONDENTS

The researcher probed to find out the age of respondents. Table 4.2 below shows the age of respondents that participated in the study. They included those between 18-27 years, 28-37 years, 38-47 years, 48-57 years and 58 years and above.

Table 4.2: Age groups of Respondents

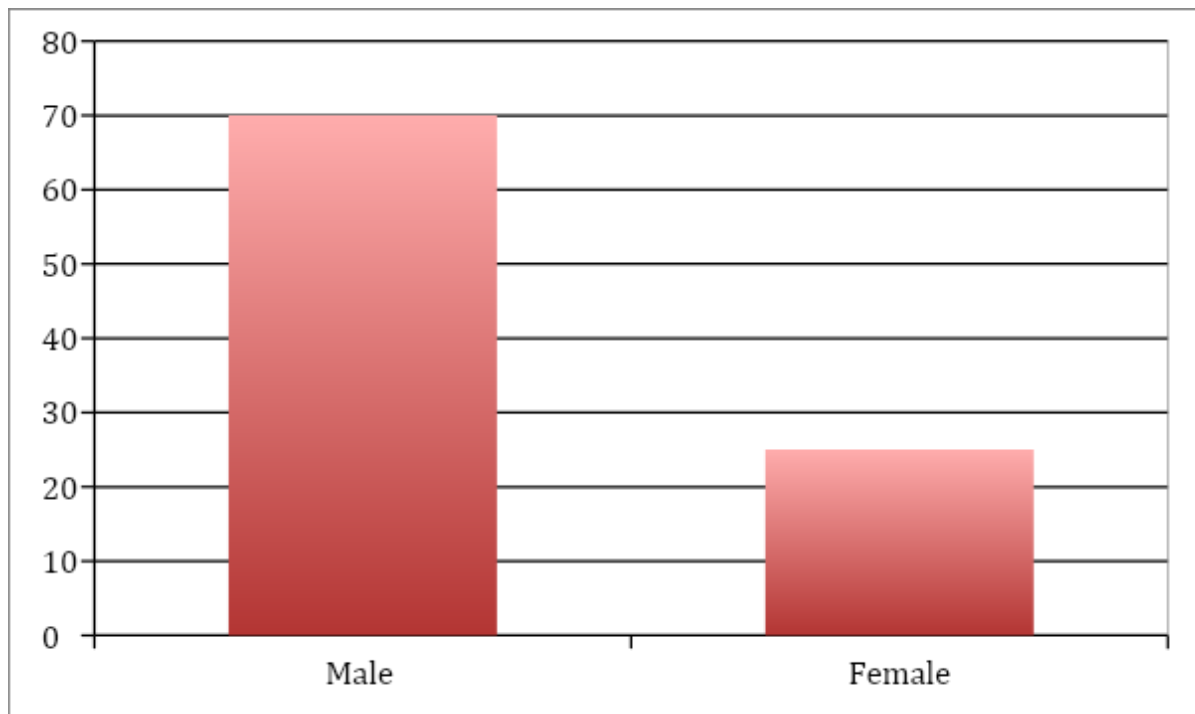
	Frequency	Percentage	Cumulative Percentage
18 - 27	15	15.8	15.8
28- 37	21	22.1	37.9
38- 47	26	27.4	65.3
48- 57	23	24.2	89.5
58+	10	10.5	100
Total	95	100	

Source: Field Research

According to Table 4.2, 15 percent of the respondents are youthful farmers in the age group of 18 and 27 years old. This is followed by 22 percent aged between 28- 37 years. It was noted that these were the ages when people become active in production and have responsibilities of feeding the family, meeting health obligation, paying school fees and shelter. Meanwhile, the majority of farmers (27.4 percent) are mature farmers between the ages of (38-47). There are fewer youthful farmers than the mature ones because a huge chunk of the production resources (land, capital and labor) are owned and controlled by the mature farmers. Finally, 9 percent of the farmers were aged between 58 years and above.

The researcher was also interested in the gender categorization of the respondents. Figure 4.1 below shows the number of females and males that participated in the study.

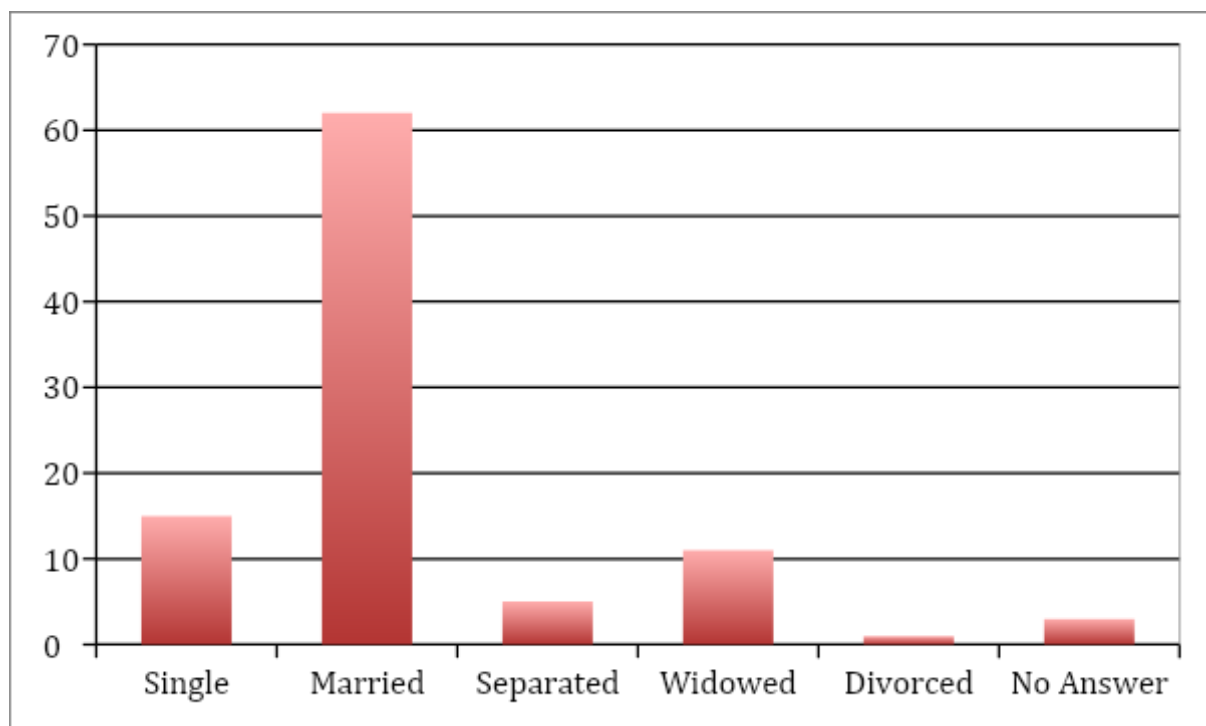
Figure 4.1: Gender categorization of the Respondents



Source: Field Research

Approximately 70 percent of the respondents were male and 25 percent were female. This was because most women have no right over land, even when they farm together with their husbands. The men have full rights and control over the plantation. In some instances, some women refused to be interviewed claiming that it is their husbands supposed to answer the questions. From the 25 percent of women, some had bought the land, others were widowed and were farming on their late husbands' farm land while others were renting the farm land. The purpose was to establish the views of all categories of people where 70 men were interviewed and 25 women so as to avoid bias in the whole process and to cater for the issue of gender.

Figure 4.2: Marital Status of Respondents



Source: Field Research

The researcher probed to find out the marital status of respondents. Figure 4.2 shows the number of respondents who were single, married, separated, widowed, divorced and those respondents that did not state their marital status. From this study it was discovered that most of the respondents in Mayuge district are married. In this case 15 percent of the respondents were single, 62 percent were married, 5 percent were separated, 11 percent were widowed, 1 percent was divorced and 3 percent were undecided on their marital status.

Table 4.3: Respondents' Levels of Education

	Frequency	Percentage	Cumulative Frequency
No formal education	6	6.3	6.3
Primary level	15	15.8	22.1
Secondary	38	40	62.1
Technical institute	20	21.1	83.2
Diploma	10	10.5	93.7
Degree	6	6.3	100.0
Total	95	100.0	

Source: Field Research

Table 4.3 above shows the education level of the respondents indicating those that had no formal education, primary level of education, secondary, technical, diploma, degree, post graduate and others. The survey revealed that 6.3 percent of the farmers had no formal education; 15.8 percent had primary education; 40 percent secondary level of education, 21.1 percent had attained technical institution, 10.5 percent had diploma level, 6.3 percent had attained a bachelor's degree level of education. According to the survey, majority of the farmers have at least attained some level of education. This is an important form of human

capital (Gardner & Rausser, 2001) that helps to make better production decisions, which would increase productivity and hence increased profits. In addition, farmers who attain some level of formal education are more likely to adopt better agronomy practices such as proper planting, timely weeding, fertilizer use compared to their less educated counterparts.

In order to understand what the respondents did for a living, the researcher endeavored to ask for their occupations. Table 4.4 shows the number of those respondents that were students, small- scale farmers, large-scale farmers, businesspersons, local council officials, those employed by private companies and NGOs, herbalists and those that did not state their response.

Religious affiliations of the respondents.

Table 4.4. below shows that 27.4 percent of the respondents interviewed were Protestants, 24.2 percent were Catholics, 35.8 percent were Muslims, 10.5 percent were Pentecostals, and 2.1 percent did not give their responses. From the study, it was revealed that most of the respondents in Mayuge district are Moslems.

Table 4.4: Religious affiliations of the respondents.

	Frequency	Percent	Cumulative Percentage
Protestant	26	27.4	27.4
Catholic	23	24.2	51.6
Moslem	34	35.8	87.4
Pentecostal	10	10.5	97.9
Others	2	2.1	100
Total	95	100	

Source: Field Research

Occupation of the Respondents

Table 4.5 below shows that 37.9 percent of the farmers do farming as the main occupation and it is their main source of income. Besides Sugarcane, they grow other crops like cassava, maize, groundnuts, millet, potatoes, beans, tomatoes, sorghum, cabbage, egg plants etc. 25.3 percent of the respondents do business as the main source of income, 15.8 percent of the respondents are government employees or civil servants, 10.5 percent are employed in private companies, 2.1 percent were herbalists, 8 percent (others) are those who retired from official duties but are into sugarcane growing and those who don't grow sugarcane at all in their homes. Others also are into fishing.

The study further attempted to capture diverse views of the different people in different occupations in an attempt to find out the economic contributions of sugarcane farming in Mayuge.

Table 4.5: Occupation of the Respondents

	Frequency	Percentage	Cumulative percentage
Farmer	36	37.9	37.9
Business person	24	25.3	63.2
Government employee	15	15.8	79
Private company/NGO	10	10.5	89.5
Herbalist	2	2.1	91.6
Others	8	8.4	100
Total	95	100.0	

Source:Field Research

4.3: Origin of sugarcane growing in Mayuge

According to focus group discussions held in Mayuge in May 2020, and the findings from the aged (mature) respondents, sugar cane growing in Mayuge started way back in the 1980s after the return of the Asians. When the Madhavni group repossessed their estate from the government around the 1980s, it was revamped and rebranded Kakira sugar factory. This was in the aftermath of Idi Amin's expulsion of Asians of Indian origin in 1972 that included the Madhvani's. An aged respondent who is a retired civil servant added that Madhvani by then had a monopoly in busoga region, with a majority of out growers or private cane growers affiliated to the company. Farmers started abandoning food crops for cane growing slowly by slowly. This agricultural revolution was a game changer in the early days of our grandfathers as it was so profitable, a respondent narrates, He proceeds by saying *I" thought it would be a game changer for me when i joined the business but it hasn"t been the case*. The respondent blamed this on the several sugar companies which have been opened in the

region bringing the total number to four. The dash to meet the demand at the four factories seems to be the starting point of the huge plantations in the area.

4.4: Status of sugarcane growing in Mayuge

The researcher explored the actual households whose lives are directly affected both positively and negatively by the implications of an uncontrolled and unregulated sugar industry.

It was noticed that among the three sub counties visited in Mayuge, Sugarcane growing in Wairasa Sub County is at its peak. Wairasa is positioned between Kakira Sugar Ltd and Mayuge Sugar Ltd. The researcher moved kilometers but could hardly see any food crop but only sugar cane plantations in Wairasa. Those who do not own plantations have actually rented out there land for sugarcane farming. In Malongo, there is both sugarcane farming and fishing. Malongo sub county is located in the south of Mayuge district near lake victoria. In Buwaaya residents practice both sugarcane farming and food crop growing.

4.5 Economic household livelihood assessment of Mayuge

Analysis of household social amenities (water, cooking fuel, lighting), physical infrastructure (roof material, number of rooms, distance from tarmac) and economic characteristics (radio, bicycle) in the area revealed that substantial improvements are still needed to attain better living conditions in Mayuge. Findings revealed that the major sources of water in Mayuge are wells, swamps, streams picking water from Lake Victoria and then Boreholes.

Firewood was the most dominant source of cooking fuels and solar energy was predominantly used for lighting. The common roofing material in the area was iron sheet followed by grass. Earth/mud finished floors were most common. Majority households lived within 8kms to the nearest tarmac. One of the respondents was quoted saying *that initially they had smaller impassable roads, however of late we have wider roads but these are murrum roads which tend to be impassable during the rainy season*. Still in the findings at least each household had a house roofed with iron sheets although most of these houses are not plastered houses and had mud floors. The grass thatched houses which existed in some households were said to be of male children. These houses had been put by the children themselves. It was also revealed that the male children started putting up such houses in preparation for marriage. There is a relatively well-developed transport network in the area though the roads are all murrum roads. Several correspondents admitted owning bicycles and radios respectively. This can be treated to have been a fair indication of economic mobility among the studied households.

Mayuge suffers a challenge of poor roads, this usually becomes a problem during rainy seasons. The respondents further complained about flooding in parts of Mayuge which renders many roads impassable by both pedestrians and motor traffic. The respondents further said that when floods come, they wash away all the crops from their gardens which in the end leads to famine. The floods are also said to block roads to leading to other villages thus causing transport challenges.

Most of the households in Mayuge buy food for daily consumption thus they have shifted from subsistence farming to concentrate on sugarcane farming. One of the respondents was quoted saying the *sugarcane crop is more tolerant to weather changes were high variability*

and unreliability of rainfall do not seriously affect it. Another respondent also asserted that agriculture seasons are no longer predictable were they expect rain they receive drought instead thus making it hard to grow and benefit from subsistence farming or vegetable farming. Whereas if rainfall comes with great intensity, leading to high run-off and erosion losses, the sugarcane crop with its deep rooting system is more resilient. The respondents also revealed that sugarcane crop is not affected by birds or predating animals and has no bad weeds. It was also revealed that when farmers are faced with limited capital for farm development, the farmers either lease out the farms or apply for factory loans which is not possible with the subsistence sector. Further still it was also discovered that there are some households which do both sugarcane and food crop farming. Some of these grow crops like eggplants, cabbage, Maize, Cassava, Beans, sorghum, Coffee and Millet.

4.6: Expenditure of income from sugarcane farming

The Table 4.6 below shows how farmers spend money got from sugarcane farming.

Table 4.6: Farmer's expenditure of income from Sugar farming

Expenditure	Number of farmers	Percentage	Cumulative
Buy food & Clothing	17	17.9	17.9
Paid Bride Price	9	9.5	27.4
Built a house	12	12.6	40
Bought a vehicle	11	11.5	51.5
Drinking alcohol	7	7.4	58.9
Invested in Business	1	1.1	60
Saving	7	7.4	67.4
Education and Health	20	21.1	88.5
Paying off Debts	11	11.6	100
TOTAL	95	100	

Source: Field Research

It was conceptualized that extensive sugarcane farming in Mayuge over the last decades was most likely to facilitate better income returns to the farmers, in which case, they would be able to afford their household basic needs from the open markets or invest adequately and improve on their economic way of life.

Sugarcane is also generally assumed to be very profitable and able to provide a stable source of livelihood to the farming community. However if such income is not put into the relevant needs, it may turn out not to be useful to the households' basic requirements but instead meet other expenses. Two salient factors went along with this consideration: Not only does the sugarcane crop take a long time to mature, get harvested and milled by the factories, it occupies the arable fields during all this period without opening it to the other crops. It is not always the case that sugarcane is inter-cropped, a factor that explains the relegation of subsistence crops to relatively smaller home plots near the homesteads.

An investigation into this relationship involved understanding the possible sources of real income in the households and how it is spent. It was revealed that 17.9 percent of the households interviewed at the time of the fieldwork depended on food purchases to meet their consumption. Some were supplementing their domestic stocks from the previous year's harvest (for cereals) or their current farm produce (particularly for vegetables) with food purchased from the market. Very few of the total households in the study were relying entirely on their farm produce to subsist. This points out the big deficits in locally produced food staples in the area presumably because of short falls in production. This has severe implications on the consumption patterns of the households, which depend on purchased foodstuff since they have to buy their food regularly. The households also revealed having

only one meal a day which was not healthy. This is costly and difficult to maintain. Given the vast agricultural potential of the area, this revelation was surprising although some of the households insisted that the bleak food situation was a result of an unusual crop failure in the previous year due to harsh weather conditions and the Changing weather patterns which are not easily predictable. They claimed that in the previous year, rains came too late accompanied with hailstones, wind and floods which damaged crops in the area.

As expected, it was confirmed that payment from marketed sugarcane crop is the main source of cash income in the area. A few households were however also engaged in other commercial crops like coffee, simsim, maize and beans to diversify their income. But these were mostly retired civil servants who also said that the sugarcane crop is no longer lucrative as it was in the early days. The majority of the households, which participated in the study, felt that since sugarcane farming is the main occupation in the region, they are duty bound to manage the ratoon plants even when the industry is not doing well. This is a capital-intensive venture, particularly where farms are involved. Apart from reinvesting it on the sugarcane farms, some of the respondents revealed that they pay school fees with their payment of the marketed sugarcane as well as buying food.

It was also revealed that 9.5 percent were the merrymakers who often use their earnings in leisure and marry additional wives. This is a very prestigious affair as it culturally bestows status among the Basoga. Women respondents were particularly quick to blame this opulent culture for depleting the finances received in cane payment. Surprisingly during the research some of the female respondents did not know how much their husbands collect from marketed sugarcane. 1.1 percent of the respondents said they invested their income on

business and also used it to develop their farms. 11.6 percent of the households said they use cane money to meet outstanding debts. the interviewer probed to find out where these debts come from, the respondents were quick to say these were debts from the previous loans acquired for farming. Part of the debts was found to be used for food purchases, but borrowing is very unreliable due to the risks involved. This is so given that sometimes farmers wait for more than 36 months to earn incomes. Those households who rely on borrowed money to purchase food are very insecure as far as food is concerned. Given the high demand on incomes by various activities, mainly cane maintenance, education, health and high incidence of borrowing, households who rely on agricultural incomes to purchase foods from the markets are prone to food insecurity and income deficits. This situation is made worse in households where men control incomes. In most cases they were found to channel cash incomes to other non-food goods and services.

It was also revealed that payment for the sugarcane crop comes in one lump sum. According to the survey, the households' incomes tend to be targeted on big one-time spending (Fees, Business, Farm implements, Building, buying vehicles etc.) The 21.1 percent of the respondents who spend on education claimed that school related expenses (fees, stationary, uniforms, and levies) take much of what would otherwise be the much-needed savings in the household. A majority of the informants appeared to spend on school needs whether or not they had their own children in school. This indicates the level of dependence, which is placed on the sugarcane income by the school goers in the community. However, the few households whose children are no longer in school claimed that education has no use, one of the respondents was quoted saying *even the educated are like us we are all farmers because there are no jobs*, In school related expenditures alone, few households were said to be spending above 500,000 shillings, majority had their children in government schools were

they only buy scholastic materials. This cadre was comprised of mainly households with primary school -going children. At the household level, common expenditures were concentrated on buying food items, paying for fuel, water and health expenses.

Most of the households in the study reported that they normally receive requests for assistance from members of their extended family wherever they harvest either sugarcane or subsistence crops.

Savings in Saccos was found to be about 7.4 percent, the duration whereby this amount remains in the Sacco was not established, but given the high rate of borrowing and high incidence of food shortages, this amount is expected to stay in the Sacco for only a short time. 17.9 percent of the respondents spend on Food and clothing, though very essential for survival. This is because the lump sums of money which sugarcane farmers earn cannot be spread easily throughout the year and instead it is used for other things which come up after budgeting has been done. This makes households to be vulnerable to food insecurity, especially for those who have agriculture as their only source of income. Also given the tight expenditure patterns and cases of sharp increases in food prices incidence of food insecurity are likely to be high.

From the analysis it was found that settling of debts takes a percentage of 11.57 percent. This is due to the long intervals between cane incomes were households are forced to survive through borrowing and taking of loans. Education and health take the highest percentage at 21.1 percent, mainly because many people use private health facilities which are referred to as clinics since government hospitals are very far. It was also observed that the cost of

education has gone up generally. This has forced households to spend more on these services.

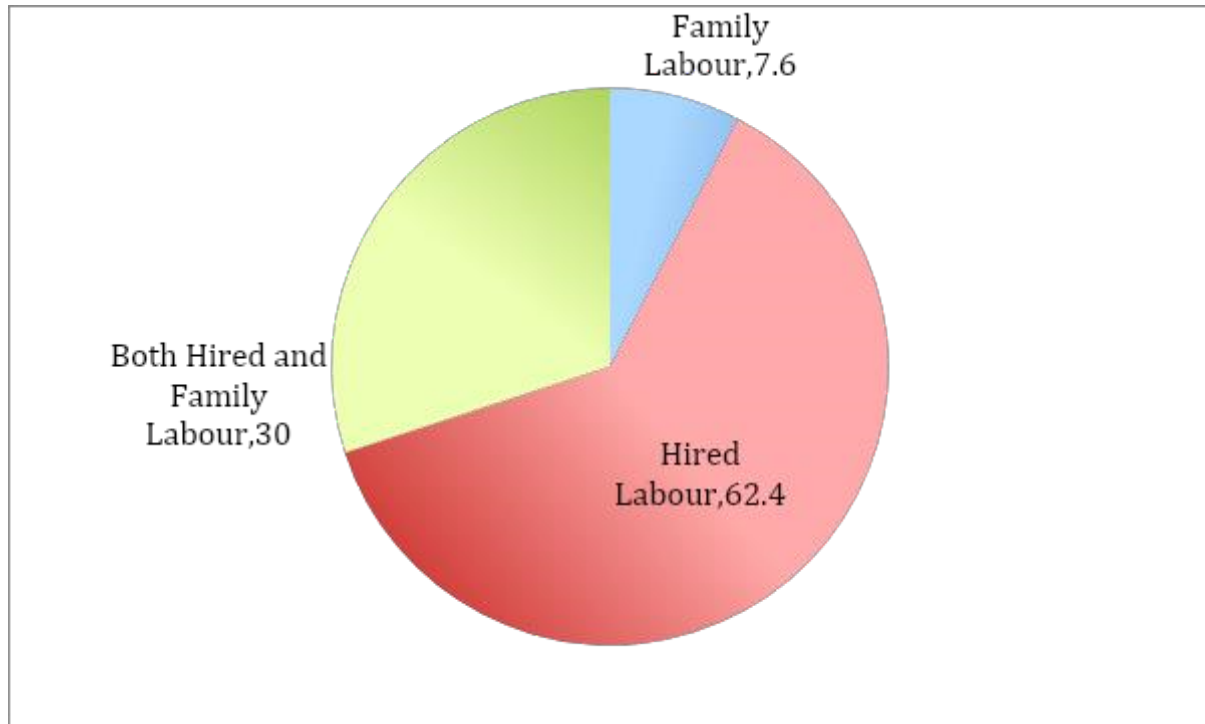
Building a house took about 12.6 percent. From the researcher's point of view the improvement in housing is not that much, because among the 95 households interviewed only 5 houses were fully furnished, the rest had only iron sheets as the only improvement of housing with mud floor and incomplete furnished houses. Drinking alcohol took 7.4 percent. The respondents claimed that this is a form of leisure since they cannot spend most of their time at home so they have to go to bar during the evening hours of the day.

The findings show that most of the farmers use the income from sugarcane to buy food so as to have food availability, access and stability. Some men have been able to marry more than one wife and also engage in high consumption of alcohol. 7 percent of the respondents revealed that they use some of the income obtained from sugarcane to buy and drink alcohol as a form of leisure. Most of these cases have undermined food security because households cannot provide food for a whole year causing food shortages. These findings concur with (Madhanapall, 2012) in a study of small-scale grower projects: a catalyst for rural development in Natal, South Africa where farmers use the income from sugarcane to pay for food and education. 11.5 percent farmers revealed that they used the money for buying vehicles, which they use in transportation of sugarcane. As elaborated in the table 6 below.

4.7 Labor use in sugar cane production among Mayuge sugar cane growers.

The figure below shows how the kind of labour used by sugarcane farmers in Mayuge.

Figure 4.3: Labor use in sugar cane production among Mayuge sugar cane growers.



Source: Field Research

Cane is harvested when it is considered mature and millable. This activity is highly labour intensive and is usually provided by labourers hired cheaply by the farmer. Sometimes the factory hires them. The harvested cane is loaded onto tractor trailers or lorries for transportation to the factories for milling (Odada et al, 1986).

The above Figure 3 shows that sugar cane farmers use family labor (7.6 percent), hired labor (62.4 percent) or a combination of both hired and family labor (30.0 percent). Households who have small farms (less than 2 hectares) and live near them, normally do most of the farm

operations by themselves except harvesting, which is done by the contractors. This is supported by (Carl et al 1990: 291) who affirms that in Asian communities' field labor is entirely done by men and is supplemented by hired labor. On the other hand, the owners of large farms (more than 3 hectares) use hired labor some get support from the sugar cane factory where charges are later deducted.

Also, according to the survey, household labour in Mayuge is on the basis of age and gender, with the male adult making most of the decisions on farm management.

Those who are willing to sell labour are hired by financially well-placed farmers to weed their farms or perform other farm duties. The sugar factories also recruit them as casual labourers in more or less the same duties. Sale of labour or wage labour is considered as a source of income in mayuge. Many households in mayuge depend on income drawn from sugarcane cultivation and wage labor

Women and children were the main providers of subsistence labour especially in weeding and harvesting. Menial labour was common in tasks, which require hard physical strengths and costly expenditures, usually during farm preparation. Women and children also provided the much critical labour required during the post-harvest food processing in the households while men assisted in the post-harvest food processing tasks. This is another clear indication that women and children are the mainstay of subsistence agricultural labor in the area. It further implies that their capacities to handle these tasks, if enforced with the necessary skills and technological support, would greatly improve food Production in the area.

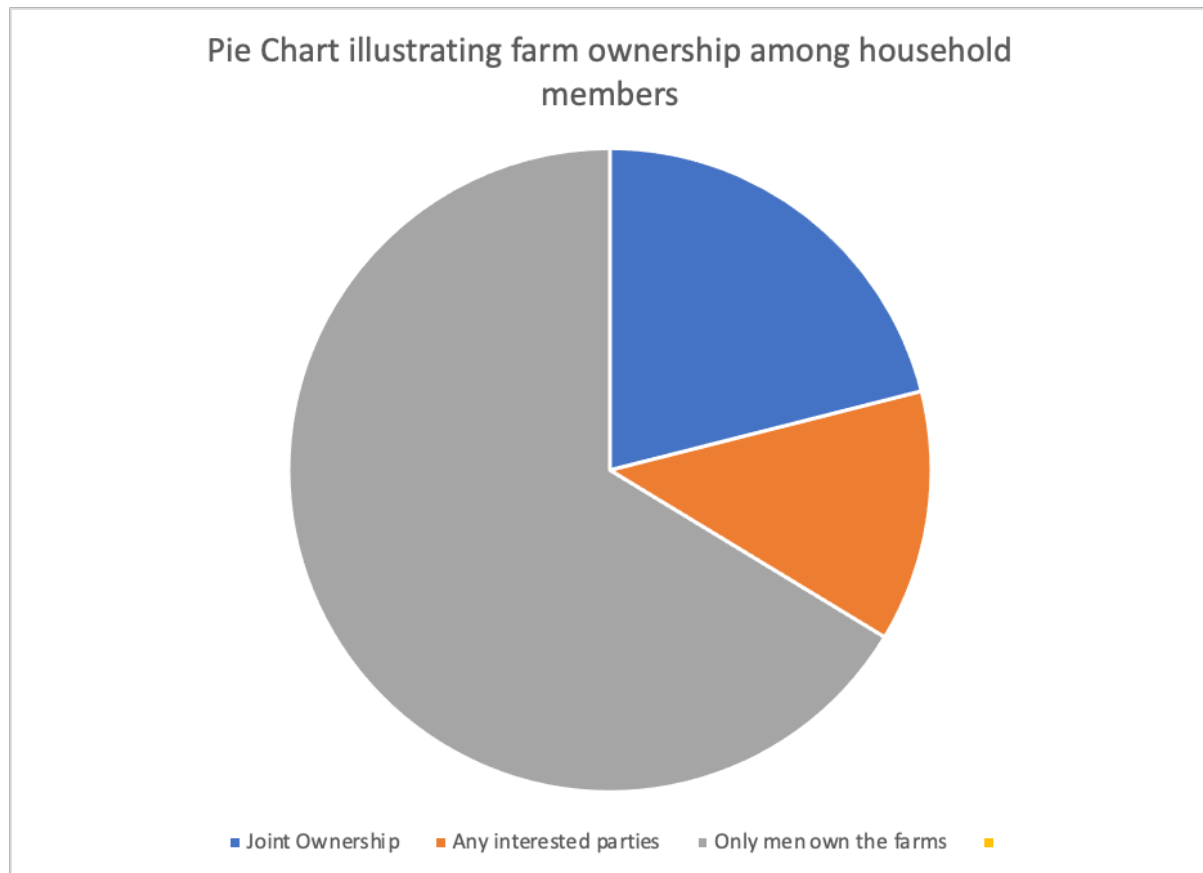
4.8: Women and their traditional food roles in relation to Sugarcane farming

This section is going to give a summary of the role of the women in Mayuge as far as food production is concerned. The study sought to establish how the sugarcane economy in Mayuge has assisted women to accomplish this role and therefore influenced food supply in the area.

In the study, half of the respondents were women. This enabled the collected data to be easily disaggregated by gender so as to permit accurate comparison and analysis. Sugarcane cultivation occupies the possible maximum land allocation in the area. It was therefore essential to find out if the growing of the cash crop has actually accommodated women's participation and whether there are any reliable financial transfers from the crop to women in subsistence production.

About half of the female respondent's, 20 percent felt that the sugarcane farms in the area were owned jointly between the men and their wives. They reasoned that this is the only plausible criterion of ownership, which follows bequeathment of a family property such as land. A further 63 percent of the women respondents clearly showed that only men own sugarcane farms in the area. Only **12 percent** of the households observed that any interested party could own sugarcane farms in Mayuge. This mainly referred to land held by people who bought them rather than farms passed out through family inheritance. These figures notwithstanding, asserted that it was mostly men who owned sugarcane farms in Mayuge.as illustrated in the diagram below. This is a clear indication that to a large extent, women in the area enter into the sugarcane industry merely as social partners rather than principal farmers. Surprisingly during the research some of the female respondents did not even know how much their husbands collect from marketed sugarcane.

Figure 4.4: Pie Chart illustrating farm ownership among household members in Mayuge



Source; field research

It was also observed that the sugarcane factories and farmers' cooperatives prefer to deal with the individual landowners rather than their agents in transacting the issues related to cane cultivation and marketing. Except for the case of widows, this approach alienates women's participation in sugarcane farming. Indeed it denies them the decisive authority over finance derived from the cash crop.

A majority of women in Mayuge were quite financially dependent on their husbands. Except for the case of widows, whom automatically became the legal heir of the household's assets upon demise of the husbands, fiscal authority and related transactions on cane farming were

largely in the hands of the men. This prevailed with the tacit encouragement of the dominant patriarchal institutions controlling the farming enterprise in the area such as the out growers' companies and the farmers' co-operative societies. Unlike in some cases where a female aged widow claimed that the relatives of her late husband forced her off her husband's land upon the death of her husband.

However unemployment still emerged as a critical issue in the area during the study, the problem was further investigated by probing the respondents. Some of the women respondents were also critical of the sugar factories for failing to employ them in certain positions like driving and cane loading ostensibly because these duties require menial strength. They maintained that if such opportunities were opened to women, they would be able to do them with the same perfection as their male counterparts.

According to the findings in Table 4.7, rampant discrimination (ethnicity, nepotism, sexism) in factory recruitment (47.4 percent), lack of time for full time employment (7.4 percent), lack of specialized training (14.7 percent) and corruption (23.5 percent) were the main reasons for lack of employment for the area residents served by the sugar firms. Worthy to note, however, is the fact that more women than men cited lack of time and inadequate training in enumerating the hindrances they face in seeking employment. This points to the routine domestic preoccupation, which leaves women with little time to engage in alternative employment. As well, they were lacking in suitable training, which could enable them to participate in formal employment. This may imply that the households covered in the study put little emphasis on girls' education and secondary training. Ironically 7.4 percent of the females interviewed could not explain the reasons for their unemployment

Table 4. 7: Showing reasons for unemployment among women in Mayuge.

Female respondents were probed on why most of them were sit home mothers, these were some of the reasons they gave as seen below in Table 4.7

REASONS FOR UNEMPLOYMENT	FREQUENCY	PERCENTAGE	CUMULATIVE
Discrimination	45	47.4	47.4
Lack of Time	7	7.4	54.8
Lack of specialized training	14	14.7	69.5
Corruption	22	23.5	93
No reason	7	7.4	100
TOTAL	95	100	

Source, Field Research

Further still, among the Iteso the role of food production is primarily the role of a woman (Kabami, 2016). Women had user rights to land for food production, and men had use rights to land for cash crops however defining land ownership by use rights has been abandoned and as a consequence, women have lost control over farming as well as the economic autonomy derived from farming.

The researcher carried out focus group discussions, which had only women since some women were afraid of speaking before their husbands. One of the respondents talked about the selfishness of some of their husbands as explained below.

” Some of us stay here in the village with the children and their fathers are in urban cities. Our husbands come to the village only to tour the plantation however when the mill makes payment they decide how it will be spent in fact they are the ones who collect the money”.

The women also revealed that their husbands marry other women in cities with whom they spend the money with. In the same FGD women said sugarcane plantations only belonged to men. This was supported by (Aluoka 1999: 90) in his study in Muhoroni where the women justified that only men own sugarcane farms in the area. The respondents further revealed that the women who own plantations had bought them or bought the land on which the plantation was rather than farms passed out through family inheritance.

In another FDG, women raised the issue of using land as collateral for loans by their husbands yet when they fail to pay, the creditors end up taking the land. Their view was supported by (Sweetman 1999:4) who observed that land is not only valuable for its use in agriculture but it's also a marketable commodity, which provides security in times of crisis. Land is used as collateral for loans and capital stock (Rutanga and Mukama 2005: 42), One of the respondents asserted that:

“Our husbands use family land as collateral security for loans without our consent, sometimes the land already has sugarcane plantation or food crops on it. This puts the whole family at risk of hunger since it's the family's only hope”.

The men being the heads of the family have full control of family land. There is need for independent land rights, which enable women to decide on the use of land and keep the proceeds from misuse.

The widows in an FGD decried land grabbing by their in-laws and their male children. The researcher interacted with a 70-year-old widow who narrated her plight with family members over land issues.

—Traditionally a woman does not inherit her father's property, but is expected instead to marry and move to her husband's land, she only has access to the land of her natal and marital homes" she narrates,

She further added that she wanted to use her late husband's land as collateral for loan but her husband's family barred her. Therefore there is need to ensure that women and women's rights groups/collectives have full and accurate information about decision-making processes relevant to land and agriculture, and are able to benefit from capacity-building in this regard in order to ensure that their participation in decision-making is informed, active, meaningful and effective.

Therefore, land as a factor of production in the study area has\is limiting the contribution of women to agricultural production. This is because even in cases where women had access to farm holdings, still they did not have much control and the head of the household can change and put other crops mainly cash crops of their own choice on the very holdings which are supposed to be used by their wives.

The introduction of sugarcane in the area was an important move and it required much thought because it takes a lot of land, labour and capital and therefore needed a lot of consultation, but it was found that most of the household heads did not consult their wives

before they introduced it. Therefore, in the area, cash cropping and all that goes with it is a man's affair and women have nothing to do with it. This is because to many of these farmers, women do not own anything, while for the few who consulted their wives, is because they saw them as a source of labour. This is also because sugarcane farming is a labour intensive activity, and women are the only ones who can provide it patiently. Others, who did consult their wives did so because their wives were in wage employment and therefore were needed to contribute in terms of finance needed to establish the crop.

Apart from land, capital is also an important factor of production. In the focus group discussion which was carried out, the respondents decried the meanness of their husbands who take all the money got from the sugarcane business yet the women are also part of the labour force during the farm activities. Women members of the households did not have access to income at all because capital is the reserve of men. This affects the level at which women can contribute to food production and this has in turn affected household food production and food production in the area as a whole, resulting in food insecurity.

From the analysis in the literature, it was found that women play an important role in ensuring household food security. From the field analysis it was found that factors necessary for food production were not available to women. This non-availability of factors of production to women is another cause of food shortages.

4.9 Land use and its Economic Benefits to Households.

Findings of this study further revealed that financially distressed households and farmers who are out to win favors with the sugar management tend to lease out parcels of land to other people interested in growing sugarcane, especially middle level factory managers. By doing this, they may secure cane development loans when they need it, get their mature sugarcane to be harvested in good time or fix their children in some casual employment in the factory.

Majority of the enumerated households had either leased out some part of their land to other people or from them at the time of this study. Some of the respondents said they leased out there land as a way of raising quick money required by the household to meet urgent concerns. Another reason stated by the respondents for leasing out their farms was that leasing out land was used as a cheaper way of developing the land. In the latter case, it would most probably entail a joint farming procedure, which follow certain agreements that entitle the farm owner to a prescribed share of the earnings. Alternatively, the cane plant can be left at a time when it is still profitable to manage so that the farm owner can do so on taking back the farm. It should be noted that the leased farms are almost entirely devoted to sugarcane. This phenomenon tends to discourage food production as it clearly leads to more allocation of the available land to sugarcane crop regardless of the subsistence conditions in the leasing households.

Some of the Respondents also claimed that some landowners in the area were also to blame for the underutilization of the subsistence capacity of their farms. According to these respondents, people who own land in the area but do not stay there either because they keep

business or employment elsewhere contribute to an incessant transfer of money from their sugarcane farms to the places where they live. While their farms may be settled by relatives or in some cases, squatters who are even unknown to them, this only encourages minimal subsistence cultivation since the largest parts of the land would still be permanently occupied by sugarcane. One of the respondents made the following observation on the issue: *What is unique here is the idea of people owning land in this place but staying away from the place. The absentee farmers may simply not be interested in subsistence agriculture at all.*

There is a wide banking network in Mayuge provided by the Stanbic Bank, Opportunity Bank and Finance Trust Bank. Also, additional financial services are offered by Saving cooperative societies. With this they are able to lease out their land and get the money they need in case of any financial constraint. However, it was also found that saving by the farmers is for a very short time; usually just after the cash crop harvests. At the same time, several respondents complained of heavy taxation of their income. The generalization made by some of the respondents about how indebtedness depletes their income led to a careful focus on the loan accounts of the farm households. As noted above, there are many savings and credit institutions in the area which in itself is a likely incentive to households in financial death to look for loans from the institutions.

During the study it was discovered that most of the households were indebted with loans where land is used as collateral. Some of these loans were acquired from banks, others from saving cooperative unions. Some of the households were still paying off loans of the previous season. The loan habits make the households to be in the vicious cycle of loans season after season. The respondents also claim the loans are used during the gardening

process of the sugarcane plantation and for paying off debts of the previous loans. Loan repayments can effectively hamper the ability of a household to feed itself and also to cater for the household needs since loans require high interest rates as it was also disclosed by one of the respondents. When expected financial returns are cut back in deducted loans, the household suffers considerably. In terms of real food purchases, stocking for domestic reserves becomes limited, school fees become a problem, health and nutrition also becomes a constraint. Thus the households repaying farm loans are more unlikely to meet their basic needs.

In this discussion, an attempt has been made to show how income from sugarcane production in mayuge is linked to economic development. From the findings, it was evident that a large part of the sugarcane income is destined to major one-time purchases and loan/debt repayments.

It was also discovered that another tactic which households in Mayuge used to cope up with financial and food shortages during the off-crop season was farm leasing. Households faced with threatening food and monetary problems often looked around for people who can lease their farms and land. At times, the distressed households leased off farms with mature cane since harvesting of the crop is no longer certain enough to many farmers as a result of congestion in the factories this was reported by one of the respondents. Usually, such arrangement leads to heavy losses by the farmers as they sell off their income entitlements at a throwaway price to the leases.

4.10 Food Insecurity in Mayuge and its Causes.

A number of problems were cited by households as the main causes of food shortages. These factors included the diminishing land holding devoted to food crop production, leasing out of farms to sugarcane production, late planting of food crops, low levels of input application, lack of integration between food crops and cash crops and less land available to women for food production.

Diminishing land holdings devoted to food crop production was found to be the main causes of food shortages in the study area. The respondents revealed that this has been caused by inheritances where land has been sub-divided among family members over time. This has resulted in very small holdings which become uneconomical especially when it is divided between food crops and cash crops. These family members who won such portions end up using the whole portion for sugarcane since they believe it's more profitable than the food crops. Therefore, the use of these small holdings into sugarcane production has worsened the food problem in the area.

Leasing out of these small land holdings by household heads was also found to be a major cause of food shortages. Some household heads were leasing out all their farm holdings leaving none for their own food production. In an FDG, Women respondents revealed that some of their husbands lease out all the land and leave no land for food crops. In such households there were no harvests at all. It was also discovered that the minimum lease period is five years, especially where cane is grown meaning that those households will have to go without harvesting food crops for at least 5 years. To make matters worse this money is always given in a lump sum and after few months the money has already been used. This

means the rest of the period the household will be having financial constraints making it hard for them to access or purchase food.

In an exclusive with an elderly man, he revealed that late planting of food crops was the main cause of food shortages in the area. The Researcher probed further by asking the respondents why the late planting usually occurs, the respondents decried lack of seeds as a major cause, this was caused by lack of money to purchase them. This delayed the planting. It was discovered that late planting was also caused by late land preparation due to engagements in other crop activities, mainly sugarcane. One of the respondents also revealed that the unpredictable weather conditions no longer favor them as far as food crop farming is concerned. Were they expect rain they receive drought and vice versa.

The lack of money to purchase seeds was said to be mainly due to the limited sources of income. Majority of the households depend on agriculture; few were in off-farm employment and business earned very little incomes. Incomes from sugar cane were found to be very low and unpredictable and households are not been able to plan for their use. This problem has hindered farmers from acquiring capital to improve their food output and to plant on time. Finance was also needed to undertake farm equipments and to pay for hired labour. The problem of labour is closely tied to finance; labour was available if one had money to pay. It was also discovered that the problem of finance takes a vicious cycle, low levels of incomes lead to low levels low levels of food outputs and low levels of food purchases due to low Incomes and this will lead to low levels of food available to households threatening household food security.

The problem of finance could be solved by farmers getting loans from the Banks and cooperative societies, The researcher probed to find out from the farmers why they don't get loans to fill the financial constrain, The farmers said that the loans are only given to those farmers who are to develop the sugarcane crop. Some few farmers were also afraid of borrowing from financial institutions since they feared the scheme because of a few cases where defaulters have had their land auctioned. This is because agricultural production is influenced by circumstances beyond the control of the farmers and when crops fail for one reason or the other and has no other source of income, he defaults leading to selling their farms.

Another problem which was discovered was the low levels of input application, due to high prices of inputs. Decontrolling of input prices, especially fertilizers was found to have made farmers to use little of them and this has affected yields drastically. There was reduced use of fertilizer and certified seeds at the time of study. The researcher probed to find out if government programs like NAADS had not reached the area to supply improved seeds, one of the respondent was quoted, *such government projects are for only specific group of people who belong to particular political affiliations*. Such problems have made the few farmers who grow crops to recycle the seeds for every season which makes farming unproductive.

There is lack of integration between food crops and cash crops which was found to be a major cause of food shortages. It was found that many households have tended to put more emphasis on cash crop production neglecting food. There is also the problem of selling the little food harvested to generate incomes to the households to solve pressing problems some

of these problems among them was sickness, clothing and school fees. This is necessitated by the long intervals between sugarcane incomes (payments).

The major food problems encountered are shortages which have persisted for a long time. The researcher probed through interviewing some of the elderly about food insecurity in the study area. It was discovered that prior to sugarcane introduction food shortages only used to occur just before harvesting. These food shortages have been made worse by the lack of secure sources of income to buy food, mainly because most households have agriculture as their main source of income. From the analysis the main agricultural activity in the area is sugarcane farming and incomes from it are not regular, coming after 24 months and in some cases after 36 months. Therefore households relying on sugarcane do not have secure source of income. The incomes from sugarcane come in lump sums and there is a long interval between them.

The lack of a secure source of income reduces the purchasing power of households. In most cases households could not afford to buy food even when available in the markets. There was also the problem of accessing the food markets mainly because of the long distance to get to them.

Another problem was the non-availability of food products in the markets. Food supply was found to be very unreliable especially during periods of acute shortages. These food problems have been caused by some problems.

Of the problems identified the most important causing food shortages is the diminishing land holding devoted to food production, the major holding of the land being taken by sugarcane. Other causes of food shortages were the late planting of food crops, farmers being occupied with sugarcane crop including the low levels of inputs due to high input prices and the lack of integration between cash crops and food crops. The role of women though important in food crop production has been neglected with the introduction of sugarcane.

4.8: The Economic Contributions of Sugarcane Growing in Mayuge

Respondents were asked how they spend money got from sugarcane farming. The Table 4.8 below shows how sugarcane farming has benefited farmers economically

Table 4.8: illustrating the economic contributions of sugarcane growing in Mayuge

Contribution	Frequency	Percentage	Cumulative Percentage
Education	24	25.3	25.3
Food Purchase	10	10.5	35.8
Tax Revenue	1	1.0	38
constructed a house	1	1.0	39
Job Creation	14	14.7	53.7
Improved Infrastructure	8	8.4	62.1
Income Generation	37	38.9	100.0
TOTAL	95	100	

The table 4.7 shows the economic contributions of sugarcane growing. The sugar industry is one of the major agro-based industries in Uganda and it has therefore been instrumental in

resource mobilization, income generation, employment generation and creating social infrastructure in rural areas. In fact, the sugar industry has facilitated and accelerated the speed of industrialization (Pandey, 2017) as explained below.

Since formal education is a powerful tool for transformation of any society (UNESCO 2015: 37). 25.3 percent of the farmers revealed that the reason why they are continuously into sugarcane farming is to educate their children. In one FDG, majority of the respondents revealed that they had school going children from primary levels to higher institutions of learning. The researcher further probed the respondents to find out how many had their children in boarding schools. It was also noted that most of the children are in day schools, those who are taken to boarding schools sometimes try to study further and usually drop out from senior four. Those who proceed join tertiary institutions after their UCE. The respondents however decried a high dropout rate of the girls at primary level. Their views were supported by (Nabugoomu, 2019) who puts school dropout rate in Mayuge at 91 percent moreover at primary. The researcher further visited the district education office where she collected information about education in the area. Through the interviews carried out it was revealed that some parents are still ignorant about the need for girl child education. They only think about marrying them off at a tender age in exchange for bride price. However, the respondent revealed that government has tried its best by putting up schools in the area though they are not evenly distributed in the sub counties. The district has only one Tertiary institution, which is Nkoko tertiary institute located in Kityerera subcounty. It started operating in 2011. The researcher put emphasis on the three sub counties which were the case studies, i.e. Wairasa, Buwaya, and Malongo. Secondary data collected revealed that Wairasa has nine primary government schools, eleven Primary private schools, zero secondary government schools, five secondary private schools and zero tertiary institutions.

Buwaya has nine primary government schools, three Primary private schools, one secondary government schools, one secondary private school and zero tertiary institution. Malongo has thirteen primary government schools, thirty-seven Primary private schools, one secondary government schools, three secondary private schools and zero tertiary institutions. With the establishment of the above schools, parents have also been sensitized on the purpose of education where by most parents are now using the money got from sugar cane farming to educate their children. This was also revealed by some of the respondents who solely said their aim of growing sugarcane is to educate their children.

According to the study findings, it revealed that through the stages of cane production jobs are created though some are temporary since sugarcane farming activities are seasonal. In a FDG, some respondents revealed working on plantations. It was also discovered that during the work time, the whole family is always involved in that particular that particular job at that time. The researcher probed further by visiting Kakira Sugar cane factory. Based on the secondary data collected, Kakira Sugar Works directly employs over 8,000 persons on the sugarcane estate and in the factory, over 100,000 people depend on the company, Sugar cane growing and processing provide a variety of jobs to the youths in Mayuge. Such jobs created are both permanent and temporary jobs since there are those employed during the growing process and there are those who are permanently employed in the sugarcane factories and are involved in the processing of the cane. Sugarcane has therefore generated enormous avenues for the income and employment generation to the rural workforce. The community has seen not only jobs, but schools, hospitals, roads, and electricity arrive on the back of the sugar industry. This contribution was also seen in Kwazu- Napak, by (Cockburn. et al, 2014) where sugarcane-farming plays a role in income diversification as households also receive income from other employment, business activities.

The sugar industry also contributes immensely to Uganda's economy in terms of tax revenue. A respondent at Kakira Sugarcane factory revealed this. Overall, in year 2009, the sector contributed over 126 billion in taxes as well as savings of US \$ 176 million in foreign exchange earnings (Ministry of Tourism Trade and Industry, 2010); hence supporting the macro-economic stability of the Uganda economy. In 2017, one-fifth of export earnings and one-third of foreign exchange earnings came from plantation agriculture Sugarcane inclusive (World Bank 2019: 77) thus expanding on the country 's revenue.

Sugarcane is the main source of raw material for the production of white sugar, green bio-fuel (ethanol), electricity, and molasses also known as jiggery. In an interview with the one of the officials at Kakira Sugar Works, it was revealed that sugar production in Kakira plantations increased by 17 percent from about 365,452 tons in 2017 to 428,000 tons in 2018. Kakira sugar works generates about 22 megawatts of power from the bagasse, of which 12 megawatts is supplied to Uganda's national grid. The surplus electricity which is exported to the national grid in turn contributes to power shortage reduction; a factor which the 2006 Diagnostic Trade Integration study and the 2007 Country Economic Memorandum, identified as most severe impediment to Uganda's industrial and economic growth (Ministry of Tourism Trade and Industry, 2010). The company also produces biofuels (ethanol) from molasses, which is used for blending petroleum products to reduce the dependence on fossil fuels. Sugarcane crop offers itself as the natural green carbon resource which could be utilized as a substitute for fossil fuels as biomass for bio green energy efficient production.

Infrastructural Development was another economic contribution, which was also mentioned by the respondents. In an FDG, the respondents talked about the roads which had been constructed by the sugar factories within the villages mostly in the places where they were no roads, they further added factory owners build the roads to enable them easily transport the sugarcane from rural communities to the factory. Another respondent revealed that some roads were put up by the government and added that such roads lead to hospitals and Schools. The respondents also revealed that there is improvement in structures, which they are living in.

—people no longer sleep in grass thatched houses „as revealed by a respondent.

It was also discovered that famers use money from sugarcane to purchase food. 10.5 percent of the farmers accented to this. Sugarcane as a cash crop therefore makes an important indirect contribution to food security as it allows families to purchase much-needed food staples (Cockburn et al, 2014). In an FGD the respondents also said they do intercrop as a way of ensuring food security. Some of the crops they intercrop with sugarcane are soya beans, beans, cabbage etc. This is supported by (Parson, 2017) where intercropping is used by sugarcane farmers in Kwazulu-Natal so as to curb food insecurity.

Household drawbacks faced by Sugarcane farmers in Mayuge

What became most evident was the predominance of accounts of starvation in most families that grew sugarcane. 10.5 percent of the respondents expressed their desperation in finding food and this because some had rented out there land while others had planted sugarcane on all the land they owned so they were just buying food. It was also revealed that the

responsibility of food production has shifted from women to men. The women claimed that men are only interested in what brings in money they care about the rest. The conversion of most fertile land to commercial sugar-cane production has led to a significant reduction in the amount of land allocated to other crops, such as maize, which used to play a key role in the food security of most households. It was revealed that women in Mayuge have lost the opportunity to grow various crops used mainly for household consumption. The men have instead taken over and replaced the food crops with cane. This was supported by (Aluoka 1999: 90) in her study in Mayuge were men have full control of the sugarcane profits yet women are the primary food providers in the home. In an FGD where there were only women it was revealed that —*some men usually buy what they don't feel like eating at home but they instead buy it because it's cheap, the respondent further revealed that such men usually eat meat and pork at the trading centre*”. Further still it was also revealed that most homes have one meal a day.

Farmers usually lack alternative sources of income with which to buy food and other family requirements between harvests. There is need for the government to regulate who ventures into sugarcane farming. This should be determined by how much land one has and the government should also ensure that farmers with small portions of land only practice subsistence farming. There is thus need for farmers to diversify into other farming enterprises to improve food availability and generate extra income. extension services are usually vital in facilitating effective adoption of enterprise diversification.

Some women revealed that their husbands use the money from sugarcane to buy alcohol. Another respondent revealed that her husband sold off the cane and instead married a second wife. However this was considered as a contribution by the men since it's from cane farming

activity that they got the money for dowry for their wives. Other than contributing income to households, Sugarcane can have other spill-over benefits on food crop production for example by improving farmers' access to resources such as agricultural loans (Govere & Jayne, 2003). This view was evidenced by a respondent who said that he used his sugarcane plantation as security in the bank to acquire a loan for taking his children to school.

Child labour was seen by the researcher on farms which are situated along the roads. On such farms the children were also involved in gardening together with their parents. 6.3 percent of the homes confirmed using child labor in their farms. Children in families of agricultural workers take part in the planting, cultivation, harvesting of sugarcane. However according to (ILO 2017: 17), rural poverty and economic shocks are key determinants pushing families to rely on children's income. It was revealed that Children work as unpaid family helpers on their parents' farm or migrates with their parents to find work on commercial plantations during the harvest season. This is supported by (Trebilcock .et al, 2011: 9) who reports similar cases of child labor in the sugarcane plantations in Bolivia. Such work can expose children to significant hazards. The children are also robbed of the chance to be adequately educated to pursue other options in life. There is need to sensitize the masses about the need for formal education so that parents can leave the children to concentrate on education. Child labor by law is also prohibited therefore there is need for the government to educate the parents and employers about consequences of child labor.

Abandoning of children at home without caretakers was very common. 4.2 percent of the homes had been abandoned with unsupervised and unfed children as mothers travelled to and from very long distances to produce food for the families. The researcher reached these

homes which had only children without even caretakers. The researcher probed to find out if the children had eaten anything since the time of their parent 's departure, the children revealed that they fed on jackfruit and mangoes. The researcher further asked the children the time they expect their parents to be back. It was revealed that their parents return home at 6PM. It was also revealed that such farmers usually do —*okupakasa*” in lusoga literally meaning farming on someone's plantation for money. Such homes had distressed children and without any adults during the investigation.

Exploitation of the elderly, women and the children were very common. 8.4 percent of the vulnerable like Women, widows and the frail elderly experienced neglect, extortion and exploitation. The women claimed that they were not consulted nor did they agree with their husbands/fathers/sons before family land was committed to sugarcane growing in most cases without any reservation for food production. This respondents view was in regard to (Custers 2014:20) who asserted that male peasant head directly controls the family 's land and divided the laboring tasks among its members as he wishes. Some women also revealed that they are often abandoned by the men after sugarcane cultivation whilst the men remarried as well as resettled with new wives in semi urban areas. This can be solved by extending women emancipation programs to villages.

Another intriguing development in the Mayuge is the emergence of a clique of factory workers, especially those in the management, who get out of their way to lease or even buy land from the local community. These people also become sugarcane producers, a trend, which is noticeably encouraging the sale of land by poor landowners, some of whom later end up as squatters. some of them eventually lease land for sugarcane production or end up

as tenants of absentee landlords who work elsewhere. This gives them a chance of participating in sugarcane production, in addition to their subsistence activities.

Because it is difficult for most of the factory workers to meet the subsistence requirements of households from cash income alone, many of these households are engaged work gardening to supplement their food purchases. This dilemma is parallel to Klein's (1999: 21) description of the working and farming conditions of African in the apartheid South Africa. Were he asserts that *the African worker did not and does not receive a wage that permits him to support a family or provide for his retirement* thus, the production of sugarcane in Mayuge has created neither a full-fledged system of agricultural capitalism nor a peasantry. The two co-exist without a contradiction. However this view should not obfuscate the frustrations in the prevailing economic system. Already the emergence of wealthy elite who are buying land from the poor farm households shows that traditional disregard of the practice no longer holds. Also, the capitalist motivation of the sugar industry, for example, has forced the wages of the labour to be as low as socially possible while intensive farm mechanization has occasionally led to displacement of some workers hence households engaged in wage labour find it hard to feed using their irregular cash earnings.

While this is the case, women have made only little inroads into the ranks of paid employment and independent financial opportunities in Mayuge. This maybe directly associated with the asymmetrical socialization constructs, which lay more emphasis on the educational success and upward mobility of male children than female. The slow pace of women's integration into paid labour force in the area can also be attributed to their long working hours in domestic work at home.

While it can also be argued that women have very tenuous financial stakes in the sugarcane enterprise because they are not the registered holders of the land, which is the main factor of production in Muhoroni, this view is not indispensable. Individual property rights are not a necessary condition for development in Africa (Mafejje 1991) he further argues that the traditional African economy developed without any recognisable property relations. Indeed according to him, use rights deriving community membership was the overriding principle in the old African mode of Production.

The position held by women in the sugarcane production system in Mayuge, which from the early beginning was established on the capitalist free market model, evince this fact. Land in Muhoroni was bought mainly by male immigrants who later settled there with their families. A few women also bought land in the area and own them to this time. Nevertheless, the majority buyers were men, and abated by the patriarchal cultural practices in the area, the ultimate heirs of the title deeds in the region have been men. Therefore, women farmers lack any control over the very primary means of production in the area.

The subsistence farmers in Mayuge work either as tenants or small holders on their own farms. Usually, they rely on unpaid labour to tend their farms. On the other hand, some households also sell their labour, working either in large factory nucleus estates or in other out-grower farms owned by richer farmers. Some farmers also depend on cheap labour from relatives and friends. These examples show that the communal modes of production, with several forms of kinship influences still persist within the emerging capitalist relations in the sugar belt

Several processes can be included here to qualify the link between these households and the prevailing market orientation. Some of them can be drawn from Suda (1992), for example labour migration, where some members of the household move from home to sell their labour in cities and elsewhere.

4.10: Draw backs faced by sugarcane growers in Mayuge

The table below represents the drawbacks faced by sugarcane farmers in Mayuge. These were viewed and analyzed in several ways. These were both household and societal drawbacks as seen in Table 4.9 below

Table 4.9: Draw backs faced by sugarcane growers in Mayuge

Drawbacks	Frequency	Percentage	cumulative percentage
Low cane prices	13	13.7	13.7
Delayed Payment	7	7.4	21.1
Difficulty in acquiring supply permits	20	21.1	42.2
High Interest rate	5	5.3	47.5
High cost of production	15	15.8	63.3
Accidental Fires	4	4.2	67.5
High Transport costs	3	3.1	70.6
Exploitation of the vulnerable like women and elderly	8	8.4	79
Child Labor	6	6.3	85.3
Abandoning of children at home	4	4.2	89.5
Rising Food Prices	10	10.5	100
TOTAL	95	100	

Field Research

Table 4.9 shows the drawbacks faced by sugar cane growers in Mayuge. These are in two categories. which are societal draw backs affecting most sugarcane farmers and the household draw backs affecting farmers within their homes. The researcher will start with the societal draw backs as explained below.

It was revealed that acquiring sugarcane supply permits has been politicized. 21.1 percent of the respondents mentioned difficulty in acquiring sugarcane supply permits as a serious problem which needed immediate intervention. They revealed that acquiring a permit for selling cane has been filled up with corruption and bribery; the factory owners have made the process so tedious for the local sellers. One of the respondents narrated *“my farm was inspected by the factory officials but I was still surprised that I did not get a supply permit and those whose farms were not even inspected had got permits”*. Another respondent revealed that the local farmers are exploited by the tycoons and politicians who act as middlemen. Therefore, since the tycoons and politicians can easily acquire supply permits at the factory through bribery, the local farmers are forced to sell sugarcane cheaply to the tycoons who act as middlemen to the factory. This claim is supported by (Kibirige, 2020) who asserts that getting a supply permit from kakira is quite a complex process and takes time especially for a new farmer who is just starting. The biggest sugar factory is kakira sugar ltd which normally buys a ton of sugar at 96000 shillings, while mayuge sugar industries normally buys a ton of sugar cane at 98000 shillings but Mayuge is now buying at 96000 shillings. Only because Kakira isn't taking any more sugarcane at the moment, a respondent narrates. So, most farmers have desperately turned to Mayuge for a solution. The researcher probed further by reaching Kakira sugar factory offices to find out about the issue of supply permits. The official revealed that the congestion of sugar factories in one area has attracted unregistered farmers to join the trade yet they are uncertain about the market. He

further asserted that the factory has initiated a system of only farmers with mature cane to acquire permits. As a researcher I also realized that there is need for transparency in acquiring supply permits in order to break the political monopoly.

High cost of production is another drawback highlighted by the respondents. 15.8 percent of the respondents believe they use a lot of resources in cane growing which are very expensive at the same time. These include capital, land, fertilizers, machinery etc. This problem is also supported by (Nkosingiphile et al, 2019) in KwaZulu-Natal where cane farmers complained of rising input costs which later result in less profit. In an FGD, the farmer's revealed fertilizers are very expensive and yet for one to have an average harvest of at least 40 tones on an acre of land there is need to apply fertilizers at least twice in a year within the sugarcane plantation. The farmers also decried fake inputs mostly fertilizers on the market. This is because of the lack of an effective regulatory system which is a result of liberalization. There are hardly any laws to protect farmers from fake agriculture inputs; and because of fake agriculture inputs, some farmers loose the entire harvest. This is because most of them invest large amount of money in the activity, to expect higher returns. Therefore, the government has a duty to play to ensure that the input costs are lowered so that farmers are not exploited. The government can also intervene by supplying cane seeds and fertilizers to farmers through government agricultural programs.

Hight Transport costs was another problem together with the poor road network. 3.1 percent of the respondents decried the high transport costs, In an FGD, it was revealed that Kakira sugar ltd has a fixed rate that is charged by the transporter for transporting sugarcane to the factory premises and the rate is determined by the distance from the factory, this is done in

such a way that transport fees are automatically deducted upon weighing of the trucks. At Mayuge, getting a permit can be done by anyone as long as you have sugarcane and this process can take up to two or three days but the farmer has to always negotiate with the transporter for transport charges. One of the respondents had to clarify on the charges, *transporting cane to the factory costs Uganda Shillings. 300,000 per acre, cutting the cane costs Uganda Shillings.100,000 per car, loading is also Uganda Shillings. 100,000 per acre.* Poor infrastructure limits the pass-through effect of the price incentive for example poor rural feeder roads limit access of rural farming households the factories this makes transport costs to be high. Government should, therefore, focus on transport in order to improve the impact of agricultural price incentives on production. State action required in this regard is prioritization of development of rural infrastructure.

Low cane prices was said to be a serious problem. 13.7 percent of the respondents decried low prices of sugarcane. The respondents believe the company is not paying them enough worth the investment of time and money they have put in. The producers tend to feel excluded from discussions and decisions related to the price setting mechanism (UNCTAD and World Bank, 2014). The same problem was also identified in Kwazulu- Natal by (Cockban et al, 2014) where farmers complained of the high expenses involved in sugarcane growing while the returns are low. Farmers can only improve on the cane purchase price by negotiating with company for the cane formula to be changed in their favor on the rendement by producing high quality cane with increased amount of sucrose. Therefore, a simple and transparent pricing formula is crucial to ensuring confidence (FAO 2018:18) and goodwill, but more importantly to ensure an equitable outcome for both parties. This is because some respondents said they don't understand how the prices are calculated they only tell them how much they will earn. This was blamed on illiteracy of the most farmers. The contract must

clearly state the price to be paid or how it will be calculated. Any formulas used to calculate price should be clear enough for the producer to understand and be able to estimate the expected payment. One of the respondent was quoted *the prices have been in free fall since 2017 when a farmer would earn Shs180, 000 per metric tonne. But today, the same farmer receives just about Shs60, 000 from the same volume.* Sugarcane is a perennial crop that takes 18 months to mature. So you can imagine renting your land for that long amidst declining sugar prices” this definitely has implications on incomes, food security and is a breeding ground for poverty.

The farmers can also lobby URA not to allow into the country-untaxed sugar, which is dumped into the market, thus reducing the sugar prices as this also can reduce on the high flow on sugar with the country thus increasing sugarcane prices.

The respondents decried delayed payments by the factory owners. 7.4 percent of the respondents complained about delayed payment. It was revealed that sugar cane farmers are paid 30 to 60 days after their sugar cane is harvested yet 62percent of the respondents use strictly hired labor and 30percent use both family and hired labor. For this reason, they require prompt payment to facilitate timely weeding and payment for the resources like land, labor and capital that they might have obtained on credit. KSWL company is trying to solve this problem by giving farmers whose cane has been harvested an advance payment of Uganda shillings 50,000 per hectare harvested which the farmers say is not enough.

High interest rates was a problem made by farmers who acquire services like loans, agriculture inputs and farming services from the factory. 5.3 percent of the farmers decried high interest rate as a drawback. During the heyday of the cooperative movement in Uganda, agriculture production credit was extended to farmers in kind (Bategeka 2016: 52) agriculture production credit was extended to farmers in kind, in the form of —tractor hire services and supply of inputs such as pesticides and equipment. Recovery was done at the time of sale unfortunately things have changed. In an FGD the farmers revealed that sugarcane factories provides services such as ploughing, harrowing, furrowing and also provision of inputs like seeds and fertilizers to farmers on credit, which they pay back when they sell their cane. So the farmers are given the loan at an interest of 3 percent. In an FGD the respondents said this 3 percent wouldn't be a problem. However, the factories like Mayuge Sugarcane factory will want all their money including interest in the first sugarcane cutting. But for Kakira the money is deducted in two sugar cane cuttings. The respondents said the charges for services provided by the sugarcane factories are as well too high compared to the same type of services offered in the open market. Since Sugarcane milling companies have absolute control on the procuring, costing and supply of inputs to farmers, in order to reduce the cost burden on farmers, they should not be compelled to receive inputs from the company. Through strong farmer institutions, farmers can procure their own seed cane, tillage services, fertilizer and harvesting services at negotiated rates from private service providers.

Accidental fires was said to be a serious problem during the dry season. 4.2 percent of the respondents decried accidental fires. This is a serious problem especially during dry weather when most vegetation dry up and burn. The causes of cane fire are bush fire, which crosses

into cane fields and also deliberate burning by arsonists. On 13th February 2020 Daily Monitor reported about arsonists who burnt down 750 acres of sugar cane belonging to Kakira for allegedly issuing supplier permits to politicians at their expense. This problem of fire burning was also identified in Nyanza sugar belt in Kenya (Abako et al 1989). The main cause of fire there was identified as deliberate burning by farmers themselves to attract early harvesting. Farmers should avoid setting up unnecessary bush fires during the dry season. There is also need for farmers to insure their sugarcane plantations so as to reduce on losses incurred in case there is a fire outbreak.

The research findings indicated that 10.5 percent of the respondents experienced increasing food prices. This was because the supply of food crop production is low since most farmers are mainly involved in sugarcane growing hence creating high demand for food resulting into erratic prices due to food scarcity. These findings are in line with those of (Wiggins et al, 2015) carried out a study on competitive or complementary industrial crops and food security in Sub Saharan Region emphasized that current developments of industrial crops in SubSaharan Africa are generally creating problems of pests and diseases which affects more of the food securities in the land. This may lead to variable harvests, volatile prices in market which consequently impacts on food security in a negative direction. Through further probing by the respondent it was revealed that some homes in Mayuge have only one meal a day, what they eat depended on the season, but commonly eaten foods were cassava, potatoes and beans. and then maize was used for making flour and finally porridge. Some homes the children relied on eating jack fruit for lunch mostly when the elderly were on farm.

The Researcher also discovered that 4.2 percent of the farmers abandon their children at home with no caretaker as this is very risky. It was also discovered that in such homes the children relied on mangoes, sugarcane and jackfruit for lunch until evening when their parents returned from gardening. The children are left with no food which keeps them hungry whole day until their parents return from gardening. The researcher also discovered that 6.3 percent of the households are involved in child labour.

CHAPTER FIVE

CONCLUSIONS AND RECOMMENDATIONS

5.1: Introduction

This chapter presents the discussion, conclusions and recommendations of the study. It is divided into two sections where the first section presents the discussion of the study and the second one presents the conclusions and recommendations of the study. The purpose of the study was to investigate the contributions of sugarcane sharecropping to the smallholder farmers in Mayuge. In this section, the researcher analyses whether the study accomplished what it set out to investigate or not.

5.2 Summary of the findings.

The study sought to investigate the contributions of sugarcane sharecropping to the smallholder farmers in Mayuge. The study revealed that majority of sugarcane out-growers were aged between 41-50 years. The study established that sugarcane farmers were male dominated with 70 percent of the farmers being males. Majority of those who carry out cane farming are the married 62 percent as compared to the singles who maybe having limited resources. Majority of the cane farmers had attained the secondary school level of education 40 percent. This level of education supported them on utilization of modern technology while carrying out sugarcane farming., In Mayuge at least each household had a house roofed with iron sheets although most of these houses are not plastered houses and had mud floors, Firewood was the most dominant source of cooking fuels and solar energy was predominantly used for lighting. 17.9 percent of the households interviewed at the time of the fieldwork depended on food purchases to meet their consumption. From the analysis it was found that settling of debts takes a

percentage of 11.57 percent. This is due to the long intervals between cane incomes were households are forced to survive through borrowing and taking of loans. However, its revealed that Mayuge suffers a challenge of poor impassable road network *this* usually becomes a problem during rainy seasons.

The first objective was to examine the impact of sugarcane farming on family household incomes in Mayuge. The study findings established that most sugarcane out grower were not satisfied with income offered by the sugarcane factories. The farmers decried deteriorating sugarcane prices as It became obvious during the study that the prices have been in free fall since 2017 when a farmer would earn Shs180, 000 per metric tonne. But today, the same farmer receives just about Shs 60, 000 from the same volume of sugarcane. As a result, majority of the sugarcane out-growers were unable to fulfil their basic needs since the low prices were also in relation to the long gestation period of the sugarcane so by the time the money comes in the farmers are already in abject poverty.

The second objective was to analyze the economic implications of sugarcane farming on food security in Mayuge. Findings of the study reveal that majority of sugarcane out-growers cannot afford the minimum number of three meals per day. This results indicate that Muhoroni sugar cane company does not offer good remuneration to the sugar cane out-growers, a factor that explains why most sugar cane out- growers cannot comfortably provide the mandatory three meals per day to their families. The study further established that, almost at least missed each household interviews had missed a meal once. On further probing, most of the cane farmers interviewed indicated that their families went without meals as a result of

inadequate income they received from the company. These are indicators that the company does not offer good remunerations to the sugar cane out-growers to enable them comfortably afford basic necessities such as food to their families.

The third objective was to investigate how the sugarcane economy in Mayuge has assisted different social groups to meet their needs at household level. The findings revealed that women's decision-making authority within the household is limited. Such decisions included Selling and Renting off Land by their husbands without their consent. Widows were thus vulnerable to property grabbing by the families of their late husbands. Most women also refused to respond to the interviewer and said that it's the role of their husbands to respond as this was a sign of inequality or inferiority complex. Gender division in labour was also discovered. Fewer women are employed because cane cutting is viewed as men's work confining women to more infrequent, poorly compensated tasks. This gender gap was also caused by parents ignoring educating a girl child and looking at a girl child as source of wealth through bride price.

The fourth objective was to investigate the drawbacks faced by small scale sugarcane farmers. 21.1 percent of the farmers decried politicization of the process of acquiring supply permit which is accompanied 13.7 percent who decried the low wages which are offered in return of the cane yet the whole production process of sugarcane farming is very expensive since it requires the use of mechanized equipment's which are just highered and application of fertilizers if one is to get a good output. It was discovered that acquiring a permit for selling cane has been filled up with corruption and bribery; the factory owners have made the

process so tedious for the local sellers. The local farmers are exploited by the tycoons and politicians who act as middlemen between then farmers and the sugarcane factory. 5.3 percent of respondents decried high interest rates was a problem made by farmers who acquire services like loans, agriculture inputs and farming services form the factory. It was noted that the factory always wanted all the money to be paid in the first sugarcane cutting which farmer said was not fair. The research findings indicated that 10.5 percent of the respondents experienced increasing food prices.This was mostly during the dry season.

5.3 Theoretical application

Based on the study's findings, here are fundamental elements regarding its theoretical relevance and application Regarding relevance, Marxism is a classical theory based on modernization and Western industrialization but the overarching impact of capitalism on global dynamics makes Marxism a limitless theory *The assumptions of Marxism are* still applicable in circumstances such as small scale sugarcane farming because it symbolizes capitalism embedded in agro-industrial production. Particularly, this study underscores the Marxist views of dialectical relationships between the '*haves*' and '*have-nots*' manifested in Busoga's society where material power shapes one's mode of youth involvement in sugarcane farming as corporate and out-growers while the poorer youth labour is alienated and exploited in the different activities of the sugar production value chain. Nevertheless, the Marxist theory of capital accumulation was inadequate in explaining the significance of social issues such as age, sex, and gender in shaping livelihood outcomes and this partly explains why other frameworks were adopted to provide the utility of synergy.

5.4: Conclusions

Despite government earmarking sugarcane as one of the 14 strategic cash crops, it has not really transformed livelihoods and household incomes of the farmers who are commercially engaged in it. There is a massive variance between the livelihood and the income levels of the people engaged in sugarcane growing, raising the question whether this economic activity is worth farmers' time or it is about time they ditched it for another viable venture. This is because for years if not decades, poverty has been a permanent fixture in the sugarcane growing areas with Mayuge being a perfect example. The irony is that there has been increased cane production and milling capacity over the last two and half decades which essentially should result into potential employment opportunities with better incomes, reduced poverty and guaranteed food security. But this hasn't entirely been the case.

In this study on impact of sugarcane growing on household food security in Mayuge, it was found out that many households in the area experience a sort of clashing interests between growing sugarcane and subsistence farming. Sugar cane dominates most of the cultivable land allocation by the households. Majority of the households are small and medium holders owning less than fifteen acres of land. In looking at the income status of the farm households, the study confirmed that sugarcane is the dominant income earner in the area. However, owing to recent uncertainties in the sector it has become very unreliable. Serious income constraints which affect food security since the income got from sugarcane is used for purchasing food. The inability for government to control the number of sugar factories in a given radius has compromised the maturity of sugar cane harvested and therefore quality of sugar cane supplied and incomes of out growers. Also, by factories being close to each other,

this inevitably induces a high demand for sugar cane resulting in price increases. The higher prices tend to incentivize households to substitute sugar cane for food crops. In the regard to the above there is need for the government to implement the rule of limiting who is able to grow sugarcane and who cannot grow sugarcane.

Without land titles or security of tenure, women's access to credit has been limited, hence limiting their scope for using purchased inputs and other technology. At the same time, they lacked opportunities outside the domestic production circle where they could earn additional incomes. The household production process alienates women from pertinent decisions on how household finances can be utilized. In effect women's main production unit, the subsistence sector can be easily neglected at the expense of cane development. This process has left women to continue being economically dependent on their husbands for all initiatives, which they undertake including food production. There is need for land reforms which provide for equal rights over land between the family head, women and the youths.

5.3: Recommendations

The government to secure land rights for women. Land rights are critical for food security by increasing household agricultural productivity. The link between secure land rights and household food security is more pronounced when women in the household have secure land rights. When women have secure property rights, including rights in the land they cultivate, they gain improved status, which leads to greater influence over household decisions. Such influence is significant because women are more likely than men to make decisions that improve the household's welfare, including decisions regarding food and nutrition needs.

The government should start involving the youths in government agricultural related programs. The increasing levels of literacy in Uganda offer an opportunity to enhance agricultural skills if adequately mobilized. The educated youths have the potential to adopt the extension message quicker, do marketing and engage stakeholders regarding major sugarcane plantation issues like labor skills, inputs among others. However, if the continued decrease of returns from the subsistence agricultural sector is not arrested, there is a likelihood that skilled agricultural labor will relocate into other sectors such as the urban based services sector since cash crops are also loosing market as well.

With the state playing a leading role, there is need to strengthen the formation of farmer groups and use them to channel credit in kind to interested farmers. When these groups are left on their own left, farmers may not organize themselves well enough to build strong and sustainable farmer groups for this purpose. This is because microfinance services are not suitable for agriculture production credit. Because money is fungible, there is no mechanism to ensure that the money that farmers borrow from microfinance institutions would go to financing agriculture production.

The government should put up agriculture banks that support farmer groups. The state would have to capitalize such a bank and ensure that it operates on principals that reflect the realities facing Uganda 's agriculture sector. Such a bank would neither be a development bank nor a commercial bank: a kind of hybrid at best. Microfinance services, as they have unfolded in today 's Uganda, are unlikely to meet agriculture production needs, especially of

small-scale farmers. State action required in this regard is supporting the development of relevant financial institutions for delivery of financial services to farming households.

The government should set up land reforms that put land ownership in the hands of the tillers would be a necessary step to help markets to work and thereby enlist the expected agriculture supply response. The state action required in this regard is to ensure access to land by the tillers.

Only farmers who own land should personally register with manufacturers as suppliers and refrain from the habit of farmers hiring their land for and reduce their livelihood flexibility incase sugarcane becomes economically unattractive.

Stringent by-laws need to be enacted by local councils to control the proliferation of sugarcane growing in Mayuge. Deterrent measures like local collection of high taxes from cane –carrying trucks, could also help on the menace. Sensitization of masses on the need for food security and eating a balanced diet which should be enforced through local health units.

Pro-government intervention should be done through legalizing corporate social responsibility and strong farmer institutions that can yield desirable benefits in the short and medium term. Income distribution between companies and farmers is heavily skewed in favor of the companies at the expense of farmers. This distribution is mainly affected through cost deductions for which farmers have no control and no idea on the rationalization process. Such disparities raise ethical concerns that call for further investigations.

The Uganda government should reconsider trade agreements signed with Kenya. There is a ban on exporting sugarcane and brown sugar as well to Kenya. The government should put a ban on the importation of sugar from Kenya or raise taxes on sugar coming in from Kenya and neighboring countries so as to increase the demand for cane and brown sugar as well within Uganda.

5.4 Limitations of the Study

While the researcher had a sample size of 100 respondents, information was picked from only 91 respondents. This was mainly because some it was hoped that the focus group discussions would comprise 10 members but from the study, some FGDs did not comprise the required number of 10. Also some questionnaires were misplaced by some respondents.

5.5: Areas for Further Research

This study was limited in scope and analysis due to insufficient time and limited financial resources. Consequently, the extent to which the findings can be generalized to apply to all sugar cane growing district in Uganda is because it was restricted to only one district. In light of these limitations, the study makes the following suggestions of further research and improvement:

1. The costs and profits of Sugarcane farming in Uganda.
2. Land dynamics for sugarcane production in Uganda.

3. Uganda's land tenure system and its impact on food security.

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