

**FARMING METHODS AND FOOD SECURITY IN UGANDA  
A CASE STUDY OF NYAKWEA SUB-COUNTY ABIM  
DISTRICT**

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**A RESEARCH REPORT SUBMITTED TO THE COLLEGE  
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AWARD OF A DEGREE IN SOCIAL WORK AND  
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INTERNATIONAL UNIVERSITY**


**SEPTEMBER, 2016**

**DECLARATION**

I declare that this research report is my original work and has never been submitted for any other award of degree or other qualification in any University.

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## APPROVAL

This is to certify that this report entitled “**Farming methods and food security in Uganda: A case study of Nyakwea Sub-country Abim District**” has been submitted with my approval as University supervisors.

Mr. Robert Gwaivu

Sign:  .....

Date: 29/10/2016 .....

## DEDICATION

I would like to dedicate the Success of this study to my family members especially my father; James Okoe Nakoya and my mother; Mrs. Janet Okoe, brothers and sisters, friends for their continued support in the process of carrying out the study and subsequently giving encouragement during the development of this report. Their ideas and moral support gave me strength and energy to accomplish this study.

## ACKNOWLEDGEMENT

All praise and worship be to God for His, grace and mercy that has enabled me to overcome all huddles in my way up to date and has helped me to do this work.

Utmost gratitude goes to my parents who have tirelessly been there for me at all times and have been rendering me with finical support and guidance.

I would also like to thank my siblings not forgetting my friends, lecturers and relatives for the advices and encouragement they have given me.

I also thank respondents who provided me with the necessary information for the success of my work.

I would like to also acknowledge the contribution of my supervisor for the advice guidance and encouragement towards the achievement of this work.

May the Almighty God reward you abundantly.

## LIST OF ACRONYMS

|      |                                   |
|------|-----------------------------------|
| FAO  | Food and Agriculture Organization |
| GDP  | Gross Domestic Product            |
| R&D  | Research and Development          |
| SCN  | Standing Committee on nutrition   |
| WWII | World War II                      |

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## ABSTRACT

The main objective of the study is to examine the impact of farming methods on food security in Uganda. It was guided by three specific objectives that were to investigate the forms of farming in Nyakwea Sub-county, to find out the relationship between farming and food security in Nyakwea Sub-county as well as to investigate the measures to address food security in Nyakwea Sub-county. Literature review was done by reviewing related literature on study variables as put forward by different scholars. It focuses on the influence of poor farming methods on food insecurity and reviews the related literature basing on the stated specific objectives of the study. The research was a cross sectional survey design that involved quantitative and qualitative methods which were administered using questionnaires. The design was preferred because it was easy for the researcher to draw conclusion and the researcher easily base on the views of respondents to reach at conclusions and make recommendations. After data collection is done, the researcher analyzed the collected data and as well he presented it using the frequency tables and percentages. From the findings it was indicated that majority of the respondents Agree that farming is a Sources of cash income for poor households taking a percentage of 37(44%) out of the total number of respondents, 20(23.8%) stated that it is Key inputs to crop agriculture, 13(15.5%) stated that Productive farming can add value to 'idle' land, 8(9.5 %) stated that farming provides draught power and manure while 6(7.1 %) sated that farming maintains household survival . The researcher concluded that the world will always raise the most food the most economically and in the most environmentally responsible way when farmers plant the right crops for their local climate and soils using the right technology, then trade with others for the benefit of all. If every country set a goal of food self-sufficiency; the world would have much less food. It was then recommended that, Greater investment in agriculture by the public and private sectors is necessary to increase global food production. A boost in funding and attention in the following key areas is needed: transportation, distribution, storage and energy infrastructure; agricultural research and development; agricultural science, extension, education and the promotion of best practices; and governance around legal and business structures to encourage private sector investment.

## CHAPTER ONE

### 1.0 Introduction

Food insecurity caused by rapid population growth has pressured science to step in and produce many synthetic chemicals and gene manipulation techniques to maximize the potential of plants. In addition, agricultural production has increased tremendously worldwide over the last century. Reference to NPA (2010), Farming has enabled human populations to dominate the world's landscapes for many thousands of years. The science of Farming has been refined and perfected over time to accommodate for the ever-increasing human population. Until recent centuries, productive crops were mostly organic and existed with some permanence as part of a landscape. As communities grow though, less and less land is available for food production and existing crops become easily exhausted. Coupled with this growth however is the pollution and degradation of the natural environment, many agricultural techniques exist today, but in an effort to adjust to the exponential trends of our population without compromising the integrity of the environment it is necessary to have a global transition towards sustainable farming. With the current population and rising, an important question must be addressed: What is the most sustainable and cost effective way to feed the world's population? Fortunately humans have been perfecting agricultural methods for thousands of years, which can help to answer this question. This chapter will look at the background of the study, the problem statement, the objectives of the study, the research questions, the justification of the study among others (Mendola, Mariapia, 2007).

### 1.1. Background of the study

#### 1.1.1 Historical background

Farming has played a tremendous role in the advancement of human society. Farming has been around since roughly 10,000 B.C.E. and has enabled humans to manipulate ecosystems and maximize population growth. The science has encouraged people to live and develop rich, permanent settlements all over the world. When humans first discovered the potential of planting seeds, they suddenly had the ability to explore the world and establish infrastructures wherever soils were fertile (Mendola, Mariapia, 2007).

Soon after the start of Farming people began to select for genes that maximized plant yields. Selective breeding was first implemented on plants over 10,000 years ago to produce desired characteristics in crops. This discovery further contributed to the permanence and size

of settlements. With breakthroughs in Farming, populations increased and development spread (*USDA.gov*).

Early farming methods and or techniques depended on local climate conditions, but most farmers would continue to plant on the same field year-after-year until the soils were exhausted of nutrients. This encouraged ingenuities such as crop rotation and intercropping. Intercropping is a technique in which a variety of crops are grown together, creating a microclimate that favors the survival of each plant, maximizes potential yields and maintains soil fertility (*Archaeology.about.com*). For example, Native Americans developed an intercropping technique over 5,000 years ago called the three sisters, where maize, beans, and squash were grown together (*Archaeology.about.com*). Maize consumes a lot of nitrogen, while beans supply nitrogen to the soil, and squash benefits from a shady, moist climate. Intercropping is one of many early discoveries in Farming still being implemented today that promotes biodiversity, maintains soil composition, and fortifies plant health (Mendola, Mariapia, 2007).

Between 2007 and 2012 the Netherlands Ministry of Foreign Affairs funded a research project to compare the long-term developments in Southeast Asia and Sub-Saharan Africa. Long-term meant: with a focus on the second half of the 20th century. The main research question was: how could countries, which were all having low levels of socio-economic performance in the 1950s, differ so much in economic performance in the following decades? The research team consisted of researchers from the Royal Netherlands Institute of Southeast Asian and Caribbean Studies (KITLV) and the African Studies Centre, both in Leiden, together with senior and PhD researchers in four Southeast Asian and four African countries, which were compared one-to-one: Nigeria with Indonesia, Uganda with Cambodia, Kenya with Malaysia and Tanzania with Vietnam.<sup>1</sup> One of the main conclusions drawn by project leaders David Henley (KITLV) and Jan Kees van Donge (ASC) was that the economic breakthrough in Southeast Asia can only be well understood if one looks at the massive state-led rural development campaigns from the 1960s onwards, which resulted in a major agricultural revolution and in generally successful rural poverty alleviation on a mass scale. This was much less so in Africa, where many political leaders in post-colonial governments have made different choices, neglecting the rural peasants and trying to implement an elite-based industrialization strategy that had disappointing. The DfID-funded Africa Power and Politics Project (APPP) came to a comparable conclusion, focusing on Africa's ruling elites:

these elites exploited or ignored the rural masses and can be held responsible for economic stagnation and rampant poverty and hunger. The important scientific and policy question can then be asked: if Africa would put more emphasis now on its agricultural sector (like Southeast Asia did from the 1960s on-wards), would it be possible to repeat the ‘growth miracle’ and combine an agriculture-based rapid growth strategy, with a successful poverty alleviation strategy, particularly in the rural areas? results (Henley & van Donge 2012; Vlasblom 2013).

Although these main conclusions were shared by most participants in the Tracking Development team, there is quite some controversy about the causal factors, and about more recent trends. Based on statistical evidence from FAO sources (FAOSTAT), four DRA/ASC-AFCA Research Reports deal with these dynamics and with recent trends and show that a) not all was gloomy in Africa’s agricultural performance between 1960 and 2000, and that b) from about 2000 onwards major breakthroughs can be seen, suggesting that Africa’s agricultural (Vlasblom, 2013).

Techniques such as irrigation, intercropping, and crop rotation have progressively increased efficiency in Farming. Over the last few centuries however, radical changes have been made in farming and many countries have made a shift toward conventional methods. Factors such as growing populations, economic instability, climate change, and pressures from companies to produce higher yields have contributed to this shift. However, adopting these conventional methods subject farmers to the greed of industry, as their crops depend on a high input of energy, synthetic chemicals, and genetically modified organisms. And once committed to the conventional practices, farmers find themselves locked in a perpetual cycle of loans, subsidies, and debt. In this case many have remained standstill to the earlier farming methods which are poor and contribute less to food production due to the little farmer knowledge of improved agricultural technologies, insufficient agricultural research that takes into account the needs and resource constraints of farmers, lack of effective agricultural extension, Inappropriate farming practices/ systems including deforestation, bush burning and overgrazing. All these constraints put into consideration, this study therefore examined the gaps institutional, structural, etc, that constrain the agricultural sector and hence impede the agricultural productivity and food security levels in the country results (Henley & van Donge 2012; Vlasblom 2013).

### 1.1.2 Theoretical background

Post-development theory developed in the 1980s as a critique of development theory and practices which post-development theorists viewed as extensions of Western “first world” hegemonic ideology. The first major post-development critique is that the entire concept of development is a constructed reality in that “development” is a Western standard whereby the West is labeled as “developed” and the rest of the world is perceived as “underdeveloped” (Ziai 2007). Development is defined by post-development theorists as practices and ideas beginning post-World War II attempting to change the “third world” to better match the so-called developed countries (Kippler 2010). It is important to note here that when post-development theorists refer to the word development, they are referring to a very narrow definition of development referring to the post-WWII attempts to engineer particular changes in the so called ‘Third World.’ Post-development theorists do not call for a return to earlier ways of life or eschew the desirability of change for those who suffer in poverty. Rather, development is “understood as the invention of aid structures and practices that would lead to rising living standards, manifested in an increase in income, which in turn would render better health and nutrition” (Ahorro 2013). This asserts Western societies as the ideal norm (Parfitt 2002) and measures the comparative success of all other countries against this norm. Post-development theorists argue that these values of progress/development are not universal and are actually “modeled upon the European experience of progress” (Kippler 2010).

According to post-development theory, the construct of development first arose in the post-WWII era to meet the hopes of new independence leaders, former colonial masters, and the recently liberated masses (Rahnema 1997). The desire for development, while attractive to all categories of actors, soon took on various meanings for the different actors. For some, economic development was important, whereas others focused on social and cultural issues to be improved upon. Development became an all-encompassing term and policy-driver to define progress in areas of health, wealth, education, and infrastructure. Quickly, development ideology was called into question for its managerial schisms, with some development theorists arguing for capitalist interventions and others arguing for Marxist interventions. Still others argued for top-down and some argued for grassroots development (Rahnema 1997). For post development theorists, however, the problem with development is not how it is delivered, but rather that the very concept of development itself is flawed (McGregor 2007). Thus, attempts to reform post-WWII development projects to eliminate their negative effects are seen as irrelevant because the development solution for the



supposed problems of the so-called 'target population' was an incorrect assumption in the first place (McGregor 2007).

Post-development theorists argue that the current practice of development, particularly in regards to food aid and food security, is incorrectly depoliticized by development practitioners. Smith (2003) argues: "...one of the reasons developments often fails to meet the challenges of problems like food security is the fact that politics and political concerns are systematically removed from the issue...It is palpably false to ignore the politics of food security, both in terms of the causes and the solutions to famine..." (Smith 2003). And: "(Food security) is ultimately about one's position in society...Food security is the ultimate manifestation of who wields power, and who does not" (Smith 2003).

To a post-development theorist, poverty, famine and food security are issues of power in southern Africa. Access to productive assets, land, labor, water, and capital is controlled by complex systems of tribal and local law, state intervention, and development institutions such as the World Bank and the International Monetary Fund (Smith 2003). At times, these systems may be at odds with each other, such as land allocation under tribal versus local law or obligations of the state versus obligations of development institutions. Due to these implicit and explicit contradictions, famine can be seen as the result of an inequitable political process. Post-development theorists call for an end to the de-politicization of food security and food aid programs, and instead argue that they are and should be issues that are dealt with in a democratic food security has muddled the clarity of which institutions have a duty to ensure food security: "In many ways, food security and the risk of famine epitomize the disarticulation between the State in a less developed country and the development provider, such as the United Nations. If famine is about power and politics broadly understood, ultimately famine itself can become a backdrop to arguments over responsibility and power." (Smith 2003). With complex national and international networks of food aid and food security development programs in place, the duty to prevent famine and hunger rests on everyone and no one. "The result is often a fragmented, inefficient and inadequate capacity to deal with food security issues when they arise...Within this context, the ability of southern African states to deal with food insecurity is severely compromised and inherently politicized" (Smith 2003).

### **1.1.3 Conceptual background**

For the purpose of this research, Food security was conceptualized as when people have physical and economic access to sufficient safe and nutritious food to meet their dietary needs and enable an active and health life.

Farming was conceptualized as the practice of rearing of animals and growing of crops for food, fiber, biofuel, medicinal plants and other products used to sustain and enhance human life. Farming was the key development in the rise of sedentary human civilization, whereby farming of domesticated species created food surpluses that nurtured the development of civilization.

Farming methods was conceptualised as the system of practices followed in crop growing. The object of fanning methods is to assure high crop yield with minimal investment of labor and capital per unit of realized product. includes tillage, fertilization, preparation of seeds for sowing, sowing, planting, care of sowings, control of plant diseases and pests, harvesting, snow retention, soil leveling, watering, and so on. A modern farming method is based on the achievements of natural science, agronomy, and the technical sciences.

### **1.1.4 Context background**

In a study or II Latin American countries, Reardon et al. (2001) found that non-farm income accounted for 40% of rural household incomes. The extent to which households, especially rural ones, are able to feed themselves depends on non-farm income as well as on their own agricultural production since non-farm income is used by many households to purchase their staple grain. Subsistence agriculture should therefore be understood in this context of diversified income sources. According to Jayne et al. (2009), 61 % of maize- growing households in Kenya were found to be net buyers of maize. Such households may be more interested in lower food prices than III investments to increase subsistence production (Chapman & Tripp, 2004).

However, surpluses from off-farm income may provide farmers with the financial security that would enable greater on-farm innovation. This is largely dependent on whether the households diversified out of agriculture due to a lack of opportunities for on-farm innovation or whether they are exploiting a particularly high demand for their labour off-farm (Chapman & Tripp, 2004).

In most of sub-Saharan Africa, food insecurity affects the urban poor more severely as they are mostly dependent on the market, unlike their rural counterparts who are able to exploit natural resources to provide for food or to generate income (Ruel *et al.*, 2010; Frayne & Pendleton, 2009). In urban areas, two crucial components affecting household food security are the ability to earn cash income, and prices of food. The efficiency of marketing and distribution systems, household purchasing patterns, ability to produce own food, and access to public transfers (food subsidies or food aid) or private transfers (exchange with rural relatives) are some of the most important factors affecting the cost of food, especially for urban households (Ruel *et al.*, 2010).

While farming still remains important for rural households, people are looking for diverse opportunities to increase and stabilize their incomes. Therefore rural livelihoods are based not solely on agriculture but on a diverse array of activities and enterprises (Chapman & Tripp, 2014). The extent of dependence on non-farm income sources varies across countries and regions. Evidence from a sample of rural villages in shows that, on average, half of household income came from crops and livestock and the other half from non-farm wage employment, self employment and remittances. The proportion of non-farm income was higher for upper income groups than for the lowest income groups. The poorest households were therefore more reliant on agriculture; a reliance which decreased as non-farm activities increased. Tanzania (Ellis & Mdoe, 2013; Chapman & Tripp, 2004)

Furthermore, on-farm investment is likely to occur when non-farm work is of short duration and the home farm has not been neglected. According to Bryceson (2000; 2002), based on a case study of seven countries (Nigeria, Ethiopia, Tanzania, Congo-Brazzaville, Malawi, Zimbabwe and South Africa), the countries were all undergoing “de-agrarianisation” and “depeasantisation”. This was driven mostly by, restrictions on access to land (South Africa), urbanization (Congo-Brazzaville and Nigeria) and the removal of agricultural subsidies with the enforcement of structural adjustment policies in the other four countries. During this period, peasant agriculture, with its subsistence orientation and relatively low yields, was discouraged in favour of agro-industrial production (Bryceson, 2002).

Despite the abovementioned changes, farmers in Abim district value less the pursuit of farming activities (Bryceson, 2000) thus poor methods of farming is still a major component of livelihoods in the area. The use of improved farming methods has not yet been

implemented since effective sensitization and training programs have not yet been developed, especially for Nyakwea region. In addition, the farming methods need to be supplemented with expansion of intermediate and appropriate technology to improve returns to labour (World Bank, 2007; CAADP, 2009). Peasant farmers have the potential to play an important role in reducing sub-Saharan Africa's food insecurity. Quality agriculture methods and/or smallholder production can increase food supplies and thus cushion households from food price shocks, thereby improving household food security (World Bank, 2007).

## **1.2 Problem statement**

Food security depends on several factors ranging from climate change to international market systems. One of the food insecurity causes is reoccurring droughts more frequently and more severe and consequently increased food prices due to higher input costs. Additionally, as a result of high levels of poverty, majority of the population in Uganda has low purchasing power and is not able to obtain food, even though it is within their reach (Glopolis, 2013). The same report highlights the paradoxical fact that while neighboring countries have lower poverty rates their economic performance is not that significant as Uganda's. Thus, it is important to determine why the country is still suffering hunger and poverty, even though its overall economic performance is improving significantly.

According to Rajaonarison (2014), failure to achieve food security is due to ignorance of agricultural sector in development country's agenda, although the government implements agricultural policies and programs related to environmental protection and food security. Country as well receives foreign aid in a form of various development programs related to natural resource management and food aid. However, Uganda is still ranked by the World Bank to be one of the poorest countries, also based on Human Development Index (Patel, et al., 2012). Even though Uganda's economy can enjoy the extensive sector of agriculture, which mostly focuses on the export of luxury goods, such as flowers, coffee and tea, to the developed countries, Uganda suffers chronic food shortages having less than 20 percent of its land suitable for agricultural usage (Langinger, 2011).

Even though the importance of agricultural sector is declining, in terms of Gross Domestic Product (GDP), it is still paramount in a country's economy as it contributes to nearly a quarter of GDP and employs 75 percent of the population (Waithaka, et al., 2013). As well, the majority of the population in Uganda is still living in rural areas, hence depending on

agriculture. Agriculture in Uganda heavily depends on rainfall, thus current trends of climate change heavily impacts on Uganda's agricultural sector. For instance, draughts are more usual and last longer. Rainfall patterns became unpredictable and heavily destroy crop yields, the major contributor to domestic food supply in Uganda (Patel, et al., 2012).

Thus, food insecurity has always been the problem for Uganda. In the past Uganda faced everlasting food crises mostly caused by the periodic draughts. The present food crises, however, are powered by climate change, volatile energy prices and globalization, the determinants altering the concept of food affordability. They are changing the habits of food consumption, production and food market. Due to the influence of these factors, disadvantaged people are forced to further reduce their food intake, change to less balanced and nutrient diets, consequently negatively affecting their health . This is why it is important to clarify why food insecurity is still present in Uganda and if what is the prime reason preventing it to achieve the desired state of food security. It is in this context that the researcher came up with a proposal to analyze the impact of poor farming methods on food insecurity in Uganda focusing on Nyakwea Sub-county Abim District in North Eastern Uganda (GoK, 2011).

### **1.3 Objectives of the study**

#### **1.3.1 Main objective of the study**

The main objective of the study was to examine the impact of farming methods on food security in Uganda.

#### **1.3.2 Specific objectives**

- i. To investigate the forms of farming in Nyakwea Sub-county.
- ii. To find out the relationship between farming and food security in Nyakwea Sub-county.
- iii. To investigate the measures to address food security in Nyakwea Sub-county

### **1.4 Research questions**

- i. What are the forms of farming in Nyakwea Sub-County?
- ii. What is the relationship between farming and food security in Nyakwea Sub-County?
- iii. What are the measures to address food security in Nyakwea Sub-County?

## **1.5 Scope of the study**

### **1.5.1 Content scope**

The study will examine the impact of poor farming methods on food insecurity in Uganda in which the social-economic constraints to agriculture productivity growth were identified, the causes and effects of food insecurity as well as the measures to solve the problem of food insecurity in reference to Nyakwea Sub-County as the case study.

### **1.5.2 Geographical scope**

The study was carried out in Nyakwea Sub-county Abim district located in north Eastern part of Uganda. It is one of the lower local Governments in Abim District and located at the south east of the district headquarters. The Sub-county shares borders with Otuke District and Amuria district to the south and south east respectively. At the local level it is bordered by Abim town council to the north east and Abim Sub-county is due to north whereas Morulem Sub-county is to its west and Lotukei Sub-county to the north.

### **1.5.3 Time scope**

The study was done in a period of three months. That is from June to August 2016 in which the researcher is expected to have completed the entire research.

### **1.5.4 Theoretical scope**

The research was based on the Post-development theory developed in the 1980s as a critique of development theory and practices which post-development theorists viewed as extensions of Western “first world” hegemonic ideology.

## **1.6 Significance of the Research**

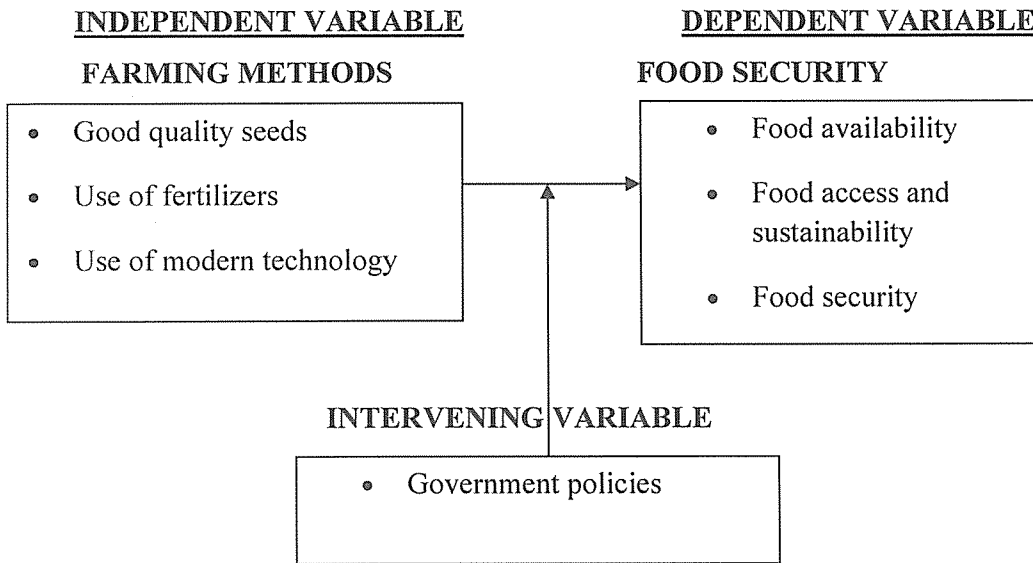
- i. The study aimed to address the extent to which poor farming methods lead to food insecurity in Uganda.
- ii. The study attempted to identify the challenges and prevailing factors against the food insecurity, analyze them and then proceed to make appropriate recommendations towards alleviating them.
- iii. The findings of the study were useful to farmers since it provided information about poor farming and the socio-economic constraints to agricultural productivity growth in Uganda.
- iv. The findings of the study served as a departing point for further researchers.

**CHAPTER TWO**  
**LITERATURE REVIEW**

**2.0 Introduction**

This chapter review related literature on study variables as put forward by different scholars. It focuses on the influence of poor farming methods on food insecurity and reviews the related literature basing on the stated specific objectives of the study.

**2.1 Conceptual framework**



**Figure 1: Conceptual framework**

The title of this report is Farming Methods and Food Security in Uganda: a case study of Nyakwea Sub-county Abim District. The report has three variables that is independent, dependent and intervening variables. The independent variable is divided into three constructs that is Good quality seeds, use of fertilizers and Use of modern technology. The dependent variable that is food security has three constructs that is to say Food availability, Food access and sustainability and Food security. The intervening variable has one construct that is government policy.

Therefore good quality seeds; use, of fertilizers and use of modern technology can determine the level of food availability, accessibility and food security in Uganda. Furthermore quality seeds, use of fertilizers and use of modern technology and Food availability Food access and sustainability, Food security can be affected by government policy on agriculture.

## **2.2 The forms of farming in Uganda.**

Imagine a family farm on a small plot of land and a huge commercial farm that spans acres and acres of land. What do you think makes these two types of farms different? Although both of these farms are designed to produce food, they vary in the methods of production, the amount of food they produce and who consumes the food produced (Benin. S. et al. 2007).

## **2.2 The forms of farming in Uganda.**

Imagine a family farm on a small plot of land and a huge commercial farm that spans acres and acres of land. What do you think makes these two types of farms different? Although both of these farms are designed to produce food, they vary in the methods of production, the amount of food they produce and who consumes the food produced (Benin. S, et al.(2007).

### **Farming using traditional hoes to cultivate the land**

A hoe is an ancient and versatile agricultural hand tool used to shape the soil; control weeds, clear soil, and harvest root crops. Shaping the soil can be piling soil around the base of plants (hilling), creating narrow furrows (drills) and shallow trenches for planting seeds and bulbs. Weed control with a hoe can be by agitating the surface of the soil or by cutting foliage from the roots, and clearing soil of old roots and crop residues. Hoes for digging and moving soil are used harvesting root crops such as potatoes (Gregg, Ed, 2001).

### **Using tractors**

A tractor is an engineering vehicle specifically designed to deliver a high tractive effort (or torque) at slow speeds, for the purposes of hauling a trailer or machinery used in agriculture or construction. Most commonly, the term is used to describe a farm vehicle that provides the power and traction to mechanize agricultural tasks, especially and originally tillage, but nowadays a great variety of tasks. Agricultural implements may be towed behind or mounted on the tractor, and the tractor may also provide a source of power if the implement is mechanized. The word tractor was taken from Latin, being the agent noun of trahere "to pull. The first recorded use of the word meaning "an engine or vehicle for pulling wagons or ploughs" occurred in 1901, displacing the earlier term "traction engine" (Michael Dennis, 2001) Agriculture is the most important sector of the Cambodian economy. It employs almost 80 percent of the population and in 2012 amounted to 36 percent of the country's Gross Domestic Product. Yet over 34 percent of Cambodian children are malnourished and 70 percent of producers are engaged in near-subsistence farming. While Cambodian jasmine



rice won the award for World's Best Rice at the 2013 World Rice Traders Conference in Hong Kong for the second year in a row a terrific accomplishment - much of the sector's potential remains untapped (Calvin W. Schwabe, 2001 ).

One of the primary constraints to increased productivity and profitability stems from the limited use of modern farming technology, equipment, and inputs. For example, although effective irrigation technology is available, Cambodian agriculture continues to rely heavily on fragile rain-fed systems focused on paddy rice production. The use of modern equipment could also make harvests more efficient and help to move produce to market more quickly and in better condition. Finally, modern agricultural inputs such as seeds, agro-chemicals, and fertilizers can dramatically reduce losses (Gregg, Ed, 2008).

### **Precision farming**

This a new technique that boosts crop yields and reduces waste by using satellite maps and computers to match seed, fertilizer, and crop protection applications to local soil conditions can pay for itself. This is farming in the 21st century, and it is technology that is accessible to all farmers, not just those in the United States for example. Precision farming also offers greater export opportunities as the case in the United States, where one-third of farm acres are planted for export, resulting in over \$140 billion in U.S. agricultural exports in 2013. Moreover, modern farming does not necessarily mean corporate farming 97 percent of all American farms are still operated by individuals, family partnerships, or family corporations (Larry D. Jacobson, 2008)

### **Animals (bulls)**

A nose ring is a ring made of metal designed to be installed through the nasal septum of domestic cattle, usually bulls. Nose rings are often required for bulls when exhibited at agricultural shows. There also is a clip-on ring design used for controlling other cattle for showing or handling. Nose rings are also used to prevent pigs rooting, and to encourage the weaning of young calves and other livestock by discouraging them from suckling. Historically, the use of nose rings for controlling animals dates to the dawn of recorded civilization. They were used in ancient Sumer and are seen on accomplishment - much of the sector's potential remains untapped (Calvin W. Schwabe, 2001 ).

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The nose ring assists the handler to control a dangerous animal with minimal risk of injury or disruption by exerting stress on one of the most sensitive parts of the animal, the nose. Bulls, especially, are powerful and sometimes unpredictable animals which, if uncontrolled, can kill or severely injure a human handler (William, 2008).

## **TYPES OF AGRICULTURE**

### **2.2.1 Industrialized Agriculture**

Industrialized agriculture is the type of agriculture where large quantities of crops and livestock are produced through industrialized techniques for the purpose of sale. The goal of industrialized agriculture is to increase crop yield, which is the amount of food that is produced for each unit of land. Crops and livestock made through this type of agriculture are produced to feed the masses and the products are sold worldwide (Ravallion, 2000).

Industrialized agriculture is able to produce large quantities of food due to the farming methods used. Instead of using animal and manpower to work the fields, industrialized agriculture utilizes large machines, which are more powerful and can work faster and harder. The shift towards machines has increased the use of fossil fuels on industrial farms, and, therefore, the price of food can fluctuate as the price of oil changes. Industrialized agriculture also increases crop yield by investing in large irrigation systems and by using chemical fertilizers and pesticides (Rao N.,2003).

The chemical fertilizers that are used in industrialized agriculture often add inorganic nutrients to the soil to increase yield and plant size. The use of pesticides is also common in industrialized agriculture, and most pesticides help increase yield by killing pests that are harming or consuming the crops. Another farming technique that is used in industrialized agriculture is the method of growing monocultures, which is when a single crop is planted on a large scale. Although planting monocultures can increase overall yield, this method of farming is also more susceptible to disease and causes a reduction in the dietary variation of consumers (Damodar N., 2003).

### **2.2.2 Subsistence Agriculture**

Although industrialized agriculture is necessary to feed the growing human population, there is another type of agriculture that is regularly practiced today. Subsistence agriculture is when a farmer lives on a small amount of land and produces enough food to feed his or her household and have a small cash crop. The goal of subsistence agriculture is to produce enough food to ensure the survival of the individual family. If there is excess food produced, it is sold locally to other families or individuals (Mariapia, 2007).

Subsistence agriculture varies a great deal from industrialized agriculture in terms of the farming methods used. This type of agriculture is very labor-intensive because all of the work is done by humans and animals and only hand tools and simple machines are used to work the land (Wood S., 2006).

Subsistence agriculture does not rely on chemical fertilizers or pesticides and instead utilizes more natural techniques. Most farmers have animals, including chickens, goats and cows, and the manure from these animals is used to fertilize the plants. The crops produced are then consumed or sold, and the inedible parts of the plants are used to feed the livestock. This creates a closed circuit within the farm where nothing goes to waste (Wiggins, 2001).

Instead of using chemical pesticides, subsistence farmers rely on natural predators of pests to control the pest population. Another major difference between industrialized and subsistence agriculture is what is being planted. Unlike industrialized agriculture that utilizes monocultures, subsistence agriculture relies on **polycultures**, which is when different types of crops are planted in one area. Planting polycultures is a method used to get the most crop yield out of a small area of land (Thomson A., 2004).

#### **2.2.2.1 Kinds of Subsistence Agriculture**

Although industrialized agriculture has replaced a large amount of subsistence agriculture, there are still many places in the world where subsistence agriculture is practiced. It is estimated that over one-third of people that live in Latin America, Asia and Africa rely on subsistence agriculture for their food supply. Currently there are several kinds of subsistence agriculture that are still occurring. The most common type is intensive subsistence agriculture, which is often referred to as traditional subsistence agriculture. This type of agriculture is practiced in India, China, Vietnam, Cambodia, Mexico and Peru.

The crops are grown on a small plot of land year after year using human and animal labor. Intensive subsistence agriculture also utilizes manure as fertilizer and simple irrigation systems. For this type of agriculture, the most common crops are rice and vegetables, which are grown in the same fields using the polyculture method (Younger, Stephen D., 2003).

### **2.3 The relationship between farming methods and food security**

For decades, farming has been associated with production of essential food crops. At present, farming above and beyond farming includes forestry, dairy, fruit cultivation, poultry, bee keeping, mushroom, arbitrary, etc. Today, processing, marketing and distribution of crops and livestock products etc. are all acknowledged as part of current farming. Thus, farming could be referred to as the production, processing, promotion and distribution agricultural products.

China, Vietnam, Cambodia, Mexico and Peru. The crops are grown on a small plot of land year after year using human and animal labor. Intensive subsistence agriculture also utilizes manure as fertilizer and simple irrigation systems. For this type of agriculture, the most common crops are rice and vegetables, which are grown in the same fields using the polyculture method (Younger, Stephen D., 2003).

Farming plays a critical role in the entire life of a given economy. Farming is the backbone of economic s) stem of a given country. In addition to providing food and raw material, farming also provides employment opportunities to very large percentage of population. Below is the importance of farming (Dokuchaev, 2004).

#### **Source of Livelihood**

The main source livelihood of many people is farming. Approximately 70 % of the people directly rely on farming as a mean of living. This high percentage in farming is as a result of none development of non-agricultural activities to absorb the fast growing population. However, most people in developed countries do not engage in farming (Timiriyaev, K. A, 2007).

#### **Supply of Food as well as Fodder**

Agricultural sector provides fodder for domestic animals. Cow provides people with milk which is a form of protective food. Moreover, livestock also meets people's food requirements (Doiarenko, 2009).

### **Marketable Surplus**

The growth of agricultural sector contributes to marketable surplus. Many people engage in manufacturing, mining as well as other non- agricultural sector as the nation develops. All these individuals rely on food production that they might meet from the nation's marketable surplus.

As agricultural sector development takes place, production increases and this leads to expansion of marketable surplus. This may be exported to other nations (Timiriyaev, K. A, 2008).

### **Source of Raw Material**

The main source of raw materials to major industries such as cotton and jute fabric, sugar, tobacco, edible as well as non-edible oils is farming. Moreover, many other industries such as processing of fruits as well as vegetables and rice husking get their raw material mainly from farming (Mariapia, 2007).

In a nut shell a stable agricultural sector ensures a nation of food security. The main requirement of any country is food security. Food security prevents malnourishment that has traditionally been believed to be one of the major problems faced by the developing countries. Most countries rely on agricultural products as well as associated industries for their main source of income.

### **2.4 The measures to address food insecurity**

The first attempt to address the problem of food insecurity through more than just food aid in SSA was through the 'Freedom from Hunger Campaign', initiated by the FAO and other development agencies. The campaign sought to involve developing countries in analyzing the causes of food crises and malnutrition, and to find sustainable solutions (Mariapia, 2007).

Early attempts by African Governments to tackle the food security situation on the continent, such as the Lagos Plan of Action (1980-1985) and Regional Food Plan for Africa (1978-1990), also failed due to organizational and financial difficulties. However, with the dawn of the new millennium, many African Governments must commit to increasing public spending on agriculture through investment ((OECD, 2008)).

There must be a conscious effort to facilitate market access in Africa. There is the need to remove the barriers to trade. The focus by most African governments should be to open up

markets in the hope that their people will benefit. Study shows that the projected gains of world trade liberalization tend to be minimal in Sub-Saharan Africa and that the income gains from trade liberalization will go to countries with a competitive advantage in the markets concerned. Perhaps it is time that Africans produced for Africans both within the continent and Diasporas, increased their south to south trading, and consolidate their efforts on their comparative advantage for mutual benefit. We would have more control of the market if we act as one.

Governments must provide room for rural off- farm opportunities. This will provide opportunities for both the landless rural poor and the group of non-adopters that fall out of business when the agricultural sector becomes more efficient. In addition, provision of off-farm opportunities will curb rural to urban migration and possibly induce some urban to rural migration. It would reduce the number of non-motivated farmers who took up farming just because they had no other options, thus paving the way for more efficient farming (Daniel, 2010).

Some of the opportunities that African countries can look into include cottage industries that process food crops by value addition and/or enhancing shelf life through preservation techniques; production of small scale processing machinery; provision of credit; contract processing facilities; and market facilitation. Specific activities may include the production of items with enhanced shelf life that would allow for marketing in distant markets. These products may range from dairy products such as butter, cheese to pre-processed and packaged cut vegetables such as carrots and shelled garden peas for the urban population; to dried fruits and vegetables. More sophisticated, yet relatively technically easy to produce products, such as starch and vegetable oils, may also be produced. For this to be achievable there is need for collaboration amongst the multi- stakeholders (Mukungu A., 2004).

Africa should focus on education, research and development (R&D), access to capital and infrastructure development. Measures to facilitate free primary education throughout Africa are urgently required. Education not only endows one with the power to read and hence be informed, but it also allows one to communicate. As an intervention to food security, education must go beyond the level of reading and writing to that of transfer of knowledge. To be useful, information transfer should be two-way. The poor have an idea of what would work for them and what they need. Since they are supposed to be the primary beneficiaries of

food security related policies, it would be prudent to at least listen to them. In addition, education will open avenues to off-farm employment (Oxford Policy Management, 2007).

Africa should be able to feed itself and the rest of the world. That has to be the aspiration and objective of Africa; as our ability to provide adequate and nutritious food to the people on the continent is a sure way of attaining economic growth and transformation (Haddad L., 2000).



## CHAPTER THREE

### METHODOLOGY

#### 3.0 Introduction

This chapter comprised or research design, the population and the sample size, the data collection methods, the research procedures, data analysis and presentation methods. As well as limitations and solutions respectively.

#### 3.1 Research Design

The research was a cross sectional survey design that involved quantitative and qualitative methods which were administered using questionnaires. The design was preferred because it was easy for the researcher to draw conclusion and the researcher easily base on the views of respondents to reach at conclusions and make recommendations.

#### 3.2 Study Population

The study targeted the Farmers and other local community members in Nyakwea Sub-county Abim District so as to get accurate information. The study also was limited to other local leaders who were selected for the study and therefore strived to get the necessary information in regards to the quality of customer service that they accord to their customers.

#### 3.3 Sample size

Out of the total population of the study, the researcher selected a sample of 84 respondents who were got from a sample population of 107 to be got using the Solven's formulary of determining sample size from a selected sample population. As indicated below;-

$$n = \frac{N}{1 + N(e)^2}$$

Where;-

n= sample size,

N = total population

E=deviation of sampling (degree of errors at 0.05 level of significance)

$$n = \frac{107}{1+107(0.05)^2}$$

$$n = \frac{107}{1+107 \times 0.0025}$$

$$n = \frac{107}{1+2675}$$

$$n = \frac{107}{1.2675}$$

$$= 84 \text{ respondents}$$

These were distributed as follows;

**Table 1: Sample size**

| Category                 | No of respondents |
|--------------------------|-------------------|
| Nyakwea Sub-county staff | 24                |
| Local community members  | 50                |
| Political leaders        | 10                |
| NGOs                     | 10                |
| <b>Total</b>             | <b>84</b>         |

### 3.4. Sampling technique

The researcher used stratified sampling technique in which the sample population was divided into different strata (sub-population) such that the elements in each sub-population are of the same composition. Samples were then selected independently from each sub-population. Respondents were identified depending on their will to participate in the exercise. This technique was preferred because it is easy to acquire clear and accurate information since the strata comprised of people with different perceptions.

### 3.5 Data Source

The studies were both primary and secondary data. Primary data was collected from the field using - questionnaires and interview guides while secondary data was collected from available published records such as textbooks, journals, magazines, manuals and internet.

### 3.6. Data Collection Instruments

The researcher used interviews, questionnaires, and observation as methods of data collection in order to get information from respondents.

#### 3.6.1 Interviews:

Here the researcher gathered information through verbal interaction with the participants. Carrying out verbal interaction with the respondents enhanced and creates conversation

between the researcher and the respondent for the purpose of obtaining information. This method was further create an explanatory atmosphere to obtain information.

### **3.6.2 Questionnaires**

A written set of questions was given to respondents to record their answers as far as the topic is concerned. Questionnaires were paramount because the respondents were in position to answer according to what they think about that particular issue of concern. These questionnaires were used in order to gain more creative ideas as far as the research was concerned.

### **3.6.3 Observation**

In this method, the researcher took initiative to observe what was happening on the scene. In this method, direct information was obtained and the researcher took kin observation of what takes place and draw clear recommendations. This method was helpful in a way that “what you see is what you get”. In this case it was easy to come up with a conclusion.

### **3.7 Validity of Research Instruments**

Validity measures whether the research truly measures that which it intended to measure or how truthful the research results are. (Joppe, 2000). The validity of the study was tested as per the pilot study discussed below. The pre-testing of the both self administered questionnaires and face-to-face interview questionnaires were conducted at two guest houses randomly selected within Kabalagala.

### **3.8 Measurement of Variables**

To identify the inter relationship between variables, the researcher made a clear understanding of the objectives and compare them for a conclusion. The researcher determined whether there is a significant relationship between customer care services and the performance of the organization.

### **3.9 Reliability of research Instruments**

Joppe (2000) defines reliability as the extent to which results are consistent over time and an accurate representation of the total population under study is referred to as reliability and if the results of a study can be reproduced under a similar methodology, then the research instrument is considered to be reliable.

### **3.10 Data processing and analysis**

After data collection was done, the researcher analyzed the collected data and as well she presented it using the frequency tables and percentages. This was because, the methods clearly illustrates the difference between responses.

### **3.11 Ethical consideration**

After the proposal was approved by the supervisor, an introductory letter from the Faculty Dean was obtained. Permission was sought from relevant authorities such in the farms and administrations. Utmost confidentiality and anonymity were ensured from the collected data since the data was strictly for academic purpose only.

### **3.12 Limitations of the study and solution**

- It was limited by transport to the study area of research. The place was very far and yet the researcher stays far so the researcher met other extra costs, however this was be solved by hiring a motor cycle during changing of the vehicles on the way to place of study
- The researcher faced a problem of illiteracy from respondents where by some respondents may not be in position to reads and interpreted the questionnaires. However the researcher hired interpreters to help in interpreting the questions so that the respondents understand well the questions.

## CHAPTER FOUR

### DATA PRESENTATION, ANALYSIS AND INTERPRETATION OF RESULTS

#### 4.0 Introduction

In this chapter the researcher presents the findings of the study, which were analyzed from the data obtained from the field as regards the effectiveness. The study was basically guided by three objectives that is;- to investigate the forms of farming in Nyakwea sub county., to find out the relationship between farming and food security in Nyakwea sub county as well as to investigate the measure to address food security in Nyakwea sub county. The results obtained were as discussed below;-

#### 4.1 The demographic characteristic of the respondents

Here this was characterized by the Sex, Age, Marital Status, education level, years spent in the service among others. The results were presented in the table below;

##### 4.1.1 Distribution of respondents by Gender

The researcher was interested in determining the gender of the respondents in order to examine the extent to which male and female got involved in the study. The information obtained was indicated as in the table below;-

**Table 2: Distribution of respondents by gender**

| Gender       | Frequency | Percentage (%) |
|--------------|-----------|----------------|
| Male         | 48        | 57.1           |
| Female       | 36        | 42.9           |
| <b>Total</b> | <b>84</b> | <b>100.0</b>   |

Source: primary data 2016

Findings from table 2 above indicated that majority of the respondents that is 48(57.1 %) out of the total number of the respondents were male. The minority of the respondents that is 36(42.9%) of the total number were female. This was due to the fact that majority of the respondents interviewed were male and they had clear information on the far mining methods and food security.

#### 4.1.2 Distribution of respondents by age

Here the researcher wanted to determine the age of the respondents in order to identify the validity of the responses given in advance. In this case therefore, the findings obtained were as demonstrated in the table below;-

**Table 3: Distribution of respondents by age**

| Respondent age | Frequency | Percentage (%) |
|----------------|-----------|----------------|
| 18-35 years    | 47        | 56.0           |
| 36-55 years    | 16        | 19.0           |
| 55 and above   | 21        | 25.0           |
| <b>Total</b>   | <b>84</b> | <b>100.0</b>   |

Source: Primary data 2016

The information in table 3 above was to determine the respondents age. From the findings it was indicated that 18-35 years were the dominant respondents, shown by 47(56%) out of the total number of the respondents. These were followed by respondents between 55 and above of age with 21 (25%) out of the total number of respondents. The fewer respondents were of 36-55 years age with 16(19%). This was because, in different areas people between 18-35 years are the majority of workers in different portions and some farms are managed by people with young ages who can understand the problems of the farms.

#### 4.1.3 Distribution of the respondents by Level of education

The researcher was interested in determining the level of education of the respondents in order to identify the validity of the responses given. The information obtained was indicated as in the table below.

**Table 4: Distribution of the respondents by Level of education**

| Level of education | Frequency | Percent      |
|--------------------|-----------|--------------|
| Secondary level    | 31        | 36.9         |
| Diploma Holder     | 32        | 38.1         |
| Bachelors Degree   | 18        | 21.4         |
| Others             | 3         | 3.6          |
| <b>Total</b>       | <b>84</b> | <b>100.0</b> |

Source: Primary data 2016

Results in table 4 above indicated that majority of the respondents had acquired diplomas in different fields. This was indicated by 32(38.1 %) followed by respondents who had secondary level of education with 31 (36.9%) then respondents who had bachelors with 18(21.4%) while others that is the minority had other qualifications indicated by 3(3.6%). With this, the responses were taken valid because all respondents could read and understand the questionnaires.

#### 4.1.4 Marital status of the respondents

Here the interest of the researcher was to determine the marital status of the respondents. The results were as indicated below;-

**Table 5: Marital status of the respondents**

| <b>Marital status</b> | <b>Frequency</b> | <b>Percent</b> |
|-----------------------|------------------|----------------|
| Single                | 72               | 85.7           |
| Married               | 12               | 14.3           |
| <b>Total</b>          | <b>84</b>        | <b>100.0</b>   |

Source: Primary data 2016

Findings in table tested to find out the marital status of the respondents. According to the findings majority of the respondents were single. This was indicated by 72(85.7%) out of the total number of respondents and as well 12(14.3%) married.

#### 4.1.4 Years of Residency in the study area

Here the researcher examined to find out the respondent's years of residency in the area of study.

The results were as indicated below.

**Table 6: Years of Residency in the study area**

| <b>Marital status</b> | <b>Frequency</b> | <b>Percent (%)</b> |
|-----------------------|------------------|--------------------|
| Single                | 72               | 85.7               |
| Married               | 12               | 14.3               |
| <b>Total</b>          | <b>84</b>        | <b>100.0</b>       |

Source: Primary data 2016

Findings from table 6 above indicated that majority of the respondents had spent over 2 years in the area. This was indicated by 44(52.4%) out of the total number of respondents, 21(25%) had spent above 3 years 10 (11.9%) had spent only 1 year while minority of the respondents had spent above 3 years. This indicated that the respondents had experience on food security within the study area and gave Responses which were clear to demonstrate a problem.

#### 4.1.5 Number of years spent in farming in Nyakwea Sub County

The researcher also determined the years that the respondents had spent farming activities. The results obtained were as follows

**Table 7: Number of years spent in farming in Nyakwea sub-county**

| Years         | Frequency | Percentage   |
|---------------|-----------|--------------|
| 1 Year        | 29        | 34.5         |
| 2 Years       | 21        | 25.0         |
| 3 Years       | 20        | 23.8         |
| Above 3 years | 14        | 16.7         |
| <b>Total</b>  | <b>84</b> | <b>100.0</b> |

Source: Primary data 2016

Finding indicated that majority of the respondents had spent 1 year in the farming activity. This was indicated by 29(34.5%) out of the total number of the respondents. 21 (25%) had spent 2 years in the farming activity 20(23.8%) respectively had spent 3 years in the farming activity, the minority that was 14(16.7%) had spent above 3 years in the farming activity

#### 4.2 Presentations of the respondents on the forms of farming method

Section 4.2 dealt with questions about food security and farming method. It was arranged into three phases basing on the objectives. The results were as indicated below;-

**Table 8: Farming methods in Nyakwea 'Sub County**

| Farming                  | Frequency | Percentage   |
|--------------------------|-----------|--------------|
| Good quality seeds       | 28        | 33.3         |
| Use of fertilizers       | 37        | 44.0         |
| Use of modern technology | 19        | 22.6         |
| <b>Total</b>             | <b>84</b> | <b>100.0</b> |

Source: Primary data 2016



The information highlighted in the table above was to determine the different-farming methods in Nyakwea Sub County. From the results it was indicated that majority of the respondents Agree that farming method commonly used Nyakwea Sub county was the use of fertilisers though locally. This was indicated by 37(44%) over the total number of respondents, followed by respondents who agreed that the they are using quality seeds and the use of modern technology was presented by 19(22.6%).

#### 4.2.2 To find out the relationship between farming and food security in Nyakwea sub-county

The third objective was to find out the relationship between farming and food security In Nyakwea Sub County. The results were as indicated below;

**Table 9: The relationship between farming and food security**

| Relationship                      | Frequency | Percentage (%) |
|-----------------------------------|-----------|----------------|
| Source of livelihood              | 25        | 29.8           |
| Supply of Foods as well as fodder | 16        | 34.5           |
| Marketable surplus                | 16        | 19.0           |
| Source of Raw Materials           | 14        | 16.7           |
| <b>Total</b>                      | <b>84</b> | <b>100.0</b>   |

Source: Primary data 2016

Findings from the table above indicated that majority of the respondents agreed with the statement that the farming impacts food security trough the Supply of Food as well as Fodder indicated by 29(34.5%) out of the total n umber of respondents. 25(29.8%) strongly agreed with the statement farming is the source of Livelihood, 16(19%) stated that it plays a role in marketable surplus, 14(16.7%) stated that farming is the source of Raw Materials.

#### 4.2.3 To investigate the measures to address the problems of food insecurity in Nyakwea sub county

The second objective was to investigate the measures to address the problems of food insecurity in Nyakwea Sub County. The information obtained was as follows;-

**Table 10: The possible measures to address the problems of food insecurity**

| <b>Benefits</b>   | <b>Frequency</b> | <b>Percentage</b> |
|---|------------------|-------------------|
| Improve animal disease control  | 30               | 35.7              |
| The availability of concentrate feeds and forages                                 | 31               | 36.9              |
| Practical early warning systems and contingency planning                          | 7                | 8.3               |
| Research for improving animal health and quality seeds                            | 8                | 9.5               |
| Strategic research on the molecular genetics of resistance Diseases and parasites | 8                | 9.5               |
| <b>TOTAL</b>  | <b>84</b>        | <b>100.0</b>      |

Source: Primary data 2016

Here the researcher was interested in determining the possible measures to address the problems of food insecurity. From the findings it was indicated that majority of the respondents that was 30(35.7%) stated that the concerned authorities should improve animal disease control methods used, 31(36.9%) stated that there should be an availability of concentrate feeds and forages, 7(8.3%) stated that the community should practical early warning systems and contingency planning, 8(9.5%) agreed that there should be research for improving animal health and quality seeds while 8(9.5%) respectively agreed on strategic research on the molecular genetics of resistance to Diseases and parasites. This was in agreement with Daniel (2010) who stated that there is the need to remove the barriers to trade, and that focus by most African governments should be to open Lip markets in the hope that their people will benefit.

## CHAPTER FIVE

### DISCUSSION, CONCLUSIONS AND RECOMMENDATION

#### 5.0 Introduction

This summary of the findings, conclusions, and recommendation of the study. The recommendations are proposed in such a way as to increase the level of performance in English language in secondary schools.

#### 5.1 Summary of the findings

##### 5.1.1 The demographic characteristic of the respondents

Here this was characterized by the Sex, Age, Marital Status, education level, years spent in the service among others.

Findings from table 1 indicated that majority of the respondents that is 48(57.1 %) out of the total number of the respondents were male. The minority of the respondents that is 36(42.9%) of the total number were female. This was due to the fact that majority of the respondents interviewed were male and they had clear information on the far mining methods and food security.

The information in table 2 was to determine the respondents age. From the findings it was indicated that 18-35 years were the dominant respondents, shown by 47(56%) out of the total number of the respondents. These were followed by respondents between 55 and above of age with 21 (25%) out of the total number of respondents. The fewer respondents were of 36-55 years age with 16(19%). This was because, in different areas people between 18-35 years are the majority of workers in different portions and some farms are managed by people with young ages who can understand the problems of the farms.

Results in table 3 indicated that majority of the respondents had acquired diplomas in different fields. This was indicated by 32(38.1 %) followed by respondents who had secondary level of education with 31(36.9%) then respondents who had bachelors with 18(21.4%) while others that is the minority had other qualifications indicated by 3(3.6%). With this, the responses were taken valid because all respondents could read and understand the questionnaires.

Findings in table 4 tested to find out the marital status of the respondents. According to the findings majority of the respondents were single. This was indicated by 72(85.7%) out of the total number of respondents and as well 12(14.3%) married. Findings from table 5 indicated that majority of the respondents had spent over 2 years in the area. This was indicated by 44(52.4%) out of the total number of respondents, 21(25%) had spent above 3 years 10 (11.9%) had spent only 1 year while minority of the respondents had spent above 3 years. This indicated that the respondents had experience on food security within the study area and gave Responses which were clear to demonstrate a problem.

Finding also indicated that majority of the respondents had spent 1 year in the farming activity. This was indicated by 29(34.5%) out of the total number of the respondents. 21(25%) had spent 2 years in the farming activity 20(23.8%) respectively had spent 3 years in the farming activity, the minority that was 14(16.7%) had spent above 3 years in the farming activity

#### **5.1.2 Farming methods and food security**

Section 4.2 dealt with questions about food security and farming method. It was arranged into three phases basing on the objectives. The first objective was to investigate the benefits of farming in Nyakwea Sub County. The information highlighted in the table 6 above was to determine the benefits of farming in Nyakwea Sub County. From the results it was indicated that majority of the respondents Agree that farming is a Sources of cash income for poor households taking a percentage of 37(44%) out of the total number of respondents, 20(23.8%) stated that it is Key inputs to crop agriculture, 13(15.5%) stated that Productive farming can add value to 'idle' land, 8(9.5 %) stated that farming provides draught power and manure while 6(7.1 %) stated that farming maintains household survival. .

The second objective was to investigate the measures to address the problems of food insecurity in Nyakwea Sub County. A question was set to determine the possible measures to address the problems of food insecurity. From the findings it was indicated that majority of the respondents that was 30(35.7%) stated that the concerned authorities should improve animal disease control methods used , , 31(36.9%) stated that there should be an availability of concentrate feeds and forages, 7(8.3%) stated that the community should practical early warning systems and contingency planning, 8(9.5%) agreed that there should be research for

improving animal health and quality seeds while 8(9.5%) respectively agreed on strategic research on the molecular genetics of resistance to Diseases and parasites.

The third objective was to find out the relationship between farming and food security in Nyakwea Sub County. Here the question was set to demonstrate the respondent's view on what they thought to have been the relationship between farming and food security. Findings from the table 9 indicated that majority of the respondents agreed with the statement that the farming impact food security through the supply of raw materials to the industrial sector indicated by 29(34.5%) out of the total number of respondents. 25(29.8%) strongly agreed with the statement farming plays a role in the provision of sufficient food, 12(14.3%) stated that it plays a role in Providing employment, 14( 16.7%) stated that farming feeds its population, while minority of the respondents that is 4(4.8%) stated that farming is one way to fight hunger.

## **5.2 Conclusions**

The world will always raise the most food the most economically and in the most environmentally responsible way when farmers plant the right crops for their local climate and soils using the right technology, then trade with others for the benefit of all. If every country set a goal of food self-sufficiency, the world would have much less food. To ensure food surpluses can reach areas of deficit, governments need to support trade through an open, fair, transparent and rules-based trading system. Trade helps create jobs, supports local economies, helps raise living standards and contributes to a more food secure global population.

Malnutrition imposes health, social and economic burdens on individuals, communities, businesses and governments. Increasing collaboration by the public, private and nonprofit sectors is needed to ensure people receive adequate nutrition. The Scaling up Nutrition (SUN) Business Network and Global Nutrition for Growth Compact are helping focus attention and action to improve nutrition. Under nutrition increasingly co-exists with obesity, which is rising in every part of the world. Nutrition solutions are needed that improve diet and health for people across the food security spectrum, including hunger and overconsumption. Also Civil society, governments, academia and the private sector must work together toward solutions, such as training farmers in sustainable practices, helping them invest cooperatively in storage and other infrastructure, and facilitating harvest loans.

### 5.3 Recommendations

Smallholder farmers need support to fulfill their expanding role in feeding the hungry and fighting malnutrition. They need training in agricultural best practices and access to inputs, credit, storage and technology to increase their productivity in a sustainable way, which raises their own living standards and produces surpluses to help nourish others.

Improvements in African agriculture will be necessary to feed the world's growing population. Roughly 60 percent of the world's potential cropland is in Africa, and much of that land has adequate sun, water and soil for rain-fed crop production. Despite its vast potential, Africa has the lowest agricultural productivity in the world and must import much of the food and agricultural products its people need. Increasing Africa's agricultural production - including closing the productivity gap by supporting smallholder farmers and bringing suitable lands into production will be essential for achieving food security across Africa and around the world.

Demand for biofuels has spurred investment in agriculture, but mandated. use of biofuels creates inelastic demand and increased volatility in the food system. To help balance food, animal feed and biofuel uses of agricultural feedstocks, government policy needs to include waivers or other trigger mechanisms to lift biofuels mandates in times of stress, so that the market can direct short crops to those sectors where they are most needed.

Technology advances have increased the efficiency of the global food system, giving more people access to a wider range of safe, nutritious foods at a relatively low cost. Genetic improvements, such as drought resistance, and optimization of inputs, such as fertilizer, help farmers improve yields while reducing waste and environmental impact. Science and technology are vital to producing more safe, affordable and nutritious food in an environmentally conscious way. High-yield agriculture allows farmers to grow more food so less land needs to be converted for production. Small- and large-scale farmers using a variety of production practices will be needed to feed a growing world.

Greater investment in agriculture by the public and private sectors is necessary to increase global food production. A boost in funding and attention in the following key areas is needed: transportation, distribution, storage and energy infrastructure; agricultural research and development; agricultural science, extension, education and the promotion of best practices;

and governance around legal and business structures to encourage private sector investment. To move food efficiently, predictable, science-based global food safety standards are needed to manage risk, provide transparency and ensure accountability.

#### **5.4 Future areas of research**

Research should be done on increasing food energy efficiency that will provide a critical path for significant growth in food supply without compromising environmental sustainability.

It should also focus on reorganizing the food market infrastructure and institutions to regulate food prices and provide food safety nets aimed at alleviating the impacts of rising food prices and food shortage, including both direct and indirect transfers, such as a global fund to support micro-finance to boost small-scale farmer productivity.

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## APPENDIX I: QUESTIONNAIRE FOR RESPONDENTS

Dear Respondent;

I am **Adong Deborah Ruth**, a student of Kampala International University. I am carrying out research on “The impact of farming methods on food security in Nyakwea Sub County. You are selected among the respondents; please take time to answer the questions provided. The information will be treated with a lot of confidence and for academic purposes only.

### SECTION A (Please tick where applicable)

#### BACKGROUND INFORMATION

##### 1. Age Bracket

18-30  31-40  41-50  51- above

##### 2. Gender

Male  Female

##### 3. Marital status

Single  Married

##### 4. Education Level

O' Level  A' Level  Diploma   
Degree  masters

##### 5. Years of Residency in the study area

1 Year  2 Years  years above  3 years

**SECTION B**

**PART 1: FOOD SECURITY**

1. What are the roles of farming on food security?

- a) Key inputs to crop agriculture
- b) Sources of cash income for poor households
- c) Productive farming can add value to 'idle' land
- d) Maintains household survival
- e) Provides draught power and manure

2. Is Livestock Production one of the most practiced types of farming in Nyakwea Sub County?

- a. Yes
- b. No

3. How can you rate the level of importance of Livestock Production in the economic development of your area?

- a. Very Important
- b. Important
- c. Fair
- d. Little
- e. Very little

**PART 2: To investigate the forms of farming in Nyakwea sub county.**

4. According to you, what are the common hindrances facing livestock production in Nyakwea sub county?

- a. Industrialized Agriculture
- b. Kinds of Subsistence Agriculture
- c. Subsistence Agriculture

5. What are the political, social and economic hindrances to the food security you might have encountered or had experience on, in Nyakwea Sub County or in the rest of the World?

.....  
.....

**PART 3: To investigate the measures to address food security in Nyakwea sub county**

6. What are the possible solutions to the problems of food security in Nyakwea Sub County?

- a) Improve animal disease control
- b) The availability of concentrate feeds and forages
- c) Practical early warning systems and contingency planning
- d) Research for improving animal health and quality seeds
- e) Strategic research on the molecular genetics of resistance to Diseases and parasites

7. How do you rate the contribution of the concerned authorities towards food security in your community?

- a. Good
- b. Fair
- c. Poor

8. Do you concur with the view that over grazing and stocking can bring about drought and soil erosion?

- a. Yes
- b. No

**PART 4: To find out the relationship between farming and food security in Nyakwea sub county**

9. What do you think is the relationship between farming and food security in Nyakwea Sub County?

- a) Provision of sufficient food
- b) Supply of raw materials to the industrial sector
- c) Providing employment
- d) Feeds its population

**Thanks for your responses**

**END.**