

**INVESTMENT IN PROMOTION OF AGRICULTURAL COMMERCIALIZATION IN
NORTHERN UGANDA**

PRIMROSE ONYIRU

S21B34/026

**A DISSERTATION SUBMITTED TO THE SCHOOL OF BUSINESS IN PARTIAL FULFILLMENT
OF THE REQUIREMENTS FOR THE AWARD OF A DEGREE OF BACHELOR OF SCIENCE
IN ECONOMICS AND STATISTICS OF UGANDA CHRISTIAN UNIVERSITY**

September, 2024



**UGANDA CHRISTIAN
UNIVERSITY**

A Centre of Excellence in the Heart of Africa

DECLARATION.

I ONYIRU PRIMROSE, hereby declare that the work detailed in this research is a result of extensive research and has not been submitted to any other institution for any award.

ONYIRU PRIMROSE

A handwritten signature in blue ink, appearing to be 'ONYIRU PRIMROSE', written in a cursive style.

25/09/24

APPROVAL PAGE.

This research work titled ‘Investment in Promotion of Agricultural Commercialization in Northern Uganda’, submitted by Onyiru Primrose in partial fulfillment of the requirement for the award of the Bachelor of Science in Economics and Statistics has been examined and approved by:

Signature: 

Mrs. ELSIE NSIYONA MIREMBE

Date: 25/09/24

DEDICATION.

I dedicate this experience to the Almighty God who has given me the knowledge, wisdom and the ability throughout this process. I also extend my gratitude to my dear mother for providing me with the resources necessary to carry out this research.

ACKNOWLEDGEMENT.

I would like to acknowledge my research supervisor Mrs. Elsie Nsiyona Mirembe for the constructive criticism as she reviewed my research and also for valuable lessons on how to tailor a comprehensive dissertation which can be applied in aspects related to writing in the future.

TABLE OF CONTENTS

| | |
|--|-----|
| DECLARATION..... | ii |
| APPROVAL PAGE..... | iii |
| DEDICATION..... | iv |
| ACKNOWLEDGEMENT..... | v |
| TABLE OF CONTENTS..... | vi |
| LIST OF TABLES..... | x |
| LIST OF ABBREVIATIONS..... | xi |
| ABSTRACT..... | xii |
| CHAPTER ONE..... | 1 |
| INTRODUCTION..... | 1 |
| 1.1 Introduction..... | 1 |
| 1.2 Background of Study..... | 1 |
| 1.3 Problem Statement..... | 3 |
| 1.4 Goal of Study..... | 4 |
| 1.5 Objectives of The Study..... | 4 |
| 1.6 Research Question..... | 4 |
| 1.7 Justification of the Research..... | 5 |
| 1.8 Significance of the Study..... | 5 |
| 1.9 Conceptual Framework..... | 6 |

| | |
|--|----|
| CHAPTER TWO..... | 7 |
| LITERATURE REVIEW..... | 7 |
| 2.1 Introduction..... | 7 |
| 2.2 Theoretical Literature Review..... | 7 |
| 2.3 Empirical Literature Review..... | 8 |
| 2.3.1 Investment in Infrastructure..... | 8 |
| 2.3.2 Investment in Agricultural Technology..... | 11 |
| 2.3.4 Role of Credit Finance..... | 12 |
| 2.3.4 Importance of Access to Reliable Information..... | 13 |
| 2.4 Overview of Objectives..... | 14 |
| 2.5 Efforts the Government Made to Promote Agricultural Commercialization in Northern Uganda..... | 14 |
| 2.6 Obstacles that have Hindered Agricultural Development in Northern Uganda..... | 16 |
| 2.7 Summary of Literature Review..... | 17 |
| CHAPTER THREE..... | 19 |
| RESEARCH METHODOLOGY..... | 19 |
| 3.1 Introduction..... | 19 |
| 3.2 Research Design..... | 19 |
| 3.3 Area of Study..... | 19 |
| 3.4 Data Collection Methods..... | 20 |

| | |
|--|----|
| 3.5 Sample Size. | 20 |
| 3.6 Response Rate. | 21 |
| 3.7 Sources of Information. | 21 |
| 3.8 Methodological Constraints. | 21 |
| 3.9 Conclusion. | 22 |
| CHAPTER FOUR. | 23 |
| PRESENTATION, ANALYSIS AND INTERPRETATION. | 23 |
| 4.1 Introduction. | 23 |
| 4.2 Demographic Characteristics of Respondents. | 23 |
| 4.3 Age of Respondents. | 23 |
| 4.4 Education of Respondents. | 24 |
| 4.5 Distribution of Agricultural Households by ZARDI. | 25 |
| 4.6 Findings on Impact of Investment on Agricultural Commercialization. | 26 |
| 4.6.1 Findings on Farmers Who Belong in Farmer Organizations. | 26 |
| 4.6.2 Findings on Types of Enterprises. | 27 |
| 4.6.3 Findings of Use of Irrigation Systems. | 28 |
| 4.6.4 Findings on Types of Seeds Used. | 28 |
| 4.6.5 Findings on Annual Income of Farmers by Enterprise. | 29 |
| 4.6.6 Findings on Agricultural Households That Received Extension Services. | 30 |
| 4.6.7 Findings on Total Amount of Loans Given To Farmers. | 31 |

CHAPTER FIVE 32

DISCUSSION OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS. 32

5.1 Introduction..... 32

5.2 Summary of Findings..... 32

5.3 Conclusions..... 34

References..... 36

LIST OF TABLES.

| | |
|---|----|
| Table 1 Sample Size of Study, AAS 2019..... | 20 |
| Table 2 Number of Respondents by ZARDIS | 21 |
| Table 3 Age of Respondents, AAS 2019 | 23 |
| Table 4 Education Level of Respondents | 24 |
| Table 5 Distribution of households by ZARDI, AAS 2019..... | 25 |
| Table 6 Farmers who belong in a farmer organization, AAS 2019 | 26 |
| Table 7 Types of Enterprises | 27 |
| Table 8 Use of Irrigation Systems, AAS 2019..... | 28 |
| Table 9 Types of Seeds Used, AAS 2019 | 29 |
| Table 10 Annual Income of Farmers By Enterprise, AAS 2019..... | 29 |
| Table 11 Agricultural Households That received Extension Services, AAS 2019 | 30 |
| Table 12 Total Amount of Loans, AAS 2019 | 31 |

LIST OF ABBREVIATIONS.

| | |
|-----------------|--|
| AAS | Annual Agricultural Survey |
| AGDEVCO | Agricultural Development Company |
| Ag. HHs | Agricultural Households |
| ALENU Uganda | Action for Livelihoods Enhancement in Northern Uganda |
| DINU | Development Initiative for Northern Uganda |
| GADC | Gulu Agricultural Development Company |
| GDP | Gross Domestic Product |
| LED | Local Economic Development |
| LRA | Lord's Resistance Army |
| MDAs | Ministries, Departments and Agencies |
| MSMES | Micro, Small, Medium Enterprises |
| SDU | Smallholder Development Unit |
| UBOS | Uganda Bureau of Statistics |
| UIA | Uganda Investment Authority |
| UNCDF | United Nations Capital Development Fund |
| ZARDI | Zonal Agricultural Research and Development Institute |

ABSTRACT.

This study details how investment can promote agricultural commercialization in Northern Uganda. This region has significant agricultural potential however due to adverse effects such as civil wars, climatic conditions and poverty, this potential has been eroded. The research examines the role of both public investment in terms of government intervention and private investments in terms of donor-funded initiatives which gear toward improving agricultural productivity and market access. Emphasis is placed on infrastructure development, credit finance and technological advancement as key areas where investment can promote agricultural commercialization. Through analysis of secondary data obtained from existing studies relating to this study, government reports, articles and websites, the study identifies existing gaps as well as opportunities which provide policy recommendations to attract and sustain investment. The findings show that there is potential for more investment to be made in order to transform agriculture from subsistence-oriented to market-oriented thereby boosting incomes and contributing to regional economic growth.

This research offers relevant insights involving infrastructural development, credit finance and technological advancement to policy makers and potential investors in fostering sustainable agricultural commercialization in Northern Uganda.

CHAPTER ONE.

INTRODUCTION.

1.1 Introduction.

Agricultural commercialization in simple terms refers to the transition from growing crops for subsistence consumption to growing crops for sale. This involves gradual replacement of rudimentary methods of farming with advanced techniques of production which eventually transforms agriculture into a more lucrative sector in Uganda's economy.

Agriculture has served as the back bone of Uganda's economy predating to earlier times specifically before 1880 before colonial occupation in Uganda. According to the annual Agricultural Survey(UBOS, 2019)published by the Uganda Bureau of Statistics, the agricultural sector ranks first in terms of labor force in the Ugandan economy.

1.2 Background of Study.

The domestic nature of agriculture changed after Uganda was declared a British protectorate. Back then, cash crops such as cotton were produced which prompted the building of the Uganda Railway to ease the transportation of agricultural produce. However, after independence in 1962, due to poor leadership of the presidents that ruled at that time, due to insecurity, mismanagement of resources and lack of adequate resources, the agricultural sector dwindled.

In the 1960s, agriculture in Northern Uganda was thriving and was one of the largest producers of cotton in Sub-Saharan Africa. However, due to conflicts and insurgency for example the civil war that took place in 2005 led by the Lord's Resistance Army (LRA) which left many people displaced from their farmlands(AGDEVCO, 2018). Before

this conflict occurred, the agricultural system in Northern Uganda was primarily subsistence-based where farmers would produce for their own consumption. The LRA conflict had adverse effects on Northern Uganda such as food insecurity, massive displacement from their land which overall crippled the agricultural sector in the region.

However, the post- conflict period, the government through various initiatives has sought out to rehabilitate the agricultural sector in Northern Uganda. Through opening up an avenue for different investors, both domestic and foreign to aid in transformation of agriculture in Northern Uganda. A case in point would be an impact investor group AgDevCo which is a company that is contributing to the transformation of agriculture in Africa from subsistence farming to a modern commercial sector. This company invests between \$1 million and \$5 million of debt and equity in early-stage enterprises, targeting primary food production and agro-processing companies where they believe that they can make the most impact. Alongside financial support, other services they provide include hands-on guidance to management teams, working on the ground from the outset, collaborating with investees to grow their businesses among many.

AgDevCo's Smallholder Development Unit (SDU) worked together with rural agricultural enterprises to develop equitable out grower schemes that boost productivity and incomes for smallholder farmers. The SDU is a five-year initiative, supported by the Mastercard Foundation, which works in seven African countries, Uganda inclusive (Revitalizing Agriculture in Northern Uganda, April 2018)

One of the beneficiaries from this investment in Northern Uganda is the Gulu Agricultural Development Company (GADC), a cotton processing company which gave a chance to farmers to develop their agricultural, financial and business skills. The company came in so as to bridge the gap between fields and markets and also between producers and exporters. The company also sought out to provide modern technology to these farmers in order to boost productivity.

Investments in northern Uganda tend to lag behind compared to other regions in the economy due to past conflicts and on-going challenges such as poor infrastructure, limited access to credit facilities and poor technological rates. According to reports by the Uganda Investment Authority and Uganda Bureau of Statistics, Northern Uganda receives roughly 10-12% of the total private investment in the country compared to the central region that receives over 60% of investment attributed to its more developed infrastructure, population density, and proximity to the capital city (Kampala) and better access to markets among other factors.

1.3 Problem Statement.

Northern Uganda has a lot of potential to contribute immensely to the Agricultural sector in the economy at large however there is low attention to investment in commercialization of agriculture in the region. The low levels of investment in Northern Uganda have led to low levels of productivity, limited access to larger markets and absence of value addition which result into production of commodities that cannot compete on the global market. Among the reasons why investment is low in northern Uganda is because of a history of insurgency, poor climatic conditions and poor environmental conservation tendencies such as bush burning and deforestation for example in areas such as Madi-Okollo where people in the area burn bushes in

order to obtain charcoal which is sold along the road sides which makes Northern Uganda less attractive for investment therefore keeping farmers engaged in subsistence farming.

Major action into investing in agricultural commercialization in Northern Uganda will greatly increase the regions potential to participate in the national economy. This will lead to improvement in the infrastructure in the region such as roads for easy transportation of agricultural products to markets, advanced technology will be introduced to the region to improve on the value added to the commodities produced, the overall GDP of the economy will increase and the region will be driven into sustainable development which will improve the standards of living of the people.

1.4 Goal of Study.

The goal of this study is to examine how investment can promote agricultural commercialization in Northern Uganda.

1.5 Objectives of The Study.

- ❖ To identify the obstacles that have hindered agricultural development in Northern Uganda.
- ❖ To examine the efforts the government to promote agricultural commercialization in Northern Uganda.
- ❖ To determine the relationship between level of investments and the degree of agriculture commercialization.

1.6 Research Question.

What can the government do to promote agricultural commercialization in Northern Uganda?

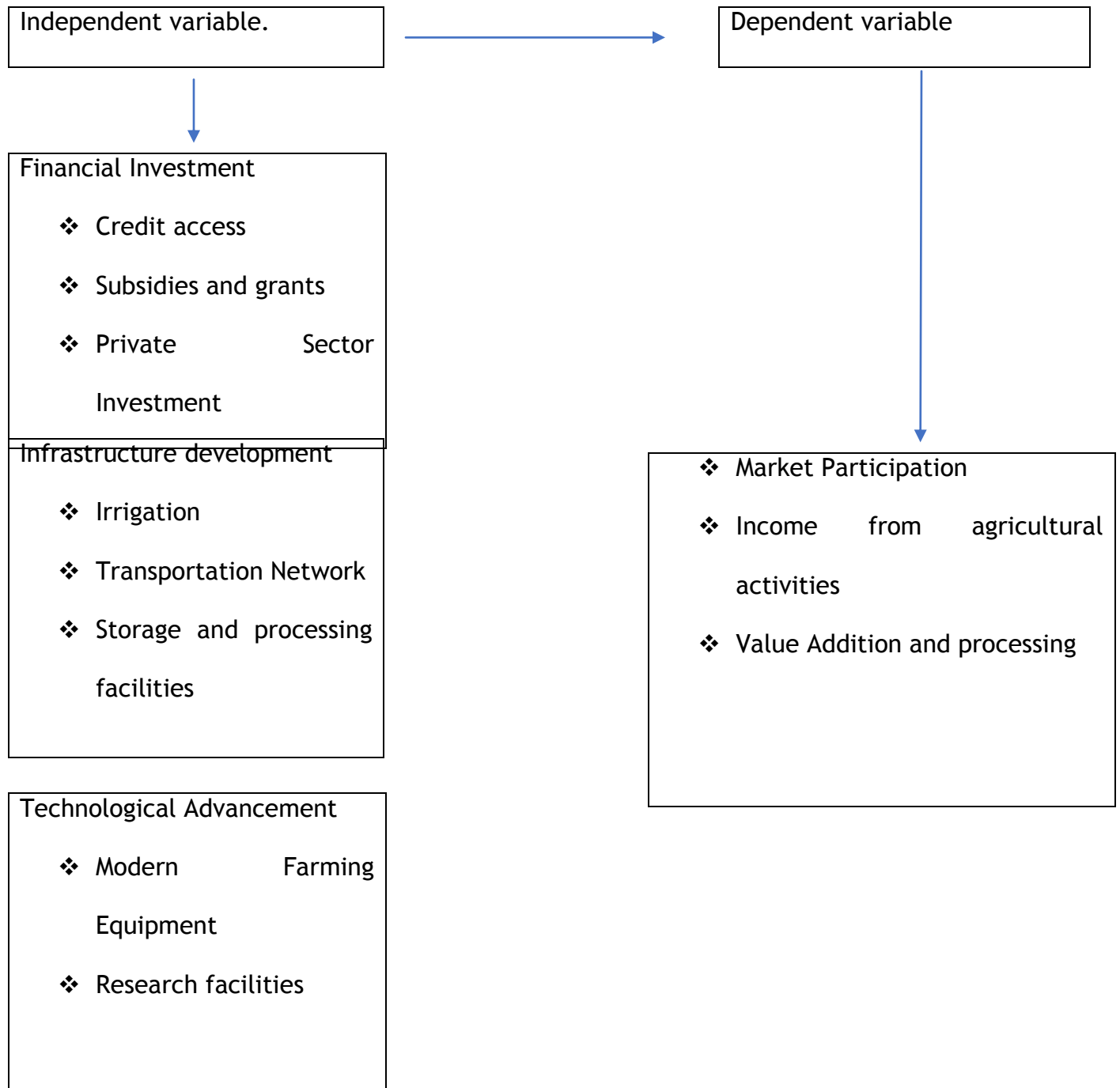
1.7 Justification of the Research.

The Northern region of Uganda has fallen behind in terms of development due to violence among other things which has left the region lagging behind, the agricultural sector inclusive. This research is to bring to light the need to promote agricultural commercialization in Northern Uganda. Given its history in the field, Northern Uganda deserves a chance to pick up from where it left off and once again bring about development in the region.

1.8 Significance of the Study.

As we have already established, agriculture is the backbone of Uganda's economy therefore this sector has the potential to bridge the regional inequality gap. This study highlights on necessity to tap into agricultural commercialization in northern Uganda as it could be lucrative to the region and the nation as a whole in terms of economic growth. The government of Uganda needs to put in effort into promoting investment in this region since it acts as the middleman between investors both local and international and the local farmers.

1.9 Conceptual Framework.



CHAPTER TWO. LITERATURE REVIEW.

2.1 Introduction.

This chapter details the existing literature that explains how investment in agriculture can promote commercialization of agriculture in Northern Uganda. This chapter also includes an overview of the objectives of this study which include; Identifying the various obstacles that have hindered agricultural development in Northern Uganda and examining the different efforts the government has made to promote agricultural commercialization in Northern Uganda. The information in this chapter is gathered from a variety of sources such as articles, academic papers, media reports among others.

2.2 Theoretical Literature Review.

Agricultural commercialization is a key driver of economic growth in Northern Uganda. The theoretical relationship between investment and agricultural commercialization is rooted in the theory of structural transformation which states that increased investment in agriculture can shift an economy from subsistence oriented to market-oriented production (Johnston & Mellor 1961). Various investments include access to finance, technology advancement and infrastructural development which improves productivity and market access.

The Induced Innovation Theory (Hayami & Ruttan 1971) further explains the investments made in agriculture can promote agricultural commercialization. Through adoption of modern technologies such as improved seeds and machinery among others, this will make produce more efficient and profitable due to value addition to the finished produce which exposes farmers to a larger market. The Value chain

development framework also highlights the importance of investment in development of market linkages. According to Porter (1985), investment in rural infrastructure such as roads, storage facilities and market centers facilitates the transportation of goods from production centers to market centers which reduces costs of production.

Empirical studies made by Ouma et al. (2010) and Benin (2016) detail how increased investment in rural infrastructure and extension services in Uganda has significantly boosted agricultural productivity and commercialization. These investments have been crucial in improving output and also fostering rural transformation which has shifted small holder farmers towards more commercialized and market-oriented farming systems.

2.3 Empirical Literature Review.

Empirical literature review looks at how investment can promote agricultural commercialization in Northern Uganda focuses on studies and evidence-based research that demonstrate the impact of investments on agriculture outcomes. This review analyses investment made in infrastructure, technology and finance with findings that are relevant to the context of agricultural commercialization in Northern Uganda.

2.3.1 Investment in Infrastructure.

It is crucial to note that investment in rural infrastructure especially in roads, storage facilities and irrigation systems are crucial in advancing agricultural commercialization. The studies below highlight the importance of investment in rural infrastructure in order to promote agricultural commercialization which in turn can lead to economic growth and increased food security. For instance, Koolwal (2011)

investigates the long-term effects of road improvements in Bangladesh. The study utilizes data collected from Household survey that is associated to a rural development of roads in Bangladesh. The study uses panel data to assess how rural road development increases overall productivity in Bangladesh. This study relates to agricultural commercialization because of the rural road infrastructure through various outcomes such as improved market access, shift to non-farm employment and long-term investment sustainability.

Roads are very instrumental in connecting farmers to the markets which can be beneficial in terms of accurate information about market prices and demand patterns. Better road networks especially in rural areas reduce the costs of production incurred by farmers in terms of transport costs which allows farmers to sell their produce in more distant and lucrative markets and in addition increase availability of agricultural inputs therefore improving agricultural commercialization. The paper brings to light the importance of long-term sustainability of investment benefits overtime which also applies to agricultural commercialization. It is imperative that the positive effects of investment be felt even in the long run so as to maintain sustainability of the regional growth and overall national economic growth. Investments made in road construction must be able to reap benefits over a long period of time which puts emphasis on investing on construction of quality roads that can last for a longtime.

The paper by Dercon (2009) investigates and analyses the impact of infrastructural investments on poverty eradication and agricultural productivity in Ethiopia. The study talks about how improved road access can lead to increased agricultural productivity, higher household incomes and better access to markets. Through

analyzing data collected from Ethiopian village households determined that road improvements reduce poverty significantly by enabling farmers to shift from subsistence farming to market-oriented farming bringing about increase in household income and food security. The study shows that improved infrastructure in terms of improved road network gives farmers better access to tap into a larger market which brings about increased production hence commercialization. In terms of availability of input, Improved infrastructure also improves the supply of agricultural inputs such as seed varieties, fertilizers, machinery etc. that facilitate in the agricultural production process. Farmers are able to have access to a wide range of inputs which improve the quality and quantity of output produced which is key in achieving commercial-scale farming. In addition, by connecting rural areas to markets, roads facilitate in diversification of income which enables farmers to shift from subsistence farming to market-oriented farming in order to tap into profits that come with increased access to larger markets brought about by improved infrastructure.

In the context of Northern Uganda, a study conducted by Avis (2018) examined the impact of road rehabilitation on outcomes of agricultural commercialization. This study combines both econometric analysis and case studies to evaluate the impact of government initiatives on agricultural commercialization. The findings of the study suggested that improved roads reduced transport costs and post-harvest losses thereby increasing market access and enabling farmers to sell more agricultural produce. This Study highlights the importance of investing in infrastructural development in order to reduce the geographical and economic isolation of farmers in Northern Uganda.

2.3.2 Investment in Agricultural Technology.

Evidence drawn from studies below suggest that investment in agricultural technology such as high yielding seed varieties, improved fertilizers and mechanization play a significant role in promoting agricultural commercialization. The study by Esther & Duflo (2008) examine the low purchase of fertilizer by farmers in Kenya despite its high returns when added as an input in the production process. By using data collected from smallholder farmers, the study finds that discounts offered to small holder farmers on purchase of fertilizers increases its usage. The study is applicable in agricultural commercialization as it demonstrates that incentives such as discounts on fertilizers can attract farmers toward purchasing more fertilizers which increases yields capacity and overall productivity. This is necessary because it increases the amount of output produced by farmers which resonates to increased profits for farmers resulting into transition from subsistence farming to market-oriented farming. A study by Ragasa et al. (2019) in Northern Uganda explains how access to improved seed varieties significantly increased crop yields especially for staple foods such as beans and maize. The study shows that the increased productivity enabled farmers to increase sales in market centers hence increasing market participation. Another study conducted by Matsumoto and Yamano (2011) explains how investment in agricultural technology through mechanization such as use of tractors increased labor productivity which gave farmers better access to larger land for cultivation. Access to machinery makes it easier for farmers to cultivate larger fields which brings about increased crop yields and increased profits earned by farmers. Benin et al. (2018) also suggests that farmers who invest in agricultural advancement are more likely to shift from

subsistence oriented to market-oriented production due to higher yield levels and access to larger markets.

2.3.4 Role of Credit Finance.

Access to credit facilities is another crucial factor for promoting agricultural commercialization. The study conducted by Levine (2007) examine the positive correlation between financial incentives and agricultural commercialization. Access to credit enables farmers to invest in improving overall productivity through access to resources to be able to purchase inputs such as productivity-enhancing machinery, improved seed varieties which are crucial to agricultural commercialization. Additionally, a study by Akinbode & Adisa (2018) explained that farmers in the northern region who had access to reliable credit facilities increased their market participation due to increase in productivity through purchasing better quality inputs and improved technology which increased yield capacity. This puts farmers in a better position to compete on both domestic and international markets due to the value added to their produce which earns more income hence improving their standards of living. Furthermore, a study by Kabir et al (2019) showed how credit availability positively impacted crop commercialization. Farmers who accessed credit were able to actively participate in increased production of crops such as cotton and sunflower. The study showed that the farmers were able to navigate risks and invest in storage facilities in order to preserve crops which helped in avoiding the effects of price fluctuations.

2.3.4 Importance of Access to Reliable Information.

The study by Jack (2013) highlights that access to technology through mobile platforms increased agricultural productivity and access to information on market dynamics improved agricultural commercialization in rural Africa. Farmers in rural areas have limited access to information concerning accurate market prices and demand and supply dynamics which hinders productivity. Relating to Northern Uganda, due to insufficient information on matters concerning agriculture marketing, market-oriented production among others, farmers in Northern Uganda haven't had the opportunity to escape the cycle of subsistence farming therefore, The Government of Uganda has come in both directly and indirectly to play a crucial role in bridging the gap between investors and farmers. Due to underlying constraints including lack of access to reliable market information, inability to analyze past annual records for supply, and price forecast on buyers of agricultural produce and their locations, smallholder farmers earn suboptimal incomes from agriculture UNCDF (2021)

The United Nations Capital Development fund (UNSDf) in collaboration with the Ugandan Government has developed a market systems development approach and digital solutions to address the constraint of inadequate information. This approach is aimed at addressing the challenges of demand and supply of agricultural output in order to improve farming practices and achieve high output for smallholder farmers. These solutions potentially increase the quality of output and also ease the farmers access to new markets both domestic and foreign. The initiative also gears towards improvement of economic opportunities for women, youth, refugees, migrants among others.

2.4 Overview of Objectives.

Agriculture remains the backbone of Uganda's economy providing employment opportunities to about 70% of the country's total population which contributes immensely to the economy's GDP UBOS (2019). Agriculture is a high priority on Uganda's agenda for both growth and poverty reduction. The country is highly dependent on agriculture for economic output and employment. (UNCDF, 2021)

In Northern Uganda, the agricultural sector has been met with many challenges, a prominent challenge being the civil in 2005 that displaced many from their land which put a cripple into the sector. However, it has been observed that Northern Uganda has a lot of potential to contribute to the sector's development both regionally and nationally, observations which have been made through gatherings such as the Women -in-business summit which was held in Arua city hosted by the Uganda Investment Authority.(UIA, 2023). For instance, the Northern region has been found to be the biggest supplier of cassava in the country (News, 2022) this can be capitalized upon by the government through encouraging more investment into value addition techniques to further boost the production and profitability of the crop. Recognizing this potential, the government has embarked on various initiatives and strategies which are aimed at promoting the commercialization of agriculture in the region.

2.5 Efforts the GovernmentMade to Promote Agricultural Commercialization in Northern Uganda.

The government intends to achieve agriculture commercialization in Northern Uganda by focusing on initiatives such as increased investment, formulating and implementing various policies into place, partnering with non-government organizations,

international bodies among others which seek to transition from subsistence farming to market-oriented production.

The government of Uganda under the Uganda Investment Authority has promoted agricultural commercialization through various summits that have been held in Northern Uganda. Investment plays a significant role in improving the agricultural sector therefore spreading awareness about the potential of Northern Uganda is important. The Uganda Investment Authority held a summit in Nebbi District whose theme was "Mobilization for Domestic Investment for Industrialization, Market access, and Job Creation". This summit was aimed at promoting and attracting investment programs to both domestic and foreign investors gearing toward economic development in West Nile. (Vision, 2022). Key emphasis was put into increasing the manufacturing sector in West Nile which drives toward job creation hence availing employment opportunities for the people in West Nile.

The Government has also implemented several initiatives such as the Action for Livelihoods Enhancement in Northern Uganda (ALENU) project from 2020-2023. This project under the Development Initiative for Northern Uganda (DINU) program and partners such as the European Union aims at improving the livelihoods of people in Northern Uganda through increased and diversified food production, enhanced market opportunities, better maternal and child nutrition and household resilience. It involves training farmer groups, providing start up inputs such as seed varieties among others, according to the Action for Livelihoods Enhancement in Northern Uganda. This program enhances agricultural productivity, providing training to farmers and improve access to markets which help the farmers to increase their income and contribute to

the overall economic development of the region and the nation as a whole. This initiative also contributes to promoting improved farming practices and encouragement of diversification of crop varieties which brings about increased food production and improved food security for households.

2.6 Obstacles that have Hindered Agricultural Development in Northern Uganda.

As previously stated, agriculture is the backbone of Uganda's economy and contributes significantly to the country's GDP and employment. However, in Northern Uganda, the agricultural sector has been met with various obstacles that have hindered the development of the sector in the region. Conflict and the threat of violence may affect agricultural decision making in a variety of ways. For instance, agricultural assets that support peacetime livelihoods may become liabilities for conflicts. Assets such as livestock, are not only more likely be looted, but their very presence may also increase the risk of being attacked, especially if they are difficult to conceal. (Rockmore, 2012)

Conflict and instability have been the root cause of Northern Uganda's agricultural sector being underdeveloped and under established. This dates back to the invasion of the region back in 2005 by the LRA rebels who took to conflict and violence after the people of Northern Uganda refused to join them in the struggle which resulted into displacement, destruction of infrastructure and disruption of agricultural activities in the region. The effects of this conflict have trickled down as people haven't fully recovered from the adverse effects of the conflict.

The infrastructural constraints in Northern Uganda have also played a key role in the hindrance of the agricultural sector in the region. Infrastructure plays a key role in

the advancement of the agricultural sector as this acts as a bridge between the production centers and market centers. Although the infrastructural system in Northern Uganda is extensive, it is in poor condition due to poor maintenance and also become difficult to navigate during the rainy seasons. (ACODE, 2021). In addition to that, the Rural Electrification is still limited resulting into farmers using alternative energy such as solar power which comes with its challenges such as high expenses and also limited energy storage during times of when energy from the sun is limited. Farmers in Northern region is significantly hindered by the poor state of infrastructure in the various districts of the region. This greatly hinders their access to more markets which brings with it adverse effects such as increasing costs of production and potential wastage of produce to their perishable nature.

The problem of harsh climatic conditions in Northern Uganda has posed a great hinderance to the agricultural commercialization in Northern Uganda. Farmers in this region lack adequate knowledge about climate-smart agricultural practices and long-term natural resource use.(Giz.de, 2024). In addition to that, the region faces significant challenges with irregular rainfall patterns for example the prolonged dry seasons that are experienced from November to March and long rainy seasons from May to September(CARE, 2021) which brings about a challenge of unpredictability of the weather patterns which results into inconsistent yields.

2.7 Summary of Literature Review.

The literature review explains in detail the impact that various forms of investment such as investment in infrastructure, investment in technology, role of credit finance and availability of reliable information can promote agricultural commercialization in

Northern Uganda. The review highlights the relationship between various studies conducted to detail the impact of investment in agricultural commercialization. The review also highlights on the objectives for carrying out this study which are; efforts made by the government to improve agricultural commercialization in Northern Uganda and the various obstacles that have hindered agricultural commercialization in Northern Uganda. It begins by emphasizing how much agriculture contributes to the economy's GDP and further explains the challenges that the region has faced to revitalize the sector due to the instability in the region that left a lasting impact. The review delves into detail about the various government efforts over the years to improve the sector through initiatives such as increased investment by implementing various strategies, partnering with foreign cooperations among others in order to ensure transformation of agriculture in the Northern region of Uganda. The government had also made substantial strides in curbing information asymmetry to provide reliable and accurate information to farmers in region about market prices and demand patterns for improved farm planning for instance using agricultural summits as a way to empower and inform farmers across the region. The study also looks at a few obstacles that have hindered the development of agriculture in Northern Uganda such as conflict and instability, infrastructural constraints and harsh climatic conditions which have left the region lagging behind in terms of agriculture and regional development in comparison to other regions.

CHAPTER THREE.

RESEARCH METHODOLOGY

3.1 Introduction.

This chapter provides the methodology used to conduct this study. This chapter details the research used, area of study, sample size, response rate, sources of information and the limitations of the study.

3.2 Research Design.

This study was carried out using the mixed method data analysis approach which allowed for a comprehensive analysis of the relationship between investment and agricultural commercialization. Secondary data which was extracted from sources such as The Annual Agriculture Survey 2019, investment project reports, existing studies that have been made in line with the research topic, articles and case studies to source in-depth information that corresponds with this study. Additionally, case studies were used to further explain how investment is important in promoting agricultural commercialization in Northern Uganda.

3.3 Area of Study.

This study focused on the Northern region of Uganda as the area for this study including districts such as Gulu, Kitgum, Arua among others. This is one of the regions that, in the past had a booming agricultural sector before conflicts, insurgencies and civil wars which saw the sector crumbling down; therefore, the study presented how the agricultural sector in the region through investment in agricultural commercialization can be resuscitated. Northern Uganda has extensive potential in terms agriculture and this study brings to light how investment in the region boosts agricultural commercialization.

3.4 Data Collection Methods.

Data collection methods applied to this study were use analyzing and reviewing of existing documents such as the Annual Agricultural Survey 2019that provided quantitative data and existing studies to gather qualitative insights. Furthermore, case studies that were already published were analyzed to provide more insights about this study.

3.5 Sample Size.

The survey generated regional and sub-regional level estimates. In this study, the Northern region of Uganda was the scope of study with sub-regions of West-Nile, Lango and Acholi consisting of 24 districts which were divided into two Zonal Agricultural Research and Development Institutes (ZARDI) Abi and Ngetta.

| ABI | NGETTA | |
|-----------------|-----------------|---------------|
| WESTNILE | LANGO | ACHOLI |
| Adjumani | Apac | Gulu |
| Arua | Lira | Kitgum |
| Moyo | Amolatar | Pader |
| Nebbi | Dokolo | Amuru |
| Yumbe | Oyam | Agago |
| Koboko | Alebtong | Lamwo |
| Maracha | Kole | Nwoya |
| Zombo | Otoke | Omoro |

Table 1 Sample Size of Study, AAS 2019

3.6 Response Rate.

Overall, in the two ZARDIs, a sample of 5723 agricultural households were selected for the AAS 2019 survey. The response rate was approximately 91 percent.

| ZARDI | Both visits | Post planting season | Post harvesting only | Complete non-response | Total | Response Rate |
|--------|-------------|----------------------|----------------------|-----------------------|-------|---------------|
| Abi | 488 | 19 | 4 | 17 | 528 | 92.4 |
| Ngetta | 781 | 16 | 23 | 44 | 864 | 90.4 |

Table 2 Number of Respondents by ZARDIS, AAS 2019

3.7 Sources of Information.

Secondary data was used to carry out this study. Qualitative data and information were sourced from government reports from Ministries, Departments and Agencies (MDAs), investment project reports, existing studies that have been made in line with the research topic, articles and case studies to source in-depth information that corresponds with this study. The quantitative data was obtained from the Annual Agricultural Survey 2019 published by UBOS from which the study's findings were extracted.

3.8 Methodological Constraints.

The study was met with various constraints and limitations. For instance, a main challenge was associated with data availability and reliability. Most of the information concerning agriculture was on national level with few reports that specified regional information concerning agricultural commercialization which created a big gap when looking for secondary data. Additionally, the available data was outdated i.e.;

information obtained from the AAS survey was from the year 2019 hence presenting a major challenge.

3.9 Conclusion.

In conclusion, this chapter provides an overview of the method that was used in collection of the data used in this study. It shows how Northern Uganda is the area of study and the rationale of picking this region as the area of study. The chapter also explains the sources of information that were used in the study and lastly the limitations of carrying out this study.

CHAPTER FOUR.
PRESENTATION, ANALYSIS AND INTERPRETATION.

4.1 Introduction.

This chapter presents detailed analysis and interpretation of data obtained from the Annual Agricultural Survey Report of 2019 published by the Uganda Bureau of Statistics. This chapter starts with the description of the demographic characteristics of the respondents, followed by an analysis of the key themes derived from the data.

4.2 Demographic Characteristics of Respondents.

The demographic analysis provides an overview of the characteristics of the respondents involved in the study such as age, education level and distribution of agricultural households. These factors are crucial in determining and understanding the context with in which investment in agriculture takes place in Northern Uganda.

4.3 Age of Respondents.

Percent distribution of agricultural households by age class, sex and ZARDI.

| | | 0-24 | | 25-34 | | 35-44 | | 45-64 | |
|--------|--------|--------|-----|---------|------|---------|------|---------|------|
| ZARDI | | No. | % | No. | % | No. | % | No. | % |
| Abi | Male | 29,758 | 8.2 | 112,571 | 31.2 | 86,757 | 24.0 | 96,298 | 26.7 |
| | Female | 2,449 | 1.7 | 22,466 | 15.9 | 29,637 | 21.0 | 61,562 | 43.6 |
| | Total | 32,207 | 6.4 | 135,036 | 26.9 | 116,393 | 23.2 | 157,861 | 31.4 |
| Ngetta | Male | 55,891 | 9.4 | 152,388 | 25.5 | 164,020 | 27.5 | 166,078 | 27.8 |
| | Female | 5,443 | 3.5 | 17,466 | 11.2 | 28,312 | 18.1 | 66,007 | 42.2 |
| | Total | 61,334 | 8.1 | 169,854 | 22.6 | 192,332 | 25.5 | 232,084 | 30.8 |

Table 3 Age of Respondents, AAS 2019

The survey reveals that agricultural households with individuals between 45 to 64 years old are the largest group comprising of 31.4%(157,861) and 30.8% (232,084) followed by between 25-34 years(26.9%) in Abi and in Ngetta 35-44 years (25.5%) and those who are 35-44 years in Abi (23.2) and 25-34 years in Ngetta (22.6%).The study also reveals that agricultural households are predominantly male headed. These findings show that the largest population in both ZARDIs comprises of 45 to 64 years in both male and female headed households.

Among the male headed households in Abi zone, 31.2 percent are between the ages 25-34 while in Ngetta zone, 27.8 percent are between 45-64.

Among the female headed households, in Abi zone, 43.6 percent are between the ages 45-64 while in Ngetta zone, 42.2 percent are between ages 45-64 years.

4.4 Education of Respondents.

Percentage distribution of agricultural households heads by highest education level, by sex and by ZARDI

| | | Non edn | | Primary | | Secondary | | | |
|--------|--------|---------|------|---------|------|-----------|------|---------|-----|
| | | No. | % | No. | % | No. | % | total | % |
| Abi | Male | 14,634 | 4.1 | 231,982 | 64.5 | 113,056 | 31.4 | 359,672 | 100 |
| | Female | 31,933 | 22.6 | 84,683 | 59.9 | 24,665 | 17.5 | 141,280 | 100 |
| | Total | 46,567 | 9.3 | 316,665 | 63.2 | 137,721 | 27.5 | 500,952 | 100 |
| Ngetta | Male | 14,051 | 2.4 | 395,084 | 66.9 | 181,718 | 30.7 | 591,573 | 100 |
| | Female | 54,899 | 35.1 | 85,719 | 54.8 | 15,680 | 1- | 156,298 | 100 |
| | Total | 68,950 | 9.2 | 481,523 | 64.4 | 197,398 | 26.4 | 747,871 | 100 |

Table 4 Education Level of Respondents, AAS 2019

The survey collected information on the highest level of education completed by the agricultural households. The data was collected based on the following categories of levels of education attainment; no education, primary level and secondary level. The education level in the survey reveals that the highest education level attained in agricultural households is primary level with 63.2% in Abi and 64.4% in Ngetta. The findings also show that the male heads relatively received more education opportunities than the female heads in both ZARDIs.

4.5 Distribution of Agricultural Households by ZARDI.

| ZARDI | First season | | second season | | Ag. yr |
|--------|--------------|------|---------------|------|---------|
| | Number | % | Number | % | Number |
| Abi | 502,614 | 7.4 | 473,848 | 7.2 | 505,252 |
| Ngetta | 753,199 | 11.2 | 743,943 | 11.4 | 763,278 |

Table 5 Distribution of households by ZARDI, AAS 2019

The estimated number of agricultural households in these two ZARDIs was 2.47 million for the first and second season. The highest percentage of agricultural households was in Ngetta (11.2%) and (11.4%) in the first and second season respectively.

In the first season, the total number of households was 1.25 million with Ngetta having the highest percentage of 11.2 percent over Abi with 7.4 percent.

In the second season, the total number of households was 1.21 million indicating a decline by 0.04 with Ngetta at 11.4 percent showing an increase by 0.2 and Abi at 7.2 percent showing a decrease of 0.2.

4.6 Findings on Impact of Investment on Agricultural Commercialization.

4.6.1 Findings on Farmers Who Belong in Farmer Organizations.

Distribution of adult members that belong to a farmer organization, by sex and ZARDI

| | | Belongs | | doesn't belong | |
|--------|--------|---------|-----------|----------------|--|
| ZARDI | Sex | No. | No. | total | |
| Abi | Male | 45,140 | 514,305 | 559,446 | |
| | Female | 45,649 | 592,172 | 637,821 | |
| | Total | 90,789 | 1,106,478 | 1,197,267 | |
| Ngetta | Male | 161,566 | 799,430 | 960,996 | |
| | Female | 175,027 | 815,534 | 990,560 | |
| | total | 336,593 | 1,614,964 | 1,951,557 | |

Table 6 Farmers who belong in a farmer organization, AAS 2019

The survey shows that the total number of adult members who belong to a farmer organization are 427,382 and those that do not belong are 2,721,442 for both ZARDIs. This shows that majority of farmers in this region do not belong to a farmer's organization. This presents a gap in promoting agricultural commercialization as farmer organizations provide members with better access to essential resources such as seeds, fertilizers, machinery and credit facilities which can achieve economies of scale reducing costs and improving efficiency and productivity resulting into agricultural commercialization.

4.6.2 Findings on Types of Enterprises.

Distribution of agricultural households by type of enterprise by sex of the head and ZARDI.

| ZARDI | Sex | Only crop pdtn | Crop pdtn+other | Only other agric activities |
|--------|--------|----------------|-----------------|-----------------------------|
| Abi | Male | 54,249 | 307,085 | 0 |
| | Female | 34,593 | 106,688 | 0 |
| | Total | 88,842 | 413,773 | 0 |
| Ngetta | Male | 81,028 | 514,003 | 1871 |
| | Female | 38,424 | 117,874 | 0 |
| | Total | 119,452 | 631,877 | 1,871 |

Table 7 Types of Enterprises, AAS 2019

Among the agricultural households in both ZARDIs, a total of 208,294 are involved in crop production only, 1,045,650 are involved in crop production and other agricultural activities and only 1,871 are involved in only other agricultural activities. This shows that majority of farmers in Northern Uganda practice diversification of agriculture in the region. Diversification is a key strategy that can promote agricultural commercialization. This is through income stability where by engaging in different agricultural activities, farmers can ensure a stable income throughout the year which presents an avenue for more investment into agricultural commercialization. This also enables farmers to take advantage of different market opportunities which increases overall profitability.

4.6.3 Findings of Use of Irrigation Systems.

Percentage of agricultural households using irrigation on at least one plot

| | First season | second season |
|--------|--------------|---------------|
| ZARDI | % Ag. HHs | % Ag. HHs |
| Abi | 1.9 | 1.4 |
| Ngetta | 1.1 | 1.5 |

Table 8 Use of Irrigation Systems, AAS 2019

The survey shows the percentages of agricultural households using irrigation on at least one plot of land. In order to boost agricultural production through modernized technology such as irrigation system, the Government of Uganda is striving to invest in increase farmer access to this technology which will promote agricultural commercialization in Northern Uganda. The survey shows that in the first season, Abi has higher percentage use of irrigation (1.9) compared to Ngetta (1.1). However, in the second season, there is a decline in irrigation system use in Abi by 0.3 percent an increase in Ngetta by 0.4 percent.

4.6.4 Findings on Types of Seeds Used.

Percentage distribution of agricultural households by types of seeds used for first and second season average and by ZARDI.

| Traditional seeds | | improved seeds | | |
|-------------------|---|----------------------------|---|----------------------------|
| ZARDI | % | 95% confidence level | % | 95% confidence level |

| | | | | |
|---------------|-------------|-------------|-------------|-------------|
| Abi | 84.5 | 81.5 | 23.7 | 19.9 |
| Ngetta | 96.8 | 95.6 | 31.3 | 27.8 |

Table 9 Types of Seeds Used, AAS 2019

The survey shows that agricultural households utilize 90.6 percent of traditional seeds and are 88.6 percent confident in their yield while agricultural households utilize 27.5 percent of improved seeds and are 23.9 percent confident of the yield produced. This shows that farmers have a higher preference to traditional seeds due to factors such as increased costs on improved seeds which increases the farmers costs of production hence low profitability. This calls for more provision of credit facilities that allows famers to obtain loans that can facilitate increased purchase of improved seeds which bring about higher yields resulting into increased agricultural commercialization in the region.

4.6.5 Findings on Annual Income of Farmers by Enterprise.

Average farm annual income (UGX), by enterprise size and ZARDI

| | Small producers | Large producers |
|---------------|------------------------|------------------------|
| ZARDI | Mean (UGX) | Mean (UGX) |
| Abi | 671,730 | 1,901,070 |
| Ngetta | 923,309 | 2,013,984 |

Table 10 Annual Income of Farmers By Enterprise, AAS 2019

This survey shows that small producers obtain average farm annual income of UGX1,595,039 and large producers obtain average farm annual income of UGX3,915,054. This shows that the large producers invest more in their enterprise

than small producers. This shows that provision for credit facilities should be availed for small producers so as to increase agricultural commercialization in the Northern region by increasing investment into activities that can boost productivity.

4.6.6 Findings on Agricultural Households That Received Extension Services.

Percentage of agricultural households that received extension services

| | Year | year |
|---------------|-------------|-------------|
| ZARDI | 2018 | 2019 |
| Abi | 12.8 | 4.2 |
| Ngetta | 13.6 | 8.7 |

Table 11 Agricultural Households That received Extension Services, AAS 2019

This survey shows a significant decline in reception of extension services by agricultural households between the years 2018 and 2019 in both ZARDIs. This is brought about due to low government intervention in provision of these services in the region. This brings about a decrease in agricultural commercialization as it posits limiting factors such as limited transfer of knowledge in terms of up-to-date information on modern farming techniques, pest and disease control, proper use of fertilizers and efficient irrigation practices. This knowledge can help farmers to increase their productivity which results into increased agricultural commercialization. Also, farmers have limited market access and information such as market prices, demand trends and quality standards which can help farmers to sell their products at better prices and reduce post-harvest losses.

4.6.7 Findings on Total Amount of Loans Given To Farmers.

Total amount of loans (UGX) by ZARDI.

| Total (UGX, millions) | | |
|-----------------------|--------|--------|
| ZARDI | 2018 | 2019 |
| Abi | 30,436 | 9,649 |
| Ngetta | 11,196 | 22,286 |

Table 12 Total Amount of Loans, AAS 2019

The survey shows that total amount of loans disseminated was approximately UGX 41.6 million in 2018 and approximately UGX 31.9 million in 2019 which shows a significant decline. Although, generally there is a decline, Ngetta received increased amount of loans in 2019. This shows that there is an increase in investment such as improved seed varieties, improved technology which brings about increased commercialization of agriculture.

CHAPTER FIVE

DISCUSSION OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS.

5.1 Introduction

This chapter presents the summary and discussion of findings, conclusion and recommendations of this study. The analysis covered various factors that promote investment in agricultural commercialization such as extension services, credit facilities in terms of loans, investment in irrigation system among others. Each of these factors plays a significant role in determining the level of agricultural commercialization and overall productivity of the region.

5.2 Summary of Findings.

Firstly, the information collected on the total amount of loans shows that access to credit has declined for farmers in the Northern region. While some farmers have benefited from loans such as the increase in amount of loans in Ngetta, farmers in Abi have faced a significant decline in access to credit. This limited access to credit is a barrier to purchasing high quality inputs such as seed varieties, improved machinery and adopting modern farming techniques. These findings suggest that improving financial inclusion and expanding credit facilities for farmers could be key for enhancing agricultural commercialization in Northern Uganda.

Extension services were also another focus point. These findings showed that there is a significant decline in provision of extension services between 2018 to 2019. Majority of the farmers lack access to up-to-date information on market prices, demand dynamics which limits their ability to make informed decisions resulting into low productivity and income.

Regarding the annual income of farmers by enterprise, the findings reveal a huge gap between the incomes earned by small producers and incomes earned by large producers. This income gap is brought about due to factors such as the types of crops grown, access to markets, level of investment in farming activities. The large producers earn higher incomes because of better access to credit facilities, better inputs and apply improved technology contrary to the small producers. This highlights the need for interventions in form of investments that can boost income and productivity of small producers so as to close the inequality gap.

The analysis of types of seeds shows that farmers in the region are more confident in using traditional seeds than improved seeds. While the farmers have adopted to the improved seeds, the overall adoption rate for improved varieties remains significantly low. This could be due to increased prices of the seed on the market which increases costs of production. The use of traditional seeds often results into lower yields compared to the improved seed varieties which is why promoting improved seed varieties through subsidies, farmer trainings and increased awareness could enhance productivity therefore promoting agricultural commercialization.

Irrigation systems although adopted by various farmers, were found to be inadequate in terms of percentage. This shows that majority of the farmers still rely on rainfall as a source and yet the region is highly vulnerable to climate variability leading to inconsistent yields and incomes. The development of affordable and efficient irrigation systems especially for small producers could improve risk management and stabilize production throughout the year hence encouraging agricultural commercialization.

The findings also show diversification of enterprises in terms of crop production and other agricultural activities as majority of the farmers are involved in crop production plus other agricultural activities. Diversification of enterprises encourages value addition which enables farmers to transition from subsistence farming to commercialized or market-oriented farming which increases incomes and profitability hence increasing agricultural commercialization.

Finally, the analysis of farmers that belong to a farmer organization shows that participation remains low due to limited awareness, perceived inefficiency of these organizations and mistrust. On the contrary, these organizations are beneficial in terms of access to better inputs, access to credit and markets. These organizations should be strengthened by improving governance, increased accountability which enhances collective bargaining power, reduced costs and better market access.

5.3 Conclusions.

The findings highlight the significant potential of investment in promoting agricultural commercialization in Northern Uganda. However, realizing these potential calls for addressing key adverse effects such as, inadequate extension services, low adoption of improved seeds, low adoption of irrigation systems and weak farmer participation in farmer organizations. These challenges highlight the need for an effective and efficient approach that encourages investment in agricultural commercialization in Northern Uganda.

5.4 Recommendations.

Expand access to credit:

The government and other financial institutions should tailor credit incentives to the needs of farmers especially small holder farmers such as low-interest loans and flexible repayment terms. This will enable farmers to invest in purchase of better inputs, better technology among others which will boost productivity resulting into increased agricultural commercialization.

Strengthen extension services:

Government and development partners should invest into training farmers and incorporating ICT-based solutions to be able to connect farmers to larger markets. These services should focus on providing accurate and reliable information to farmers about market dynamics and market prices to facilitate proper farm planning and risk management.

Support farmer organizations:

Strengthening farmer organizations should be done through capacity building, improved governance, building trust among farmers so as to enhance collective bargaining power, collective access to markets, improved input accessibility and better access to credit finance.

By implementing these recommendations, investment can effectively promote agricultural commercialization in Northern Uganda which will bring about increased incomes for farmers therefore improving their livelihoods, promoting regional growth and overall economic growth of the nation.

References

- ACODE. (2021, september). *Local Governance Brief*. Retrieved from <https://infrastructure.go.ug>
- AGDEVCO. (2018). *Revitalising Agriculture in Northern Uganda*. Gulu: AGDEVCO.
- Avis, M. (2018). *Do Government Programs Always Improve Economic Efficiency? Evidence from Agriculture Commercialisation in Nigeria*. Nigeria: Avis.
- CARE. (2021). *Scaling up Climate smart agriculture in Uganda*. Retrieved from <https://careclimatechange.org>
- Dercon, S. (2009). *The Impact of Agricultural Extension and Roads on Poverty and Consumption Growth in Fifteen Ethiopian Villages*. Ethiopia.
- Esther Duflo, M. K. (2008). *How High Rates of return to fertilizer? evidence from field experiments in Kenya* .
- Giz.de. (2024, July). *Promoting Rural Development in the Northern Region of Uganda*. Retrieved from Giz: <https://www.giz.de>
- Jack. (2013). *Public vs Private Agricultural Extension: Evidence from an Indian State*.
- Koolwal, K. a. (2011). *Estimating the long-term impacts of rural Roads: a dynamic panel approach*. Bangladesh.
- Koolwal, K. a. (2011). *Estimating the Long-term Impacts of Rural Roads: A Dynamic Panel Approach*. Bangladesh.
- Levine, R. (2007). *Finance and Growth: Theory and Evidence*.

News, M. U. (2022, jan 20). *Commericalization of Agriculture still low in Uganda*. Retrieved from Makerere University News: <https://news.mak.ac.ug>

Rockmore, M. (2012).

UBOS. (2019). *Annual Agricultural Survey*. Kampala: UBOS.

UIA. (2023). *Uganda Investment Authority*. Retrieved from Uganda Investment Authority: <http://ugandainvest.go.ug>

UNCDF. (2021, march 25). *Digital Solutions to Uganda CONSTRAINTS IN uGANDAN aGRICULTURE*. Retrieved from Impact Capital for Development: <http://www.uncdf.org>

Vision, N. (2022). *All set for the investment summit to happen in northern uganda*. Retrieved from UIA: <http://www.newvision.co.ug>