

**SOCIAL-ECONOMIC FACTORS AFFECTING BANANA (MUSA SPP)
PRODUCTION IN KOTINYANGHA SUBCOUNTY, BUDAKA DISTRICT IN
EASTERN UGANDA**

BY

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BU/UP/2021/1641

**A RESEARCH REPORT SUBMITTED TO FACULTY OF SCIENCE AND
EDUCATION, DEPARTMENT OF AGRICULTURE, IN PARTIAL FULFILLMENT OF
THE REQUIREMENT FOR THE AWARD OF THE DEGREE OF BACHELOR OF
SCIENCE EDUCATION (AGRICULTURE DOUBLE MAIN) OF BUSITEMA
UNIVERSITY
SEPTEMBER 2024**

DECLARATION

I, MASABA PETER do declare that this research report is my own original work and has never been presented for any award of a degree or diploma at any tertiary institution or university.

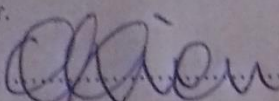
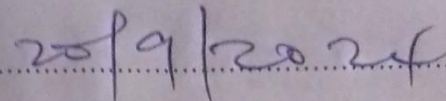
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APPROVAL

This Report titled "analyzing the socio-economic factors affecting the production of bananas in Kotinyangha sub county, Budaka district" was written by Masaba Peter under our guidance and supervision and meets the requirements set by Busitema university for the award of Bachelor of science Education. It has been submitted with approval of the university supervisor.

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Name: Dr. Okiror John James

Supervisor

DEDICATION

I dedicate this work to my lovely family members mother Mrs. Nawana Margret, Siblings Mutuwa sylvia, Deo, Efulansi and Tina for supporting me during my pursuit for this Degree. May the almighty GOD reward all of you abundantly.

ACKNOWLEDGEMENT

First and foremost my gratitude goes to God. the Almighty w

ho enabled me to undertake My Degree. I am greatly indebted to my supervisors Dr. Okiror Jonh and Mr. Otema Patrick Ben Moi. May I take this sincere opportunity to thank them for devoting much of their time to guide me through the complete paper.

I would like to appreciate and thank my lecturers notably, Mr. Dramadri Afayo, Mr. Oguzu Evans, Dr. Okiror John, Mr. Ongua Fanuel and Prof. Ochwo Victor Akangah. Without your support, I would not have really completed this report. You sacrificed time and offered positive criticisms for which I am very grateful. May the almighty God reward you abundantly. Great thank goes to my respondents who provided me with data that has enabled me to present this report. Finally, this project paper would not have been possible without the inputs of several individuals Among them there are my classmates such as Adiribo John, kusolo Robert, Onyango John, Kimutai Derick and others, for their contribution on this work.

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ABSTRACT

This study was done in Kotinyagha Sub County during June to August 2024. The overall objective was to: Analyze socio-economic factors that affect banana production in Kotinyagha Sub county, Budaka district in Eastern Uganda.

Data were collected from 66 respondents using questionnaire and skill. Findings show that respondent's income increased significantly as a result of banana production, their income increased slightly. Furthermore, respondents use the income generated from banana production for food purchases, for education expenses, income for healthcare expenses, and income for housing expenses. Based on the findings it was concluded that there were banana grower's cooperative societies in the parish to buy the matooke like traders, and banana development organizations. Therefore it was recommended that:

1. Improve soil fertility: banana requires well drained fertile soil to produce high-quality bunches. Farmers can improve soil fertility by adding organic matter such as compost or manure, and using balanced fertilizers that provide nitrogen, phosphorus, and potassium.
2. Prune banana regularly: Regular pruning helps in the removing excess banana leaves and productivity of matooke. It allows farmers to control the size and shape of the tree, promotes fruiting, and removes diseased or damaged leaves.
3. Use appropriate pest and disease management techniques: Pests and diseases can significantly reduce banana yields and affect matooke quality. Farmers should use integrated pest management (IPM) techniques that combine physical, cultural, biological, and chemical controls to minimize harm to beneficial organisms and the environment.
4. Adopt climate-smart practices: Climate change is affecting banana production in many regions, and farmers need to adapt to changing weather patterns. Climate-smart practices include

5. Planting drought-tolerant varieties, improving soil health to enhance water retention, and implementing shade management strategies.
6. Promote biodiversity: Biodiversity banana agro ecosystems are more resilient to pests, diseases, and climate change. Farmers can promote biodiversity by planting multiple crops, including legume cover crops, and preserving natural vegetation in and around their fields.
7. Implement sustainable water management practices: Water is essential for banana production, but it's a scarce resource in many regions. Sustainable water management practices include drip irrigation, rainwater harvesting, and efficient use of water resources.
8. Support smallholder farmers: Most banana is produced by smallholder farmers who face challenges such as limited access to finance, technology, and markets. Governments, NGOs, and companies can support smallholders through training programs, credit facilities, and market access initiatives.
9. Invest in research and development: Research and development can help address challenges facing banana production, such as pests, diseases, and climate change. Governments, universities, and private organizations can invest in research to develop new technologies, improved varieties, and sustainable production methods.
10. Foster collaboration and partnerships: Collaboration between farmers, governments, civil society, and the private sector is crucial for achieving sustainability in the banana supply chain. Partnerships can facilitate knowledge sharing, technology transfer, and joint efforts to address common challenges

CHAPTER ONE:

1.0 INTRODUCTION

Banana (*Musa paradisiaca* var *sapientum*) is one of the major crops that promote food security and household incomes. Most of the banana and its bi-products are consumed domestically. It, therefore, has high potential of creating wealth for the farmers in many parts of the country. NAADS facilitates farmers to access high quality production inputs such as transgenic plants, fertilizers and pesticides (Mutwedu et al, 2022)

1.1 Background of the study

One of Uganda's most important export commodities, the banana, has not received enough scientific attention until lately. Despite the paucity of study on the crop, since its introduction to the nation, it has grown in significance as an essential staple and a source of income and employment for a million smallholder farmers (Sabo et al, 2017)

The East African highlands banana (EAHB) subgroup includes the cooking cultivars, which are the most extensively farmed varieties. The nation also grows desert bananas, like "Sukali Ndizi" and "Bogoya," plantain cultivars (known as "Gonja" locally) for roasting, and "Kayinja" and "Kisubi" for brewing beer (Pillay, 2023).

Kotinyangha Subcounty Budaka district grows improved banana cultivars such as Mbwazirume, Mpologoma, Phia, Nakitembwe, Muyonjo, Musakala, Lumenyamagale, Kibizi, and Bogoya. Scientific descriptions of bananas can be based on their genome categories. Based on their ploidy ratios and the genomes they contain; they are divided into genome groupings.

According to Fortescue (2002), there are two wild and seedy species from which edible bananas arose. According to Simmonds (1992), the home of the banana's wild ancestors, Indochina and South East Asia, is thought to be its center of origin. This area is thought to have seen the earliest domestication. After then, the crop was brought to the majority of the world, where it became increasingly significant and well-liked.

Simmonds (1992) provided an account of the genetic foundation for the evolution of the many banana varieties (as currently categorized by genome group). The polymorphism variety *Musa acuminata* colla underwent hybridization between its subspecies, giving rise to a variety of diploids that were assigned the Simmonds classification code AA. Through chromosomal restitution, which takes place during meiosis, the diploid created rise to AAA. Many AAs and AAAs are thought to have first been domesticated in Malaysia, from whence they migrated throughout South East Asia (Simmonds, 1962). The AAB, AB, and ABB kinds emerged as a result of hybridization after their expansion to regions where *M. balbisiana* was found, primarily the Indian subcontinent and the Philippines.

A recent research examined the hypothesized paths of bananas from their origin center to East Africa (Price, 1995; Karamura, 1998). The most commonly used explanation links the introduction to trade and interactions between Asians and coastal East Africans that go back to the period between 0 and 500 AD. As a result of these interactions, certain crops, like bananas, were dispersed from Asia to Africa. According to alternative theories put out by Mukasa and Thomas (1970), the bananas may have traveled from North Africa to East Africa via the Nile Valley, where Arab influence spread towards the south, or by the West Coast of Africa and the westward expansion of the Bantu ethnic group.

According to Ugandan legends, Kintu, the tribal ancestor of Baganda, is credited with introducing bananas to the country (Haig, 1940; Karamura, 1988). It is thought that Kintu first planted the banana in Busujju around 1000 after bringing it from the Mount Elgon area of northeastern Uganda (Haig, 1940). Some Bantu communities in Eastern along with Western Uganda maintain the concept that bananas came to the country from the East (Karamura 1998). The crop became more significant as a crop for beer and food over time.

It wasn't until the first research station was built at Entebbe (Entebbe Botanical Gardens) in 1898 that formal study efforts to look into issues with Highland bananas began. Since then, changes have been made to the institutional architecture that oversaw banana research in order to enhance output delivery. In addition, the basis of banana research has relocated with the research facility to new locations as a result of pressure from urbanization. The station relocated from Entebbe to Kampala, which is now home to the Government Chemist Laboratories. In 1939, it took a new position in Kawanda (Tothill, 1940; Jameson, 1970).

Prior to 1988, when commodities research programs were established as the foundation for conducting research on agriculture in Uganda, the scientific disciplines housed at Makerere University and the research stations were the focus of the study. This arrangement seems to have made the neglect of banana research worse. Individual scientists at Makerere realized the value of researching issues related to banana cultivation in the 1960s. Political upheavals of the 1970s disrupted trials that were being funded by the Rockefeller Foundation before to their conclusion (Anonymous, 1970). The government hasn't considered studying the banana crop to be a national priority throughout the entire time.

Research based on commodities produced quick findings. A research program on bananas was designed by a team of researchers from Makerere University and Kawanda, with funding from the Ugandan government, the International Development Research Center, and the Rockefeller Foundation. First and foremost, the team conducted surveys and on-station constraint characterisation investigations to examine the current production limits on bananas. In addition, working the crop was recommended by a Ugandan government study of priority research crops, which ranked the banana crop highly. This essay provides an overview of the historical viewpoints on Uganda's production limits for bananas as well as the

research initiatives undertaken over the past century to address the issues. The structure of the paper is as follows: baseline data by 1898; production at that time.

The purpose of the proposed study is to examine the socioeconomic variables that influence the production of bananas, with an emphasis on Uganda, especially East Uganda. The household head's degree of education, extension services, market accessibility, loan availability, and use are some of the main causes of the poor production of bananas. Comprehending these variables is crucial in order to formulate focused actions and policies that optimize banana yield while maintaining sustainability.

1.2 Problem statement

With an emphasis on Uganda, especially East Uganda, the proposed study intends to examine the socioeconomic variables influencing banana production. A few of the main causes of the low banana output are the household head's degree of education, extension services, availability of finance, and access to the market. Gaining an understanding of these elements is essential to creating focused interventions and policies that increase banana output and guarantee its sustainability.

Because of these disadvantages, the researchers believe that they should identify elements that can increase banana output in Uganda, especially in the Budaka district in Kotinyangha subcounty.

1.3 Objectives

1.3.1 General objective

The general objective of the study is to analyze socio-economic factors that affect banana production in Kotinyangha Subcounty, Budaka district in Eastern Uganda.

1.3.2 Specific objectives

To analyze the socio-economic characteristics of farmers who are producing banana in Kotinyangha Subcounty, Budaka district in Eastern Uganda.

To identify the social factors that affect banana production in the study area.

To identify the economic factors that affect banana production in the study area.

1.4 Research questions

In order to effectively answer these objectives, the following research questions were posited:

What strategies can be done to boost high banana production?

What are the challenges resulting from low banana production in Kotinyangha subcounty?

What are the impacts of banana production on the sustainable livelihood to the people of Kotinyangha subcounty?

1.5 Scope of the study

The scope of this research study is limited to the farmers of Kotinyangha subcounty, Budaka District in Eastern Uganda who are engaged in the production of bananas.

The objectives are focused on constraints to production of bananas so as to improve on the incomes of the farmers in the area of study. The research also depends on the availability, accessibility and quality of secondary data sources such as methodological records, crop statistics, or policy documents.

1.6 study Significance of the

The research will be of much benefit to the members of the community such that they can come to know how to improve on banana production levels and how important banana growing is uplifting their standards of living on the house hold level.

The findings of the study will be important to the researchers in the way that , it would be used by future researchers to know more about the socio-economic factors affecting banana production.

The study is also important to the leaders to find the appropriate measures to improve the quality and quantity of banana production in order to ensure continuity of banana production within the country.

1.7 Justification of the research

The justification for research on the socio-economic factors affecting banana production in Uganda lies in the importance of bananas as a staple crop in the country and the significant impact it has on the economy and livelihoods of many Ugandans. By understanding the socio-economic factors influencing banana production, researchers can identify key challenges and opportunities to improve productivity, sustainability, and the overall well-being of banana farmers and their communities.

This research can help policymakers, agricultural extension workers, and farmers make informed decisions to address issues such as access to resources, market dynamics, climate change adaptation, and socio-economic disparities that may affect banana production. Additionally, studying these factors can lead to the development of tailored interventions, policies, and strategies to enhance the competitiveness and resilience of the banana sector in Uganda.

Overall, conducting research on the socio-economic factors influencing banana production in Uganda is crucial for promoting food security, poverty alleviation, and sustainable agricultural development in the country.

1.8 Conceptual framework

The conceptual framework of research on the socio-economic factors affecting banana production in Uganda would typically involve identifying and analyzing various elements that can influence banana production in the country. This framework would include factors such as:

Demographic factors: This includes the population distribution, age structure, education levels, and household size of banana farmers in Uganda.

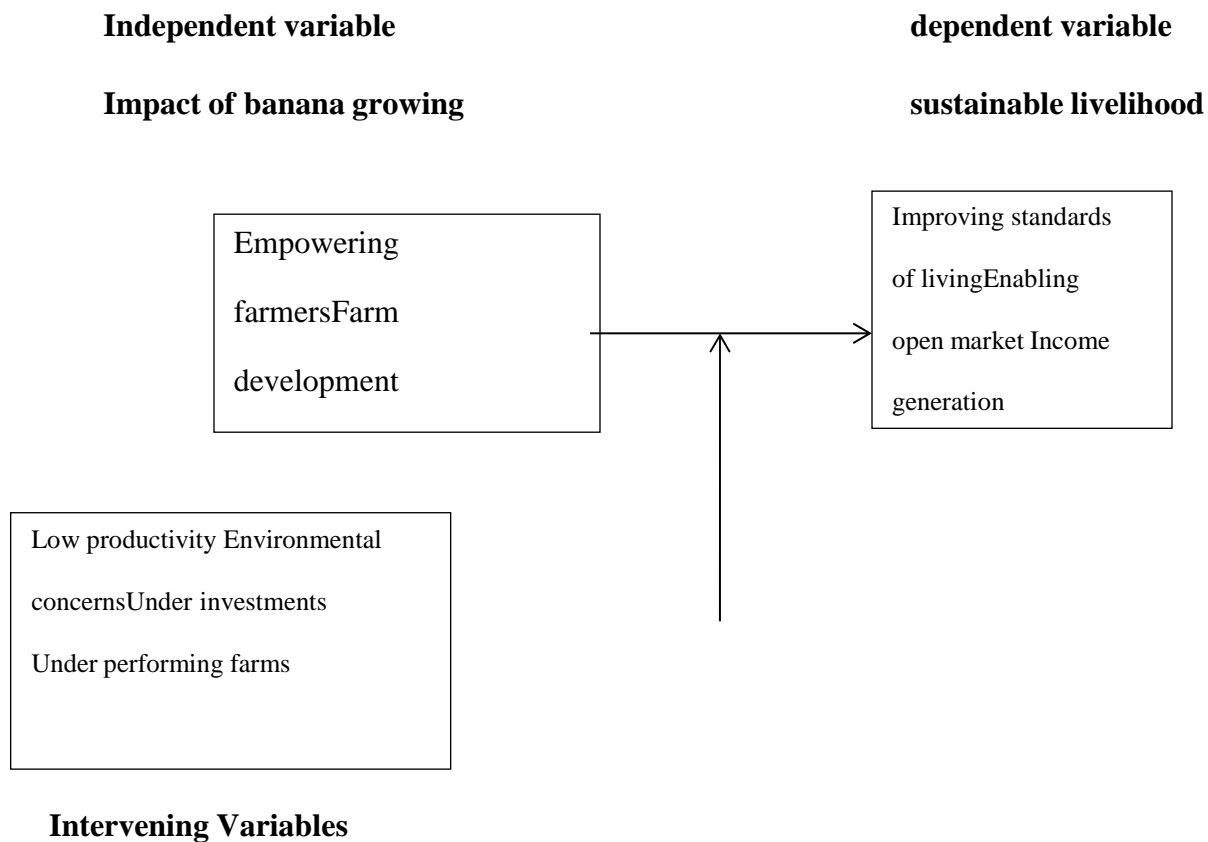
Economic factors: Factors such as income levels, access to credit, market prices, input costs, and government policies related to agriculture can significantly impact banana production.

Social factors: Social aspects like cultural practices, social networks, labor availability, and gender roles within the farming community can also play a role in banana production.

Environmental factors: These include climate conditions, soil quality, pest and disease prevalence, water availability, and other environmental factors that can affect banana cultivation.

Technological factors: The adoption of modern agricultural techniques, use of technology in farming practices, access to information, and training on best practices can also influence banana production.

By considering and analyzing these socio-economic factors within the conceptual framework of the research, researchers can gain a comprehensive understanding of the challenges and opportunities related to banana production in Uganda.



CHAPTER TWO

2.1 LITERATURE REVIEW:

The most well-known obstacle to economic progress is undoubtedly population expansion, which also offers the most widely reported justification for raising agricultural output. The global agricultural sector is growing in proportion to its contribution to economic expansion. Simply said, economic growth in this context refers to gains in national income (**Ehrlich et al, 1993**).

Then, one of the sources of national income is agriculture. Some nations engage in traditional farming, while others focus on contemporary farming. There are several different institutional configurations for traditional agriculture; these might range from highly communalized systems to small farms centered around the family. Generally speaking, happy farms produce more than the family choose to eat and sell the extra at the market to pay for non-farm goods and services. The excess differs between farms and countries. The size of the farm, the level of expertise, and the status of technology vary as well (**Kremen et al, 2012**)

Agriculture is viewed as a generator of development and an asset of economic prosperity. However, the type of investment is crucial to achieving this objective. Investments to boost agricultural output are said to include incentives to direct and compensate farmers. The amount of money invested in agriculture and how it is developed will determine whether traditional agriculture becomes a highly productive industry. The balance is difficult to upset once conventional farming methods is established. In traditional agriculture, there are very few inefficiencies in the distribution of production factors (**Binswanger and Deininger, 1997**).

Agriculture serves as a reservoir of resources that may be used to supply labor, food, and money to support the expansion of urban activity. in a number of LDCs, such as Uganda. By a wide extent, the greatest industry in terms of production is agriculture. Compared to other rural jobs, agriculture contributes more to overall employment. Almost two thirds of all jobs are in the agricultural sector, and only 7% are in non-rural areas of the country. Throughout the initial 15 years of independence, the country has had rapid economic development without experiencing serious balance of payments difficulties, mostly due to the contribution of agriculture (**Orsini, F et al 2013**)

In the context of traditional agriculture, labor is the main tool for raising production. By putting in more labor per acre and producing more per acre than households with bigger farms (a large material base), the families with tiny farms (small material base) will maximize utility. It is plausible that in low-income nations, labor's marginal productivity is so low that it will remain low even in the best of conditions with respect to the availability and presentation of consumer goods. Not quite equal to the utility curves' slope after reaching the customary subsistence level **Binswanger, H. P., & Deininger, K. (1997)**.

The initial resource endowment and resource accumulation linked to each economy's past growth processes determine the relative accessibility of labor and land in the agriculture sector. For example, in Asia, land has been made the primary factor limiting output development, whereas in the new continents, a relatively inelastic labor supply has been identified as the main factor limiting output growth. Farmers attempt to reduce the amount of land or labor they use, or they try to replace the limiting component with artificial inputs, such as tractors for work and fertilizer for land, in order to lessen the constraints imposed by those factors **Auty, R. M. (1997)**.

The nations in the emerging continents appear to be following a growth path that eases labor constraints, whereas the countries in Asia appear to be following a growth path that eases land-based constraints. If the issues affecting peasant agriculture have anything to do with increasing agricultural productivity, it is crucial to understand them. Despite the increasing potential of technology, low-income farmers in these nations still lack the financial possibilities necessary to reach their full potential. The main reason why there aren't enough incentives is government intervention. Determining the prerequisites and appropriate conditions to achieve the maximum improvement in agricultural output becomes crucial as a result **Barlett, P. F. (1980)**.

The pricing of contemporary technical agricultural inputs and the stocks of human capital that can produce a series of adjustments in factor as well as product price connections account for the majority of the productivity of agriculture gap across nations. Both an impact on income and the effect of substitution will result from technical change **Hayami, Y., & Ruttan, V. W. (1970)**. The first arises from a true increase in efficiency, which raises production without requiring more labor. Changes in technology may have a significant impact on labor input. Land is the primary input in traditional modes of production, and farmers consider anyone without having access to agricultural land to be impoverished and destitute. Therefore, their only means of subsistence is traditional cultivation, and those who lack or have limited land do nothing but work extremely hard to obtain access to a little plot of land through different tenant farming arrangements. Land is a proxy for social and economic standing in low-income nations. Even while the majority of farmers in low-income nations have the ability to raise their incomes by putting in more labor—that is, by working harder—the income rise that results is typically extremely small.

The increasing population strain on the limited amount of land available may have raised labor and other input marginal productivity to a point where spreading cultivation beyond the large margin into progressively lower-quality land is more advantageous. Naturally, such a decrease in living standards is shown by the extension of land area, even if it is just little **(Pingali, P et al 1997)**.

One thing preventing agricultural advancement is the significance of land tenure patterns in peasant agriculture. The seasonal structure of peasant farm management presents labor challenges that significantly impact output. Peasant farmers are negatively impacted by inadequate marketing plans for their produce and by poor communication or long distance travel, which raises transportation costs and renders the sale of excess produce unnecessary (**Hayami and Ruttan 1970**). Consequently impeding the expansion of agriculture. Ineffective farming methods present yet another challenge in peasant agriculture. Due to Uganda's dense population, land becomes a severe challenge. Land is passed down via families and split based on the number of members. This means that the labor is abundant resource. The total supply of rural labor is too high.

This indicates that labor is a plentiful supply. There is an excess of labor available in rural areas. There are three main categories into which productivity growth resources (or capital) fall: (i) Resource Endowments: These encompass not just the initial land assets endowments but also global capital accumulation through cattle, inventory, and other forms of land development and reclamation. (ii) Technical inputs, such as the chemicals and biological materials acquired from the industrial sector, as well as mechanical devices. (iii) Human capital, which is widely defined as the capacity, education, skill, and knowledge possessed by a nation's populace (**Auty 1998**).

The historical background of banana production in Uganda is frequently studied by researchers in order to lay the groundwork for understanding how socioeconomic factors have changed over time and affected the sector. The different kinds of bananas that are grown in Uganda, including the dessert and cooking variants known as "matooke," and the ways in which socioeconomic factors affect the marketing, consumption, and production of these bananas. Researchers may look into how market laws, agricultural extension programs, and subsidies, among other government initiatives, have shaped Uganda's banana production (**Marimo et al, 2019**)

Researchers can look into the gender dynamics in banana farming households and how socioeconomic conditions affect how men and women participate in different stages of the production chain. The socioeconomic factors affecting bananas in Uganda have an impact on the value chain frameworks, pricing tactics, and market access issues. the relationship between socioeconomic factors—such as the application of new technologies, approaches to disease and pest control, and post-harvest processing techniques—and banana productivity (**Iradukunda et al, 2019**). The part that farmer groups, cooperatives as well as and other social institutions play in helping Ugandan banana growers deal with their socioeconomic problems. The effects of trade policies and globalization on Uganda's banana business, with a focus on smallholder farmers' concerns, export prospects, and market rivalry.

The adaptability of bananas farming systems in Uganda in the face of socio-economic problems, such as shifting prices on the market, climate variability, and changing customer preferences (Kozicka et al, 2020)

2.2 Factors Contributing to Low Cocoa Production

2.2.1 Climate and Environmental Factors

2.2.2 Temperature and rainfall patterns

Temperature and rainfall are critical climatic factors affecting banana production. Extreme temperatures can negatively impact banana suckers' growth and development. Additionally, irregular rainfall patterns can lead to water stress, affecting banana yield

Soil fertility and composition; Soil fertility is crucial for banana cultivation. Poor soil fertility, characterized by low organic matter content and nutrient deficiencies, can limit banana growth and productivity. Soil composition, including pH levels and texture, also influences nutrient availability for banana plants.

Pest and Disease Management

1. Common banana pests and diseases in the region

Kotinyagha Sub- County faces various pests and diseases that significantly impact banana production. For instance, black pod disease caused by *Phytophthora* spp. is a prevalent fungal disease affecting banana.

2. Current pest and disease control practices

Effective pest and disease management strategies are crucial for improving banana production. Integrated pest management (IPM) approaches combining cultural practices, biological control agents, and judicious use of pesticides have shown promising results in controlling banana pests and diseases. However, the adoption of these practices may vary among farmers due to factors such as knowledge gaps and limited access to resources.

2.2.3 Agricultural Practices and Techniques

1. Farm management practices

Farm management practices, including pruning, shade management, and weed control, significantly influence banana production. Proper pruning techniques can enhance light penetration and airflow within the banana plant, leading to improved yields). Effective weed control is also essential as weeds compete with banana plants for nutrients and water resources

2. Use of fertilizers and pesticides

The application of fertilizers and pesticides can greatly impact banana production. Balanced fertilizer application tailored to specific soil nutrient deficiencies can enhance banana growth and yield. However, excessive or improper use of pesticides may lead to environmental pollution and the development of pesticide resistance in pests.

2.3 Challenges facing banana Production

2.3.1 Economic Challenges

Market access and prices are crucial determinants of banana growers' profitability and motivation to invest in banana farming. Limited market access restricts their ability to sell their produce at fair prices, leading to reduced income. Inadequate market access can be attributed to poor road networks and limited transportation facilities, which make it difficult for farmers to transport their Matoke to potential buyers. Additionally, fluctuating Matooke prices in the global market pose a significant challenge for banana growers in Kotinyagha Sub- County. Price volatility affects their income stability and discourages long-term investment in banana farming. Lack of financial resources for investment is another economic challenge faced by banana growers. Without sufficient capital, farmers struggle to acquire modern farming equipment, high-quality inputs, and adopt improved agricultural practices. This lack of financial resources hampers productivity and limits the potential for increased banana production. Access to credit facilities and financial support programs tailored specifically for banana growers could alleviate this challenge.

2.3.2 Infrastructural Limitations

Inadequate transportation facilities hinder the efficient movement of Matooke from farms to processing centers or markets. Poor road networks, lack of storage facilities, and limited access to reliable transportation contribute to post-harvest losses and delays in delivering Matooke. These infrastructural limitations not only increase costs but also reduce the quality of Matooke, negatively impacting the overall productivity of banana growers. Limited access to processing facilities is another significant infrastructural limitation faced by banana growers in Kotinyagha Sub- County. The absence of local processing facilities forces farmers to sell their Matoke in raw form, which fetches lower prices compared to processed cocoa products. This limitation discourages value addition and reduces the income potential for cocoa growers (Black & Red,

2019). Establishing local processing facilities or improving access to nearby processing centers would enable cocoa growers to add value to their produce and increase their profits.

2.3.3 Social and Cultural Factors

Lack of awareness and knowledge about modern banana farming techniques is a prevalent challenge among banana growers in Kotinyagha Sub- County. Many farmers still rely on traditional farming practices that yield low productivity and poor-quality Matoke. Educating farmers about improved farming techniques, such as proper pruning, pest management, and soil fertility management, could significantly enhance banana production. Training programs, workshops, and extension services should be provided to disseminate knowledge and promote the adoption of modern farming practices. Gender disparities in banana production also contribute to low productivity. Women often face limited access to land, credit, and training opportunities compared to their male counterparts. This gender inequality hampers women's ability to invest in banana farming and limits their potential contribution to overall banana production. Addressing gender disparities through gender-sensitive policies and programs can empower women in banana farming and boost productivity.

2.4 Strategies on how to increase high banana Production

2.4.1 Capacity Building and Training Programs

1. Farmer education and training initiatives:

One crucial factor contributing to low banana production is the lack of knowledge and skills among farmers. Farmer education and training programs can address this issue by providing farmers with the necessary knowledge on improved banana farming practices. Such programs have proven effective in enhancing farmers' understanding of banana cultivation techniques, pest management, and post-harvest practices.

2. Knowledge transfer on improved banana farming practices

Knowledge transfer is essential for improving banana production. By disseminating information on innovative farming techniques, disease control measures, and sustainable practices, farmers can enhance their productivity.

2.4.2 Access to Finance and Market Opportunities

1. Microfinance schemes for banana growers

Access to finance is crucial for farmers to invest in inputs, equipment, and infrastructure necessary for banana production. Microfinance schemes tailored specifically for banana growers can provide them with affordable credit options. These schemes enable farmers to purchase high-quality planting materials, fertilizers, and pesticides, thereby increasing productivity. Microfinance schemes have been successful in empowering smallholder farmers and improving their access to agricultural inputs.

2. Strengthening market linkages and value chain integration

Efficient market linkages are vital for banana farmers to sell their produce at fair prices and access lucrative markets. Strengthening value chain integration can help farmers connect with buyers, processors, and exporters. This can be achieved through the establishment of farmer cooperatives, which facilitate collective marketing and bargaining power.

Infrastructure Development and Supportive Policies

3. Improving transportation and processing infrastructure

Inadequate transportation and processing infrastructure pose significant challenges to banana production. Upgrading rural roads, establishing storage facilities, and improving processing units can reduce post-harvest losses and enhance the quality of Matoke. Investing in infrastructure development is crucial for increasing banana production and ensuring timely delivery to markets.

4. Government policies and incentives for banana production:

Supportive policies and incentives from the government play a pivotal role in promoting banana production. Governments can provide subsidies on inputs, tax breaks, and technical assistance to encourage farmers to engage in banana cultivation. Additionally, policies that protect farmers' rights, ensure fair trade practices, and promote sustainable farming methods are essential for long-term productivity growth. The positive impact of government policies on banana production in various regions. In conclusion, increasing high banana production in Kotinyagha Sub-County requires a multi-faceted approach that addresses capacity building, access to finance and markets, as well as infrastructure development and supportive policies. Farmer education programs, knowledge transfer initiatives, microfinance schemes, market linkages, infrastructure improvements, and government support are key strategies that can contribute to higher banana productivity

CHAPTER THREE

3.0 METHODOLOGY

3.1 Introduction

This chapter mainly describes how the research was carried out on the topic of the study. It covers the area of study, research design, the population of study, sampling design, sample size and its determination and data collection and management.

3.2 Materials

The researcher used questionnaires in which farmers and extension workers, papers and pen were used during noting down.

3.3 Study Area

Budaka district, which was one of the counties of Pallisa district, was formed on the principle of decentralization policy of local governance. Current development thinking is that development programmes that impact on people are better implemented through decentralization of functions, powers and responsibilities to local levels.

Decentralization is essential on grounds of economy, efficiency, effectiveness and equity because local authorities are better placed to determine local needs and priorities. This can promote the mobilization of local resources on a sustainable basis and to engage beneficiaries in implementation of programmes.

The beneficiaries themselves have opportunity to influence and own the development programmes their local governments implement and to hold local officials accountable for their actions. It is on the basis of the foregoing that the local community requested for the transformation of Budaka county into a District status.

3.4. Location of Budaka district on the map of Uganda



Figure 1: map of Uganda showing the location of Budaka district

Budaka District

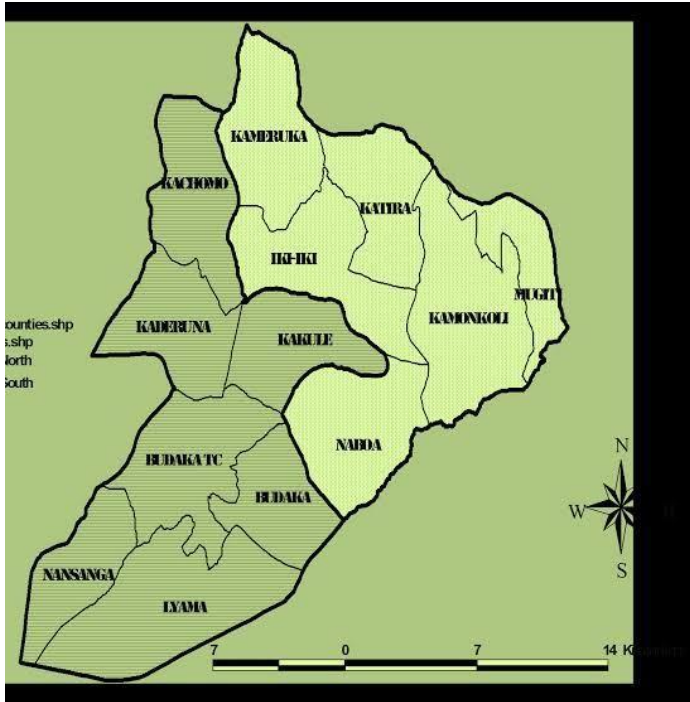


Figure 2; map of Budaka district showing the counties and sub counties

3.5 Research design

The research was carried out using the descriptive cross-sectional survey. Both quantitative and qualitative approach was used in the research, in order to get the attention of bigger number of respondents and data of which Quantitative design aided in the collection of information from variables that involved measurements, whereas qualitative design aided in the collection of ideas, perceptions, and explanations.

3.6 Target population

A target population is the entire group of objects or people to which the research wishes to generalize the study findings and of which the study is purposely targeting banana farmers in Kotinyagha sub-county, Budaka District.

3.7 Sample size

A sample size is the selection from the population from which information was obtained.

The research population comprised of a sample size of 66 respondents.

3.8 Sampling technique

Both purposive and simple random sampling was employed. Purposive sampling is a sampling technique in which the research selects individuals who are knowledgeable about a certain aspect's top officials from a sub-county of the study of which it gave much more detailed information than can be obtained from the farmers.

3.8 Data collection Tools.

The methods of data collection were questionnaires, interviews and observations. The data was collected by use of questionnaires randomly in the area of study and farmers were involved in helping source the required data.

3.8.1 Questionnaires

This consisted of structured questions and unstructured questions were designed and issued to various respondents. The structured questions required detailed explanations while the unstructured questions restricted the views of the respondents.

3.8.2 Interviews

This method involved an interaction between the interviewer and the interviewee. The interaction was either face to face. For this research, in particular, this method was used on almost all planned respondents including the key respondents and the locals. The interview guide was used as the tool for this method.

3.8.3 Observation

This method involved the researcher studying the research subject by critically looking at them with his or her naked eyes. Observation was carried by the researcher by travelling across the parishes.

3.9 Procedure of data collection.

The researcher first sought approval of the research proposal by the university research supervisor of which the researcher first obtained an introductory letter which helped him introduce the researcher to management of Kotinyagha sub-county, Budaka district. After

that, the researcher made appointments with the respondents to establish the convenient time for data collection.

3.10 Data quality control methods

Validity

Data validity refers to the accuracy of the research results.

Here the researcher ensured validity by comparing the obtained data from the field with the theoretical and conceptual values.

Reliability

This refers to a measure of the degree to which a research instrument yields consistent results. Here the researcher designed data collection tools which are questionnaires and letters submitted to the supervisor for approval to ensure reliability.

3.11 Data analysis

This refers to the process of evaluating data while using analytical, statistical tools to discover useful information. The data collected was edited and coded while being captured in the computer. Thereafter the edited data was analyzed using the SPSS software (statistical package) for social scientists, 16th Edition.

3.12 Ethical considerations

The researcher first presented a letter of introduction to leaders of Kotinyangha sub-county, Budaka District of which this informed them on the purpose of the study. The researcher made sure that presentable and professional while conducting his research. This enabled him to get most relevant data from the most prominent respondents easily. The researcher also kept his words on the confidentiality of the respondents and none of the details and opinions were shared with a third party.

CHAPTER FOUR
PRESENTATION OF DATA AND ANALYSIS

4.0 Introduction

This chapter presents the findings of the study. Discussion and analysis of the different responses to some key questions was also done in this chapter following the research objectives as seen below;

4.1 Back ground information of respondents

This section shows the age, sex, level of education, and farming experience as explained below;

Table 1: Gender composition of the respondents

Gender	Total number of farmers (frequency)	Total (%)
Male	47 farmers	71.2%
Female	19 farmers	28.8 %
Total	66 farmers	100%

Age group

The average age of the respondents was between 41 to 50 years old which accounts for 45.5%. (Table 2) In summary, the majority of the respondents who are banana farmers are between 41 and above years of age representing 58.7% of the total respondents. The implication of this is that the most active age group is involved in growing other crop for commercial and home consumption. This might lead to reduction of food insecurity because the labour required for food production is still available.

Table 2: Age brackets of the respondents

Age group (Years)	non banana farmers	current banana farmers	former banana farmers	total number of farmers	total (%) of farmers
Under20	2	2	2	6	9%
20-30	2	5	3	10	15.2%
31-40	5	3	7	15	22.7%

41-50	8	10	12	30	45.5%
50 above	2	2	1	5	7.6%

Educational status of the respondents

The respondent's education levels ranged from Primary Education to Senior Secondary education. According to the findings 3 respondent never went to school, which is (4.5%). 39 respondents (59.1%) had attained primary education, 21 of the respondents (31.8%) had attained secondary school Education. 3 respondents had attended university (4.5%)

Table 3: Education levels of the respondents

Education levels	Number of respondents	Total (%) of the respondents
Non	3	4.5%
Primary school education	39	59.1%
Secondary school education	21	31.8%
Tertiary education	3	4.5%
Total	66 respondents	100%

Table 4: Source of employment

Source of employment	Number of respondent	Total (%) of the respondents
Self employed	56	85
Government employed	2	3.0
Privately employed	8	12
Total	66	100

How long the farmers have cultivated banana

Farming experience of the farmers, the majority of farmers have spent more than 10 years involved in their first livelihood source of income. The average farmer has spent 6 years. This implies that on average they are experienced in whatever enterprise they are engaged in.

Out of the 16 farmers who are currently growing banana in Kotinyangha sub county,9 have an experience of over 10 years and 3 have an experience of 6-10 years. 4 of the farmers did not indicate how long they have cultivated banana.

Table 5: Farming experience of the respondents in banana cultivation

Number of years	Number of farmers	Total percentage
1-5 years	17	25.8%
6-10 years	20	30.3.7%
10 years above	26	39.4%
Unknown	3	25%

Farmer types

Out of the 70, 66 questionnaires were responded to appropriately while 4 were invalid. From the individuals surveyed, 19 farmers (28.8%) were non banana farmers,22 farmers were current banana farmers and 25 farmers have ever grown banana but stopped cultivating it making a total of 66 farmers (37.9%) having an experience of banana farming.

Table 6: Types of the farmers

Farmer type	Total number of farmers	Total (%) of farmers
Non banana farmers	19 farmers	28.8%
Current banana farmers	22 farmers	33.3%
Former banana farmers	25 farmers	37.9%
Total	66	100

Challenges faced by current banana farmers and the possible solutions

From the interviews and interactions I had with the farmers in Kotinyangha village, two farmers cited that the major challenge they faced was lack of market for Matoke bunches, and their request to the district extension

officer was to link with other agrobusiness and get more information about the marketing of Matoke and its products.

Out of the 22 questionnaires which were filled by the respondents who are current banana farmers, the challenges cited by farmers which contributed to getting low profits from banana growing included Unfavorable weather cited by 5 farmers, which reduces the quality and quantity of their banana, 2 farmers cited low purchase prices offered by banana companies which is most times below the cost of production and also price fluctuations, 9 farmers cited poor transport means which limits them from accessing the markets and 6 farmers said they were facing challenges of pests and diseases.

Table 7: Challenges faced by the current banana farmers

Challenges faced	Number of respondents	Total percentage
Unfavorable weather	5	22.7%
Lack of market	2	9.1%
Poor transport means	9	40.9%
Pests and diseases	6	27.3%
Total number of farmers	22farmers	100%

Amongst the 5 respondents who cited Unfavorable weather conditions, one was able to provide a solution. Out of the 2 who cited low purchase price, one was mentioned that they need more inputs to get high quality tobacco to achieve the high prices.

Most of the farmers cited poor transport means which was attributed to the bad conditions of their roads urging the local government to construct and renovate the main roads that lead to the market centers.

Why farmers have continued to grow banana.

The findings from the questionnaires were mainly in two categories that represented the main reasons why farmers grow banana: the income and market.

The first reason given as to why the farmers still grow banana was Profitability, respondents repeatedly expressed that banana was profitable compared to other crops, because it was the highest income earner for their families and even for paying school fees for their children. Despite the differences, all participants compared the profitability of banana with other crops, not other employment opportunities because they didn't have any hopes of getting other jobs. For other farmers who were interviewed, they perceived banana to be profitable because they were able to meet their needs with income generated from selling matoke. when

asked if banana was profitable one farmer said –Yes, it is profitable. We can buy what we want, we were able to repair our house and pay school fees for our children". Whether banana farming was profitable in the previous years or not, the farmers expressed willingness to continue growing banana in anticipation of the next profitable year.

Availability of Market, The banana farmers can choose to farm under a contract without side countries

Most farmers were of the view that it was often difficult to find buyers for other crops unlike in banana that regardless of the amount you want to sell, there is always a market. In addition to having a ready market, the farmers explained that even in circumstances where the grade of the banana was low they were still able to sell it to get some income. They noted that when other crops receive a lower grade, the harvest is rejected. In effect, they continue to grow banana because they are certain of receiving some income even if it is lower than expected.

Crops grown by the non-banana farmers.

According to the findings of the current non banana farmers of 36 farmers, cassava growing was their first household source of income of 10farmers followed by ground nuts growing with 8 ,respondents. 7 of the respondents indicated that maize growing were their first household source of income . This was followed by bean with 6 respondents and sweet potatoes for 5 respondents. The farmers also grow some fruits like avocado, mangoes and pineapples.

Table 8: Other crops grown by non banana farmers

Crops grown	Total Number of farmers	Total (%) of farmers
Cassava	8	42.1%
Sweet potatoes	2	10.5%
Ground nuts	3	15.8%
Beans	2	10.5%
Maize	4	21.1%
Total	19	100%

Based on the results in the table, it is evident that cassava growing is the major dominant activity and the major source of income for farmers in Kotinyangha sub county other than banana

Why former banana farmers stopped growing banana.

According to the responses got from about 19 farmers who have ever participated in banana farming ,they mostly cited Inadequate land for cultivating banana and other food crops, banana farming had negatively affected food security in their families which made them to stop farming and concentrating on other food crops to sustain their families.

The second concern was limited labour, while the carried out banana farming, most farmers got labour within their homes and neighbors. This labour was provided by mostly the children who are of school going age. This influenced the level of school attendance in school drop outs in the villages yet they also wanted their children to attend school.

Price fluctuations were also great discourage to the farmers where they sold the Matoke bunches to companies with very little prices compared to the input leading to losses. This made the farmers to stop growing banana and focus on other crops which provides them with cash throughout the year.

The last reason the respondents gave as to why they stopped growing banana was Climate change, leading to decrease in the quality and quantity of the banana produced. Poor quality makes them fetch little money which for example one farmer said- I would rather grow something that my family members can eat in case they don't buy it"

Table 9: Reasons given by former banana farmers

Reasons given by the farmers	Number of farmers who cited the reasons	Total (%) of farmers
inadequate land	8 Farmers	32%
limited labour	3 farmers	12%
price fluctuations	10 farmers	40%
Climate change	2 farmers	8%
Unknown	2 farmers	8%
Total	25 farmers	100%

Challenges they face while growing other crops.

As the farmers shifted to growing other crops, they also face some challenges which they cited as Pest and diseases which attack their crops like cassava and ground nuts causing losses to them,— but as long as the pests leave for us something to harvest that is enough llsaid one of the farmers in the villages.

They also face challenges of Soil infertility due to over cultivation of the land since they just have a few plots of land to cultivate on. Also Unfavorable weather conditions affect their farming they said especially hot and prolonged sunshine dries up their crops which led them to losses each and every year.

Some farmers also said they faced challenges of theft because their crops are stolen in large amounts in their gardens.

CHAPTER FIVE:

5.0 DISCUSSIONS

The results suggested that the short-term financial benefit of banana cultivation has an impact on whether farmers decide to grow banana in Kotinyagha Sub county. This dynamic is at least two-fold: banana farming can provide opportunities to generate cash, which households need for certain goods and services, and there is a perception that this cash can be generated in a relatively short time frame from farming banana compared to farming other crops.

Better market facility and better access to credit provided by banana companies also appear to have positive effects on decisions to grow banana in this study, also consistent with previous studies conducted in Kotinyagha sub county. In terms of market dynamics, several banana companies guarantee the purchase of the banana crops produced by farmers.

Accordingly, the farmers feel secure that if they choose to grow banana, they will at least receive payment for their product, even if they cannot be sure how high the price will be. In addition, farmers' perceptions of higher profits from selling banana attract some farmers to banana.

The finding that older farmers are more likely to grow banana is consistent and among other variables it is often related to preferring to continue with a crop they believe they know how to grow well and because they believe it is one of the few ways to generate cash.

Despite that, most farmers abandoned banana farming because of inadequate land related to the rampant population increase, limited labour which is mostly provided by the school going age leading to low school attendance and child labour, limited access to credit facilities and inputs, low price and unstable market which is not the case with other crops like cassava, beans, maize and others.

Qualitative interviews with banana farmers could enhance the understanding of these findings, and is an important avenue for future research. Farmers in Kotinyagha parish are more likely to stop farming banana.

This study encountered several limitations. First, there were potentially other factors like , price stability, sales-production ratios, sales guarantee of banana, etc. Not included in this analysis that influence farmers decisions to cultivate banana.

Because of limited money and time, i could not include every conceivable factor in my research, from the existing literature I included as many variables as possible that other research has found to be pertinent.

The study only examined one major sub county in the district. I am reassured that the findings were congruent with previous research in other parts of the district, so collectively, these studies are furnishing a clear illustration of this important dynamics in Budaka district.

CHAPTER SIX

CONCLUSION AND RECOMMENDATIONS

6.0 Introduction

The chapter presents the conclusion and recommendation of the findings as explained below;

6.1 Conclusion

6.1.1 Strategies to boost high banana production in Kotinyagha Sub County, Budaka District.

The field findings show that there were banana grower's cooperative society in the parish to buy the matoke like traders, and banana development organization.

Furthermore, respondents use chemical control method, biological control, and integrated pest management methods. In addition, used nitrogen-based fertilizer, phosphorus-based, potassium-based, and organic.

6.1.2 The challenges limiting banana production in Kotinyagha Sub county, Budaka District

The field findings show that pests and diseases, climate change, soil degradation, and limited access to finance were among the challenges faced. Furthermore, they had access to affordable credit facilities to support banana production. In addition, some respondents had less than 5 acres, 5-10 acres, 11-20 acres and more than 20 acres. Besides, respondents had less than 5 employees, 5-10 employees, 11-20, and employed more than 20 employees.

6.1.3 The impact of banana production on the sustainable livelihood to the people of Kotinyagha Subcounty, Budaka District.

The field findings show that respondent's income increased significantly as a result of banana production, there income increased slightly. Furthermore, respondents use the income generated from banana production for food purchases, for education expenses, income for healthcare expenses, and income for housing expenses.

In addition, deforestation, soil degradation, water pollution and climate change were an environmental concerns or issues noticed as a result of banana production.

6.2 Recommendations

Improve soil fertility: banana requires well drained fertile soil to produce high-quality bunches. Farmers can improve soil fertility by adding organic matter such as compost or manure, and using balanced fertilizers that provide nitrogen, phosphorus, and potassium.

Prune banana regularly: Regular pruning helps in the removing excess banana leaves and productivity of matoke. It allows farmers to control the size and shape of the tree, promotes fruiting, and removes diseased or damaged leaves.

Use appropriate pest and disease management techniques: Pests and diseases can significantly reduce banana yields and affect matoke quality. Farmers should use integrated pest management (IPM) techniques that combine physical, cultural, biological, and chemical controls to minimize harm to beneficial organisms and the environment.

Adopt climate-smart practices: Climate change is affecting banana production in many regions, and farmers need to adapt to changing weather patterns. Climate-smart practices include planting drought-tolerant varieties, improving soil health to enhance water retention, and implementing shade management strategies.

Promote biodiversity: Biodiverse banana agroecosystems are more resilient to pests, diseases, and climate change. Farmers can promote biodiversity by planting multiple crops, including legume cover crops, and preserving natural vegetation in and around their fields.

Implement sustainable water management practices: Water is essential for banana production, but it's a scarce resource in many regions. Sustainable water management practices include drip irrigation, rainwater harvesting, and efficient use of water resources.

Support smallholder farmers: Most banana is produced by smallholder farmers who face challenges such as limited access to finance, technology, and markets. Governments, NGOs, and companies can support smallholders through training programs, credit facilities, and market access initiatives.

Invest in research and development: Research and development can help address challenges facing banana production, such as pests, diseases, and climate change. Governments, universities, and private organizations can invest in research to develop new technologies, improved varieties, and sustainable production methods.

Foster collaboration and partnerships: Collaboration between farmers, governments, civil society, and the private sector is crucial for achieving sustainability in the banana supply chain. Partnerships can facilitate knowledge sharing, technology transfer, and joint efforts to address common challenges.

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APPENDIX

Badget.

S/N	ITEM	COST (UG SHS)
1	Transport	25,000
2	Printing data collection materials	8,000
3	Report printing and binding	70,000
4	Participants benefits	32,000
5	Miscellaneous	30,000
6	Total	185,000

6) For how long have you dealt in the banana growing?(Only for the banana farmers)

- i) 1-5 years ii) 6-10 years iii) 10 years and above

SECTION B: FARMER TYPES (BANANA FARMER)

1a) i). Do you carry out banana farming?

- i) Yes. ii) No

ii) If yes, What type of banana do you grow??

.....

bi). Do you face any challenges when growing banana?

- i) Yes ii) No

ii). If yes, what are those challenges you have faced as a banana farmer and the possible solutions to those challenges.

Challenges	Solutions

Others (specify)

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

c). Why have you continued to grow banana despite those challenges?

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.....
.....

Qn.2) a). How is the demand for banana in your parish?

- i) high demand ii) low demand iii) medium demand

b). Besides banana, are there other crops that you grow?

- i) yes. ii) No

c). If yes, list them in order of importance, starting with the most important.

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SECTION C: FORMER BANANA FARMER

1).ai) Have you ever cultivated banana?

- i) Yes. ii) No

ii). If yes, What made you to stop growing banana?

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.....

b). What can be done to ensure that people continue growing banana in your sub county?

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.....

c)i Are there any crops that you grow?

i) yes.

ii) No

ii) If yes, list them in order of importance, starting with the most important.

.....
.....

SECTION D: NON BANANA FARMER

1a) What crops do you cultivate?

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.....

b) Why do you prefer growing those crops other than banana?

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.....
.....

ci) Are there challenges you face while growing the crop

i) Yes

ii) No

ii). If yes, what are those challenges and what are the possible solutions to those challenges?

Challenges	Solutions

Others (specify)

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