Bindura University of Science Education

Faculty of Agriculture and Environmental Science

Department of Agricultural Economics, Education and Extension

ENHANCING PROFITABILITY FOR BANANA SMALLHOLDER FARMERS IN HONDE VALLEY .CASE OF MURARA AREA UNDER MUTASA DISTRICT

Submitted by

MADEU REGINA
B201496B

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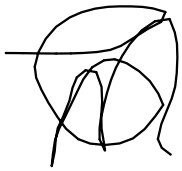

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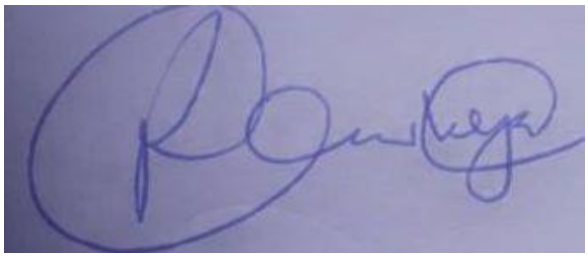
Supervisor: Dr Chivheya
Signature:



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I certify to the best of my acquaintance that the procedure has been followed and the preparation criteria for this dissertation have been met .

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DECLARATION

I, Regina, declare that this dissertation titled "Enhancing profitability for banana smallholder farmers in Honde Valley .Case of Murara Area under Mutasa District " is my original work and has not been submitted elsewhere for any degree or qualification. I acknowledge that I have received guidance and support from my supervisor, Dr Chivheya, and other academic staff during this research, but the intellectual content and presentation of this dissertation are entirely my own. I have followed the guidelines and regulations of the Bindura University of Science Education regarding plagiarism and academic integrity, and I have properly cited and referenced all sources of information used in this dissertation.

Author: Madeu Regina

Reg Number: B201496B

Signature:r.m

Date:23 June 2025

DEDICATION

This research is dedicated to my family who supported and encourage me through thick and thin .And mostly the Lord Almighty who has been my source of strength throughout this academic journey.

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ABSTRACT

Smallholder banana farming is an important element of the landscape of Honde Valley in Mutasa District mainly in Murara .However these farmers face constrains that limit their capacity to increase profitability .The aim of this study was to analyse the socioeconomic factors that influence the profitability of banana production among smallholder farmers in Murara .The study was focused on 120 smallholder farmers in Murara .A structured questionnaire was used to collect primary data .Descriptive statistics ,multiple linear regression and gross margin analysis were used to describe smallholder banana farmers ,identify production determinants and examine the restrictions that affect banana profitability .The findings revealed that the majority of banana smallholder farmers are A1 farmers with a land holdings between 1 to 5 hectares .They face barriers to accessing credit and extension services. The multiple linear regression analysis R squared 71.9% .The study highlighted the need to address the production constraints faced by smallholder through strengthening extension ,advisory services and establishment of community –based storage facilities .

Keywords: Smallholder banana farmers, Murara, Honde Valley, profitability socioeconomic factors, production constrains

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LIST OF ACRONYMS AND ABBREVIATIONS

A1	Smallholder farmers with subsistence farming plots)
AGRITEX	Department of Agricultural Technical and Extension Services
BBW	Banana Bacterial Wilt
CARE	Cooperative for Assistance and Relief Everywhere
DFID	Department for International Development
FAO	Food and Agriculture Organization
GNP	Gross National Product
IFAD	International Fund for Agricultural Development
IFPRI	International Food Policy Research Institute
NGO	Non-Governmental Organization
PPP	Public-Private Partnership
SAEPP	Smallholder Agricultural Empowerment and Promotion Program
SPSS	Statistical Package for the Social Sciences
SDG	Sustainable Development Goal
TR4	Tropical Race 4
UNDP	United Nations Development Programme
USD	United States Dollars
ZIMSTAT	Zimbabwe National Statistic Agency

CHAPTER 1

INTRODUCTION

1.1: Background of the study

Banana production in developing countries plays an important role in providing economic benefits to farming households and ensuring food security .Smallholder farmers produces most of the world banana output of about 85% of the 150 million tons produced annually (FAO, 2023).Banana farming provides income and reduce poverty among smallholder farmers .Smallholder farmers faces various constraints which include weak extension support, limited access to finance and production inputs. Government interventions have tried to help smallholder farmers through setting up farmer's group, improving the whole banana supply chain and encouraging the use of mobile phones to access market information such as trends of market prices.

According to (Tadesse and Bahiigwa, 2019) fair trade programs and price checking apps have helped farmers in parts of Latin America and Asia to access better markets .Middlemen exploit farmers in charging prices that are below the expected market prices .Smallholder farmers faces unpredictable weather patterns that damages bananas and crop diseases such as Fusarium wilt TR4 that reduces banana yields. In Sub Sahara Africa , banana farming provides food security and create employment for the locals, however smallholder farmers face low yields due to various challenges they face .According to (FAO 2022) smallholder banana producers harvest between 6 to 10 tons per hectare while commercial farmers produces between 30 to 40 tons per hectare in a production cycle .The East African Community has encouraged smallholder farmers to create farmer's groups and to adopt post-harvest handling techniques to reduce spoilage .Due to poor road networks and inconsistent government support these efforts haven't widely spread (Kikulwe et al.,2018).

Agriculture contributes 12% in Zimbabwe's economy and creates 60% of employment to people. According to (ZimStat, 2023) banana is an important cash crop in Manicaland Province. Smallholder producers in this area faces constraints such as poor road networks and lack of storage facilities which leads to high harvest losses .Long distance to markets and mountainous terrains delay farmers to reaches markets, resulting in spoilage and reduced quality of bananas. Lack of storage facilities restrict farmers to hold their crops to meet the increasing demand in the markets. According to research done by (Muponda et al., 2021) shows that 70% of banana smallholder producers have no choice than to sell to the middlemen who charges prices that are below the farmer's expectations .Zimbabwean's government farm policies mainly focus on crops such as maize and tobacco, ignoring crops such as bananas this keeps smallholders farmers trapped in poverty.

Government tried to implement various programs to helps smallholder farmers ,such as government extension services .Government extension services though Agritex's Farmer field Schools have helped farmers to practice best pest control and soil management techniques this resulted in increased yields of 20%.Non-Governmental Organizations such as CARE encourages farmers to form cooperatives to sell their produce in groups and negotiate better prices .Studies by (Nyamandi,2019) state that some projects have introduced solar drying to reduce harvest and storage losses .

Limited access to finance has also became a challenge to smallholder farmers, a small percentage of small scale producers gets formal loans reducing the ability to purchase inputs such as fertilizers, suckers, pesticides and equipment .According to the studies done in Malawi and Mozambique more progress have been made to create partnership between the government and private sectors to establish cold facilities and export facilities (Benfica et al., 2019).

Key gaps remain in understanding social and economic barriers such as gender roles ,land tenure systems and cultural practices that affects banana value chains .According to (Ndhleve et al.,2020) more information is available on banana drought resistant varieties ,but few studies shows how these connect with market access . Government farm policies favour staple crops such as maize and overlook crops such as bananas despite opportunities that banana production offers in enhancing economic growth and poverty reduction (Mutambara et al., 2020).

According to (World Bank, 2022) 80% of smallholder farmers live below the poverty line. This study aims to make banana production more profitable to small scale producers through Sustainable Development Goal 1 which is No poverty and goal 8 that's Decent Work .The research aim to identify constraints to profitability and suggesting solutions based in other countries for example, Zimbabwe might adopt mobile marketing platforms done in Kenya and the pubic private partnership done in Malawi.

1.2 Statement of the problem

Banana production supports the livelihoods of many people through income generation and poverty reduction .Despite potential opportunities that banana farming offers in enhancing economic growth and poverty reduction ,smallholder farmers get 30% what consumers pays for their produce (FAO,2023).Smallholder banana farmers in Murara face many challenges that reduce productivity and profitability .70% of smallholder farmers can't access better markets to sell their produce .According to the (World Bank ,2021) around 60% of banana yields are lost due to diseases, poor roads networks and lack of storage facilities .Smallholder farmers in Murara experienced decreased profits of a third over the past five years. A quarter of the produce reach formal markets were they are better prices ,75% of the harvest is sold to the middlemen and informal markets where lower prices are charged .Limited access to formal markets costs farmers 40% of the profits they should obtain .Despite the opportunities offered by banana production in Murara ,researchers have ignored challenges faced by smallholder farmers .Issues on gender inequality , diseases and limited access to loans have not been paid attention to by other past studies. This study aims to fill the gap providing ways to increase banana productivity and profitability among smallholder farmers in Murara .By understanding the constraints faced by smallholder farmers, suggestions can be made to improve farmer's income.

1.3: Research Questions

i What are the characteristics of banana producers in Honde Valley?

ii What socioeconomic factors govern profitability of banana production among smallholder farmers in Honde Valley?

iii What are the production constraints hindering the profitability of banana production for smallholder farmers?

1.4 Main objective

The primary goal to this study is to determine the socioeconomic elements that influence the profitability of banana production in Honde Valley.

1.4.1 The specific objectives of the study are as follows:

i To characterize banana producers in Honde Valley

ii To analyse the socioeconomic factors influencing profitability of banana production among smallholder farmers in Honde Valley

iii To identify production constraints affecting the profitability of banana production in Honde Valley

1.5 Hypothesis of the study

1. Age, educational levels, gender, farm size and inputs significantly impact banana production among smallholders in Honde Valley.
2. Limited access to extension services, credit, inputs and labour shortages negatively impact the profitability of banana production for smallholder farmers in Honde Valley.

1.6 Justification of the study

The research is important because its purpose is to address challenges faced by banana smallholder farmers in achieving profitability .This study is crucial for several value chain actors these includes smallholder farmers ,local government members ,farming cooperatives and non-governmental organizations working to improve productivity and rural life in Murara. Smallholder farmers face several challenges in transporting banana from the farm to the market due to broken value chains and several middleman taking a cut from the profits .These farmers are experiencing high spoilage

of yields due to poor road networks and long distance to markets .Smallholder farmers lack collateral security to secure loans and they also lack market information on current market prices. This research can develop ways to strengthen farmer groups so they sell together and negotiate for better price for both inputs and banana prices .To reduce spoilage smallholder farmers should adopt post-harvest technologies .Linking smallholder farmers to formal markets protect them from middlemen exploitation .Enhancing market access will increase farmers income and profitability .More currency circulates in the community helps to expand banana production and better standards of living .This aligns with the objective of the provincial officials to improve standards of living in rural communities .This study contributes to a wide part on agricultural economics and rural development by providing insights on the challenges faced by banana smallholder farmers in Honde Valley .Studying this region helps to highlight the geographic features and social factors that affects banana production .

1.7 Limitations of the Study

Poor road networks in Murara area was one of the major challenges faced in this research. Small scale farmers in this area were scattered and households being located in remote areas hence a major challenge encountered in this research. This was also worsened by lack of transport in the area and in this regard the researcher had to walk to access households who practiced banana production. Some of the households were inaccessible and only a small sample of population was interviewed. Resource shortage was also a major constraint faced in this research. Time and money proved to be limited and this delayed process of data collection.

1.8 Chapter Summary

This chapter provides an overview of a research study that concentrates on the socio economic factors that affect the profitability of banana production in Honde Valley. The important aspects of the study, such as its background, the problem statement, the study's importance, research objectives and research questions as well as its limitations and boundaries are also introduced in this chapter.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

This chapter reviews literature relevant to the current study. Literature is to be reviewed under theoretical and empirical literature. This chapter shall also present a conceptual framework as well as the research gap in line with the objectives of the study. The chapter's main purpose is to justify the position of this study together with the existing knowledge.

2.2 Definition of Terms

2.2.1 Profitability

Profitability is the ability of farmers to generate income from their agricultural activities and to cover the production cost which includes variable cost to make a surplus .For banana smallholder farmers in Honde Valley profitability depends on production efficiency and good management of cost .According to (Machethe ,2015) defines profitability as generating income from agricultural production after deducting all costs incurred during the production cycle .Increasing yields and reducing production cost such as labour and inputs enhance profitability for banana smallholder farmers in Honde Valley .

According to (Barrett et al., 2015) achieving a surplus from agricultural productivity by balancing revenue and costs describes profitability .Banana farmers in Honde Valley should aim to reduce production costs through sustainable agricultural practices .A study by (Terera et al., 2024) suggested spraying of herbicides like 2.4-D and paraquat to reduce labour cost during weeding. The researcher also suggested the use of organic fertilizers to reduce the costs of buying fertilizers.

2.2.2: Smallholder farmers

Smallholder farmers are individuals who oversee less than five hectares of land, mostly employ family labor, and produce for both local and subsistence markets, according to the Food and Agriculture Organization (FAO, 2017). These farmers contribute to local economies and food security in two ways. According to (FAO, 2019) a sizable portion of agricultural households are small-scale farmers that employ small-scale production techniques to farm. .High rates of illiteracy and restricted market access are two issues that these farmers frequently. About 30% of smallholders' commodities are sold in the market and the majority of them possess between 0.5 and 5 hectares of land (IFAD, 2019).

2.3: Overview of Banana Production

Producing bananas is essential for millions of smallholder farmers in Africa to generate revenue and ensure food security. The Food and Agriculture Organization estimates that 16 million metric tons of bananas were produced in Africa in 2020, with Uganda leading in production followed by Nigeria and Malawi (FAO, 2021). In economies like Zimbabwe and Uganda, diseases like banana bacterial wilt have a major effect on output. Significant yield losses may result from an inability to control these illnesses (Karamura et al., 2018). Zimbabwe's yields and profitability have decreased as a result of farmers' inability to invest in production inputs due to economic difficulties (ZIMSTAT, 2022). In nations like Mozambique, inadequate infrastructure limits farmers' access to markets which lowers production levels because farmers can't efficiently sell their excess (FAO, 2021). Banana growers in Malawi confront major obstacles due to climate variability and restricted irrigation access (FAO, 2021).

In Nigeria, production is hampered by a lack of access to high-quality seeds and fertilizers (Ogunniyi et al., 2020). Sufficient rainfall and temperature are also necessary for banana growth. Higher yields result from year-round production made possible by the stable climate (FAO, 2021). The World Bank (2019) states that the Agricultural Revival Program was put into place in Sudan to solve issues with inadequate access to water and market infrastructure, enhance irrigation

infrastructure and encourage value addition through the processing of bananas. The potential for value addition in Kenya's banana industry was examined by (Muchiri et al., 2021).

They suggest that processing bananas into products such as flour, chips and juice can enhance profitability for farmers. By diversifying their products, farmers can tap into new markets and increase their income.

Table 1: Banana Production Statistics in Africa

Country	Production (Metric Tons, 2020)
Uganda	2,500,000
Nigeria	1,500,000
Malawi	1,200,000
Côte d'Ivoire	1,200,000
Sudan	500,000
Mozambique	400,000
Zimbabwe	200,000

Source: FAO (2021)

The figures above illustrate the output of banana production per ton based on research conducted in Africa (FAO, 2021). The varying climates, political policies and economic situations of each country all affect these outputs, which in turn affect the Gross National Product (GNP). With 2,500,000 metric tons produced, Uganda was the nation that produced the most bananas. The Ugandan government has proposed management strategies that will aid in the decrease of diseases and pests. De leafing and de sucking are two sanitation techniques that according to the study, minimize pests and infections. For instance, in order to increase yields and profitability, Uganda focused on doing research to create disease-resistant banana varieties (Karamura et al., 2018).

According to this, Tanzania is working to increase the competitiveness of smallholder farmers by improving market infrastructure and granting access to improved seeds. Around 500,000 metric tons of bananas were produced in Sudan in 2020 (FAO, 2021). Due to the excellent climate in the southern regions, the production was mostly centered there. Through the Agricultural Revival Program, the Sudanese government concentrated on enhancing market accessibility and agricultural infrastructure. The goal of this program is to give farmers access to contemporary agricultural supplies and improve irrigation infrastructure. In order to boost smallholder farmers' profitability, programs that encourage value addition like processing bananas have also been implemented (World Bank, 2019).

An estimated 400,000 metric tons of bananas were produced in Mozambique in 2020, indicating the country's expanding banana industry (FAO, 2021). Implemented by the Mozambican government, the National Agricultural Strategy seeks to increase smallholder farmers' access to markets and agricultural output. Programs like the Agricultural Development Program concentrate on giving people access to better crops, irrigation systems, and training. In order to increase smallholder farmers' profitability, programs to encourage value addition through banana processing have also been implemented.

Studies conducted in Africa highlighted the significance of variables like expanding market access for smallholder farmers and the availability of loans (Sibanda and Chaminuka 2020). They contend that in order for farmers to successfully access markets and sell their produce at competitive prices, improved infrastructure such as roads and storage facilities is necessary. According to the study, smallholder farmers' negotiating power may be increased by establishing cooperatives. Farmers can raise prices and increase their overall profitability by combining their resources and promoting their goods as a group.

2.3.1 Banana Production in Zimbabwe

Producing bananas is a significant agricultural activity in Zimbabwe that helps many smallholder farmers create jobs, generate income and provide food security. Zimbabwe produced over 200,000 metric tons of bananas a year as of 2021 (FAO, 2021). Smallholder farmers are the main source of

the nation's production, which places it among the top banana-producing nations in Southern Africa. An estimated 10,000 hectares are thought to be used for banana production and the area under cultivation has been growing (ZIMSTAT, 2022). The increasing demand for bananas in both domestic and international markets is reflected in this growth.

In Zimbabwe, bananas are mainly produced in a few strategic areas. The Eastern Highlands are renowned for their fertile soils and ideal climate, especially in Manicaland Province. In Zimbabwe, bananas are mostly farmed in a few strategic areas. The Eastern Highlands are renowned for their fertile soils and ideal climate, especially in Manicaland Province. Because of their height and rainfall patterns, regions like Nyanga and Honde Valley are popular for growing bananas. Banana production is encouraged in Mashonaland East and West provinces, where farmers profit from appropriate agro-ecological conditions and irrigation infrastructure. Banana farming has also begun in some parts of Matabeleland South, albeit it is less widespread than in the Eastern Highlands.

The most popular banana type in Zimbabwe is Cavendish, which is grown mainly for export and local markets and is famous for its resistance to handling and transportation. Favored for its sweet flavor, the Apple Banana (Dwarf Cavendish) is frequently cultivated for local consumption. Although it is less widespread, some farmers also grow plantain types for local markets and cookery.

Significant yield losses were caused by banana bacterial wilt (BBW), which had grown to be a serious danger. This disease, which is caused by a bacteria which spreads quickly among plants. Another insect that damages and lowers production is the banana weevil, which burrows into the roots and corm of banana plants. The fungus Fusarium oxysporum is the source of Fusarium wilt, which impacts the plant's vascular system, causing withering and eventual death. Banana plants may also be impacted by root-knot nematodes, which could result in decreased yields and growth.

2.4 Characterization of Banana Producers

In rural areas such as Honde Valley, banana producers are characterized by men who contribute more to crop production than women in order to provide for their families. Women in banana farming, where they are frequently underrepresented, encounter gender-related obstacles such limited decision-making authority, limited resource availability and limited participation in farmer groups and extension initiatives. Smallholder farmers (A1 farmers) own small subsistence farming plots of land that they sell in local markets. Limited access to resources is one of the traits that smallholder tomato farmers share, according to several research possession of assets like money, labor, supplies and land.

The fact that these farmers depend on rain-fed farming puts them at risk from climate changes like prolonged droughts, which have recently caused yields to drop by as much as 30% (UNDP, 2023). Less than 20% of Honde Valley's banana growers have access to official finance, according to a 2022 study by the International Food Policy Research Institute (IFPRI), necessitating the use of high-interest informal lenders.

Smallholder banana growers primarily face challenges in accessing markets due to a lack of market knowledge, weak negotiation positions and limited transportation infrastructure (Mwambi et al., 2020). Small-scale banana growers are vulnerable to the consequences of climate change, such as droughts, cyclones, floods and outbreaks of pests and diseases. Higher crop losses, decreased yields and poorer product quality could result from this (Mwambi et al., 2020). Ownership of animals and the cultivation of other crops as a backup source of income are characteristics of banana farmers.

2.5 Socioeconomic factors influencing profitability of banana production

A study by (Adhikari et al., 2020) looks at a number of socioeconomic factors, such as farmers' educational attainment, access to financing and land ownership that have a big impact on banana output. Variables that impact smallholder farmers' ability to engage in market activities are

included in the socioeconomic factors. Crop production variables include farm size, variable costs and inputs used, institutional factors like financial support, extension services and infrastructure development. Household and household head characteristics include age, gender, income, education level and years of experience.

Household income is one of the primary determinants of agricultural production. Smallholder banana producers usually live in poverty cycles because they lack the funds to invest in high-quality inputs like fertilizer, disease-resistant seedlings or irrigation infrastructure. Gender differences in decision-making and access to sufficient resources may have an impact on Zimbabwe's banana production and profitability. Women, who comprise a significant portion of small-scale farmers, may encounter discrimination while attempting to obtain loans, land and markets in order to effectively invest in production and promote their goods (Mupangwa et al., 2021).

According to research on horticultural crops in Zimbabwe, women produce 25% less than men, even when given farms of the same size (Chingarande and Mugabe, 2020). Researchers came to the conclusion that women struggle to balance farming and domestic duties, as well as to obtain financial, extension and transportation services. Gender has a significant impact on profitability, with men farmers making more than their female counterparts, according to a study conducted in Tanzania's Missenyi District. In rural Tanzania, where male farmers frequently have greater access to resources, finance and markets than female farmers, this outcome was indicative of the country's larger socioeconomic dynamics. This gender gap is in line with other research that emphasizes how women's access to agricultural services and inputs is restricted, hence limiting their potential for productivity and income (Suresh et al., 2021). Systems of banana production are also heavily influenced by gender roles; women usually do labor-intensive jobs like planting, weeding and post-harvest processing, while men handle sales revenue and marketing choices.

Education's impact on agricultural profitability has drawn a lot of attention. According to (Mwangi and Kimathi ,2016) Central Kenyan banana farmers with greater levels of formal education made noticeably more money by adopting better management techniques and improved cultivars. Their research revealed that net returns increased by 12% for every extra year of education.

In Uganda (Sekabira and Nalunga ,2016) discovered that although formal education played a major role, farmer experience and training in banana production methods were more relevant indicators of profitability. This suggests that context-specific information might be more helpful than generic education, but further research in other geographic locations is needed to fully understand this link. Farmers with higher levels of education are more likely to embrace modern farming methods more successfully, which boosts output. Smallholder farmers' decision to participate in buying and selling systems is largely influenced by the age and educational achievement of the family head (Mango et al., 2018).

According to (Mbitsemunda and Karangwai ,2017) elderly individuals embrace new technologies more slowly, are less ready to take chances and are physically less able to bring the commodities to market. A study by (Jayne et al., 2019) younger farmers under 35 were more likely to use new technologies and marketing strategies, whereas older farmers were more likely to use traditional approaches .According to the (World Bank ,2008) expanding smallholder trade participation and engagement requires better market access.

Several studies on agricultural profitability have repeatedly shown that farm size is an important consideration. According to (Nguthi, 2017) economies of scale in the marketing and acquisition of inputs allowed larger banana farms in Kenya to be more profitable per acre. This result is at odds with previous research conducted in Tanzania by (Maganga, 2012) who found that intensive management techniques provided smaller farms with greater yields per unit area. One of the most important factors influencing agricultural investment and profitability is the security of land tenure. Ugandan banana growers with stable land tenure were more likely to make long-term investments, which increased their profitability (Kaaya et al., 2015). Although this finding is consistent with the literature on agricultural economics, it has not been thoroughly examined in Zimbabwe, especially in places that practice communal farming, such as the Honde Valley.

Increased profitability has been associated with the use of better banana varieties and production techniques. Farmers in Uganda who used tissue culture banana plantlets produced 67% more yields and 54% more revenues than those who used conventional planting materials (Kubiriba and

Tushemereirwe, 2014). However, smallholder farmers with limited resources might not adopt these technologies due to their high initial costs. Enhanced profitability has also been linked to integrated pest and disease management strategies. According to (Gold et al., 2015) East African banana growers who used integrated management techniques were able to maintain yields while cutting production costs by 23%. However, farmers with no technical help may find these approaches less productive due to their complexity and expertise needs.

Increasing market accessibility can help smallholder farmers overcome barriers to entry, grow their customer base and ultimately reduce poverty and create more economic opportunities, the research claims. The main barriers to farmers' marketing efforts, are physical facilities, market accessibility, lack of resources such as market knowledge and transportation. The availability of funds is a crucial factor that affects banana output. Nonetheless, as pricing is the main marketing tactic and a lower price serves as a deterrent, farmers' participation in the market is determined by the selling price of their goods (Mbitsemunda and Karangwai, 2017).To boost banana production and income in Zimbabwe, especially for small-scale growers, these socioeconomic problems must be addressed. In order to help small-scale banana growers increase their yields and profits, policies and interventions that enhance land tenure, loan availability, infrastructure, market accessibility, input availability, gender disparity and climate variability should be implemented.

2.6 Constraint affecting profitability in banana production

Small-holder farmers in Zimbabwe typically produce low yields of bananas and their failure to generate large profits due to a lack of market understanding results in losses since the perishability of the fruit creates trade problems that lower investment returns. A significant disadvantage up to this point has been pest resistance, thus researchers are actively working to create varieties that boost yields while still being pest-resistant. A study by (Yeasmin, 2021) looked at the technical efficiency and profitability of Bangladesh's banana production. According to the study, the main factors affecting the profitability of banana production were the cost of mechanical power, sucker, irrigation, fertilizer, pesticides, bamboo, human labor costs, manure model, experience, farm size, extension services and loan services.

One of the primary challenges to agricultural profitability that has been repeatedly noted is financial restraints. In their 2017 study, Katungi et al. looked at the production of bananas in East Africa and discovered that having access to formal financing helped farmers buy better inputs and planting materials which raised profitability. According to their research, farmers who lacked access to financing made 34% less money than those who had sufficient funding. While informal finance arrangements were more accessible to smallholder farmers. (Ochola and Kosura, 2019) discovered that they frequently had higher interest rates which decreased overall profitability.

One of the greatest challenges to the profitability of banana production worldwide is the presence of pests and diseases. Bacterial wilt has been recognized by (Blomme et al., 2013) as a significant obstacle to East African banana production, resulting in output losses of up to 85% in areas that are severely impacted. With impacted farms reporting 67% lower net returns than disease-free farms, their long-term analysis showed a negative correlation between disease incidence and agricultural profitability.

Several studies have been conducted on Black Sigatoka as a production restriction. In Central America, this fungal disease decreased banana yields by 35% to 50% across various kinds, according to (Arias et al., 2015). Smallholder farmers were mainly affected since they had less access to fungicides. Their research was mostly concerned with commercial plantations, which left gaps in our knowledge of the precise effects on smallholder systems. Despite having a major effect on banana production, nematode infestations have gotten little attention in the literature. According to (Coyne et al., 2018) plant-parasitic nematodes in Uganda decreased banana production by 20% to 30%, with older plantations being especially hard hit. Their study demonstrated the cumulative character of nematode damage and raised the possibility that the effects of constraints could worsen over time.

Despite receiving less scientific attention than issues with diseases and pests, weed control has grown to be a significant production constraint. According to (Kagezi et al., 2016), Uganda's banana production decreased by 15% to 25% as a result of personnel shortages which were the primary barrier to effective weed control. They discovered that the labor-intensive nature of

weeding often resulted in seasonal bottlenecks as it competed with other agricultural tasks. When pesticide use is integrated into smallholder banana systems, conflicting results have been noted. Although pesticides reduced the amount of work required, found that the high costs sometimes overshadowed the yield benefits, particularly for low-resource farmers (Taulya, 2015).

One of the main productivity constraints in banana systems has been repeatedly highlighted as the loss in soil fertility. Nutrient depletion, especially potassium insufficiency, decreased banana yields by 40% to 60% in Uganda's intensively farmed areas, according to (Wairegi et al., 2010). They found that although adding organic matter could help alleviate this limitation most smallholder farmers did not have access to enough organic inputs. In systems that produce bananas in the highlands, soil acidity has become another important limitation. According to (Turyagyenda et al., 2013) banana yields were reduced by 30 to 45 percent in acidic soils with a pH less than 5.5 because they hindered banana root development and nutrient uptake.

In their study of nutrient management techniques among Ugandan smallholder banana farmers, (Nyombi et al., 2016) discovered that although farmers acknowledged soil fertility as a limitation, their answers were frequently insufficient. Because fertilizer was expensive and scarce, only 23 percent of farmers used the necessary rates. This study emphasized how technological and economic restrictions interact.

The timing of water stress has proven crucial in determining impact severity. According to (Taulya, 2013) demonstrated that water stress during the shooting stage had more severe impacts on yield than stress. It has been determined that water stress is a major production limitation, especially in semi-arid areas. According to (Nyakatawa et al., 2018) in Zimbabwe's communal farming areas, water stress during critical growth stages decreased banana production by 25% to 40%. According to their findings, production cycles may be affected for a long time by even brief water stress. Water restrictions have been demonstrated to be significantly alleviated by irrigation access. When compared to rain-fed production, smallholder farmers who had access to irrigation produced 45% more, according to (Kubiriba and Tushemereirwe, 2014). However, adoption was restricted to less than 15% of smallholder farmers in their study area due to the high capital expenses of irrigation infrastructure.

According to (Muthoni et al., 2017) climate variability, which includes irregular rainfall patterns and temperature fluctuations, reduced the stability and profitability of banana production. Their study revealed that climate-related yield losses averaged 18% annually but could reach 50% in extreme weather years. Hailstorm damage has been identified as a significant but understudied constraint; (Okonya and Kroschel, 2016) found that hail damage occurred in 35% of banana farms in highland areas of Uganda annually, causing average yield losses of 25%. Because of this constraint's unpredictable nature, farmers found it particularly difficult to manage .Another factor limiting production is wind damage, especially in exposed highland regions. According to (Taulya, 2015) 45% of banana trees in exposed locations had lodging due to strong winds, which reduced productivity and increased the amount of effort needed to support the plants.

Numerous studies have consistently indicated labor restrictions. According to (Fermont et al., 2009) banana production losses of 20% to 30% occurred when manpower shortages during peak agricultural seasons decreased the intensity of banana management. Their study brought to light the conflicting labor demands of various livelihood pursuits and banana farming. Recent studies have highlighted the seasonality of labor restrictions. According to (Karamura et al., 2013) annual labor availability was less restricting than labor constraints during the land preparation and harvesting seasons. This result implies that temporal dimensions, as opposed to aggregate metrics, should be taken into accounting constraint analysis. There has been a growing focus on labor limitations related to gender. According to (Nakazi et al., 2015) women's restricted access to hired labor caused field operations to be delayed, which in turn led to lower yields.

Obtaining high-quality planting materials has been recognized as a primary production limitation. According to (Nowakunda et al., 2015) 78% of smallholder farmers used planting materials that were salvaged from the farm, which frequently had low genetic potential and contained illnesses. According to their research, farmers who used enhanced planting materials had yield increases of 35% however cost and availability were barriers to access. Access restrictions for fertilizer have been well reported. According to (Fermont et al.,2009) discovered that smallholder banana farmers' application rates fell to 25% of the required levels due to high pricing and restricted fertilizer supplies. Their study showed that profitability might be greatly increased by resolving

input access issues. One crucial element that has emerged is the timing of input availability. According to (Karamura et al., 2013) yield losses and decreased effectiveness were caused by delays in input supply that frequently occurred during the best times for application.

High transaction costs can severely restrict smallholder farmers' access to markets and profitability, which frequently leads to lower income levels and less market involvement, according a study by (Makhura, 2016). Reliance on unofficial marketplaces, poor infrastructure, and a lack of information all contribute to increased transaction costs, which in turn affect farmers' ability to successfully compete in the market. Farmers can increase their negotiating power, lower search and bargaining expenses, and pool resources by forming cooperatives (Bernard et al., 2017). Furthermore, using digital platforms to spread market information might enhance pricing transparency and drastically reduce search costs (Aker, 2016).

A1 farmers may find it difficult to enter formal markets due to unfair rules, increased intermediate expenses and inexperience; thus, revenue is reduce (Mupangwa et al., 2021). Tegen and Mohammed (2016) noted that in order to get the desired results, agriculture must embrace new technology, such as the use of the best planting materials, fertilization and pest control techniques, and cultural practices. The importance of tissue culture in creating disease-free banana planting materials was underlined. Dias, Kaplan, and Singh's (2021) study, which focused on Bangladesh, India and Indonesia discovered that smallholder farmers' income and yields are much increased when they use sustainable farming methods.

Market accessibility and training in sustainable practices were essential for increasing profitability. Zimbabwe’s banana production may also be impacted by the cost and availability of inputs like as seeds, fertilizer and insecticides. Their inability to obtain high-quality inputs at affordable prices may limit small-scale farmers' ability to produce high yields and high-quality fruits (Moyo et al., 2020).

2.7: Theoretical Framework

The enhancement of profitability among smallholder banana farmers requires a comprehensive theoretical understanding of the economic and livelihood dynamics that influence agricultural decision-making and outcomes. This theoretical framework draws upon two complementary theoretical perspectives: Transaction Cost Theory and the Sustainable Livelihoods Framework. These theories provide the conceptual foundation for understanding how smallholder farmers in Murara area, Mutasa District, navigate market participation decisions and livelihood strategies while facing various constraints and opportunities in banana production.

2.7.1: Transaction Cost Theory

Transaction Cost Theory offers a strong framework for comprehending smallholder farmers' decisions to participate in the market. It was first created by Coase in 1937 and then further extended by Williamson in 1985. Economic actors incur costs in both production and market transactions, according to the idea. These transaction costs have a big impact on the decision between self-sufficiency and market participation, especially for smallholder agriculture systems. Three basic features are asset specificity, transaction frequency and uncertainty are the source of transaction costs, according to (Williamson, 2010). These traits show themselves in particular ways that impact profitability results in the context of smallholder banana farming. Frequency refers to the regularity of market interactions, uncertainty includes both production and market risks and asset specificity is associated with investments that have few alternative applications.

According to **(**Barrett ,2008) argues that because smallholder farmers have little access to markets, information asymmetries and little negotiating leverage, transaction costs are especially important to them. Transaction costs in banana production can take many different forms, such as information and search expenses, contracting and negotiating costs and monitoring and enforcement costs. According to (Shiferaw et al., 2015) smallholder farmers are frequently forced into subsistence-oriented production systems due to high transaction costs that keep them out of lucrative market prospects. According to their research conducted in East Africa, banana producers

who faced high transaction costs saw a 40% decrease in net returns. According to this research, measures for lowering transaction costs are essential to increasing profitability.

Search and Information Costs are costs that include time and resources spent identifying buyers, gathering price information and understanding quality requirements. In banana production, these costs are particularly high due to the perishable nature of the crop and limited storage capabilities. Researcher found that smallholder farmers in Africa often rely on personal networks to reduce search costs, but this strategy may limit access to the most profitable markets. Their study revealed that farmers using traditional marketing channels earned 23% less than those with access to formal market information systems.

Negotiation costs encompass the time and effort required to reach agreements with buyers, including price negotiations, quality specifications and delivery terms. According to (Poulton et al., 2010) demonstrated that smallholder farmers often lack the negotiating power to secure favorable terms, particularly when dealing with large-scale buyers or processing companies.

There are various ways in which transaction costs and profitability are related to one another. Because they limit market access prospects, lower farmers' net prices, and prevent the adoption of market-oriented production practices, high transaction costs can lower profitability. Goetz (1992) created a theoretical model that demonstrates that farmers only engage in marketplaces when the anticipated returns outweigh the costs of doing business. It is suggested by this threshold effect that market participation and profitability might be disproportionately affected by slight decreases in transaction costs. While farmers with transaction costs above the threshold will continue to focus on subsistence farming, the model forecasts that farmers with transaction costs below the barrier will be net sellers. Barrett (2008) extended this analysis to show that transaction costs create market participation thresholds that vary across farmers based on their resource endowments and market access conditions. This heterogeneity implies that transaction cost reduction strategies must be tailored to different farmer types and local contexts.

2.7.2: Sustainable Livelihood Framework

A detailed approach for understanding rural livelihoods and reducing poverty approaches is offered by the Sustainable Livelihoods Framework, which was created by the Department for International Development (DFID, 1999) and improved by Ellis in 2000. Smallholder farmers labor in intricate livelihood systems where agricultural practices are combined with other methods of obtaining revenue, as acknowledged by the framework. According to (Scoones, 2015) the framework's strength is its capacity to represent the multifaceted character of rural livelihoods, including the different resources, organizations and tactics that affect results. The context of vulnerability, livelihood assets, altering structures and processes, livelihood methods and livelihood outcomes are the five main parts of the framework.

Human, natural, financial, physical and social capital are the five categories of capital identified by the framework as having an impact on livelihood outcomes. The profitability of banana production is influenced by various forms of capital through distinct methods. People Resources Health, work capacity, knowledge and skills are all included in human capital. Human capital, is essential to both market involvement and agricultural output. Human capital is demonstrated in the production of bananas through technical understanding of production procedures, managerial abilities and market awareness. Farmers with greater levels of human capital produced 25% more bananas and were more likely to sell in high-value markets, according to research by (Winters et al., 2009). Their study showed that expansion, training and education greatly improved human capital and, thus, profitability results.

Natural Resources such as land, water, forests and other natural resources are examples of natural capital. According to (Pretty et al., 2011), sustaining and improving natural capital while raising production is essential for sustainable agricultural intensification. Profitability in banana production is strongly impacted by the quality of natural capital. According to (Tittonell and Giller, 2013) 60% of the difference in banana yields across various agricultural techniques could be explained by soil fertility, water availability and climate. Their study made clear how crucial natural capital management is to long-term profitability growth. Money savings, credit availability and other financial resources are all included in financial capital. According to (Dorward et al.,

2003), the most significant barrier to smallholder agricultural development is frequently a lack of financial resources.

According to a study in Bangladesh, smallholder farmers' profitability and investment in banana production rose by 32% when they had access to loans. However, the study also showed that without supplementary investments in other forms of capital, credit availability alone was insufficient. Capital in Physical Form Technology, machinery and infrastructure that support marketing and production operations are examples of physical capital. Investments in rural infrastructure significantly increased agricultural productivity and reduced poverty (Fan and Chan-Kang's, 2005) .Physical capital in banana production systems includes infrastructure for transportation, storage and processing. Kader (2005), discovered that insufficient post-harvest infrastructure led to 25% to 40% decreases in banana value, which had a major impact on smallholder profitability.

The Social Capital comprises the institutional links, networks and groups that enable market access and collective action. Social capital improves economic outcomes by fostering better information exchanges, lowering transaction costs and increasing collective bargaining power. According to research by (Narayan and Pritchett, 1999) farmers with greater social capital were able to access markets and adopt technology more easily, resulting in 15% to 25% higher incomes. Social capital is demonstrated in the production of bananas through cooperative membership, farmer organizations and unofficial marketing networks.

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2.8: Conceptual framework

Figure 1 shows the conceptual framework that demonstrates how several elements interact to affect small-scale farmers' banana profitability in Honde Valley, Murara region. Household variables that have a direct influence on farming operations in the Honde Valley are represented by the socioeconomic factors.

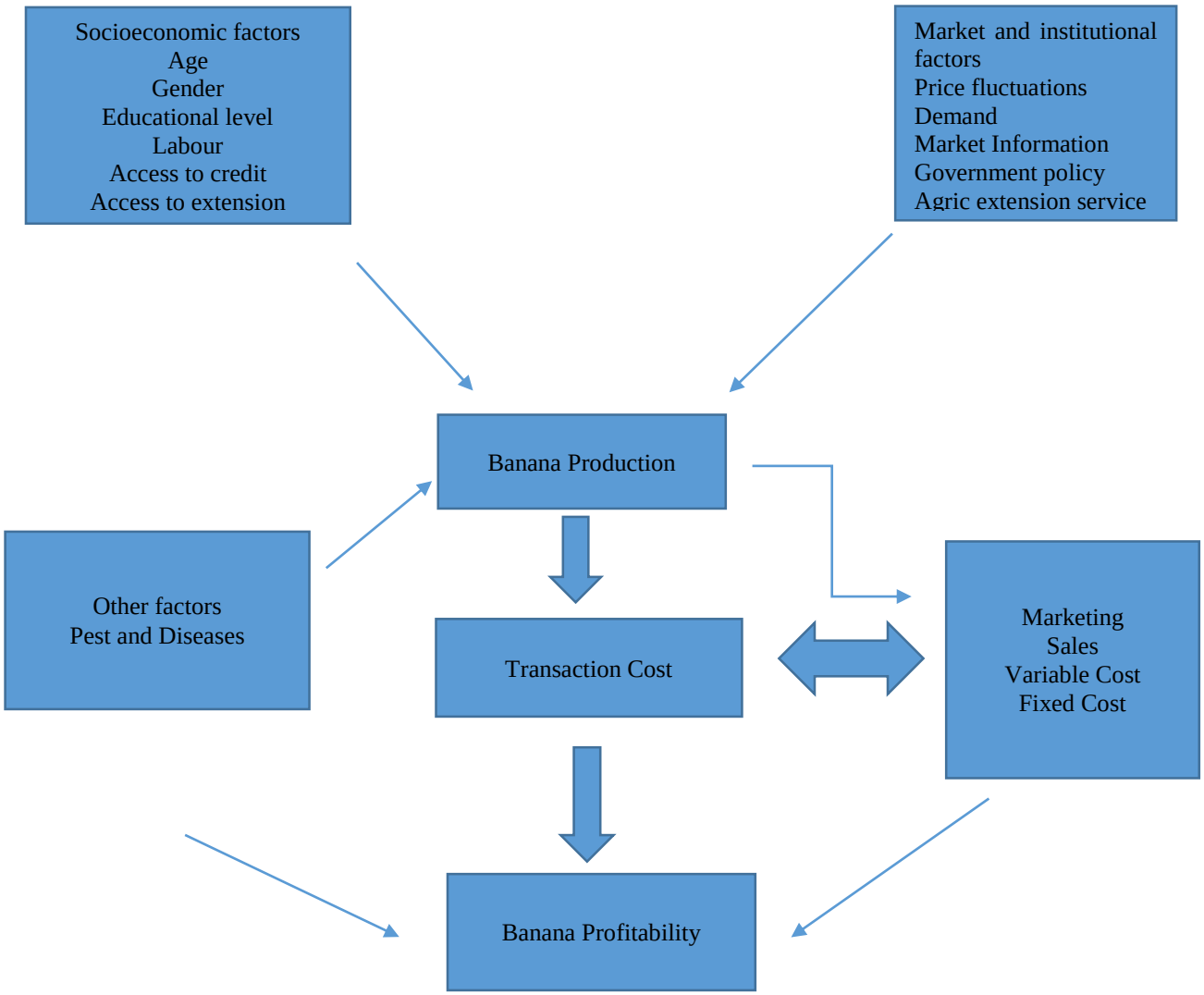

Figure 1: Conceptual framework

In the Murara region, gender affects farming interactions. Men and women are usually given different tasks when it comes to field activities, marketing duties and decision-making which presents particular difficulties for households headed by women. A farmer's level of education influences their capacity to analyze market trends and keep track of their finances and their level of literacy influences how they interact with written training materials. With households relying on a combination of family members and hired labor assistance during peak seasons, labor availability dictates the scale of cultivation and the timing of crucial tasks like planting and harvesting. Most farmers in the Honde Valley still struggle to get finance, which restricts their

ability to invest in basic processing equipment that may improve value addition, increase production

The economic environment in which Honde Valley banana farmers operate is shaped by institutional and market variables. Price swings are a persistent problem; seasonal gluts can cause banana values to fluctuate significantly between planting and harvest, causing income unpredictability that makes investment and financial planning more difficult. Farmers must modify their harvesting and selling tactics in response to shifting demand patterns throughout the year, which are influenced by customer tastes, the availability of competing crops and the purchasing power of urban purchasers.

Murara farmers use a variety of marketing techniques, ranging from roadside sales just after harvest to being involved in cooperative selling groups. Those that use differentiation strategies based on quality or maturity stage typically get higher returns. Both volume and negotiating strength are reflected in sales results; farmers that harvest more or combine crops with neighbors usually obtain better terms from traders and pay less for transportation per unit. Seasonal inputs such as fertilizers, temporary labor and replacement suckers are examples of variable costs. These expenses vary according to the intensity of production and necessitate careful cash flow management during the growing cycle.

Land taxes, equipment depreciation and farmer organization membership fees are examples of fixed costs, which are continuous guarantees independent of production level that put financial strain on farmers even during slow times. Even with farmers' best efforts, transaction costs significantly reduce net returns for remote producers. These costs include not only direct costs like market fees and transportation, but also opportunity costs like time lost traveling on bad roads, haggling with buyers and looking for price information.

2.8 Research Gap

There is a significant information gap about the socioeconomic factors influencing the profitability of banana cultivation especially in Honde Valley, according to a review of the literature. The majority of previous research has focused on the bigger banana value chain in Southern African countries as well as transaction costs in West Africa. Although agricultural research has been done on a number of crops such as maize and chilies surprisingly few studies have been done to identify the factors and obstacles affecting the profitability of banana farming in the region.

Given the importance of banana production to the Honde Valley's agricultural environment and its ability to alleviate poverty and foster economic growth it is imperative that this knowledge gap be filled. The significance of this study is emphasized by the paucity of comprehensive research on the unique socioeconomic dynamics and challenges encountered by smallholder banana farmers in Honde Valley. In order to bridge the current research gap and provide useful data that can inform policy and practice aimed at enhancing the sustainability and profitability of banana production in Honde Valley, this study will examine market dynamics, price trends, marketing channels and factors influencing market participation specifically within the banana sector.

The purpose of this study is to fill in the knowledge gaps regarding smallholder farmers in Murara. The goal of the project is to advance a more thorough understanding of the environment around banana production and open the door for focused interventions that will aid smallholder banana growers and advance regional agricultural development.

CHAPTER 3

RESEARCH METHODOLOGY

3.1 Introduction

The research approach is presented in this chapter. This chapter describe the characteristics of the study area, research design, data collection methods tools and the data analytical tools, sampling techniques and the ethical issues .The choice of methods used are guided by the research objectives.

3.2 Study Area and Population

Murara is under Mutasa District which is one of the seven districts in Manicaland province as shown in Fig 2. It is located 30km north of Mutare and stretches up to the Honde Valley, which is about 100km northeast of Mutare. Its coordinates are $18^0$34’ 60’’ S and $32^0$45’0’’ E. It is situated at an elevation between 912 metres above sea level. According to ZIMSTAT (2022), Mutasa district had a total population of 197,810 comprising of 31 wards were 93, 955 are male and 103, 855 are female .Murara area with a total population of 9775 were 4419 are male and 5356 are female and a total household population of 2429. The area is in agrological region 1 .It is characterized by mountainous steep slopes and valleys .It receives average annual rainfall of 1200 to 1800mm and temperature range of 10 to 30 degrees Celsius. The soil type is mainly clay loom and sandy loam soils .It support the growth of tea, maize, beans, bananas and vegetables. Livestock production is also practiced in the area .Pungwe and Honde River provide water for irrigation and domestic use.

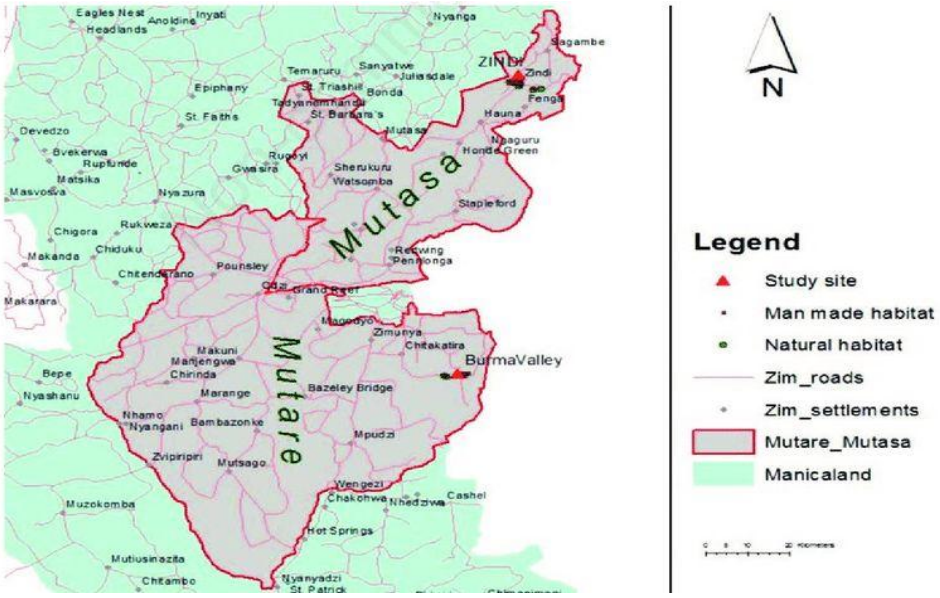

Figure 2: Map showing Mutasa District.

3.3 Research Design

A research design is a thorough plan that directs the entire investigation. It ensures that the goals and questions are addressed by acting as a guide for the researcher. Research design is the "blueprint" that helps the researcher solve problems and directs them through the many phases of the study, according to Kumar (2015). It is also recognized as a framework that contains a broad synopsis of the findings the researcher acquired from the data analysis. The study was founded on the case study design, which entails paying close attention to one or a select few situations.

This research approach was helpful in obtaining an accurate understanding of the issues that Honde Valley banana growers face, especially with regard to the socioeconomic aspects that influence their involvement in and profitability from banana farming. The banana smallholders in Murara who are typical of the population, including farmers with varying farm sizes, educational backgrounds and production methods were chosen using stratified sampling. A standardized questionnaire covering production practices, socioeconomic characteristics, demography and

restrictions affecting banana production was utilized to collect data. Expert views on the limitations and profitability of banana production will be obtained through key informant interviews with local leaders, agricultural extension agents, and other stakeholders using qualitative methodologies.

3.4 Population and Sampling

3.4.1 Population

Taherdoost (2020) defines a population as the entire collection of people, things, or data that have the qualities the researcher is interested in. To draw conclusions, a sample is taken from the entire universe. A population is a collection of individuals or things that share traits or attributes. The study's participants were Murara's smallholder banana farmers.

3.4.2 Sample and sample size

A sample is defined as a portion of the population that is selected for the purpose of conducting a study. The population refers to the entire group of individuals or instances that share specific characteristics relevant to the research objectives. For instance, in a study examining banana production in Honde Valley, the population might consist of all banana farmers in that region. The sample, therefore, would be a smaller group of these farmers chosen to represent the larger population. Using a sample was mostly done to draw conclusions about the population without having to examine each member individually. Not only was this strategy realistic, but it was also economical and time-efficient. (Creswell & Creswell, 2015) By examining a sample, researchers can collect information, examine patterns and make inferences that can be applied to the larger population.

3.4 .3 Sample Size

One of the most important parts of the research process is figuring out the right sample size. The number of observations or people that are part of the sample is referred to as the sample size. The validity and dependability of the study findings might be strongly impacted by the sample size. A sample that is too small could not accurately reflect the population, producing skewed findings and untrustworthy conclusions. On the other hand, an excessively large sample might be a waste of time and money without significantly raising the capacity of the data gathered (Fowler, 2015). A sample of 130 banana farmers was used by the researcher. The household served as the study unit. Out of the 130 surveys that were distributed, 120 were completed.

Table 2: Response rate

Total number of selected participants	Number of completed response	Response rate %
130	120	92.3

Source: Fieldwork (2025)

Response rate is calculated using the following formula: Number of Completed Responses \Total Number of Selected Participants * 100

The response rate of 92.3%, as shown in the table above, was sufficient to draw statistical inferences and conclusions about the socioeconomic variables affecting the profitability of banana production in Murara, Honde Valley .A higher response rate increases the likelihood that the sample accurately reflects the population, enhancing the validity of the research findings. If only a small percentage of selected individuals respond, the results may be skewed by the characteristics of those who chose to participate.

3.4.4 Sampling Procedures

Both stratified and purposive sampling methods were employed by the researcher. To guarantee that various population groupings were fairly represented, stratified random sampling was used. These subgroups included smallholder farmers classified by agricultural practices, gender and

farm size in the context of banana production. Purposive sampling, according to Creswell (2015), is a non-probability sampling technique in which participants are chosen based on particular traits pertinent to the study's goals. Researchers can obtain detailed information from people who have specific knowledge or experiences by using this strategy (Palinkas et al., 2015). It targets people with specific expertise, experiences, or traits that are pertinent to the research. These may consist of certain habits, professional knowledge or demographic characteristics. It is used for qualitative interviews to deepen insights into constraints and profitability of banana production.

3.5 Data Collection Methods

3.5.1 Secondary Data

The term "secondary data" describes material that has previously been gathered, examined and published by other scholars or institutions. The quality of the research can be improved by using secondary data to corroborate primary findings, offer insightful context and more. Some instances of secondary data are Zimbabwe's Ministry of Agriculture is able to release reports every year that contain data on crop production, agricultural policies and farmer assistance initiatives. According to the Ministry of Agriculture (2015), these studies can shed light on the socioeconomic aspects affecting banana output as well as the challenges growers confront.

Since peer-reviewed academic publications frequently publish studies that have looked into related subjects or populations, they are also excellent sources of secondary data. Data analysis, methods, and conclusions are available for researchers to use to guide their own investigations. Comparative insights can be obtained from academic publications and research studies on banana production that concentrate on banana production in different regions. Studies that look at the socioeconomic factors influencing banana producers in East Africa, for instance, can provide pertinent information and conclusions that are applicable to the Honde Valley environment (FAO, 2015).

Research and reports on agricultural practices, rural development and food security are frequently produced by NGOs and international organizations. These institutions are able to supply important secondary data that is pertinent to the goals of the study. Statistics and updates on the production

of bananas and other crops worldwide are released by the United Nations Food and Agriculture Organization (FAO). These studies can shed light on production methods, market trends and difficulties encountered by banana growers around the globe (FAO, 2015). To learn more about the demographics and farm-level traits of banana growers, Agricultural Census Reports also uses information from regional or national agricultural censuses. Data from the Zimbabwe National Statistics Agency's agricultural census is given (ZimStat, 2022).Local Government Records access records from local agricultural offices or cooperatives to gather information on registered banana farmers in Honde Valley. These records can provide data on the number of farmers, farm sizes and production levels.

3.5.2 Primary Data

Primary data is the original, unedited, raw data that the researcher gathers on the ground. For a particular research project, primary data is material that has been gathered straight from original sources. Researchers collected this kind of first-hand information using a variety of techniques, which enabled them to answer particular research questions and goals. Primary data was especially useful since it was customized to meet the study's requirements, guaranteeing accuracy and relevance. By managing the data collection procedure and utilizing approved tools, researchers would guarantee the data's accuracy and dependability. A standardized questionnaire and interviews were used to gather primary data.

3.5.3 Surveys and Questionnaires

Structured techniques like surveys and questionnaires are used to get quantitative data from a lot of people. They may consist of multiple-choice, Likert scale and open-ended questions, as well as closed-ended questions. By asking the same questions under similar circumstances, surveys can be made to produce consistent answers over time. According to Fowler (2015), the use of standardized questions improves reliability. The same survey can be given to the same group at multiple periods and the results can be compared to determine dependability. A high correlation is

a sign of dependability. By performing literature studies and speaking with experts, researchers can improve content validity and make sure the questions address all pertinent facets of the subject (Creswell & Creswell, 2015).

The size of the farmer's farm, the kinds of banana varieties planted and the length of time they have been growing bananas were all covered in the survey (Creswell & Creswell, 2015). Banana producers were surveyed and given questionnaires to complete in order to get quantitative data about their socioeconomic characteristics, farming methods and demographics.

3.5.4: Interviews

Another method to get qualitative data is through interviews, which entail direct, in-person contact between participants and the researcher. They are intended to collect detailed data regarding participants' viewpoints, experiences and ideas pertaining to a particular subject. Key Informant Interviews were the most effective method of gathering expert knowledge out of all the different kinds of interviews. Five important informants were interviewed in total; one representative from the Mutasa Rural District Council, two agricultural extension officers, the village head and a ward councilor. To acquire qualitative information on the socioeconomic drivers and limitations influencing banana production, key informant interviews were undertaken. Reliability can be increased if many interviewers are trained to ask the same questions in the same manner. High inter-rater reliability is demonstrated by replies that are consistent among interviewers. Semi-structured interviews can be standardized to improve reliability, but the open-ended nature may introduce variability.

3.6 Relationship between Objectives and Methods of Analysis.

The table below displays the quantitative and qualitative data that were used for the study, along with the method of analysis used for each objective. In the part that follows, the analytical techniques used for the study will be discussed.

Table 3: Showing the Objective and the methods of Analysis

OBJECTIVE	*RESEARCH QUESTION*	*ANALYTICAL TOOLS*	*FORMULAE*	*DATA CONCEPT*	*DATA VARIABLES*
To characterize banana producers in Honde Valley		-Descriptive statistics (Frequency distribution)	Percentage Frequency (%f) = (Frequency (f) / Total Number of Observations (n)) x 100	-Farm attributes -Demographic factors	-Type of farmer -Form of labour used -Farming experience -Farm Size -Access to credit
To analyse socioeconomic factors influencing profitability of banana production in Honde Valley	What socioeconomic factors govern profitability of banana production among smallholder farmers in Honde Valley?	Regression analysis OLS	$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \ldots, + \beta_8 X_8 + \mu$	-Socioeconomic factors	-Age -Gender -Education level -Land size -Inputs -Income
To identify production constrains affecting the profitability of banana production in Honde Valley	What are the primary constrains hindering the profitability of banana production for smallholder farmers in Honde Valley?	-Descriptive Statistics -Gross margin analysis	- Mean: $\mu = (\Sigma x) / n$ - Standard Deviation: $\sigma = \sqrt{[(\Sigma(x - \mu)^2) / (n - 1)]}$ -Total revenue-Total variable cost -Gross margin /Total revenue *100	-Production constrains	-Pest and diseases -Input cost -Limited access to credit -Market price per unit -Fixed cost -Transportation cost -Labour cost

3.6.1 Objective i: Descriptive Statistics

Frequency and percentages are examples of descriptive statistics that are suitable for presenting and summarizing the fundamental characteristics of the data. The SPSS software suite was utilized for both data visualization and analysis. Demonstrating the socioeconomic and demographic characteristics of banana growers is beneficial. Data is easier to obtain and understand when presented graphically, as in pie charts and bar charts. A clear image of the Honde Valley's banana producers will be painted by the results. Targeted training programs may be necessary, for instance, if the bulk of producers are middle-aged women with little formal education. It may indicate difficulties in attaining economies of scale if the majority of farmers possess tiny land parcels.

3.6.2 Objective ii: Regression Analysis

One method for determining the dependent variable's conditional expectation given the independent variables is regression analysis. It is employed to test theories on the connections between variables and to formulate estimates (Stock and Waston 2020). Regression analysis is a statistical method for simulating the relationship between one or more independent variables and a dependent variable, according to Greene (2018). It offers a framework for evaluating economic ideas and drawing conclusions regarding demographic characteristics. It offers approximations of the coefficients and parameters that measure the correlation between variables.

For this goal, the relationship between one dependent variable and two or more independent variables is measured using Ordinary Least Squares (OLS). The variance of the error term remains constant at all levels of the independent variables and the relationship between the dependent and independent variables is linear. The error term has a normal distribution.

Its formula states that Y=β 0 +β X1+β X2+β X3+β X4+β X5+ β X6 …..+€ where (Y) is the dependent variable, (X) is the independent variable.

Y =Total output produced

β = intercept

X1= age

X2 = inputs

X3=education level

X4=land size

X5=gender

€= random error

3.6.3 Objective iii: Gross Margin Analysis

The profitability of banana production is determined by deducting all variable costs from total revenue. Yield × price, is the total revenue obtained from selling bananas. Costs including labor, fertilizers, pesticides and transportation that are directly related to the production of bananas are known as total variable costs. Additionally, descriptive statistics are utilized to discover patterns and describe gross margins. By concentrating on revenue and variable costs, it offers a clear picture of financial success. The profitability of the Honde Valley's banana crop will be shown by the gross margin analysis. While a high gross margin implies profitability, a low or negative gross margin shows that production is not profitable.

Limitations like low market prices or excessive input costs will be recognized as major elements lowering profitability. Farmers may have larger profit margins if they have access to better markets or cheaper inputs. Understanding the financial efficiency of banana production is possible through the use of gross margin analysis. It assists in determining which expenses are most important and how they affect profitability. Analysis of gross margins allows for the targeting of initiatives to lower expenses or raise income, enhancing the Honde Valley banana industry's financial viability.

3.7 Ethical Considerations

It was the researcher's duty to explain to the participants the nature of the study, its goal, and any possible dangers or advantages. All participants in the study were given a consent document outlining the goals, methods, and their freedom to discontinue participation at any moment without incurring any fees. Before participants sign the consent form, the researcher makes sure they comprehend the content. This procedure guarantees that involvement is entirely voluntary and predicated on a thorough comprehension of the objectives of the study. To preserve the privacy of the participants, their answers and personal data were kept private. Identifying information was either coded or eliminated, and the data was anonymized. The raw data was only accessible by authorized persons. This strategy protects participants' anonymity and promotes truthful answers.

All participants were free to leave the study at any time without fear of punishment. The informed consent process made sure that respondents felt secure and at ease by providing explicit communication about this entitlement. In order to prevent as much physical, psychological, or societal harm as possible, the researcher promised. Support services will be offered if necessary, and sensitive subjects that can cause distress were also avoided in the research.

3.8 Limitations of the Study

The researcher faced limitations that affected the validity and reliability of its findings. One major limitation was bias. Participants overestimate and underestimate their production levels and income leading to inaccuracies in the data. To mitigate this, cross-verification with secondary data sources, such as agricultural extension records was done.

3.9 Summary

The chapter has discuss the research methods that are used in the study .The chapter has covered the research design ,study population ,sample size ,research instruments ,data analysis methods ,ethical consideration and study limitations .

CHAPTER 4

RESULTS AND DISCUSSION

4.1 Introduction

This chapter presents the results from the fieldwork on socioeconomic factors that influence profitability of banana production in Murara .The chapter describes the demographics characteristics of respondents .In addition, the chapter presents study findings that ate consistent with the research objectives .The acquired data was analysed using both inferential and descriptive statistics .The study's data were generated using SPSS version 20 and displayed as tables and graph.

4.2 Demographic Information of the Respondents

Table 4: Showing demographic features of respondents

Variable	Description	Frequency	Percentage (%)
Gender	Male	68	56.7
	Female	52	43.3
Household head marital status	Single	23	19.2
	Married	57	47.5
	Divorced	24	20.0
	Widowed	16	13.3
Education level	Primary	31	25.8
	Secondary	42	35.0
	Tertiary	15	12.5
	Informal	16	13.3

	None	16	13.3
Age range (years)	18-25	39	32.5
	26-40	43	35.8
	41-65	38	31.7
Household means of income	Casual labour	48	40.0
	Business	22	18.3
	Farming	28	23.3
	Remittance	22	18.3

Source: Field Survey (2025)

4.2.1: Gender

Table 4 shows that 43.3% of respondents are women and 56.7% of respondents are men. Although there is still a male predominance, this gender distribution shows a fairly balanced participation in agricultural activities. This is in line with research by Musara et al. (2019), who noted that although men frequently control agricultural resources in Zimbabwe, women play a significant role in labor and farm management.

4.2.2: Household head marital status

Table 4 shows that married people make up 47.5% of household heads, followed by divorced people (20%), single people (19.2%) and widowed people (13.3%). According to Maramba and Chimonyo (2016), marital status significantly affects the availability of labor and the distribution of resources for agricultural activities in Zimbabwe. Research from the Philippines by Olagunju et al. (2021) supports this result. They discovered that married banana growers were 42% more likely to apply sustainable intensification techniques due to the availability of more domestic help. Costa Rican researchers Mena-Montoya et al. (2020) found that the makeup of families affected risk management tactics, with dual-headed households showing 27% more resistance to market volatility.

4.2.3: Education level

The education level is displayed in Table 4 as follows: 35% secondary, 25.8% primary, 12.5% tertiary, 26.6% informal and none. Gwandu et al. (2020) found that Zimbabwean farmers who completed secondary school were 38% more likely to adopt better banana agricultural techniques. In Colombia, Mohan and Kumar (2019) found that technical efficiency rose by 4.7% for each additional year of education, whereas Ramírez-Villegas et al. (2020) observed that farmers with a secondary education were 53% more likely to employ climate-smart approaches. Customized interventions significantly raised adoption rates and reduced post-harvest losses for farmers with low levels of knowledge, according to research by Mavhoro (2017) and Nguma et al. (2018).

4.2.4: Household means of income

Table 4 shows that casual work accounted for 40% of household income, followed by farming (23.3%), business (18.3%) and remittances (18.3%), which had the lowest percentage. Mukarumbwa and Mushunje (2016) discovered that resilience is increased when one has multiple sources of income. Briones et al. (2017) found that Filipino banana households with off-farm income reinvested 38% more money in farming activities. However, Dzingai et al. (2020) found that farming-dependent households were more specialized and of higher quality, which is in line with Okafor and Maldonado's (2018) findings in Mexico.

4.2.5: Age range

According to Table 4, the percentages for those aged 26 to 40 years are 35.8%, 18 to 25 years (32.5%), and 41 to 65 years (31.7%). This type of age diversity helps Zimbabwean farming communities by fostering the development of complementary skills, claim Mugandani and Mafongoya (2019). Their research revealed that younger farmers under 40 were significantly more receptive to digital marketing channels. International research confirms that older farmers provided valuable traditional knowledge on climate adaptation and risk management, which is crucial for cultivating bananas in variable weather. In their thorough analysis of Vietnamese banana value chains, Trinh et al. (2018) found that younger farmers between 18 to 35 years old

were three times more likely to sell their produce directly to urban consumers through e-commerce platforms, boosting profit margins by an average of 34%.

4.3 Characteristics of banana smallholder producers

Table 5: Showing the characteristics of banana smallholder producers in Murara under Mutasa District.

Variable	Description	Frequency	Percentage%
Type of farmer	A1	75	62.5
	A2	45	37.5
Land size	1-5	73	60.8
	6-10	41	34.1
	11-15	6	3.56
Farming experience	<1	22	18.3
	1-5	16	13.3
	6-10	34	28.3
	11-15	22	18.3
	>16	26	21.7
Banana variety grown	More than one variety	64	53.3
	One variety	56	46.7
Access to credit	No	106	88.3
	Yes	14	11.7
Access to extension	No	92	76.7
	Yes	28	23.3
Forms of labour used	Hired	53	44.2
	Family	67	55.8

Source: Field Survey (2025)

4.3.1: Type of farmer

Table 5 shows A1 farmers occupying 62.5% of Murara and A2 farmers occupying a percentage of 37.5% .The dominance of A1 farmers (62.5%) indicates that banana production in Murara is mostly a small-scale enterprise, reliant on limited capital and infrastructure. This composition mirrors Uganda's banana-producing households, where most farmers cultivate less than 2 hectares and are considered semi-subsistence producers according to (Ekesa, 2015).

4.3.2: Land Size

According to Table 5, just 3.56% of banana growers oversee larger plots of 11 to 15 hectares, whereas 60.8% work on tiny plots of 1 to 5 hectares. This is consistent with trends seen in sub-Saharan Africa, where smallholders control the majority of agricultural output. While huge plantations in Latin America might span more than 50 hectares, average banana farms in India are likewise less than 5 hectares (NHB, 2022). Masuka (2024) notes that, in line with trends in Kenya and Tanzania, A1 farmers in Zimbabwe generally have less access to commercial networks and automation than their A2 counterparts.

4.3.3: Farming Experience

According to table 5, the majority of farmers (68.3%) have grown bananas for more than six years. Experience greatly enhances yield efficiency and decision-making in perennial crops like bananas, according to research conducted in Ethiopia and Cameroon. "Banana producers with more than 10 years of experience achieved 23% higher revenue and demonstrated greater resilience to market shocks," according to research from Mozambique by Canhanga et al. (2021). This implies that a more robust core within the community may be formed by the 40% of Murara farmers who have more than ten years of experience.

4.3.4: Banana Variety Grown

Table 5 shows that over half of the farmers grow more than one variety of banana. This diversification reflects a strategy to reduce market and climatic risks. According to (Tripathi, 2019)similar patterns are seen in Uganda and Rwanda, where growing multiple cultivars enhances resilience.

4.3.5: Access to Credit

According to the results shown in table 5 , only 11.7% of farmers have access to credit and 83.3% have no access to credit limiting investment .In Kenya, banana farmers with credit access had 34% higher productivity than those without access to finance enables purchase of quality suckers, fertilizers and irrigation systems (Ogundele, 2019). Research by Njuguna et al. (2022) analyzing banana production across Kenya, Uganda and Tanzania found that "limited access to credit represents the single most significant barrier to technology adoption and farm investment among smallholder banana producers. Their study documented productivity increases of 31% to 47% among farmers with credit access compared to those without.

4.3.6: Access to Extension Services

According to the results show in table 5, only 23.3% of farmers benefit from extension services. This lack of technical support contributes to suboptimal yields. In Ghana, farmers with regular extension contact increased yields by 45%. The situation in Murara reflects a broader trend in Zimbabwe where agricultural extension capacity has declined sharply since 2000 due to underfunding .Low access to extension services in Murara (23.3%) is particularly concerning. Wamalwa et al. (2023) documented the transformative impact of extension services in western Kenya, where "regular access to extension services increased adoption of disease-resistant varieties by 41% and improved post-harvest practices by 37%".

4.3.7: Forms of Labour Used

The results in table 5, shows a percentage of 55.8 of family labor and 44.2 of hired .Majority of farmers rely on family labour, although a substantial portion still uses hired help. This aligns with findings from Rwanda where family labour is prevalent, but becomes inadequate during peak harvest or disease outbreaks, leading to seasonal hiring (Musabyimana, 2020).Use of hired labour suggests partial commercialization and cash flow, even among smallholders .Recent research by Mugendi et al. (2024) from Kenya suggests that "over-reliance on family labor creates bottlenecks during critical periods in the banana production cycle, particularly during harvest and post-harvest handling .

4.4 Socioeconomic factors influencing the profitability of banana production in Honde Valley.

The study aim to analyse the socioeconomic factors that influence profitability banana production in Murara. The major study premise was that socioeconomic characteristics such age, inputs, land size and gender influenced banana profitability.

Table 6: Shows the multiple linear regression results

Variables	Standardized coefficient	Std Error	T. ratio	Significant level
Constant	3.309	-	10.66	.000*
Age	-1.905	1.748	3.967	.018**
Inputs	1.855	-1090	-2.473	.034**
Land size	1.047	1.0883	3.932	.078**
Gender	1.326	1.1384	2.061	.000*
Education level	1.256	1.085	1.984	.000*
Dependent variable :Profitability per production cycle ** ,* represents 5% level of significant ,1% level of significant Adjusted R square 0.719 (71.9%)				

Source: SPSS and field survey (2025)

Table 6 display the results of the multiple regression model and the coefficients of factors impacting banana profitability among smallholder farmers in Murara as well as the significance level, t-ratio and standard error of the estimates .The adjusted square was 0.719 .This indicate that a high model fit because differences in the dependent variables accounted 71.9 % of banana profitability.

$Y=3.309-1.905(age)+1.855(Inputs)+1.047(Land\ size)+1.326(Gender)+1.256(Education\ dummy)+\varepsilon$

$Y=3.309-3.81+5.565+1.5705+1.326+1.256=9.2165$ (units of banana profitability)

4.4.1: Age

With a normalized negative coefficient of -1.905, age was statistically displayed at the 5% level in Table 6, suggesting that profitability declines with age. Higher profitability is less likely to be attained by older farmers. Younger farmers are more receptive to market-based agriculture and may embrace contemporary methods and technologies. Older farmers could use antiquated, ineffective techniques. In Nigeria, Shehu et al. (2010) discovered that younger farmers were more productive and focused on making money from their crops. In Uganda, Ntakyo & van den Berg (2019) demonstrated that market integration and technology use increased the profitability on youth-led banana plantations.

4.4. 2: Input

Table 6 shows a positive coefficient of (1.855) and significant at the 5% level .The results of this study indicate that the inputs have a favourable effect on banana profitability in Murara. Use of inputs such as fertilizers, improved seedlings and pesticides significantly increases profitability. Challa & Tilahun (2014) in Ethiopia found a direct correlation between fertilizer use and farm income.

4.4. 3: Land size

Table 6's results indicate that land size has a positive correlation with banana production, with a positive coefficient of 1.047 and statistical significance at the 5% level. Larger land size contributes to higher profitability. Economies of scale more land enables better planning, crop rotation, and mechanization. According to Simtowe et al. (2016) observed that banana profitability increased with plot size in Malawi.

4.4.4: Gender

Table 6 conclusions demonstrate that gender influences banana profitability positively, with a positive coefficient (1.326) that is statistically significant at the 1% level. Male farmers are more likely to achieve higher profitability .Male farmers might have better access to resources such as land, credit, extension services and transport. Researches in Ghana and Ethiopia found that gender gaps in resource access led to productivity and profit differences in Ghana and Ethiopia.

4.4.5: Education

According to table 6, Education has a positive coefficient of 1.256 and highly significant at 1 % level indicating that higher education levels are associated with higher profitability. Educated farmers are more likely to run profitable banana enterprises. Education enhances decision-making, record-keeping and input optimization. Educated farmers were more likely to adopt productivity-enhancing practices and earned significantly more.

4.5: Constrains influencing the profitability of Banana production in Murara.

Table 7 offer valuable insights into the banana production and profitability indicators for the farmers in the Murara.

Table 7: Table of frequency descriptive statistics of key banana production and profitability indicators.

Variable	Description	Mean	Standard Deviation	Minimum	Maximum
Production Output (kg)	Total quantity of banana produced by farmers	12995.99	4463.781	5136	19936
Selling price	Prices at which farmers sell their bananas typically expressed in US$ per kg	.3879	.10269	0.25	0.60
Variable costs: Transport	Expenses that vary directly with the level of banana production	167.22	71.525	50	298
Labour		352.23	137.557	102	593
Other costs		57.78	24.776	10	100
Fixed cost	Expense that do not change with the level of banana production	225.79	97.654	54	394

Source: Fieldwork survey (2025)

4.5.1: Production output

Table 7 illustrates significant variation among farms, with an average production of 12,995.99 kg and a standard deviation of 4,463.78 kg. A roughly fourfold disparity between the lowest and highest producers can be seen from the minimum output of 5,136 kg and the maximum production of 19,936 kg. Similar patterns of variability were discovered in research conducted by Karamura et al. (2022) that looked at banana productivity throughout East Africa. "Production differentials

exceeding 300% between the lowest and highest producers within the same agro ecological zone typically indicate significant disparities in management practices rather than environmental constraints," they stated. According to their research in Uganda, 37% of this difference was explained by the availability of high-quality planting materials. Similarly, Adewumi et al. (2021) reported that at least three better management strategies, such as mulching, appropriate spacing and propping were often used by Nigerian banana farms with yields surpassing 15,000 kg/ha. They came to the conclusion that "without additional land expansion, yields can be increased by 40% to 60% simply by switching from traditional to improved management practices."

4.5.2: Selling price (US$/kg)

Table 7 shows that there is significant price variety, with a mean selling price of $0.3879/kg and a standard deviation of $0.1027. The range of $0.25 to $0.60/kg shows that the lowest and highest prices attained differ by 140%. This is consistent with research by Macharia et al. (2023), which found that Kenyan banana growers had price differences ranging from 130% to 180%. Their research found that "price variations correlate strongly with market channel selection, with farmers engaged in direct marketing or cooperative arrangements achieving 35% to 42% higher average prices than those relying on intermediaries".

Research from Colombia by Ramírez and Gómez (2024) provides additional context, noting that "banana farmers who engage in minimal post-harvest value addition such as selection, cleaning and proper packaging increase their average price realization by 28% compared to those selling unprocessed harvests".

4.5.3: Variable costs

According to Table 7, the transport mean is 167.22. The FAO notes that when infrastructure is inadequate, transportation frequently turns into an unstated surcharge on farm-gate pricing, reducing potential margins by 20% to 30%. 3502.23 is the labor mean. When it comes to banana systems, labor is usually the biggest expense which includes hired labor, frequently accounts for

more than 40% of total expenditures in India, which is comparable to the labor burden in your sample. The total costs come to 57.78. Pesticides and fertilizers are probably included in this. FAO emphasizes that the cost of fertilizer and phytosanitary products has increased significantly globally, with smallholders seeing unit-price rises and more frequent application requirements.

Labor represents the most significant variable cost component, accounting for approximately 61% of total variable costs. The findings of Ochieng et al. (2022) that "labor consistently accounts for 55% to 65% of variable costs across smallholder banana systems in Eastern Africa, with transport representing the second largest expense category" are consistent with this. These findings are further contextualized by research from Ghana by Danso-Abbeam et al. (2021), which states that "smallholder banana farms with labor costs exceeding 60% of variable expenses typically exhibit suboptimal labor utilization, often resulting from fragmented production processes and lack of basic mechanization." Transport, labor and other expenditures add up to an average of 577.23, which is a significant amount of gross receipts (12,996 kg × US$0.388). Thus, before fixed charges are taken into account, variable expenses account for more than $11 USD per kilogram of output.

4.5.4: Fixed cost

Table 7 shows, the mean fixed cost of $225.79 with a standard deviation of $97.65 indicates significant variations in farmers' investment in durable assets and infrastructure. Van Campenhout et al. (2023) observed similar patterns in Tanzania, finding that "fixed costs among banana producers varied by a factor of 3 to 4, with higher fixed costs typically associated with investments in irrigation infrastructure and improved storage facilities". Their research demonstrated that producers with fixed costs in the upper quartile achieved 31% higher profits due to these productivity enhancing investments.

Table 8: Showing gross margin budget for banana production

Average banana output (kg)	12995.99

Average selling price	0.3879
Total Earnings	**5041.14**
Variable costs ($)	
Transport	167.22
Labour cost	352.23
Other cost	57.78
Total Variable Cost	**577.23**
Fixed costs($)	225.79
Total Costs	**803.02**
Gross Margin	**4463.91**
Gross Margin %	**88.55**

Source: Fieldwork survey (2025)

A gross profit margin of 88.55% seems exceptionally high, but without extra fertility inputs, it drops by 30% to 40% by year five. The budget for gross margin shows that Murara's banana production has had a very successful financial year, with great profitability and economic efficiency. According to worldwide studies, banana production in this region is still quite profitable even after taking these factors into consideration, even though the margins may be slightly inflated due to possible undervaluation of some inputs, especially family labor.

4.6: Production constraints faced by banana smallholder farmers in Murara, Honde Valley under Mutasa District.

The study aim to identify production constraints faced by smallholder farmers in Murara these include weak extension support ,shortage of labour ,lack of access to credit ,limited access to inputs and pest and disease management .

Table 9: A table showing frequency and mean scale ranking of production constraints affecting profitability of banana production in Murara.

Production constraints	Frequency of 1	Frequency of 2	Frequency of 3	Mean scale ranking
Weak extension support	39	34	47	1.47
Labour shortages	32	54	34	2.02
Pests and diseases	43	39	38	1.96
Limited access to inputs	35	44	41	2.05
Limited access to finance	37	49	34	1.97

Source: Fieldwork (2025)

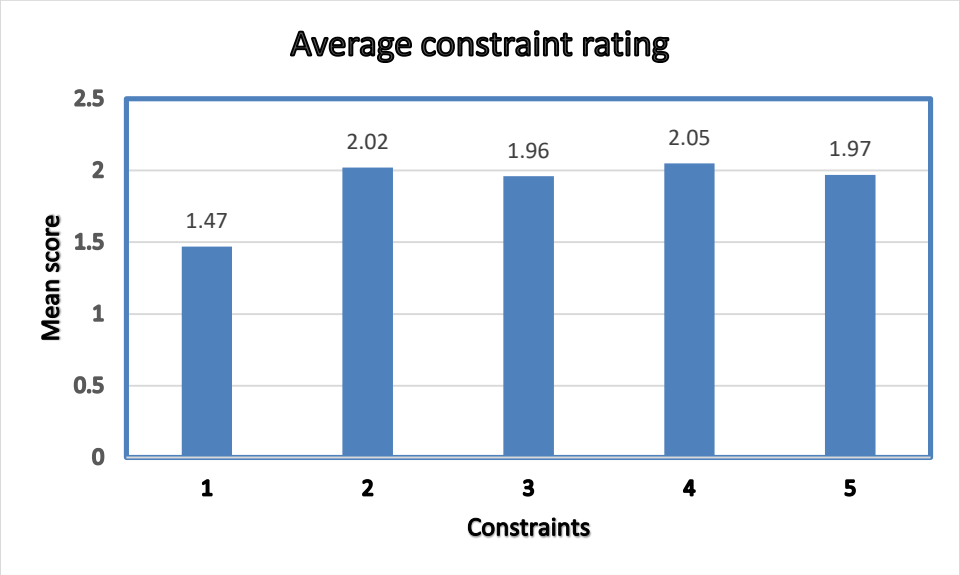

Figure 3: Showing mean scale ranking of production constraints affecting profitability.

In this study production constraints are limiting factors that hinder smallholder farmers to optimize their production and achieve higher level of profitability .The finds from this study shows that:

4.6.1: Weak Extension Support

Figure 3 illustrates the most important constraint: a poor extension support of 1.47 indicates a lower mean ranking for extension support. Marimo et al. (2020) found that "farms with regular access to extension services demonstrated 38% higher productivity compared to those lacking such support, with the gap widening to 52% in technology adoption rates." They conducted a study on agricultural extension services in East African banana fields. This explains why the main limitation turns out to be weak extension. In their evaluation of the limitations on banana farming in the Philippines, Bolding and Jones (2018) used a similar ranking system and discovered that "extension service deficiencies consistently ranked below 1.5 on a 3-point scale across all production regions, correlating with a 40% reduction in potential yield." This global consistency validates the severity indicated by the 1.47 ranking in Murara.

4.6.2: Pests and Diseases

Figure 3 shows mean ranking of 1.96 for pests and diseases indicating a moderately severe constraint. Zhang et al. (2021) conducted an analysis of banana production constraints across Southeast Asia, reporting that "regions scoring below 2.0 on disease severity scales experienced yield losses averaging 32% to 41%, with corresponding profit reductions of 27% to 36%." Velásquez Ramírez et al. (2019) found in their Colombian study that "banana farms ranking pest pressure between 1.9 and 2.1 on constraint indices required additional investments of $450 to $650 per hectare annually for management, directly impacting profitability margins by 22% to 29%."

4.6.3: Limited Access to Finance

Figure 3 indicates that financial limitations rank closest to pests and diseases, with a mean rating of 1.97. In their paradigm for assessing the severity of constraints in African agricultural systems, Patel and Irungu (2021) observed that "financial constraint rankings between 1.8 and 2.0 typically indicate that 60% to 75% of farmers are unable to make optimal investments in their production systems." Despite not being the most important constraint, this explains the considerable influence on profitability. As Nguyen and Williams (2023) noted in their examination of ranking approaches,

"financial constraints scoring below 2.0 on mean ranking scales frequently represent a gateway limitation that exacerbates other production challenges, particularly input access and technology adoption." The significance of the 1.97 ranking in Murara is probably increased by this connection.

4.6.3: Shortage of Labor

According to Figure 3, labor shortages rank as the fourth most serious limitation with a value of 2.02. In their study conducted in Ghana, Mensah et al. (2022) discovered that "labor constraint rankings exceeding 2.0 typically indicate seasonal rather than chronic shortages, impacting critical production phases but allowing for adaptation strategies." This explains why labor is ranked lower than other limitation seven though it is necessary. This interpretation is supported by the multinational analysis of López-Montes and Chen (2019), who found that "labor constraints ranking between 2.0 and 2.2 on severity scales commonly reduce profit margins by 15 to 22% through quality reduction and harvest timing issues rather than catastrophic crop losses." This is consistent with the 2.02 ranking's indication of moderate severity.

4.6.4: Limited Access to Inputs

Figure 3 indicates that, among the constraints measured, input access has the least severe limitation, with the highest mean ranking of 2.05. In their paradigm for constraint analysis, Silva and Ortiz (2020) determined that "input access limitations scoring above 2.0 typically indicate availability challenges rather than complete absence, allowing farmers to obtain inputs but with higher transaction costs or delays." This explains why input access is ranked as least severe even if it is troublesome. Input constraint rankings between 2.0 to 2.1 correlated with 10% to 15% increases in production costs rather than yield reductions in Nigerian banana systems," according to Adewale and Mohammed (2017). This suggests that farmers in Murara may also be able to obtain inputs, but at a cost or efficiency disadvantage.

4.6 Chapter summary

Using descriptive statistics, multilinear regression and gross margin analysis, this chapter demonstrated how socioeconomic factors affect banana production, profitability and selling among banana smallholder farmers in Murara under Mutasa District. According to the data, 60.8% of the land areas in the Murara are between 1 to 5 hectares and the majority of farmers (62.5%) are A1 types. The majority of farmers cultivate more than one banana variety (53.3%) and have between 6 and 10 years of farming experience (28.3%). However, there are barriers to obtaining credit (86.7) and extension services (67.5%). When growing bananas farmers mostly use family labour (55.8 %). The farmers had a high net return ratio of $0.89 for every $1 that was invested, according to the gross margin analysis.

CHAPTER 5

CONCLUSIONS AND RECOMMENDATIONS

5.1 CONCLUSIONS

Objective 1: To characterize banana producers in Honde Valley

- According to the survey, the majority of Murara's banana growers are men (56.7%), a sizable portion have a secondary education (35%) and casual labour is their primary source of income (23.3%).
- Many farmers (55.8%) use family labor and the majority are in the economically active age range of 18 to 40.
- High institutional barriers are seen in the low rates of credit (11.7%) and extension (23.3).
- 53.3% of producers grow more than one variety of banana, indicating a level of diversification.

Objective 2: To analyse the socioeconomic factors influencing the profitability of banana production among smallholder farmers in Honde Valley

- Age demonstrates a negative relationship (-1.905 coefficient, p=.018), indicating that younger farmers achieve higher profitability levels.
- Input usage shows a strong positive relationship (1.855 coefficient, p=.034), suggesting that increased investment in farming inputs directly enhances returns.
- Land size positively influences profitability (1.047 coefficient, p=.078), confirming that larger farms generate better financial outcomes.
- Gender is a highly significant factor (1.326 coefficient, p=.000), indicating substantial differences in profitability between male and female farmers.
- Education level strongly correlates with profitability (1.256 coefficient, p=.000), demonstrating that more educated farmers achieve superior financial performance

Objective 3: To identify production constraints affecting the profitability of banana production in Honde Valley

- Weak extension support emerges as the most critical constraint (mean ranking 1.47), indicating severely inadequate technical guidance and knowledge transfer systems.
- Limited access to inputs (2.05 mean ranking) and labour shortages (2.02 mean ranking) represent the second tier of major constraints, highlighting resource mobilization challenges.
- Pests and diseases (1.96 mean ranking) and limited access to finance (1.97 mean ranking) round out the top constraints.

5.2 RECOMMENDATIONS

Objective 1: To characterize banana producers in Honde Valley

- Establish targeted agricultural training programs specifically designed for women farmers to increase their participation in banana production beyond the current 43.3%.
- Farmers should ensure that they rationalize remuneration on family members since the majority of people who work in banana production are family members.
- Implement affirmative action policies ensuring women receive equal access to agricultural inputs, credit and land resources in banana production.
- Utilize the existing secondary education base (35%) by developing advanced agricultural training modules.
- Establish farmer field schools in Honde Valley to include banana cultivation techniques so that we improve level of banana production.
- Develop farmer-to-farmer extension networks to maximize knowledge sharing.
- Provide training and capacity building programs for farmers with limited experience while also utilizing the expertise of more experienced farmers through mentorship programs.

- Encourage and support the cultivation of multiple banana varieties to promote genetic diversity, improve resilience to diseases and increase market opportunities.
- Establish partnerships with financial institutions or organizations to provide accessible and affordable credit options for banana producers.

Objective 2: To analyse the socioeconomic factors influencing the profitability of banana production among smallholder farmers in Honde Valley

1. Age
- Develop programs and policies that targets young farmers, providing them with training, resources and support to increase their profitability.
2. Inputs
- Implement initiatives that improve access to inputs such fertilizers, seeds and equipment to help farmers increase their profitability.
3. Land
- Encourage land consolidation programs that allow farmers to increase their land sizes.
4. Gender
- Implement programs that promote gender equality in agriculture, providing women with equal access to resources, training and support.
5. Education
- Adult education and practical skills like marketing, record-keeping and pest management should also be emphasized in training programs.
- Farmers should receive training on how to increase banana yields by employing better techniques including propping, mulching and utilizing high-quality suckers.

Objective 3: To identify production constraints affecting the profitability of banana production in Honde Valley

- Strengthen extension services by training more extension officers and providing regular visits to farmers.

- Subsidies or neighborhood input stores should be used to lower the cost of inputs like pesticides and fertilizers.
- Farmers are encouraged to receive loans from financial institutions or forming savings groups.
- Farmers are encouraged to use integrated pest management techniques and adopting disease resistant varieties.

5.3 FIELD CONTRIBUTIONS

This study sheds light on how Zimbabwe's small-scale banana producers generate revenue following the implementation of land reform. It's the first thorough examination of the financial success of these tiny farmers growing bananas, demonstrating how individual circumstances, prevailing economic conditions and local institutions all play a role. Strong statistical techniques are used in the study to describe the elements that contribute to successful banana growing. This strategy incorporates a number of analysis methods such as comparing expenses and income, determining the primary issues that farmers deal with, and applying mathematical models to determine what factors influence success. As a result, a practical framework is produced that other scholars might utilize in other contexts.

The results provide policymakers with accurate information on the factors that prevent small farmers from turning a profit. This aids in the development of effective programs and the allocation of scarce resources by governments and organizations. When resources are limited, development professionals can prioritize the most pressing issues by using the study's problem ranking method. The outcomes are significant outside of Zimbabwe. They provide information for other war-torn nations, regions in Eastern and Southern Africa that cultivate bananas and international organizations that try to alleviate rural poverty. Additionally, the study supports evidence-based initiatives to increase the income of banana growers and offers a strong basis for assisting small farmers throughout sub-Saharan Africa.

The study closes the knowledge gap between academia and real-world applications, providing academics and practitioners with the means to better assist small-scale farmers in enhancing their standard of living.

REFERENCES

Abdulsalam, A., & Kassim, L. (2020). *Agro-processing and agricultural productivity in Africa: Evidence from value chain analysis*. African Development Review, 32(S1), S77–S89.

Adjimoti, G. O., & Kwadzo, G. T.-M. (2018). *Crop diversification and household welfare among smallholder farmers in Northern Ghana*. Cogent Economics & Finance, 6(1), 1–15. https://doi.org/10.1080/23322039.2018.1518657

Ajwang, C. O., Garming, H., & Wesseler, J. (2023). *What affects smallholder farmers' (non-) adoption of high-yielding banana varieties in Kenya?* Journal of Agricultural Economics, 74(1), 175–198. https://doi.org/10.1111/1477-9552.12471

Akudugu, M. A., Guo, E., & Dadzie, S. K. (2012). *Adoption of modern agricultural production technologies by farm households in Ghana: What factors influence their decisions?* Journal of Biology, Agriculture and Healthcare, 2(3), 1–13.

Alobo, L., & Ngabirano, H. (2020). *Farmer access to banana planting material in Uganda: A study of tissue culture banana nurseries*. African Journal of Rural Development, 5(1), 29–40.

Alwang, J., Larochelle, C., & Barrera, V. H. (2017). *Farm decision making and gender: Results from a randomized experiment in Ecuador*. World Development, 92, 117–129.

Ayanlade, A., & Radeny, M. (2020). *COVID-19 and food security in Sub-Saharan Africa: Implications of lockdown during agricultural planting seasons*. npj Science of Food, 4(1), 13. https://doi.org/10.1038/s41538-020-00021-0

Baudron, F., & Tambo, J. A. (2021). *Smallholder heterogeneity and maize-based cropping systems intensification in Eastern and Southern Africa: A review*. Agronomy, 11(4), 738. https://doi.org/10.3390/agronomy11040738

Bennett, M. T., & Xu, J. (2008). *China's sloping land conversion program: Institutional innovation or business as usual?* Ecological Economics, 65(4), 699–711.

Bhattarai, M., Ríos, A. R., & Schönfeld, A. (2021). *What impedes efficient product marketing by smallholder farmers? Empirical evidence from rural Honduras*. Agribusiness, 37(4), 761–780.

Bijman, J., & Wijers, G. (2019). *Exploring the inclusiveness of producer cooperatives: The case of farmer-owned businesses in Ethiopia*. Annals of Public and Cooperative Economics, 90(4), 719–742.

Borsellino, V., Schimmenti, E., & El Bilali, H. (2020). *Agri-food markets towards sustainable patterns*. Sustainability, 12(5), 2193. https://doi.org/10.3390/su12052193

Bymolt, R., Laven, A., & Tyszler, M. (2018). *Demystifying the cocoa sector in Ghana and Côte d'Ivoire*. KIT Royal Tropical Institute.

Chamberlin, J., & Jayne, T. S. (2013). *Unpacking the meaning of 'market access': Evidence from rural Kenya*. World Development, 41, 245–264. https://doi.org/10.1016/j.worlddev.2012.06.004

Chinogwenya, A. (2020). *Understanding climate-smart agriculture as innovation: Conditions for adoption by smallholder farmers in Zimbabwe*. Development Southern Africa, 37(6), 896–911.

COSA. (2013). *The COSA measuring sustainability report: Coffee and cocoa in 12 countries*. Committee on Sustainability Assessment.

De Janvry, A., & Sadoulet, E. (2002). *World poverty and the role of agricultural technology: Direct and indirect effects*. Journal of Development Studies, 38(4), 1–26.

Donovan, J., & Poole, N. (2014). *Changing asset endowments and smallholder participation in higher value markets: Evidence from certified coffee producers in Nicaragua*. Food Policy, 44, 1–13.

Ellis, F. (2000). *Rural livelihoods and diversity in developing countries*. Oxford University Press.

FAO. (2021). *The state of food and agriculture 2021: Making agrifood systems more resilient to shocks and stresses*. Food and Agriculture Organization of the United Nations.

Feder, G., Just, R. E., & Zilberman, D. (1985). *Adoption of agricultural innovations in developing countries: A survey*. Economic Development and Cultural Change, 33(2), 255–298.

Gebremedhin, B., & Jaleta, M. (2012). *Market access and commercialisation of smallholder farms in Ethiopia: Evidence from Oromia region*. Ethiopian Journal of Economics, 21(2), 1–28.

Giller, K. E., et al. (2021). *The future of farming: Who will produce our food?* Food Security, 13, 1073–1099.

Glover, D., Sumberg, J., & Andersson, J. A. (2016). *The adoption problem; or why we still understand so little about technological change in African agriculture*. Outlook on Agriculture, 45(1), 3–6.

Gollin, D., & Rogerson, R. (2014). *Productivity, transport costs and subsistence agriculture*. Journal of Development Economics, 107, 38–48.

Hall, A., et al. (2001). *Why research partnerships really matter: Innovation theory, institutional arrangements and implications for developing new technology for the poor*. World Development, 29(5), 783–797.

Hansen, A. R., et al. (2020). *The political economy of agricultural policy reform in Sub-Saharan Africa*. World Bank Group.

Hill, R. V., & Vigneri, M. (2014). *Mainstreaming gender sensitivity in cash crop market supply chains*. In Maertens, M. & Swinnen, J. (Eds.), *Gender in Agriculture* (pp. 315–341). Springer.

Jari, B., & Fraser, G. C. G. (2009). *An analysis of institutional and technical factors influencing agricultural marketing amongst smallholder farmers in the Kat River Valley, Eastern Cape Province, South Africa*. African Journal of Agricultural Research, 4(11), 1129–1137.

Jayne, T. S., Mather, D., & Mghenyi, E. (2010). *Principal challenges confronting smallholder agriculture in Sub-Saharan Africa*. World Development, 38(10), 1384–1398.

Kassie, M., et al. (2011). *Adoption of improved sweet potato varieties in Ethiopia: Empirical evidence from a household survey*. Food Policy, 36(3), 321–331.

Kilelu, C. W., Klerkx, L., & Leeuwis, C. (2013). *Unravelling the role of innovation platforms in supporting co-evolution of innovation: Contributions and tensions in a smallholder dairy development programme*. Agricultural Systems, 118, 65–77.

Kirama, S. L., & Mayo, A. W. (2016). *Adoption of improved postharvest technologies for reducing maize losses in Tanzania*. African Journal of Science, Technology, Innovation and Development, 8(3), 293–303.

APPENDICES

APPENDIX A: Household Questionnaire

My name is Regina Madeu a final year student undertaking an Honours Degree in Agricultural Economics and Management at Bindura University of Science Education. I am researching

An approach to improve the profitability of banana production in Murara. I am kindly in need of your response to the following questions to collect data for my research project. Kindly note that your responses to this questionnaire will be used with privacy and confidentiality for research purposes.

Section A. FARMER`S BACKGROUND OR HOUSEHOLD INFORMATION

Tick the appropriate response or fill in the space provided.

SECTION A: DEMOGRAPHIC PROFILE OF THE HOUSEHOLD

1	Type of the farmer	A1 [ ] A2[ ]
2	Gender of the household	1=male [ ] 2=female[ ]
3	Age of head of household (years)	18-25 [ ] 26-40 [ ] 41-65 [ ]
4	Marital status of household head	Single [ ] married [ ] divorced [ ] widowed [ ]
5	Level of education of household head	Primary [ ] secondary [ ] tertiary [ ] informal [ ] None [ ]
6	Land size of the farmer	1-5 [ ] 6-10 [ ] 11-15 [ ]
7	Household source of income	Casual labour [ ] Business [ ] Employment [ ] Farming [ ] Remittances [ ]

SECTION B: CHARACTERISTICS OF BANANA SMALLHOLDER FARMERS IN MURARA

8	Farming experience	<1 [ ] 1-5 [ ] 6-10 [ ] 11-15 [ ] > 16 [ ]
9	Banana variety grown	More than one variety [ ] One variety [ ]
10	Form of labour used	Family [ ] Hired [ ]

SECTION C: CONSTRAINTS FACED BY BANANA PRODUCERS.

Rank these challenges according to their weight in the day-to-day running of your banana enterprise. (Tick the appropriate box):

Challenges	1	2	3
Weak Extension Support			
Labour shortages			
Pest and Disease Management			
Limited access to inputs			
Limited access to finance			

SECTION D: PROFITABILITY OF BANANA PRODUCTION

(Fill in the spaces provided

1	What is the selling price of banana?	
2	Which marketing channel do you use?	
3	What is your average banana output per hectare?	

Transport Cost	
Labour Cost	
Fixed Cost	
Other Cost 1(specify)	

THANK YOU FOR YOUR PARTICIPATION IN THE SURVEY