"FINANCIAL LITERACY AND PERFORMANCE OF FARMER GROUPS IN GULU DISTRICT, NORTHERN UGANDA

BY

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23rd OCTOBER, 2026

DECLARATION

I, Akello Caroline, declare that this Dissertation report is my original work and that it has never before been presented elsewhere for any academic award. Where I have used other people's work, full acknowledgement has been made

Signature: **Date:**23rd/10/2026

APPROVAL

This Dissertation Report Titled "Financial Literacy, and Performance of Farmer Groups in Gulu District, Northern Uganda" has been developed under our supervision and we certify that it is ready for submission.

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DEDICATION

I, Akello Caroline, dedicate this work to my beloved Parents, Mr Odong Alfonse and Mrs. Adong Carolyne Odong who made me feel at peace, nurtured me, and sprouted this seed. Your unwavering faith in me and your constant encouragement have been a source of strength and hope throughout this journey. Thank you for believing in me and standing by my side. To my dear children Adong Brandy Nicole, Rwotolara Spencer Reid, and Agenorwot Mildred Lynn, Francis Ojok and to My loving husband, Eng. Awang Robinson, your emotional support and steadfast belief in me have meant the world. You have been my anchor and my inspiration. Not forgetting my Sister Susan Akello, who supported me through thick and thin when I needed her most.

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LIST OF ABBREVIATIONS/ACRONYMS

CVI	Content Validity index
DFID	Development fund for international developments
FAO	Food and Agriculture Organizations
FG	Farmer groups
GDP	Gross Domestic Product
GDP	Gross Domestic Product
KPI	Key Performance indicator
KSI	Key Success Indicator
MF	Microfinance
MFI	Microfinance Institution
NPL	Non performing Loan
NUSAF-YOP	Northern Uganda Social Action Fund-Youth Opportunities Programme
OECD	Organization for Economic co-operation and Development
SME	small and medium enterprises
SPSS	Statistical package for social scientists
TV	Television
UBOS	Uganda Bureau of Statistics
UNDP	United Nations Programme for development
VAT	Value Added Tax
YF	Youth Fund
YLP	Youth Livelihood Programme
YVCF	Youth Venture Capital Fund

TABLE OF CONTENTS

DECLARATION i

APPROVAL ii

DEDICATION iii

ACKNOWLEDGEMENT iv

LIST OF ABBREVIATIONS/ACRONYMS v

TABLE OF CONTENTS vi

LIST OF TABLES xiii

LIST OF FIGURES xiv

ABSTRACT xv

CHAPTER ONE 1

INTRODUCTION 1

1.0 Introduction 1

1.1 Background of the Study 2

1.2 Problem Statement 5

1.3 Purpose of the Study 6

1.4 Objectives of the Study 6

1.5 Research Questions 7

1.6 Scope of the Study 7

1.6.1 Geographical scope 7

1.6.2 Content scope 7

1.6.3 Time scope 8

1.7 Significance of the Study 8
Conceptual Framework 9
1.9 Operational Definitions 9
CHAPTER TWO 11
LITERATURE REVIEW 11
2.1 Theoretical Framework 11
Human Capital Theory 11
Resource-Based Theory (RBT) 11
Financial Capability Theory 12
2.2 Financial Literacy 13
2.2.1 Financial Planning 13
2.2.2 Budgeting 14
2.2.3 Record-Keeping 15
2.2.4 Debt Management 16
2.3 Farmer Group Performance 17
2.3.1 Credit Utilization 17
2.3.2 Productivity 18
2.3.3 Profitability 19
2.3.4 Technology Application 19
2.4 Credit Access 20
2.4.1 Credit Availability 21
2.4.2 Interest Rates 21
2.4.3 Credit Terms 21
2.5 Empirical Review 22

2.6 Knowledge Gap 23
CHAPTER THREE 25
METHODOLOGY 25
3.1 Introduction 25
3.2 Research Design 25
3.3 Study Population 25
3.3.1 Quantitative Sample Size 26
3.4 Qualitative Sample Size 27
3.4.1 Sample Size and Sampling techniques 27
3.5 Sampling Procedure 28
3.6 Data Collection Methods 28
3.6.1 Questionnaire method 28
3.6.2 Interview method 28
3.7 Data Collection Instruments 29
3.7.1 Questionnaire instrument 29
3.7.2 Interview guide 29
3.8 Validity and Reliability 29
3.8.1 Validity 30
3.8.2 Reliability 31
3.9 Data Analysis and Presentation 32
3.10 Ethical Considerations 33
3.11 Limitations and Delimitations of the Study 34
CHAPTER FOUR 35
DATA PRESENTATION, ANALYSIS AND INTERPRETATION 35

4.0 Introduction 35
4.0.1 Background Information 35
4.1 To assess the level of financial literacy of members of farmer groups in Gulu district 39
4.1.1 Financial planning 39
4.1.2 Budgeting 42
4.1.3 Record keeping 44
4.1.4 Debt management 47
4.1.5 Summary results on the level of financial literacy of members of the farmer groups in Gulu District 50
4.2 The Level of Performance of Farmer Groups in Gulu District 50
4.2.1 Credit utilization 51
4.2.2 Farmer group productivity 53
4.2.3 Farmer group profitability 54
4.2.4 Technological application 56
4.2.5 Summary results on the level of performance of farmer groups in Gulu District; 58
4.3 The Relationship between Financial Literacy and Performance of farmer groups in Gulu District 58
4.3.1 Pearson corrlation analysis 59
4.3.1.1 Interpretation of Pearson Correlation Analysis between Financial Literacy Dimensions and FG Performance 59
4.3.1.2 Relationship between Financial Planning and FG Performance 60
4.3.1.3 Relationship between Budgeting and FG Performance 60
4.3.1.4 Relationship between Financial Record Keeping and FG Performance 60
4.3.1.6 Comparative Analysis of the Financial Literacy Dimensions 61
4.3.1.7 Interrelationships among Financial Literacy Dimensions 61

4.4 The Mediation effect of Credit Access on the relationship between Financial Literacy and Performance of the FGs in Gulu District 62
4.4.1.1 Model 1: Financial Literacy and Credit Access 63
4.4.1.2 Model 2: Credit Access and Farmer Group Performance 64
4.4.1.3 Model 3: Financial Literacy and Farmer Group Performance 65
4.4.1.4 Overall Interpretation 65
CHAPTOR FIVE 66
DISCUSSIONS OF FINDINGS 66
5.0 Introduction 66
5.1.1 Financial Planning 67
5.1.2 Budgeting 67
5.1.3 Record Keeping 68
5.1.4 Debt Management 68
5.2 The Level of Performance of farmer groups in Gulu District 69
5.2.1 Credit Utilization 69
5.2.2 Farmer groups Productivity 70
5.2.3 Farmer Group Profitability 70
5.2.4 Technological Application 71
5.2.5 Summary Results on the Level of Performance of Farmer Groups in Gulu District ... 72
5.3 The Relationship between Financial Literacy and Performance of Farmer Groups in Gulu District 73
5.3.1 Financial Planning and Farmer Group Performance 73
5.3.2 Budgeting and Farmer Group Performance 74
5.3.3 Financial Record Keeping and Farmer Group Performance 74
5.3.4 Debt Management and Farmer Group Performance 75

5.3.5 Comparative Discussion of Financial Literacy Dimensions 76

5.3.6 Interrelationship among Financial Literacy Dimensions..... 76

5.3.7 Overall Discussion..... 77

5.4 The Mediation Effect of Credit Access on the Relationship between Financial Literacy and Performance of Farmer Groups in Gulu District 77

5.4.1. Financial Literacy and Credit Access..... 78

5.4.2 Credit Access and Farmer Group Performance..... 79

5.4.3 Financial Literacy and Farmer Group Performance 79

5.4.4 Discussion of the Mediating Role of Credit Access..... 80

5.4.5 Policy and Practical Implications 81

CHAPTER SIX..... 82

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS..... 82

6.1 Introduction 82

6.2 Summary of Results 82

6.2.1 Level of financial literacy of members of the farmer groups in Gulu District 82

6.2.2 Level of performance of farmer groups in Gulu District..... 82

6.2.3 Relationship between financial literacy and the performance of FGs in Gulu District ……83

6.2.4 Mediation effect of credit access on the relationship between financial literacy and performance of the FGs in Gulu District..... 83

6.3 Conclusions..... 84

6.3.1 Level of financial literacy of members of the farmer groups in Gulu District..... 84

6.3.2 Status of credit access by the farmer groups in Gulu District..... 84

6.3.3 Level of performance of farmer groups in Gulu District..... 84

6.3.4 Relationship between financial literacy and the performance of FGs in Gulu District…….. 85

6.3.5 Mediation effect of credit access on the relationship between financial literacy and performance of the farmer groups in Gulu District 85

6.4 Recommendations 85

6.5 Areas for Further Research 86

REFERENCES 87

APPENDICES 95

Appendix I: Questionnaire 95

Appendix II: Interview Guide 101

LIST OF TABLES

Table 1: Sample Size Determination…….....……...……27
Table 2: Validity Test Results……..……..……31
Table 3: Cronbach's Alpha Reliability Test Results……..32
Table 4: Background Information of Respondents……36
Table 5: Descriptive Results on Financial planning……..…….39
Table 6: Descriptive Results on Budgeting……42
Table 7: Descriptive Results on Financial Record Keeping……45
Table 8: Descriptive Results on Debt Management…….48
Table 99: Descriptive Results on Credit Utilization……...51
Table 100: Descriptive Results on Farm Organisation Productivity……53
Table11: Descriptive Results on Farm Organization Profitability…….55
Table 112: Descriptive Results on Technology Application……57
Table 123: Correlation between dimensions of Financial Literacy and FG Performance……60
Table 134: Mediation Test Results……..64

LIST OF FIGURES

Figure 1; Conceptual frame work……9

ABSTRACT

This study examined the relationships between financial literacy, and the performance of farmer groups in Gulu District, Northern Uganda. "The Objectives of the study were to assess the level of financial literacy of members of the farmer groups farmer organizations in Gulu District, to establish the status of credit access by the farmer groups in Gulu District, to assess the level of performance of farmer groups groups in Gulu District, to establish the relationship between financial literacy of farmer groups groups members' and the performance of farmer groups in Gulu District, to establish the mediating role of credit access in the relationship between financial literacy and farmer group performance. A sample of 254 farmer groups across 10 sub-counties in Gulu district was selected using stratified random sampling from a population of 741 groups. The study adopted a mixed approach. While the quantitative approach was predominant, data collection for both quantitative and qualitative data were done concurrently using structured questionnaires and face-to-face interviews respectively. The study predominantly employed descriptive design. Statistical analysis was conducted using SPSS, with Pearson correlation and binary logistic regression models applied to assess the relationships among key variables. For the qualitative data, content analysis was conducted and results presented in narratives and direct quotations. The findings revealed that financial literacy measured through financial planning, budgeting, record keeping, and debt management had a strong positive influence on farmer groups' performance. Credit access was also established to be a mediator of the relationship between financial literacy and performance of farmers group as significant associations were established between financial literacy and credit access; credit access and group members' performance; and financial literacy and performance. This indicated that credit access contributes towards better farmer groups' performance. The study concludes that enhancing financial literacy, improving record keeping, offering lower interest rates, and providing favorable credit terms can significantly boost the performance of farmer groups. Policy recommendations emphasize the need for targeted financial education and improved access to financial services to support agricultural productivity and sustainability in the region.

CHAPTER ONE

INTRODUCTION

1.0 Introduction

Agriculture remains a critical sector in Uganda's economy, contributing significantly to employment, household incomes, food security, and export earnings (UBOS, 2024; World Bank, 2024). The sector employs approximately 65% of the country's labour force and contributes about one-quarter of Uganda's Gross Domestic Product (GDP) (UBOS, 2024; World Bank, 2024). Agricultural production in Uganda is predominantly undertaken by smallholder farmers, who account for more than 80% of the agricultural output and play a central role in ensuring national food security (MAAIF, 2024). Women constitute a substantial proportion of the agricultural workforce and are actively involved in agricultural production, processing, and marketing activities (FAO, 2023; UBOS, 2024).

Despite its importance, the agricultural sector continues to face numerous challenges that limit productivity and profitability among smallholder farmers (World Bank, 2024). These challenges include inadequate access to quality agricultural inputs, limited extension services, poor post-harvest handling and storage facilities, climate-related shocks, weak market linkages, and low adoption of modern agricultural technologies (MAAIF, 2024; FAO, 2023). In addition, access to affordable and adequate financial services remains limited, constraining farmers' ability to invest in productive agricultural activities and expand their enterprises (FSD Uganda, 2024; IFAD, 2023). Although agriculture has been recognized as a strategic sector for poverty reduction, employment creation, and rural transformation, many rural households continue to experience low incomes and vulnerability to poverty (National Planning Authority, 2023; World Bank, 2024). Youth unemployment and underemployment remain persistent development challenges, particularly in rural communities where agriculture represents one of the most accessible livelihood opportunities (NPA, 2023; UBOS, 2024). Consequently, strengthening the performance and sustainability of farmer organizations has become increasingly important for enhancing rural livelihoods and agricultural development (UNFFE, 2024; IFAD, 2023).

Farmer Groups (FGs) play a critical role in supporting smallholder farmers by facilitating access to agricultural inputs, extension services, financial services, technology, training, and collective marketing opportunities (UNFFE, 2024; Alemu et al., 2023). Through collective action, farmer groups enhance farmers' bargaining power, improve market access, and promote knowledge sharing among members (IFAD, 2023; Alemu et al., 2023). However, the effectiveness and performance of many farmer groups continue to be constrained by inadequate financial management practices and limited access to external credit facilities (World Bank, 2024; FSD Uganda, 2024).

Financial literacy has been identified as an important determinant of organizational sustainability and financial performance because it enhances the ability of individuals and organizations to make informed decisions regarding budgeting, record keeping, savings, borrowing, and investment planning (OECD, 2023; Lusardi, 2022). Likewise, access to credit provides farmer groups with the necessary resources to invest in productive assets, adopt improved technologies, and expand agricultural enterprises (FSD Uganda, 2024; IFAD, 2023). Despite the importance of financial literacy and credit access, evidence suggests that many farmer groups continue to face challenges in effectively utilizing financial resources and accessing formal credit services (World Bank, 2024; FSD Uganda, 2024).

Therefore, understanding the relationship between financial literacy, credit access, and organizational performance is essential for improving the effectiveness and sustainability of farmer groups in Uganda (OECD, 2023; IFAD, 2023). This study examines the relationship between financial literacy, credit access, and the performance of farmer groups in Gulu District, Northern Uganda.

1.1 Background of the Study

According to UBOS (2022) as cited by Miiro, Matsiko and Mazur (2019), agriculture is Uganda's most important economic sector, contributing to 23% of the Gross Domestic Product (GDP), 48% of exports, and employing 66% of the country's working population. It is seen as a potential avenue for lifting millions out of poverty through transformation from it's presently subsistence nature to a commercialized type of farming. For this to happen, NDP (2022) states that the farmers should have improved access to timely and reliable financial and market information, and aim at strengthening their FGs to operate in a market led environment. According to Place et al. (2021)

as cited by Tallam (2018), these Farmer groups have increasingly been recognized as a transformative force for improving rural livelihoods in Sub Saharan Africa. They have been credited for providing an essential entry point for improving agricultural production and income (Nyang et al., 2020). Abaru et al (2018) asserts that membership in farmer groups is not sufficient in enhancing sustainable development but that the Farmer group should have the capacity to meet their objectives and serve the needs of members.

For a group to be effective, farmers need to be well organized (Bosc et al., 2021). Farmer groups should have the capacity to deliver relevant services which allows smallholder farmers to participate actively in collective action at the grass root level (Mukindia, 2022). Considering that they undertake several financial transactions, financial literacy and credit access are of key importance. These FGs can thus be expected to play a key role in the sector's transformation from subsistence to commercialized agriculture. However, Farmer groups productivity and market competitiveness is constrained by Farmer members' limited financial literacy, education, and inexperience in organization and business management (NDP, 2022). Capacity development for the farmers through financial training may provide the most reliable solution to dealing with this lack of competitiveness. Among the key capacities needed for Farmer groups to function successfully include partnership management and financial literacy.

Measurement of Farmer groups performance is an effective way of understanding the level of development of Farmer groups and in identifying the kind of support they need to enable them to improve on their service delivery. For instance, as relates to financial matters, financial literacy could be assessed.

Despite agriculture offering many job opportunities, farmer groups are confronted with complex financial decisions to turn around the fortunes of their businesses. For example, farmer groups make financial decisions in the form of savings, investment and retirement planning. Financial literacy, therefore, becomes crucial in financing decisions of farmers and their subsequent performance. Indeed, recent empirical studies suggest low levels of financial literacy among advanced and emerging economies and few people are able to understand basic financial concepts (Lusardi and Mitchell, 2019; Lusardi and Tufano, 2021; Cole, Sampson and Zia, 2019).

In pursuit to promote higher investment in agriculture there is therefore; need to increase financing (both short and long term) by exploring other innovative and alternative finance delivery channels

for youth in productive agribusinesses and also inspire them to invest in agribusiness (AgriFinancing Opportunities for Youth, 2019). This will go a long way in enhancing youth livelihoods and a sustainable future of the agribusiness sector.

The main rationale behind the establishment of farmer groups (FGs) is to provide effective and collective support services to smallholders, thus loosening the major obstacles to productivity improvement, and to enhance self-help and collective power to regulate markets. This implies that in theory FGs should be able to strengthen farmers' bargaining power with external buyers and reduce transaction costs, potentially leading to increased incomes and food security and hence sustained agricultural growth and poverty alleviation (Barham and Chitemi, 2008; Bachke, 2020). Though little is known from literature on the performance of Farmer groups in Northern Uganda, borrowing from literature from developed countries, it is argued that the major factors affecting farmer groups are financial literacy and credit access. Nonetheless, the extent to which financial literacy and credit access influence performance of farmer groups is to date less known on the African experience (Spore, 2022). Most studies have examined the direct relationship between financial literacy and performance of farmer groups while others have examined the direct influence of credit access to performance of farmer groups. Similar studies conducted by Bessa et al., 2021; Abbeam et al., 2020.There is generally no single study which has examined the combined influence of financial literacy with the mediation of credit access in influencing the performance of farmer groups. Therefore, examining the influence of financial literacy on performance of farmer groups with credit access as the mediating factor in Gulu district, Northern Uganda is an honorable endeavor.

Similarly, a number of researches have been conducted on financial literacy and access to financial services by farmers groups but all have not been conclusive. In a study conducted by Mayer, 2017, it was observed that most of the Smallholder farmers finance their agricultural activities through equity funds from their on-farm and off-farm activities and due to the subsistence type of agriculture practiced by smallholder farmers, their on-farm and off farm activities are usually of small-scale and often yield little income. Methodologically, several of these researches face limitation in the sample size and quite often end up not producing accurate findings and therefore, because of the gaps in some of these researches, this research will still examine financial literacy, and performance of farmers groups in Gulu District Northern Uganda.

Several theories have been advanced to support researches on financial literacy, access to credit and the performance of farmer's groups but none of these theories offer conclusive stand point to the research problem. The resource-based theory (RBT) by Barney (2021) is one such theory used to explain the relationship between financial literacy, farmer members and farmer groups performance. According to Innocent (2019) RBT has been used in many studies of organizational performance. It talks about the organizational unique resources and the capabilities which differentiate one organization with the others in the same industry. It also shows how an organization can achieve a competitive advantage over the others. But in real sense according to Aggrey, (2019) competition in itself creates more operational technicalities that result into weaknesses in the system in one way or another hence exposing a researchable gap. As much as farmer groups are meant to provide marketing services, facilitation of collective production activities, financial services, technology, and education services to their members (FAO, 2021), the performance of FGs in Gulu District has been rated as being below average. This is the case as relates to credit utilization, productivity, profitability and technology application and this forms the basis of this study.

1.2 Problem Statement

Agriculture remains Uganda's leading economic sector, contributing approximately 24% of GDP, 42% of export earnings, and employing over 70% of the population (FAO, 2024). Despite its importance, many farmer groups continue to experience low productivity and limited financial sustainability due to inadequate financial knowledge and restricted access to credit facilities. Recent studies have shown that financial literacy significantly improves farmers' financial decision-making and enterprise performance, while access to credit enhances agricultural productivity and profitability (Onah et al., 2024; Tadewos & Kuma, 2024). Nevertheless, empirical evidence on the mediating role of credit access in the relationship between financial literacy and farmer group performance remains limited, particularly Gulu district, Northern Uganda.

Attempts, including the provision of improved seeds, advisory services, loans, animal grants and agro-processing services, have not fully addressed this challenge as farmers groups remain weak in the country (Oyo, Magara & Andogah, 2019). Despite various government initiatives such as

the Youth Livelihood Project, Parish Development Model (PDM), Northern Uganda Social Action Fund (NUSAF), and Agricultural Credit Facility (ACF) which were aimed at improving the performance of farmer groups, the overall performance in Gulu District as measured in terms of credit utilization, productivity, profitability, and technology adoption has remained poor according to the Eastern & Sothern Africa Small Scale Farmer's Forum [ESAFF] Uganda (2022) and [NPA] (2023).

In line with the assertion by Nangobi, Mshenga, & Mugonola (2024), if not addressed, poor farmer groups' performance can lead to reduced productivity, lower incomes, and decreased sustainability for individual farmers, and farmer groups, and the broader agricultural sector; and can result in food insecurity, poverty, and even social unrest. Yet, according to Onah, Enete, Okoye, Ume & Onyia (2024), access to agricultural finance is important because it will significantly improve income and it is crucial for continued agricultural improvement to be achieved by any farmer group. Hartarska et al. (2015) assert that agricultural credits are important because they contribute to economic development and One way to promote access to agricultural finance is through credit facilities. Therefore, this study seeks to examine the influence of financial literacy on the performance of farmer groups in Gulu District, with credit access as a mediating variable.

1.3 Purpose of the Study

The purpose of this study is to investigate the relationship between financial literacy and the performance of farmer groups in Gulu District and to examine whether credit access mediates this relationship. The study intends to contribute to the growing body of knowledge on agricultural finance and provide evidence-based recommendations for improving the performance and sustainability of farmer groups in Northern Uganda.

1.4 Objectives of the Study

i. To assess the level of financial literacy of members of the farmer groups in Gulu District
ii. o assess the level of performance of farmer groups in Gulu District
iii. To establish the relationship between financial literacy of farmer groups members' and the performance of farmer groups in Gulu District.
iv. To establish the mediating role of credit access in the relationship between financial literacy and farmer group performance.

1.5 Research Questions

This study was guided by the following research questions.

i. What is the financial literacy level of members of farmer groups in Gulu District?
ii. How is the performance of farmer groups in Gulu District?
iii. What is the relationship between financial literacy and the performance of farmer groups in Gulu District?
iv. What is the mediation effect of credit access on the relationship between financial literacy and performance of the farmer groups in Gulu District?

1.6 Scope of the Study

The scope of this study is discussed under three sub-sections namely geographical, content and time scopes.

1.6.1 Geographical scope

The research will be conducted in Gulu District in northern Uganda. The district was chosen because it has many farmer groups as established from Gulu District Local Government offices. The district is one of the eight in Acholi Sub-region and it is about 340Km from Kampala, the capital city of Uganda. It is surrounded by Omoro, Nwoya, Amuru and Pader districts. It is an agricultural district where maize, ground nuts, simsim, sweet potatoes, and cassava among others are grown as cash crops. The land acreage under cultivation has exponentially increased after the LRA war as many people left the IDP camps and resettled in their ancestral land and took up farming as an occupation.

1.6.2 Content scope

The study will focus on financial literacy, credit access and performance of the selected farmer groups in Gulu district. It will look at the relationship between financial literacy and FG performance and how credit access influences this relationship. This will be preceded by the establishment of the literacy level of farmer groups in Gulu District and their performance.

1.6.3 Time scope

The study data will focus on the period of five years from 2020/21 to 2024/25. This period is considered to be current enough from where the findings of this study will be relevant to the current situation in Gulu District, and also long enough to allow for the collection of adequate data.

1.7 Significance of the Study

The results of this study will benefit many stakeholders in one way or another. For; instance, it will provide useful information to policy makers in the formulation of appropriate policies and programmes to financial services to farmer groups. The findings may also be relevant to policy makers as far as financial literacy is concerned or how farmer groups should be run for them to be effective in realizing the reasons for which they are established.

It is also envisaged that the FGs, may benefit from the findings of this study in that lessons of the relationship between the study variables will help the FGs make informed decisions about finances and credit access and how these will impact of their performance. Individual farmers in Gulu District may also benefit from this study if the recommendations made concerning improving the performance of the FGs, and by extension their individual performance, are implemented. Further, this study will provide information and knowledge about how banks can grant credit to farmer o groups, which will help them improve their chances of getting credit and improve on their business operation.

The study will relay information to banks about perceptions of their services by farmer groups, which will help them improve service delivery. For Partial fulfilment of the requirements for the award of a Master of Business Administration (MBA) degree of Gulu University. It will also serve as a reference literature to other scholars and researchers who will be conducting studies in similar areas and of similar interest.

Conceptual Framework

The conceptual framework showing the relationship between **"Financial literacy and performance of farmer groups in gulu district, Northern Uganda"** is presented in Figure 1; Conceptual frame work

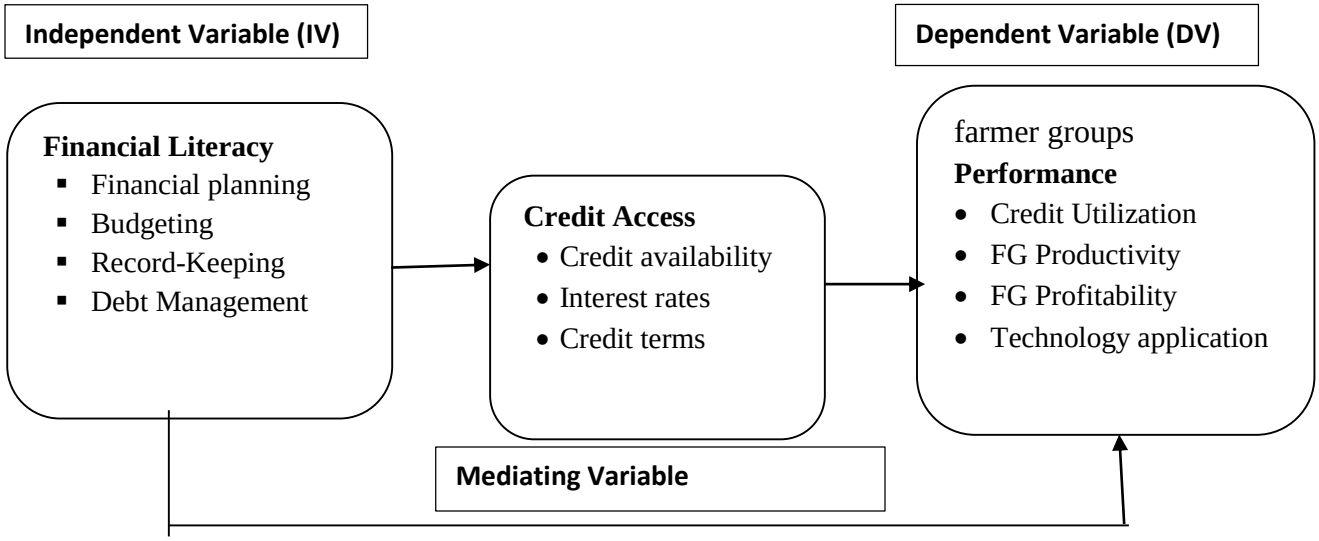

Figure 1: Conceptual Framework

Source: Adapted from FAO (2022); Lubanga (2019) and Chamala & Shingi (2018)

From Figure 1, financial literacy is the independent variable (IV), the farmer groups performance is the dependent variable (DV) and credit access is Mediating variable. The independent variable (financial literacy) will be measured using four dimensions namely Financial planning, budgeting, record-keeping and debt management. On the other hand, the dimensions of the dependent variable (FG Performance) are credit utilization, FG productivity, FG profitability and technological application. It is conceptualized that the relationship between the independent variable and the dependent variable will be mediated by credit access as an mediating variable.

1.9 Operational Definitions

Farmer groups; These are groups whose members are of local, regional, or national farmers' unions or agricultural producers' groups. They have a defined membership, purpose for assembling and organizational structure, established to support members in pursuing their individual and collective interests. They provide marketing services, facilitation of collective production activities, financial services, technology, and education services to their members (FAO, 2020)

Financial Literacy

Financial literacy is the ability to read, analyze, manage and communicate about the personal financial conditions that affect an individuals' economic well-being (Huston, 2019; Cude, 2019). It can be categorized into five categories: (1) knowledge of financial concepts; (2) ability to communicate about financial concepts; (3) aptitude in managing personal finances; (4) skill in making appropriate financial decisions; and (5) confidence in planning effectively for future financial needs (Remund, 2021).

Farmer groups Performance

Farmer groups performa nce is about realizing the groups objectives in terms of financial performance (profits, return on assets, return on investment); product market performance (sales, market share, etc.); and shareholder return (total shareholder return, economic value added) (Richard et al., 2019).

CHAPTER TWO

LITERATURE REVIEW

2.1 Theoretical Framework

Human Capital Theory

Human Capital Theory posits that knowledge, skills, education, and competencies enhance productivity and improve individual and organizational performance (Becker, 2021; OECD, 2023). The theory suggests that investments in knowledge and skills increase the capacity of individuals to make informed decisions and improve economic outcomes (World Bank, 2024; OECD, 2023). In the context of this study, financial literacy represents a form of human capital that equips farmer groups with the ability to make informed financial decisions, effectively allocate resources, and improve organizational performance (Lusardi, 2023; OECD, 2023).

Recent studies indicate that financially literate farmers are more likely to adopt sound financial management practices, including budgeting, record keeping, and financial planning, which positively affect productivity and profitability (Gottlieb & Hansson, 2024; FAO, 2024). Similarly, research among smallholder farmer beneficiaries of agricultural credit programs found that low levels of financial literacy were associated with poor loan utilization, weak financial management practices, and lower agricultural productivity (World Bank, 2024; IFAD, 2024).

Resource-Based Theory (RBT)

Resource-Based Theory argues that organizational performance depends largely on the possession and effective utilization of valuable, rare, inimitable, and non-substitutable resources (Barney, 2021; Barney & Mackey, 2023). The theory emphasizes that organizations can achieve sustainable competitive advantage by leveraging their unique resources and capabilities more effectively than competitors (Barney, 2021; Wernerfelt, 2022).

For farmer groups, financial literacy and access to credit constitute strategic resources that can be deployed to enhance agricultural productivity, profitability, and organizational sustainability

(Tadewos & Kuma, 2024; FAO, 2024). According to Barney (2021), organizational resources include physical, human, financial, technological, and knowledge-based resources. Financial literacy falls within knowledge resources because it provides the competencies needed to manage organizational finances effectively and make sound investment decisions (OECD, 2023; World Bank, 2024).

Recent evidence suggests that farmer groups with stronger financial capabilities are better able to mobilize resources, acquire productive assets, adopt technologies, and improve overall organizational performance (IFAD, 2024; MAAIF, 2023). Furthermore, access to credit enables farmer groups to acquire agricultural inputs, modern technologies, and market opportunities that contribute to competitive advantage and sustainable growth (Tadewos & Kuma, 2024; FAO, 2024).

Financial Capability Theory

Financial Capability Theory proposes that financial knowledge alone is insufficient to improve economic outcomes unless individuals also have access to appropriate financial services and opportunities to utilize their knowledge (Sherraden, 2022; OECD, 2023). The theory emphasizes the interaction between financial literacy and financial inclusion in promoting improved welfare and organizational performance (World Bank, 2024; OECD, 2023).

In Uganda, the Bank of Uganda recognizes financial capability as a critical driver of financial inclusion, particularly among rural households and agricultural communities (Bank of Uganda, 2024). Uganda's National Financial Inclusion Strategy 2023–2028 similarly identifies financial literacy and financial capability as important enablers of improved access to credit, savings, insurance, and other financial services among vulnerable populations (Bank of Uganda, 2023; Ministry of Finance, 2023).

The theory is particularly relevant to this study because farmer groups require both financial literacy and access to affordable financial services to improve organizational performance. Access to credit provides the opportunity to apply financial knowledge in productive agricultural investments and business expansion activities (IFAD, 2024; World Bank, 2024).

2.2 Financial Literacy

Financial literacy refers to the knowledge, skills, confidence, and behaviors required to make informed financial decisions and effectively manage financial resources (OECD, 2023; Lusardi, 2023). Financial literacy enables individuals and organizations to understand financial concepts, evaluate financial products, make appropriate financial decisions, and plan for future financial needs (World Bank, 2024; OECD, 2023).

Financial literacy is commonly categorized into financial knowledge, financial behavior, financial attitudes, decision-making capabilities, and financial confidence (OECD, 2023; Lusardi, 2023). Studies have consistently found a positive relationship between financial literacy and wealth accumulation, financial inclusion, enterprise performance, and business sustainability (Klapper & Lusardi, 2023; World Bank, 2024). Recent evidence also indicates that financial literacy contributes significantly to the efficient utilization of agricultural credit and adoption of agricultural technologies among smallholder farmers (FAO, 2024; IFAD, 2024).

In Uganda, financial literacy initiatives have been promoted through government and financial sector programs aimed at increasing access to financial services and strengthening the financial management capacity of rural households and farmer groups (Bank of Uganda, 2024; MAAIF, 2023). Financial literacy remains particularly important for farmer groups because it influences planning, budgeting, record keeping, debt management, and overall enterprise performance (IFAD, 2024; OECD, 2023).

2.2.1 Financial Planning

Financial planning is a critical component of financial literacy that involves establishing financial goals, forecasting resource requirements, and developing strategies for achieving desired organizational outcomes (OECD, 2023; World Bank, 2024). Effective financial planning enables farmer groups to allocate resources efficiently, manage risks, and make informed investment decisions that improve productivity and profitability (FAO, 2024; IFAD, 2024).

Studies indicate that lenders increasingly require structured business plans, financial projections, and evidence of financial sustainability before approving agricultural loans (Miguel et al., 2024; Janker et al., 2021). Financial planning therefore enhances access to finance because it demonstrates organizational preparedness and creditworthiness to lending institutions (World Bank, 2024; OECD, 2023).

Research among agricultural enterprises has shown that poor financial planning remains a major constraint to agricultural commercialization and business growth (Lehrer, 2023; FAO, 2024). Farmer groups with weak financial planning capacities often face challenges related to resource allocation, investment prioritization, and financial sustainability (IFAD, 2024; MAAIF, 2023). Conversely, organizations that engage in structured financial planning are more likely to achieve higher productivity and long-term sustainability (World Bank, 2024; FAO, 2024).

Financial statements and financial plans also play an important role in accountability and organizational governance because they facilitate monitoring, performance evaluation, borrowing decisions, and stakeholder reporting (Drury, 2021; Eierle et al., 2022). Effective financial planning therefore contributes to improved financial accountability and organizational performance among farmer groups (OECD, 2023; IFAD, 2024).

2.2.2 Budgeting

Budgeting refers to the process of preparing financial plans that estimate future income and expenditures within a specified period (Drury, 2021; OECD, 2023). Budgets act as planning and control tools that facilitate efficient allocation of resources and performance monitoring within organizations (World Bank, 2024; FAO, 2024).

Effective budgeting enables farmer groups to align available resources with organizational objectives and production priorities (IFAD, 2024; OECD, 2023). Budgeting also enhances financial discipline by reducing unnecessary expenditures and supporting informed decision-making regarding investments and operational activities (FAO, 2024; Bank of Uganda, 2024).

Research demonstrates that organizations with robust budgeting systems achieve better financial performance because budgets facilitate planning, monitoring, evaluation, and accountability (Zwikael et al., 2022; World Bank, 2024). Within farmer groups, budgeting supports the management of production costs, investment decisions, marketing expenditures, and cash-flow requirements (MAAIF, 2023; IFAD, 2024).

Furthermore, budgeting promotes transparency and accountability by providing benchmarks against which actual performance can be measured and evaluated (Basheka, 2022; OECD, 2023). As agricultural environments become increasingly dynamic, budgets assist farmer groups in adjusting plans to changing market conditions, technological developments, and climatic uncertainties (FAO, 2024; World Bank, 2024).

2.2.3 Record-Keeping

Record keeping refers to the systematic collection, organization, maintenance, and storage of financial and operational information for future use and decision-making purposes (ISO Records Management Standards, 2023; Omonuk, 2021). Effective record keeping enables organizations to maintain accurate, complete, and reliable information regarding financial transactions and business activities (World Bank, 2024; OECD, 2023).

Agricultural enterprises require accurate records to support planning, budgeting, financial reporting, taxation, and performance measurement (FAO, 2024; IFAD, 2024). Proper record keeping enhances transparency and accountability by providing verifiable evidence of financial transactions and resource utilization (Omonuk, 2021; Basheka, 2022).

Recent studies indicate that organizations with effective record-keeping systems are more likely to achieve improved financial performance because reliable information supports better management decisions (Mutshatshi et al., 2022; World Bank, 2024). In Uganda, inadequate record keeping continues to limit access to financial services because lenders often require documented evidence of business performance and financial position before extending credit facilities (MAAIF, 2023; Bank of Uganda, 2024).

Maintaining accurate accounting records is therefore essential for farmer groups because such records facilitate performance monitoring, compliance, accountability, and access to external financing opportunities (Wajiha, 2023; IFAD, 2024).

2.2.4 Debt Management

Debt management refers to the process of acquiring, utilizing, monitoring, and repaying borrowed funds in a manner that supports financial sustainability and minimizes default risk (OECD, 2023; World Bank, 2024). Effective debt management requires borrowers to understand loan conditions, repayment schedules, interest obligations, and associated financial risks (FAO, 2024; Lusardi, 2023).

Financial institutions typically establish repayment guidelines and monitoring mechanisms to ensure timely loan repayment and reduce credit risk (Barney, 2023; World Bank, 2024). Proper debt management enables farmer groups to maintain good credit histories, improve access to future financing opportunities, and sustain productive investments (IFAD, 2024; OECD, 2023).

Studies show that loan repayment performance is influenced by financial literacy, business profitability, credit supervision, repayment schedules, and alternative income sources available to borrowers (Li et al., 2022; World Bank, 2024). Borrowers with stronger financial management skills are generally more likely to repay loans successfully and less likely to default on credit obligations (FAO, 2024; OECD, 2023).

Recent evidence further suggests that financial education and debt management training significantly improve repayment performance among agricultural borrowers by strengthening budgeting, cash-flow management, and financial planning capabilities (IFAD, 2024; Bank of Uganda, 2024).

2.3 Farmer Group Performance

Farmer group performance refers to the extent to which farmer groups achieve their intended objectives in terms of productivity, profitability, operational efficiency, sustainability, and member welfare (IFAD, 2024; FAO, 2024). Farmer groups play a critical role in improving agricultural commercialization, facilitating market access, enhancing bargaining power, and promoting collective action among smallholder farmers (World Bank, 2024; MAAIF, 2023). The performance of farmer groups is often influenced by managerial competencies, financial literacy, access to resources, availability of credit, market opportunities, and institutional support mechanisms (OECD, 2023; IFAD, 2024).

According to the Food and Agriculture Organization, well-performing farmer groups contribute significantly to agricultural transformation by increasing productivity, improving household incomes, and strengthening resilience against production and market-related risks (FAO, 2024; World Bank, 2024). In Uganda, farmer groups continue to serve as important vehicles for agricultural extension, collective marketing, financial inclusion, and technology dissemination among rural communities (MAAIF, 2023; Bank of Uganda, 2024).

Recent studies indicate that financially literate farmer groups are more likely to demonstrate superior organizational performance because they are better equipped to make informed financial decisions, utilize resources efficiently, and access financial services that support enterprise growth (Lusardi, 2023; IFAD, 2024). Consequently, this study measures farmer group performance using credit utilization, productivity, profitability, and technology application.

2.3.1 Credit Utilization

Credit utilization refers to the extent to which borrowed financial resources are effectively allocated and applied toward productive economic activities that generate value and improve organizational outcomes (World Bank, 2024; IFAD, 2024). Effective utilization of agricultural credit enables farmer groups to purchase quality inputs, invest in mechanization, adopt improved technologies, and expand production activities (FAO, 2024; MAAIF, 2023).

Research indicates that access to credit alone does not guarantee improved performance unless the borrowed funds are invested in productive ventures capable of generating sufficient returns to support loan repayment and enterprise growth (OECD, 2023; World Bank, 2024). Farmer groups with strong financial management practices are more likely to utilize credit efficiently because they possess the knowledge necessary for planning expenditures, prioritizing investments, and monitoring returns on investments (IFAD, 2024; Lusardi, 2023).

In Uganda, agricultural credit has been associated with increased farm investment, improved adoption of agricultural innovations, and enhanced commercialization among smallholder farmers (Bank of Uganda, 2024; MAAIF, 2023). However, poor utilization of credit remains a challenge among some farmer organizations due to inadequate financial management skills and weak monitoring systems (World Bank, 2024; FAO, 2024).

2.3.2 Productivity

Productivity refers to the efficiency with which available resources are transformed into agricultural outputs and desired organizational results (FAO, 2024; OECD, 2023). Agricultural productivity is commonly measured through output per unit of land, labor, capital, or other production inputs utilized within a given production cycle (World Bank, 2024; IFAD, 2024).

Improved productivity is essential for enhancing food security, increasing farmer incomes, and strengthening the competitiveness of agricultural enterprises within domestic and international markets (FAO, 2024; World Bank, 2024). Studies have shown that productivity among farmer groups is strongly influenced by financial capacity, access to quality inputs, technology adoption, technical knowledge, and market access opportunities (IFAD, 2024; MAAIF, 2023).

Financial literacy contributes to productivity enhancement by enabling farmers to make informed investment decisions and allocate resources efficiently toward productive agricultural activities (Lusardi, 2023; OECD, 2023). Similarly, access to credit supports productivity growth by facilitating the acquisition of improved seeds, fertilizers, irrigation systems, machinery, and other productivity-enhancing inputs (FAO, 2024; World Bank, 2024).

2.3.3 Profitability

Profitability refers to the ability of an organization to generate financial returns that exceed the costs incurred in conducting its operations (Drury, 2021; OECD, 2023). Profitability is an important indicator of organizational health because it reflects the efficiency and effectiveness with which available resources are utilized to generate income and sustain operations (World Bank, 2024; IFAD, 2024).

Higher profitability among farmer groups enables reinvestment, expansion of production activities, increased member benefits, and improved long-term sustainability (FAO, 2024; MAAIF, 2023). Studies indicate that financial literacy significantly influences profitability through improved budgeting, cost control, financial planning, and investment decision-making (Lusardi, 2023; OECD, 2023).

Research further suggests that organizations with strong financial management capabilities generally achieve higher profitability levels because they are better able to optimize resource utilization and minimize operational inefficiencies (IFAD, 2024; World Bank, 2024). In agricultural enterprises, profitability is often affected by production costs, market prices, productivity levels, financial practices, and access to affordable financing options (FAO, 2024; Bank of Uganda, 2024).

2.3.4 Technology Application

Technology application refers to the adoption and utilization of modern agricultural technologies, innovations, and digital tools aimed at improving production efficiency and organizational performance (FAO, 2024; World Bank, 2024). Technological innovations have become increasingly important in modern agriculture due to their potential to enhance productivity, reduce production costs, improve market access, and strengthen competitiveness (IFAD, 2024; OECD, 2023).

Farmer groups that successfully adopt modern technologies often achieve higher productivity, improved profitability, and greater resilience to climatic and market-related challenges (FAO,

2024; World Bank, 2024). Financial literacy promotes technology adoption by enabling farmers to assess investment opportunities, evaluate costs and benefits, and make informed decisions regarding technology acquisition (Lusardi, 2023; OECD, 2023).

Access to credit further strengthens technology application because farmers can obtain the financial resources required to invest in machinery, irrigation systems, mobile technologies, digital platforms, and other innovations that enhance agricultural performance (IFAD, 2024; Bank of Uganda, 2024). In Uganda, several government and development interventions continue to encourage technology adoption among farmer groups as a strategy for promoting agricultural commercialization and productivity enhancement (MAAIF, 2023; FAO, 2024).

2.4 Credit Access

Credit access refers to the ability of individuals or organizations to obtain financial resources from formal or informal lending institutions under acceptable conditions and terms (World Bank, 2024; OECD, 2023). Access to credit is widely recognized as a critical factor for agricultural development because it enables farmers to finance production activities, acquire productive assets, adopt modern technologies, and expand business operations (FAO, 2024; IFAD, 2024).

According to the World Bank, access to agricultural finance remains a major challenge among smallholder farmers in developing countries despite increasing efforts to promote rural financial inclusion (World Bank, 2024; IFAD, 2024). Financial literacy enhances credit access by improving borrowers' ability to meet lending requirements, manage debt obligations, and establish financial credibility with lending institutions (OECD, 2023; Lusardi, 2023).

In Uganda, initiatives such as the Parish Development Model, Agricultural Credit Facility, and Emyooga Programme have sought to improve access to credit among farmer groups and rural enterprises (Bank of Uganda, 2024; Ministry of Finance, 2024). Despite these interventions, many farmer groups continue to face barriers related to collateral requirements, high interest rates, inadequate financial records, and limited financial literacy (MAAIF, 2023; World Bank, 2024).

2.4.1 Credit Availability

Credit availability refers to the extent to which financial resources are accessible to individuals and organizations seeking financial support for productive activities (IFAD, 2024; World Bank, 2024). Availability of credit determines whether farmer groups can obtain adequate financing to support agricultural production, marketing, value addition, and business expansion activities (FAO, 2024; MAAIF, 2023).

Studies suggest that improved availability of agricultural credit contributes positively to investment, productivity growth, and enterprise sustainability among farmer organizations (World Bank, 2024; IFAD, 2024). Financial institutions are generally more willing to extend credit to borrowers who demonstrate financial discipline, sound record-keeping practices, and effective financial management capabilities (OECD, 2023; Lusardi, 2023).

2.4.2 Interest Rates

Interest rates refer to the cost of borrowing financial resources from lending institutions over a specified period of time (World Bank, 2024; Bank of Uganda, 2024). Interest rates influence borrowing decisions because they affect the affordability and overall cost of credit obtained by farmer groups (OECD, 2023; IFAD, 2024).

High interest rates may discourage borrowing and limit investment activities among agricultural enterprises due to increased repayment burdens and financial risks (FAO, 2024; World Bank, 2024). Conversely, affordable interest rates are associated with increased utilization of credit and enhanced agricultural investment among smallholder farmers (Bank of Uganda, 2024; IFAD, 2024).

2.4.3 Credit Terms

Credit terms refer to the conditions governing the issuance, utilization, monitoring, and repayment of loans provided by lending institutions (World Bank, 2024; OECD, 2023). These conditions commonly include repayment periods, collateral requirements, grace periods, loan size, monitoring mechanisms, and penalties for non-compliance (IFAD, 2024; Bank of Uganda, 2024).

Favorable credit terms increase credit accessibility because they reduce borrowing constraints and improve borrowers' ability to manage repayment obligations effectively (FAO, 2024; World Bank, 2024). Previous studies indicate that flexible loan conditions are more likely to support agricultural investment and enhance enterprise performance among farmer groups (IFAD, 2024; MAAIF, 2023).

2.5 Empirical Review

Empirical evidence demonstrates a strong association between financial literacy and organizational performance across different sectors and contexts (OECD, 2023; World Bank, 2024). Recent studies have shown that financial planning contributes positively to organizational sustainability, profitability, and resource utilization because it enhances decision-making and strategic investment practices (FAO, 2024; IFAD, 2024).

A study conducted among agricultural cooperatives in East Africa found that farmer organizations with strong financial planning systems were significantly more likely to achieve higher productivity and profitability levels than those with weak planning mechanisms (IFAD, 2024; FAO, 2024). Similarly, research by Lusardi (2023) established that financial literacy influences enterprise growth through improved budgeting, financial management, and investment decisions (Lusardi, 2023; OECD, 2023).

Studies examining budgeting practices indicate that organizations utilizing formal budgeting systems demonstrate superior financial performance due to improved expenditure control and resource allocation mechanisms (World Bank, 2024; OECD, 2023). Furthermore, evidence from Uganda suggests that budgeting practices positively influence financial accountability and organizational efficiency among farmer groups and rural enterprises (MAAIF, 2023; Bank of Uganda, 2024).

Research on record keeping has consistently shown that accurate financial records improve organizational performance through enhanced accountability, transparency, financial control, and access to external financing (World Bank, 2024; IFAD, 2024). In Uganda, poor record keeping continues to limit credit access among farmer groups because lenders require documented

evidence of financial performance during loan appraisal processes (Bank of Uganda, 2024; MAAIF, 2023).

Several studies have also established a positive relationship between debt management and loan repayment performance among agricultural borrowers (FAO, 2024; OECD, 2023). Farmer organizations that possess strong debt management skills tend to achieve better financial outcomes because they are able to manage repayment schedules effectively and maintain favorable relationships with lending institutions (IFAD, 2024; World Bank, 2024).

Empirical studies further suggest that credit access mediates the relationship between financial literacy and organizational performance because financial knowledge enhances the ability to secure and effectively utilize financial resources (Lusardi, 2023; World Bank, 2024). Accordingly, farmer groups that combine strong financial literacy with adequate access to credit often demonstrate higher productivity, profitability, technology adoption, and overall organizational performance than groups lacking these capabilities (IFAD, 2024; FAO, 2024).

2.6 Knowledge Gap

Although numerous studies have examined the relationship between financial literacy and groups' performance, many have focused on microenterprises, small and medium enterprises, and household financial behavior rather than farmer groups operating within agricultural contexts (OECD, 2023; World Bank, 2024). Existing studies have also tended to examine financial literacy and performance as direct relationships without adequately investigating the mediating influence of credit access, particularly among farmer groups in developing economies (IFAD, 2024; FAO, 2024).

In Uganda, available studies have largely concentrated on financial inclusion, agricultural financing, and household financial behavior, with limited emphasis on the combined effects of financial planning, budgeting, record keeping, and debt management on farmer group performance (Bank of Uganda, 2024; MAAIF, 2023). Furthermore, limited empirical evidence exists regarding the mediating role of credit access in the relationship between financial literacy and farmer group

performance in Gulu District and similar post-conflict agricultural settings (World Bank, 2024; IFAD, 2024).

Therefore, this study seeks to fill this gap by examining the effect of financial literacy on farmer group performance and assessing the mediating role of credit access among farmer groups in Gulu District,northern Uganda. This study is expected to contribute to existing literature and provide evidence-based recommendations for policymakers, development practitioners, financial institutions, and farmer organizations seeking to improve agricultural performance and financial inclusion outcomes (FAO, 2024; Bank of Uganda, 2024).

CHAPTER THREE

METHODOLOGY

3.1 Introduction

Majority of studies in both natural and social sciences were guided by a set of procedures in order to accomplish their objectives successfully (Cooper & Schindler, 2016). Research operational guidelines, often referred to as methodology, provided direction on how the study was supposed to be executed (Cooper & Schindler, 2020; Mugenda & Mugenda, 2021). Based on this, the following sections were covered under this chapter: the research design, study population, sample size and sampling techniques, research instruments, validity and reliability, data collection methods, data analysis and presentation, ethical considerations, study limitations, and delimitations.

3.2 Research Design

The study used a cross-sectional survey design, which entailed describing the characteristics of the population or a phenomenon and executing the entire undertaking within a specific time structure, as posited by Burkingham & Saunders (2017). Additionally, a descriptive research design was also employed, since, according to Orodho (2022), it was the most suitable method for collecting information about people's attitudes, opinions, habits, or any variety of social issues. Data of both qualitative and quantitative nature were collected from the prospective respondents.

3.3 Study Population

The study targeted 741 farmer groups in Gulu District. A sample of 254 farmer groups was obtained using the Krejcie and Morgan (1970) sample size determination formula for finite populations. The selected farmer groups were subsequently sampled through simple random sampling. The groups were groups formed by MAAIF in 2016, in Gulu district, estimated to hold a population large enough to allow for adequate sampling, and the findings were generalizable to the rest of the farmer groups in Gulu District. The group leaders within the study population formed the unit of analysis, to establish the unit of inquiry, i.e., the appropriate respondents from each farmer groups who answered the questionnaires and the local leaders, and district officials from Gulu district who participated in key informant interviews.

3.3.1 Quantitative Sample Size

The sample size was determined using the Krejcie and Morgan (1970) sample size determination formula for finite populations. The formula was reported as:

$$S = \frac{X^2 N P(1-P)}{d^2(N-1) + X^2 P(1-P)}$$

Where:

- *SSS = required sample size*
- *X2X^2X2 = chi-square value at 95% confidence level (3.841)*
- *NNN = population size (741)*
- *PPP = population proportion (0.5)*
- *ddd = degree of accuracy (0.05)*

Substituting the study values into the formula:

$$S = \frac{3.841 \times 741 \times 0.5(1-0.5)}{0.05^2(741-1) + 3.841 \times 0.5(1-0.5)}$$

$$S = \frac{711.80}{2.81}$$

$$S = 253.3$$

The computed sample size was approximately **253 respondents**, which was rounded up to **254 farmer groups**. These farmer groups were selected through simple random sampling to ensure that each farmer group had an equal chance of participating in the study.

3.4 Qualitative Sample Size

For the qualitative component, key informants were selected purposively based on their knowledge, experience, and involvement in agricultural production, marketing, farmer-group development, and community mobilization activities. Purposive sampling was considered appropriate because it enabled the study to obtain detailed information from individuals with relevant expertise.

A total of 15 key informants were included in the study. These comprised 05 district-level officials drawn from the production, marketing, community development, cooperative, and agricultural extension departments and 10 sub-county officials, including Community Development Officers, Production Officers, and Agricultural Extension Officers. The qualitative sample size was guided by the principle of information richness and the need to obtain comprehensive insights from stakeholders directly involved in supporting farmer groups. Consequently, fifteen key informants were considered adequate to provide in-depth information relevant to the study objectives.

3.4.1 Sample Size and Sampling techniques

Table 14: Sample Size Determination

S/N	**Category of Respondents**	**Population**	**Sample Size**	**Sampling Technique**	**Justification**
1	Farmer Groups	741	254	Simple Random Sampling	To give all farmer groups an equal chance of selection and ensure representativeness of the population.
2	District Officials	-	5	Purposive Sampling	Selected based on expertise and involvement in agricultural and farmer-group activities.
3	Sub-county Officials	-	10	Purposive Sampling	Selected because of their direct work with farmer groups and community development programmes.
	Total	**741**	**269**	Mixed Sampling Approaches	

3.5 Sampling Procedure

In simple random sampling, every respondent had an equal chance of being selected for the sample. To conduct simple random sampling, a sampling frame of all the farmer groups accessing financial literacy and credits in Gulu District was drawn, ensuring that each organization had an equal chance of being selected. Random number tables were used to select members of the population to be sampled. Subjects in the population were sampled through a random process using the random number table, ensuring that each organization in the remaining population had the same probability of being selected, thus avoiding bias in the results (Friedrichs, 2019). Purposive sampling was used to target key informants such as the District Agricultural Officer and Local Council (LC) 1 representatives.

3.6 Data Collection Methods

The study incorporated the use of various methods in the process of data collection in order to generate sound, concrete, and credible research findings. The researcher therefore employed the use of questionnaires and interviews to collect primary data for the study.

3.6.1 Questionnaire method

The questionnaire method was based on the use of a set of questions to which respondents were allowed to respond by filling in provided spaces or ticking boxes corresponding to their chosen options in a list. The respondents could fill out the questionnaire at their own convenience, which made them feel more comfortable providing answers to sensitive questions. This method was chosen because it was easy to use and, at the same time, provided information with minimal errors.

3.6.2 Interview method

The researcher used formal interviewing as a method of data collection, which offered an opportunity to explore topics in depth and allowed for interaction between the researcher and the respondents. This interaction made it possible to correct any misunderstandings of the questions and answers provided. The researcher interviewed some of the respondents from the selected farmer groups in Gulu District and staff from the credit section of financial institutions. This method was used to gather vital and in-depth information that might have been missed by the questionnaire method

3.7 Data Collection Instruments

Corresponding to the above data collection methods were the data collection tools, namely the questionnaire and the interview guide. These tools were briefly discussed below.

3.7.1 Questionnaire instrument

According to Robson (2015), a questionnaire was commonly applied in research, designed to collect data from a specific population or a sample from that population. Questionnaires were often used as research instruments due to the distinct advantages they offered (Leary, 2021). In this study, the questionnaire tool was used to collect data from the selected farmer groups other respondents, and staff from the District Agricultural Department. The questionnaire was divided into two sections. The first section aimed to gather demographic information from the respondents, which would provide a clear understanding of the sample's attributes. The second section aimed to collect data on the measurement of the research variables, covering all the study objectives. While most of the questions were closed-ended, a few were open-ended. The 5-point Likert scale, with points ranging from Strongly Disagree (SD), Disagree (D), Not Sure (NS), Agree (A), to Strongly Agree (SA), was used. In this case, statements on the various study variables and their dimensions were posed, and respondents were required to give their opinions using this scale.

3.7.2 Interview guide

An interview guide was drafted with a set of questions that the researcher asked during the interviews. District Production and marketing officials, Community development officials, Chief administrative officer, LCV chairperson, Sub county agricultural and community development officials. were interviewed. The researcher personally recorded the responses provided by the study respondents during the interview process. The interview guide was semi-structured and composed of broad questions aligned with the study objectives.

3.8 Validity and Reliability

The validity of an instrument, as applied in this study, was consistent with the definition provided by Miles and Huberman (1994), who stated that "it is the extent to which the items in the instrument measure what they are set out to measure." On the other hand, reliability referred to the internal consistency of the tool. The two concepts were further discussed below.

Reliability=2**r**/1+**r**

Where **r** refers to the correlation between the two tests.

The value obtained using the Spearman-Brown formula ranged from 0 to 1. A value of 0.70 and above indicated that the scale was reliable. The literature stated that this value could be tolerated down to 0.60 for descriptive and explanatory research. However, the size of the reliability coefficient was closely related to the number of items in the scale. Beneficial results were not obtained from scales consisting of a small number of items (8 items or fewer). It should be noted that, apart from its benefits, the split-half method also had certain disadvantages. In this method, reliability was measured by the correlation of the items between the two halves.

3.8.1 Validity

After constructing the questionnaire, the validity of the instrument was assured through two approaches: the use of the content validity index (CVI) and pre-testing. Under the CVI, the researcher contacted two research experts to evaluate the questionnaire. In other words, the validity of the instruments was assessed using the expert judgment method, as suggested by Gay (2020). The instrument was refined based on the experts' advice. The following formula was used to test for the content validity index (CVI).

$$CVI = \frac{\text{No. of items regarded relevant by judges}}{\text{Total number of items in the tool}}$$

The questionnaire was considered valid if the generated coefficient was above 0.7, as recommended by Amin (2017). The validity of the resulting tool was further assured by undertaking a pre-test, during which a few respondents were asked to fill in the questionnaires and point out any unclear, ambiguous, or inconsistent questions for correction. These respondents did not form part of the final study sample.

Table 15: Validity Test Results

SN	Expert	Score (Correct Items / Total Items)	CVI
1.	Expert 1	88/96	0.917
2.	Expert 2	84/96	0.875
3.	Expert 3	86/96	0.896
	Average		**0.896**

Source: Primary Data

The tool thus passed the test as the CVI was 0.896. The validity of the resultants tool was further assured by undertaking a pre-test whereby 5 respondents were asked to fill in the questionnaires but, in the process, point out any unclear, ambiguous, inconsistent question for correction. These respondents were not part of the final study sample.

3.8.2 Reliability

According to Miles and Huberman (2020), reliability referred to the extent to which the items in an instrument generated consistent responses over several trials with different audiences in the same setting or circumstances. The reliability of the instruments and data was established following a pre-test procedure of the instruments before their use with actual research respondents. The reliability of the questionnaire was established using the Cronbach Alpha coefficient test with the Statistical Package for Social Sciences (SPSS). The tool was considered reliable if the coefficient obtained was 0.7 and above, as proposed by Amin (2016).

Table 16: Cronbach's Alpha Reliability Test Results

SN	Variable	Dimension	Cronbach's Alpha Coefficient	Items
1.	Financial Literacy	Financial planning	0.917	11
		Budgeting	0.899	9
		Financial Record-Keeping	0.787	10
		Debt Management	0.829	8
2.	Credit Access	Credit Availability	0.860	5
		Interest Rates	0.859	5
		Credit Terms	0.870	5
3.	Performance	Credit Utilisation	0.829	7
		Productivity	0.722	7
		Profitability	0.739	7
		Technology	0.802	7
	Average		**0.829**	**7**

Source: Primary data

From the above table, the average Cronbach's Alpha Coefficient is 0.829. Since Cronbach Alpha coefficient value is 0.829 which is above 0.7 acceptable limit, this denotes that the questions are consistent and the measurements were reliable, and so the tool passed the test.

3.9 Data Analysis and Presentation

After collecting all the necessary data, the data were coded, edited, analyzed, and rephrased to eliminate errors and ensure consistency. Cleaning involved sorting the collected information to extract data relevant to the study variables. Once the data were cleaned, they were loaded into SPSS, and both descriptive and inferential statistical analyses were conducted for the quantitative data. After analysis, the results were presented in the form of frequency tables bearing frequencies and percentages, after which the data were ready for interpretation. Frequencies and Percentatges were developed using the Statistical Package for Social Sciences (SPSS). Specifically, both

descriptive and inferential statistical analyses, such as Pearson Correlation and multiple regression tests, were conducted.

For the qualitative data, the researcher reviewed all the responses, noting useful information and disregarding irrelevant responses provided by the respondents. This process involved categorizing, discussing, classifying, and summarizing the responses to each question into coding frames based on the various responses. This approach aimed to simplify the tabulation process and remove unwanted responses deemed insignificant. Content analysis was conducted to identify emerging themes (headings) or sub-themes, which were aligned with the study objectives.

3.10 Ethical Considerations

The researcher received an introductory letter from the Institute of Research and Graduate Studies. The need for approval of the research proposal by the Institute of Research and Graduate Studies of Gulu University was essential and mandatory to give validity to the document and to show that the study would be conducted according to approved research standards and practices. The Letter was first Presented to the Chief Administrative Officer of Gulu District Local Government, who received and authorized, that District Agricultural Officer, to support and coordinate data collectors to the Subcounty Local councils, and Agricultural officers. Copies of the letter were presented to the selected farmer groups and selected District local government staff, in Gulu district and Local council leaders from 10 sub counties. Permission to collect data was sought from the Chief administrative officer and presented to District Community development officer, the leadership of the FGs, and the community development offices at 10 sub counties in Gulu district Informed consent was sought from all respondents as an assurance that their rights and confidentiality would be respected. Observation and maintenance of confidentiality were vital, especially for participants who preferred to remain anonymous for either official or personal reasons, fearing reprisals regarding data handling. Additionally, Covid-19 and Mpox SOPs were observed, with the researcher adhering to the Ministry of Health guidelines on social distancing, personal hygiene (hand washing), and providing brief health talks to respondents, especially regarding Covid-19 and Mpox, before administering questionnaires. Most importantly, the researcher ensured that protective gear, such as facemasks and sanitizers, was provided to the data collectors.

3.11 Limitations and Delimitations of the Study

The following are some of the limitations and delimitations that the researcher anticipated to encounter during the study.

The difficulties in attaining maximum cooperation and response from the respondents due to the fear that their contributions will incriminate them.

The researcher, however, mitigated this by assuring the respondents of the purpose of the research, being purely academic and the highest degree of confidentiality that would be exercised on the information that would be provided

. Some problems of transport by moving to various places gathering data. The problem was however solved by planning for enough resources in terms of money for fuel to cater for all the planned destinations during data collection in advance.

The other challenge was language barrier, some respondents were not able to understand the language used in the questionnaire, this problem was, however, resolved by moving with an interpreter who supported to translate the questionnaire to the local in Acholi, language that the respondents understood.

Access to data in some cases wasn't easy for matters of confidentiality. This research limitation were addressed through redesigning or restructuring the research instruments and inquiring the reasons for the limitation and technically demystified the fears.

CHAPTER FOUR

DATA PRESENTATION, ANALYSIS AND INTERPRETATION

4.0 Introduction

This chapter starts with the presentation of background information of the respondents who participated in this study. This is followed by the presentation of the results in line with the study objectives which included, (i) assessing the level of financial literacy of members of the farmer groups in Gulu District; (ii) establishing the status of credit access by the farmer groups in Gulu District; (iii) assessing the level of performance of farmer groups in Gulu District; (iv) establishing the relationship between financial literacy of farmer groups and the performance of farmer groups in Gulu District; and (v) establishing the mediation effect of credit access on the relationship between financial literacy and performance of the farmer groups in Gulu District.

4.0.1 Background Information

The background information of the respondents is presented in terms of their gender, age, marital status, sub county, highest education qualification, religion, member of farmer groups, and position in the farmer group.

Table 17: Background Information of Respondents

SN	Parameter	Variable	Frequency	Percentage
1.	**Gender**	Male	132	53.6
		Female	115	46.4
2.	**Age**	18-27 years	55	22.4
		28-37 Years	100	40.3
		38-47 years	46	18.6
		48-57 years	33	13.3
		58 years & above	13	5.3
3.	**Marital Status**	Single	40	16
		Married	177	71.6
		Separated	13	5.4
		Divorced	9	3.5
		Widowed	9	3.5
4.	**Highest Education Qualification**	No Formal Education	48	19.6
		PLE	90	36.5
		O Level	78	31.5
		A Level	16	6.5
		Certificate	6	2.3
		Diploma	7	2.7
		Postgraduate & Masters	2	0.8
5.	**Position**	Chairperson	60	24.1
		Treasury	38	15.2
		Secretary	75	30.4
		Ordinary Member	75	30.4
6.	**Group existence**	1-5years	142	57.4
		6-10years	52	20.9
		11-15years	33	13.3

		16-20years	14	5.7
		21 and above years	7	2.7
7.	**Number of Members in groups**	15-Nov	11	4.5
		16-20	13	5.3
		21-25	37	14.8
		26-30	80	32.2
		Over 30	107	43.2
8.	**Specialization of farmer groups**	Animal Farming	31	12.7
		Crop farming	165	66.8
		Fish farming	9	3.5
		Poultry farming	27	10.8
		Piggery	7	2.7
		Bee Keeping	8	3.1
		Other (specify)	1	0.4
9.	**Sources of funds**	Bank	6	2.3
		Microfinance Institution	3	1.1
		VSLA	215	87
		NGO Support	1	0.4
		Youth Livelihood fund	8	3.1
		PDM Funding	15	6.1
		Total	**247**	**100**

Source: Primary Data

According to the Table 4, the majority of the respondents were male (53.6%) while the female respondents were 46%. This implies that both genders were ably represented in the sample size and their views regarding the topic under study were comprehensively captured.

In terms of age, it was established that most of the respondents were of the aged group 28 - 37 years old (40.3%). They were followed by the vibrant youth aged between 18-27 years (22.4%). This is a clear indication that the farming activities requires active population which is dynamic and adaptive to the changing agriculture situations.

It was further revealed that majority of the respondents were married (71.6%), therefore they have a responsibility burden to circumvent through involvement in agriculture and Village savings and loaning Associations (VSLA). They are followed by responsible youth who are single (16.0%) but are preparing for the responsibilities yet to come their way. Those who were separated, divorced and widowed, collectively accounted for 12.4% of all the respondents.

According to the results, the majority of the respondents were seen to have attained primary Level Education (PLE) (36.5%) followed by O level (31.5%). At the same time, a total of 19.6% of the respondents was established not to have acquired any formal education. Despite this, the results show that majority of the respondents (80.4%) had some form of formal education and so they can be considered to understand the basic concepts and can ably grasp and apply modern agricultural practices. Consequently, the farmers can negotiate for better market conditions given their education qualifications.

In terms of positions in the farmer groups, most of the respondents were both the secretaries and the ordinary members at 30.4% each, followed by the chairpersons (24.1%) and lastly the treasurers at 15.2%. This implies that the data collected is from authentic sources and represents the true views of the farmer organisations.

The results reveal that most of the groups have between in existence for 1-5 years (57.4%). This can imply that they at the storming and norming stages and their existence is not guaranteed. This is followed by the farmer groups which have taken 6-10years (20.9%). The groups which have taken 21 years and above (2.7%) constitute the lowest number of respondents, this may probably imply that most of the farmer groups cannot be able to celebrate their second anniversary.

It is revealed that majority of the associations have members, which are more than 30 (43.2%). The management of these associations might turn out to be complex and their continuity may be compromised. This is followed by farmer groups which have a membership of 26-30 members (32.2%). Unlike the previous, this size of membership is recommended for proper management hence guaranteed sustainability.

The majority of the farmer groups specialize in crop farming (66.8%) followed by Animal Farming (12.7%) and Poultry farming (10.8%). This means that the majority are involved in growing food crops and vegetables to earn a living. The least portion of farmer groups were engaged in piggery. The largest proportion of the respondents were those who received their finances from VSLAs (87.0%) while some others benefited from government programs like PDM (6.1%) and Youth Livelihoods (3.1%) and the least proportion of them get funds from microfinance institutions (1.1%) and the NGO support (0.4%).

4.1 To assess the level of financial literacy of members of farmer groups in Gulu district

The first objective of this study was to establish the level of financial literacy of the members of the farmer groups in Gulu District. The findings are presented under its dimensions which included Financial planning, budgeting, record-keeping, and debt management

4.1.1 Financial planning

The descriptive results on Financial planning were as presented in Table 5.

Table 18: Descriptive Results on Financial planning

B1	Statements on Financial planning	Responses in Percentages (%)						
		SD	D	SD+D	NS	A	SA	A+SA
1.	As a member of the farmer groups, I am conversant with Financial planning	12.5	20.6	33.1	5.1	53.3	8.6	61.9
2.	We received training on how to prepare a business plan	9.9	22.5	32.4	4.3	45.5	17.8	63.3
3.	All our farmer groups members know how to prepare a business plan	8.6	32.3	40.9	10.9	33.1	15.2	48.3
4.	My group members know the advantages and of having a business plan	7.8	15.6	23.4	6.3	52.3	18	70.3
5.	My group emphasizes Financial planning for what we engage in	6.3	20.8	27.1	3.5	53.3	16.1	69.4

6.	In my group we have a business plan in place for our current business venture	5.5	28.3	33.8	4.7	48	13.4	61.4
7.	We are regularly taken through refresher training on Financial planning	7.8	36.8	44.6	3.1	35.3	17.1	52.4
8.	Every member is free to air his/her views during Financial planning process	7.5	22.4	29.9	2.4	48.6	19.2	67.8
9.	All members in my group participated in drawing our business plan	6.3	27.6	33.9	2.0	46.9	17.3	64.2
10.	My group uses our business plan to guide our farming activities	5.9	27.3	33.2	3.6	45.5	17.8	63.3
11.	We have used our business plan to source for funding	13.5	31.1	44.6	2	42.6	10.7	53.3
	Average	**8.3**	**25.9**	**34.3**	**4.4**	**45.9**	**15.6**	**61.4**

Key: SD= Strongly Disagree, D= Disagree; NS=Not sure; A= Agree, SA=Strongly Agree

Source: Primary data

From the table above, on average 61.4% of the respondents agree with the statements on Financial planning while 34.3% stated otherwise. The other 4.4% were not sure whether their farmer groups were practicing Financial planning or not. Most of the specific statements scored above 50% except the statement, "All our farmer groups members know how to prepare a business plan" which scored 48.3%. The statement, "My group members know the advantages and of having a business plan" was having the highest agreement rating of 70.3%, followed by, "My group emphasizes Financial planning for what we engage in" which obtained a score 69.4%. This means that there are Financial planning activities that are being undertaken at the farmer groups.

The qualitative results on the other hand seem to suggest that all is not well as far as Financial planning is concerned. According to the results from the interviews, it was observed that, FGs in Gulu District generally have a low level of understanding when it comes to Financial planning. Most farmer groups still rely on traditional farming methods, where they do not plan or estimate the resources needed for a season. They generally do not create budgets for their farming activities and tend to use whatever funds they can raise from members to produce crops.

KI reported in an Interview that;

> *"As farmers, some of us did not receive formal education or training in financial planning, and many do not understand the importance of having a business plan. Most farmer groups rely on traditional methods and focus on survival rather than farming as a business, so formal planning is often not considered necessary." (Key Informant, December 2024).*

A key informant noted that although many farmers and farmer organizations in Gulu District have not received formal training in financial management and budgeting, there is growing recognition of the importance of budgeting for improving farm performance and profitability. However, traditional farming practices continue to influence resource management, creating a strong need for capacity building in budgeting and financial management skills. On the other hand and in support of the quantitative results, some key informants, especially those with relatively young farmer members, are quite knowledgeable about Financial planning even though this is not very professional.

As reported by a Key informant in an interview that:

> *"Many farmer organizations in Gulu District engage in financial planning despite limited access to finance, technology, and expert advice. To address these challenges, members often pool their resources to support farming activities and undertake planning." (Key Informant, December 2024).*

A key informant explained that while many farmer organizations in Gulu District engage in financial planning, their efforts are often constrained by limited access to finance, technology, and technical guidance for developing effective business plans. To overcome these challenges, group

members pool available resources to support farming activities and facilitate planning processes. In general, the results suggest there is some Financial planning by the farmer groups although this is not done very professionally. This means some training and familiarization of what Financial planning is to the members is necessary if at all the organisations are to reap better rewards from their farming activities.

4.1.2 Budgeting

Table 6 presents the results on budgeting as obtained from the feedback by the respondents

Table 19: Descriptive Results on Budgeting

B2	Statements on Budgeting	Responses in Percentages (%)						
		SD	D	SD+D	NS	A	SA	A+SA
1.	All members in my farmer groups have been trained in financial Literacy and budgeting	5.4	19.7	25.1	5	58.2	11.7	69.9
2.	Budgeting is always undertaken at the beginning of the year in my group	7.8	21.3	29.1	3.5	48.8	18.6	67.4
3.	Our budgeting is influenced by our planned venture activities	6.6	18.2	24.8	3.5	57.4	14.3	71.7
4.	Budgeting influences the financial performance of my group.	7.8	16.8	24.6	3.5	53.5	18.4	71.9
5.	The bottom-up approach is used in budgeting in my farmer groups	8.6	24.9	33.5	3.5	45.1	17.9	63.0
6.	We have measures in place to ensure budgeting is undertaken effectively	5.9	20.3	26.2	2.0	56.3	15.6	71.9

7.	Our financial expenditure is guided by our planned budget	4.3	15.1	19.4	3.5	57.4	19.8	77.2
8.	As a group we realign our budgets to reflect the needs of our members.	3.9	13.6	17.5	1.6	65.9	15.1	81.0
9.	Ourgroup always reviews the performance of our budget at the end of the year	6.3	17.1	23.4	3.2	54	19.4	73.4
	Average	**6.3**	**18.6**	**24.8**	**3.3**	**55.2**	**16.8**	**71.9**

Key: SD= Strongly Disagree, D= Disagree; NS=Not sure; A= Agree, SA=Strongly Agree

Source: Primary data

On average, 71.9% agree to the statements that, budgeting is being done in their groups. This is because majority statements scored above except for, "The bottom-up approach is used in budgeting in my farmer groups", "Budgeting is always undertaken at the beginning of the year in my group" and "All members in my farmergroup have been trained in financial Literacy and budgeting" which scored 63%, 67.4% and 69.9% respectively. It was only 24.8% of the respondents who stated otherwise and 3.3% were not sure whether their farmer groups budget or not. This shows that most of the farmer groups ensure they budget for any activities that they undertake.

The qualitative results as obtained from interviewing key informants generally agree with the quantitative results presented above. For instance, many respondents were aware that budgets are the financial backbone of any organization and that by being financially literate, they can be able to create and adhere to a budget that reflects both their revenue sources and expenses.

According to the Key informant Interview with one of th Group chairperson that:

> *"We know budgeting helps prevent overspending and ensures funds are allocated to the right activities. As members of our farmer group, we normally sit down and prepare budgets for livestock and crop production, although the budgeting process remains informal." (Key Informant, December 2024).*

A key informant explained that although farmer groups recognize the importance of record keeping, not all members possess the literacy and skills required to maintain records effectively. As a result, groups often assign record-keeping responsibilities to more educated members, while elected leaders provide support when necessary to ensure continuity and accountability.

Another key informantreported in an interview that:

> *"Many farmers have not received adequate training in financial management or budgeting, but they are gradually realizing its importance as they seek to improve their farming and profitability. Since traditional practices still guide how resources are managed, acquiring budgeting skills has become increasingly necessary." (Key Informant, December 2024).*

A key informant reported that, farmer groups value record keeping and have benefited from basic training on maintaining records. However, limited skills and the absence of standardized record-keeping procedures often result in inconsistencies, particularly when different members assume record-keeping responsibilities. Despite these challenges, the groups maintain essential records, including member profiles, savings information, and loan transactions.

4.1.3 Record keeping

Arising from ten (10) statements that were posed to the respondents, the results as presented in Table 7 were arrived at.

Table 20: Descriptive Results on Financial Record Keeping

B3	Statements on Financial Record-Keeping	Responses in Percentages (%)						
		SD	D	SD+D	NS	A	SA	A+SA
1.	In my group we keep farm records	1.9	2.7	4.6	2.3	78.2	14.8	**93.0**
2.	In my group, all records on, production, cash sales are professionally kept	1.6	4.3	5.9	5.1	59.1	30.0	**89.1**
3.	In my group all records on cash purchases are professionally kept	1.2	8.1	9.3	2.7	64.6	23.5	**88.1**
4.	In my farmer groups, all payments are recorded	1.2	4.3	5.5	2.3	67.4	24.8	**92.2**
5.	All records on credit sales are kept in my group	1.2	5.1	6.3	3.1	66.3	24.3	**90.6**
6.	All records on credit purchases are kept in my group	2.7	5.1	7.8	3.1	66.9	22.2	**89.1**
7.	Adequate records are kept for all financial transactions in my group	2.7	10.0	12.7	3.5	63.3	20.5	**83.8**
8.	All members of my farmer group can read and write	16.3	36.8	53.1	5.8	26.0	15.1	**41.1**
9.	All members of my farmer group know how to keep farm records	3.5	22.5	26	8.9	49.2	15.9	**65.1**
10.	As agroup, we regularly audit the financial records	2.4	15.7	18.1	3.5	63.8	14.6	**78.4**
	Average	**3.5**	**11.5**	**14.9**	**4.0**	**60.5**	**20.6**	**81.1**

Key: SD= Strongly Disagree, D= Disagree; NS=Not sure; A= Agree, SA=Strongly Agree

Source: Primary data

According to the above table, on average, 81.1% agree that their groups have financial records, although 14.9% disagreed. It was only 4% of the respondents that indicated that they were not sure. The following statement obtained the highest rating, “All records on credit sales are kept in our group” scored 90.6%, “In our farmer groups, all payments are recorded” scored 92.2% and “In our group we keep farm records” scored 93%. The only statement which obtained a rating below 50% was, “All members of our farmer groups can read and write” with a score of 41.1%. meaning some members of the organizations do not know how to read and write. Generally, all farmer groups keep financial records. They take note of all the financial activities that take place in a group.

The qualitative results also established record-keeping is essential for tracking the financial health of an organization. The respondents indicated that they keep accurate records of transactions, debts, contributions, and income from sales and that, this does not only ensures that they have clear financial history but also protection against fraud or theft. This is in spite of the fact that a number of the members of farmer groups in Gulu District have low levels of formal education.

In support of all this, one key informant stated in an interview that:

> *“While we appreciate the importance of record keeping, not all members are good at maintaining records. We therefore identified a young member who studied up to secondary school to serve as our record keeper, and he regularly shares the records with us. When he is unavailable, our chairperson or secretary takes over because they can also read and write.” (Key Informant, December 2024).*

A key informant reported, that farmer groups place significant emphasis on financial accountability by regularly reviewing treasury reports during meetings. This practice promotes transparency and helps members monitor debts and financial transactions. However, debt management remains constrained by the use of rudimentary record-keeping systems, making it difficult to accurately track and recover loans. Reliance on handwritten notebooks also exposes records to loss and damage, weakening effective financial management

The chairperson as one of the Key Informant, in an interview said that:

> *"Our farmer group is very particular about record keeping, especially after the training we received. However, our records are not always consistent because of limited skills and the lack of standardized formats. Even so, we maintain records on member profiles, savings, and loans taken by members." (Key Informant, December 2024).*

A key informant explained, that farmer groups face challenges in managing debt records due to reliance on manual record-keeping systems that are vulnerable to loss and damage. The absence of digital record-keeping tools limits secure storage, timely access to information, and effective monitoring of loan transactions and repayment schedules, increasing the risk of financial mismanagement.

The summary from both the quantitative and qualitative results is that there is record keeping by the FGs although there is need for improvement. All groups have some form of records and at least the basic critical records are in place.

4.1.4 Debt management

Table 8 presented the descriptive results on debt management arising from feedback from respondents on eight statements that were posed to them.

Table 21: Descriptive Results on Debt Management

SN	Statements on Debt Management	Responses in Percentages (%)						
		SD	D	SD+D	NS	A	SA	A+SA
1	In my farmer group we have ever borrowed funds to run our farm activities	10.2	25.2	35.4	3.1	51.2	10.2	**61.4**
2	There are proper methods of debt collection in my group	5.1	9.8	14.9	3.9	66.4	14.8	**81.2**
3	As farmers we understand the benefits of proper debt management	3.5	13.6	17.1	2.7	61.9	18.3	**80.2**
4	Payment of debts are always undertaken in time in my group	6.2	18.6	24.8	3.5	56.2	15.5	**71.7**
5	Debts are effectively managed in our farmer group to improve productivity	3.9	15.4	19.3	3.5	62.9	14.3	**77.2**
6	My farmer group keeps proper debt records on all debts incurred	1.9	11.3	13.2	5.1	65.8	16.0	**81.8**
7	As farmer members we have been trained on debt management	6.3	18.8	25.1	4.7	55.9	14.5	**70.4**
8	As a group we always strive to minimize our debts	2.7	10.2	12.9	3.9	68.6	14.5	**83.1**
	Average	**5.0**	**15.4**	**20.3**	**3.8**	**61.1**	**14.8**	**75.9**

Key: SD= Strongly Disagree, D= Disagree; NS=Not sure; A= Agree, SA=Strongly Agree

Source: Primary data

The average score of 75.9% by farmer organisations on the debt is attributed to the fact that half of the statements score above 80%. These statements include;" As farmer groups we understand the benefits of proper debt management" rated at 80.2%, "There are proper methods of debt collection in my organization" rated at 81.2%, "Our farmer group keeps proper debt records on all debts incurred" rated at 81.8% and "As a organization we always strive to minimize our debts" which scored 83.1%. The statement with the lowest rating was, "In our farmer groups we have ever borrowed funds to run our farm activities" with a score of 61.4%. The average score of the people who disagreed with the statements was 20.3% and only 3.8% were not sure their groups manage their debts. In a nutshell, most farmer groups employed good debt management techniques.

It was observed from the qualitative results that all the farmer groups are very clear about the debts that they need to pay and the money that is out especially with the members who borrowed from the groups. They are also in the know about the general financial health of their groups with many of them stating that their farmer groups are doing well but that they believe they can do better.

According to another Key informant, he reported that:

> *"In our farmer group, every meeting includes a report from the treasurer, which helps us keep our debt records transparent. However, we still use basic methods of debt tracking, and some records are kept in notebooks that can be damaged or lost, making it difficult to properly manage and recover outstanding debts." (Key Informant, December 2024).*

The findings suggest that farmer organizations have established mechanisms to promote transparency in debt management through regular financial reporting. However, the continued reliance on manual record-keeping systems exposes financial records to risks of loss, damage, and inaccuracies. These challenges may undermine the effectiveness of debt monitoring and recovery processes, thereby affecting the financial performance and accountability of farmer groups. The results imply a need for improved record management systems and capacity building in financial documentation practices to strengthen debt management and enhance the sustainability of farmer organizations.

Another key informant added that,

> *"Our debt records are kept in places that are vulnerable to damage, making it difficult to access accurate information when needed. Although we know digital record-keeping systems would provide safer storage and improve tracking of transactions and repayments, we do not have access to such tools." (Key Informant, December 2024).*

The findings suggest that farmer organizations face considerable challenges in debt management due to the reliance on vulnerable and insecure record-storage systems. The lack of access to digital financial management tools increases the risk of record loss, data inaccuracies, and difficulties in tracking financial transactions and debt repayments. These limitations may weaken financial accountability and hinder informed decision-making within farmer groups. The results further imply that improving access to digital record-keeping technologies could enhance the security,

accessibility, and accuracy of financial information, thereby strengthening debt management practices and overall organizational financial performance.

4.1.5 Table :9 Summary results on the level of financial literacy of members of the farmer groups in Gulu District

SN	Dimensions	Responses in Percentages (%)						
		SD	D	SD+D	NS	A	SA	A+SA
1	Business Planning	8.3	25.9	34.3	4.4	45.9	15.6	61.4
2	Budgeting	6.3	18.6	24.8	3.3	55.2	16.8	71.9
3	Record Keeping	3.5	11.5	14.9	4	60.5	20.6	81.9
4	Debt management	5	15.4	20.3	3.8	61.1	14.8	75.9
	Total	**23.1**	**71.4**	**94.3**	**15.5**	**222.7**	**67.8**	**291.1**
	Average	**5.775**	**17.85**	**23.575**	**3.875**	**55.675**	**16.95**	**72.775**

According to the results under financial literacy, Financial planning was scored at 61.4%; budgeting at 71.9%; financial records at 81.1% and debt management at 75.9%. overall, financial literacy was rated at 72.8%. This implies that the level of financial literacy of the farmer groupmembers was fairly high.

4.2 The Level of Performance of Farmer Groups in Gulu District

Objective three of this study was about assessing the level of performance of farmer groups The results are presented in the following sub-sections under its dimensions which include credit utilization, farmer groups productivity, farmer groups' profitability and technology application

4.2.1 Credit utilization

Descriptive results on credit utilization were drawn from the respondents as presented in Table 12.

Table 10: Descriptive Results on Credit Utilization

D1	Statements on Credit Utilization	Responses in Percentages (%)						
		SD	D	SD+D	NS	A	SA	A+SA
1	My farmer group utilizes its credits as per its financial plan	4.6	19.4	24.0	5.7	61.6	8.7	70.3
2	My farmer group uses the loans for the purpose of the loans	3.4	11.1	14.5	4.6	61.8	19.1	80.9
3	My group is conversant with effective credit utilization in line with our operation	1.5	11.0	12.5	2.7	65.4	19.4	84.8
4	The loans borrowed by farmer organization benefits my group in its operations	2.7	10.7	13.4	4.6	65.5	16.5	82.0
5	Good credit use is the reason for further borrowings by my farmer group	2.7	9.2	11.9	4.2	64.1	19.8	83.9
6	My group always plans for any credit beforehand to ensure its rightful use	3.8	18.7	22.5	2.7	55.7	19.1	74.8
7	Our planning for future activities is guided by availability of credit	4.3	16.5	20.8	3.1	60.2	15.7	75.9
	Average	**3.3**	**13.8**	**17.1**	**3.9**	**62.0**	**16.9**	**78.9**

Key: SD= Strongly Disagree, D= Disagree; NS=Not sure; A= Agree, SA=Strongly Agree

Source: Primary data

According to the results, on average, credit utilization was scored at 78.9% while the ones who stated the contrary are rated at 17.1%. it is only 3.9% who are not sure. The lowest rated statements are, “Our farmer group utilizes its credits as per its financial plan”, “Our group always plans for any credit beforehand to ensure its rightful use” and “Our planning for future activities is guided by availability of credit” rated at 70.3%, 74.8% and 75.9% respectively. Whereas the statement with the highest rating is “Our group is conversant with effective credit utilization in line with our operation” with a score of 84.8%. This basically shows that there is proper credit utilization among the farmers associations.

The qualitative results show that the level of credit utilization among farmer groups in Gulu district is suboptimal in some instances as much as generally many of the farmer groups are doing well. While some few farmer groups attempt to plan and allocate funds for farming activities, the funds are often diverted to non-farming needs, such as medical bills, school fees, and home construction, purchasing livestock or paying debts. This misuse or misallocation of funds hinders the intended objectives for the farmer groups doing so leading to inefficiencies in resource use and a reduction in the expected impact of the credit provided. The majority which are, however, doing well, they have themselves to thank.

The comments by one of the key informants were that,

> *In our farmer group we ensure that we use funds for what they were budgeted for. We have learnt that when funds meant for farming activities are redirected to non-agricultural purposes, such as purchasing livestock or paying school fees and debts etc, the organisation is likely to run into serious debts. As such, credit provided to farmer groups should be focused on enhancing agricultural production and productivity(December, 2024).*

Another key informant further stated that,

> *Misusing funds reduces the overall efficiency of the credit allocation system, as farmers members and groups are not investing in the most efficient, high-impact interventions. This inefficiency can contribute to slower progress in improving their group performance, lower competitiveness in the agricultural market, and missed opportunities for innovation. In fact, the failure to invest credit funds into farming-related improvements compromises the long-term sustainability of farming operations. While short-term personal needs may be addressed, the long-term viability of farms depends on reinvesting in agricultural growth, such as improving soil health, enhancing crop resilience, and adopting modern farming practices. Without this investment, farmers risk falling behind in the evolving agricultural sector, ultimately affecting food security and rural economic development (December,2024).*

These results together with the quantitative results give a general indication that whereas there is good credit utilization, there many cases whereby farmer groups are having challenges of misusing the funds advanced to them.

4.2.2 Farmer group productivity

Descriptive results on farmer organisation productivity were drawn from the respondents as presented in Table 13.

Table 11: Descriptive Results on Farm Organisation Productivity

D2	Statements on Farm Organisation productivity	Responses in Percentages (%)						
		SD	D	SD+D	NS	A	SA	A+SA
1.	Productivity of our group has improved over time	2.7	6.5	9.2	5.0	74.3	11.5	85.8
2.	There is improvement in the operations of our farmer group	1.1	6.5	7.6	4.6	64.1	23.7	87.8
3.	Access to credit has enabled our group to increase our productivity.	1.5	9.9	11.4	3.1	67.2	18.3	85.5
4.	We receive better price for our farm products every season.	8.5	23.6	32.1	5.4	41.9	20.5	62.4
5.	The yield per acreage of my group has increased over time	1.9	19.2	21.1	3.8	57.9	17.2	75.1
6.	We are able to produce more as a farmer group than before	1.9	15.3	17.2	1.9	60.3	20.6	80.9
7.	Our farmer group has become stronger due to increased productivity	2.3	15.7	18	3.4	56.7	21.8	78.5
	Average	**2.8**	**13.8**	**16.7**	**3.9**	**60.3**	**19.1**	**79.4**

Key: SD= Strongly Disagree, D= Disagree; NS=Not sure; A= Agree, SA=Strongly Agree

Source: Primary data

The table above indicates that the average score in favor of the statements is 79.4%, while the respondents that stated the contrary are rated at an average of 16.7%. 3.9% of the respondents are not sure of their productivity. The statement, “There is improvement in the operations of our farmer group” was rated the highest with a score of 87.8% followed by, “Access to credit has enabled our farmer group to increase our productivity” with a score of 85.5% and “Productivity of our farmer group has improved over time” with a score of 85.8%. but the ones with the lowest rating were,

“We receive better price for our farm products every season” and “The yield per acreage of our group has increased over time” with the score of 62.4% and 75.1% respectively. This is a clear indication that engagement in the farmer group activities results in increased productivity in the end.

The qualitative results indicate that the productivity among farmer groups is relatively good when funds are used appropriately. They further indicate that many farmer groups in Gulu District often invest credit in essential agricultural activities like land clearing, ploughing, seed purchasing, planting, weeding, and post-harvest handling. With adequate improved knowledge in financial literacy and support, there is potential for productivity growth, such as increasing the area under cultivation.

To support these views one key informant had this to say,

> *Generally, our productivity is high except that sometimes external factors like adverse weather conditions (e.g., droughts) can negatively affect it, potentially offsetting the gains from investments in productive activities. Otherwise, when we allocate funds to essential agricultural activities such as land clearing, ploughing, seed purchasing, Planting, weeding, and post-harvest handling, this directly enhances the productivity of our members(December, 2024).*

In summary, with adequate funding, farmer groups can scale up their operations, such as expanding the area under cultivation. This expansion often leads to greater overall production, helping to meet the growing demand for food and agricultural products. This is particularly important when there is a need to address food security or improve the economic well-being of rural communities.

4.2.3 Farmer group profitability

Descriptive results on farmer groups profitability were drawn from the respondents as presented in Table 14.

Table 12: Descriptive Results on Farm Organization Profitability

SN	Statements on Farm Organisation profitability	Responses in Percentages (%)						
		SD	D	SD+D	NS	A	SA	A+SA
1.	My group profits have increased gradually over time	1.5	15.0	16.5	3.8	66.2	13.5	79.7
2.	Record keeping skills have enabled us to reduce the cost of production	2.7	12.1	14.8	2.3	63.4	19.5	82.9
3.	Access to credit has facilitated storage and better prices	1.2	14.3	15.5	2.7	58.3	23.6	81.9
4..	My group has profited all of us as members	3.1	7.0	10.1	2.3	69.1	18.4	87.5
5.	My farmer group has enabled all of us to realize our financial obligations	2.3	7.4	9.7	4.7	64.1	21.5	85.6
6.	The profitability of my farmer group has enabled it to expand our operations	1.9	10.1	12	3.1	68.2	16.7	84.9
7.	We have ventured in more farming activities due to the profitability of our group	2.4	6.8	9.2	2.0	69.7	19.1	88.8
	Average	**2.2**	**10.4**	**12.5**	**3.0**	**65.6**	**18.9**	**84.5**

Key: SD= Strongly Disagree, D= Disagree; NS=Not sure; A= Agree, SA=Strongly Agree

Source: Primary data

From the table above, the average score for profitability of farmer groups is rated at 84.5%, the opposite view is rated at only 12.5% while only 3% are not sure of the profitability of their farmer groups. The rating is so because all the three quarters, except one, are rated above 80%. It is only, "My farmer group profits have increased gradually over time" which scored 79.7%. The sweep consensus is due to the fact that most farmer groups tend to be profitable with time when they break even.

It was observed that the qualitative results were in line with the quantitative results that, there was high organizational productivity as much as specifically, profitability within farmer groups appears to be inconsistent. Some farmer groups are able to generate profits during favorable seasons, but this profitability is highly susceptible to the weather, particularly droughts, which can undermine crop yields and financial stability, Group profitability can also depend on how they plan and monitor day to day transactions. Farmer groups that lack proper Financial planning or knowledge of crop varieties struggle to maintain profitability in challenging seasons and meeting debt obligations becomes a significant challenge during poor seasons.

To this effect, one of the respondents stated that,

> *Profitability within farmer groups are often tied to seasonal conditions, especially in agriculture, where yield variability can be significant. In good seasons, when weather conditions are favorable, we achieve high productivity, leading to profits, which also depend on financial literacy of each group. It is not obvious that when there is favorable weather, then our farmer groups is profitable. This happens because we normally effectively plan, maintain records, and work within our budget(December 2024).*

Another key informant added that,

> *While our organisation has generally been highly productive, the high vulnerability of agricultural production to weather, particularly extreme weather events such as droughts has drastically reduced crop yields, making it difficult for us to meet their financial expectations and obligations. When yields are low due to poor weather conditions, we not only face a reduction in income but also incur additional costs for irrigation or alternative methods of crop production, further compromising profitability(December,2024).*

4.2.4 Technological application

Table 15 presents the descriptive results on technical application by the farmer groups.

Table 22: Descriptive Results on Technology Application

D4	Statements on Technology application by Farm Organisation	Responses in Percentages (%)						
		SD	D	SD+D	NS	A	SA	A+SA
1.	Our farmer group has adopted the use of mobile phone technology for our communication	1.5	8.4	9.9	1.1	72.9	16.0	88.9
2.	Telephone technology adopted has improved our operations as a group	2.7	2.7	5.4	5.4	67.8	21.5	89.3
3.	Most of the operations in my group are now computerized	36.0	46.9	82.9	3.5	11.6	1.9	13.5
4.	The financial management system in my organization is computerized?	46.7	38.7	85.4	2.7	9.2	2.7	11.9
5.	Most of the members of my farmer group are computer literate	44.6	40.4	85	2.3	9.6	3.1	12.7
6.	Our farmer group records are saved in computers	41.4	44.4	85.8	1.1	9.2	3.8	13.0
7.	As a group we are able to reach markets for our produce using technology	37.7	42.7	80.4	1.2	12.3	6.2	18.5
	Average	**30.1**	**32.0**	**62.1**	**2.5**	**27.5**	**7.9**	**35.4**

Key: SD= Strongly Disagree, D= Disagree; NS=Not sure; A= Agree, SA=Strongly Agree

Source: Primary data

The average score alluding to the adaption of technology in farmer groups were low at 35.4%. The majority 62.1% indicated that there is low technology adaptation in their farmer groups while only 2.5% were not sure. The statements with the highest score were, "Our farmer groups has adopted the use of mobile phone technology for our communication" and "Telephone technology adopted has improved our operations as a farmer groups rated at 88.9% and 89.3% respectively. The rest were rated at less than 20%. This indicates the low technology uptake among the farmer groups

The qualitative results as obtained from the interviews with the key informants were is agreement with the quantitative results above that, technology improves efficiency and performance of farmer groups, when it is accessible to more members of the group. For instance, mobile phones can facilitate real-time communication, allowing farmer groups to share information about weather conditions, market prices, and farming tips. In the case of SMS-based farming tips or WhatsApp for the farmer groups, these tools help with knowledge dissemination, even in areas with low internet penetration. Simple technologies like these can significantly enhance coordination among farmer groups, improve decision-making, and increase awareness of important agricultural practices.

This position was supported by one key informant who stated that,

> *What I can say is that, in Gulu District, technology access and application among farmer members and* farmer groups *are often restricted due to limited availability of smartphones, poor internet connectivity,lack of electricity, and high costs. Generally, though, a number of members within the farmergroups in the District are able to use mobile phones for purposes beyond basic calling, and receiving calls. The lack of access to advanced smartphones or mobile data hinders the use of technology for record-keeping, information sharing, and adopting modern farming practices. This limited access creates a significant barrier to leveraging the full potential of technology application among farmer Groups(December,2024).*

Yet another key informant said that,

> *Automating tasks like record-keeping have enabled our farmer group save time and improve productivity. Technologies that enable digital record-keeping, like mobile apps for farm management, have helped us track our inputs, expenditures, and yields. This makes it easier to evaluate our farm performance and plan for the future. Financial*

tracking tools have also enabled our farmer groups, to better manage our income and expenses, which has improved our financial stability and decision-making. We can also receive real-time price information and connect directly with buyers through mobile apps(December,2024).

In general, technology can greatly enhance the efficiency and performance of farmer groups in Gulu District, but its adoption is limited by factors like access to devices, internet connectivity, and digital literacy. By addressing these barriers and providing training, farmer groups could improve their productivity, manage risks, and ultimately increase profitability through the use of affordable technologies like mobile phones, SMS, and farming apps.

4.2.5 Summary results on the level of performance of farmer groups in Gulu District;

SN	Dimensions	Responses in Percentages (%)						
		SD	**D**	**SD+D**	**NS**	**A**	**SA**	**A+SA**
1	Credit Utilisation	3.3	13.8	17.1	3.9	62	16.9	78.9
2	Productivity	2.8	13.8	16.7	3.9	60.3	19.1	79.4
3	Profitability	2.2	10.4	12.5	3	65.6	18.9	84.5
4	Technology Application	30.1	32	62.1	2.5	27.5	7.9	35.4
	Total	**38.4**	**70**	**108.4**	**13.3**	**215.4**	**62.8**	**278.2**
	Average	**9.6**	**17.5**	**27.1**	**3.325**	**53.85**	**15.7**	**69.55**

The overall score of the level of performance of farmer groups in Gulu District was 69.6% arising from the fact that credit utilization was scored at 78.9%; farmer organisation productivity at 79.4%; farmer group profitability at 84.5% and technology application at 35.4%. This was considered to be fairly high despite the fact that technology application by the farmers was scored below average.

4.3 The Relationship between Financial Literacy and Performance of farmer groups in Gulu District

Objective three of this study was to establish the relationship between financial literacy and performance of farmer groups in Gulu District. To do so, Pearson Correlation analysis was undertaken and the findings were as presented in the following sub-sections.

4.3.1 Pearson corrlation analysis

The results on the correlations between the dimensions of the IV and the DV (FG Performance) are as shown in Table 16.

Table 23: Correlation between dimensions of Financial Literacy and FG Performance

		Financial planning	Budgeting	Financial Record Keeping	Debt Management	FG Performance
Financial planning	Pearson Correlation	1				
	Sig. (2-tailed)					
	N	225				
Budgeting	Pearson Correlation	.732**	1			
	Sig. (2-tailed)	.000				
	N	206	227			
Financial Record Keeping	Pearson Correlation	.423**	.377**	1		
	Sig. (2-tailed)	.000	.000			
	N	215	214	243		
Debt Management	Pearson Correlation	.411**	.523**	.472**	1	
	Sig. (2-tailed)	.000	.000	.000		
	N	219	218	235	246	
FG Performance	Pearson Correlation	.428**	.490**	.523**	.492**	1
	Sig. (2-tailed)	.000	.000	.000	.000	
	N	190	190	204	205	214

*. Correlation is significant at the 0.05 level (2-tailed).
**. Correlation is significant at the 0.01 level (2-tailed).

Source: Primary data

4.3.1.1 Interpretation of Pearson Correlation Analysis between Financial Literacy Dimensions and FG Performance

The Pearson correlation analysis was conducted to examine the relationship between the dimensions of financial literacy (financial planning, budgeting, financial record keeping, and debt management) and Financial Group (FG) performance. The findings reveal that all dimensions of financial literacy are positively and significantly associated with FG performance at the 0.01

significance level ($p < 0.01$). This implies that improvements in financial literacy practices are associated with improved performance of financial groups.

4.3.1.2 Relationship between Financial Planning and FG Performance

The results indicate a moderate positive relationship between financial planning and FG performance ($r = 0.428$, $p = 0.000$). This suggests that financial groups that engage in effective financial planning are more likely to experience better performance outcomes. Financial planning enables groups to set financial goals, allocate resources efficiently, anticipate future financial needs, and make informed decisions that contribute to organizational sustainability and growth.

4.3.1.3 Relationship between Budgeting and FG Performance

Budgeting exhibited a moderate positive and statistically significant relationship with FG performance ($r = 0.490$, $p = 0.000$). This finding implies that financial groups with strong budgeting practices tend to perform better than those with weak budgeting mechanisms. Effective budgeting facilitates expenditure control, resource prioritization, and monitoring of financial activities, thereby enhancing the operational efficiency and overall performance of the groups.

4.3.1.4 Relationship between Financial Record Keeping and FG Performance

Financial record keeping registered the strongest positive relationship with FG performance among all the financial literacy dimensions examined ($r = 0.523$, $p = 0.000$). This indicates that proper documentation and maintenance of financial records play a critical role in enhancing group performance. Accurate record keeping promotes transparency, accountability, informed decision-making, and financial monitoring, which ultimately contribute to the success and sustainability of financial groups.

4.3.1.5 Relationship between Debt Management and FG Performance

The analysis further revealed a moderate positive and significant relationship between debt management and FG performance ($r = 0.492$, $p = 0.000$). This finding suggests that financial groups that effectively manage their debts and credit obligations are more likely to achieve better performance. Sound debt management minimizes financial risks, reduces loan default rates, improves cash flow management, and enhances financial stability.

4.3.1.6 Comparative Analysis of the Financial Literacy Dimensions

A comparison of the correlation coefficients shows that all four dimensions significantly influence FG performance, but their strengths vary. The strongest relationship is observed between financial record keeping and FG performance ($r = 0.523$), followed by debt management ($r = 0.492$), budgeting ($r = 0.490$), and financial planning ($r = 0.428$). This suggests that while all financial literacy practices are important, maintaining proper financial records appears to have the greatest association with improved financial group performance.

4.3.1.7 Interrelationships among Financial Literacy Dimensions

The results also indicate significant positive relationships among the financial literacy dimensions themselves. Notably: Financial planning is strongly related to budgeting ($r = 0.732$, $p = 0.000$), suggesting that groups that plan financially are also likely to prepare effective budgets.

Budgeting is positively related to debt management ($r = 0.523$, $p = 0.000$).

Financial record keeping is positively associated with debt management ($r = 0.472$, $p = 0.000$).

Financial planning is positively associated with financial record keeping ($r = 0.423$, $p = 0.000$) and debt management ($r = 0.411$, $p = 0.000$). These findings imply that financial literacy dimensions are mutually reinforcing; improvement in one aspect of financial literacy is likely to enhance performance in other financial management practices.

The Pearson correlation analysis demonstrates that all dimensions of financial literacy have positive and statistically significant relationships with FG performance. The findings suggest that financial groups that strengthen their capacities in financial planning, budgeting, financial record keeping, and debt management are likely to attain better performance outcomes. Among the dimensions, financial record keeping emerges as the most influential factor, indicating the importance of maintaining accurate and reliable financial records in enhancing the sustainability and effectiveness of financial groups. The study findings reveal that financial literacy is an important determinant of Financial Group performance. The correlation results show statistically significant positive relationships between all dimensions of financial literacy and FG performance ($p < 0.01$). Financial record keeping demonstrated the strongest association with performance ($r = 0.523$), followed by debt management ($r = 0.492$), budgeting ($r = 0.490$), and financial planning ($r = 0.428$). The results imply that improvements in financial literacy practices are associated with enhanced efficiency, accountability, financial sustainability, and overall performance of financial

groups. Therefore, interventions aimed at strengthening financial literacy competencies among group members are likely to contribute significantly to improved group performance.

4.4 The Mediation effect of Credit Access on the relationship between Financial Literacy and Performance of the FGs in Gulu District

The fourth objective of this study was to establish the mediation effect of credit access in the relationship between financial literacy and FG performance. Mediation means that the independent Variable (IV) leads to the intervening variable and which in turn leads to the dependent variable (DV). As such, an intervention is proven if there is relationship between it and the independent variable and also between it and the dependent variable. The results were as presented in the Coefficient Table (Table 17)

Table 24: **Mediation Test Results**

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.175	.320		6.791	.000
	Financial literacy	.221	.087	.189	2.552	.012

a. Dependent Variable: credit access

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
2	(Constant)	3.184	.125		25.417	.000
	Credit access	.100	.041	.171	2.430	.016

a. Dependent Variable: Farmer Organisation Performance

Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
3	(Constant)	2.190	.151		14.550	.000
	Financial literacy	.365	.041	.576	8.962	.000

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.175	.320		6.791	.000
	Financial literacy	.221	.087	.189	2.552	.012

a. Dependent Variable: Farmer Organisation Performance

Source: Primary Data

Overall Result:

	Unstandardised Coefficient				
Model 1: Financial Literacy Vs. Credit Access	**B**	**std error**	**Standard coefficient Beta**	**T**	**Sig**
Constant	2.175	0.032		6.791	0
Financial Literacy	0.221	0.087	0.189	2.552	0.012
Model 2: Credit Access Vs. FO Performance(DV)					
Constant	3.184	0.125		25.417	0
Credit access	0.1	0.041	0.171	2.43	0.016
Model 3: Financial Literacy Vs. FO performance(DV)					
Constant	2.19	0.151		14.55	0
Financial Literacy	0.365	0.041	0.576	8.962	0

4.4.1 Interpretation of Regression Results

The regression analysis examined the relationships among **financial literacy**, **credit access**, and **farmer group (FG) performance**. The findings are interpreted below according to each model.

4.4.1.1 Model 1: Financial Literacy and Credit Access

The results show that **financial literacy has a positive and statistically significant effect on credit access** ($\beta = 0.189$, $B = 0.221$, $t = 2.552$, $p = 0.012$).

The unstandardized coefficient (B = 0.221) indicates that a one-unit increase in financial literacy leads to an increase of **0.221 units in credit access**, holding other factors constant. The positive standardized coefficient (β = 0.189) suggests that financially literate farmer groups are more likely to access credit than those with lower levels of financial literacy.

The t-value (2.552) and significance level (p = 0.012), which is below the 0.05 threshold, confirm that the relationship is statistically significant. Therefore, the null hypothesis that financial literacy has no significant effect on credit access is rejected.

Implication: Farmer Groups with better financial knowledge, budgeting skills, record-keeping practices, and understanding of financial products are more capable of meeting lender requirements and securing loans. Improved financial literacy enhances the ability of farmer groups to identify, apply for, and effectively utilize available credit facilities.

4.4.1.2 Model 2: Credit Access and Farmer Group Performance

The findings indicate that **credit access has a positive and statistically significant effect on FG performance** (β = 0.171, B = 0.100, t = 2.430, p = 0.016).

The coefficient (B = 0.100) suggests that a one-unit increase in credit access results in a **0.100-unit increase in FG performance**. Although the effect size is relatively modest, the positive beta value (β = 0.171) demonstrates that organizations with greater access to credit tend to perform better.
Since the p-value (0.016) is less than 0.05, the relationship is statistically significant.

Implication: Access to credit enables farmer organizations to purchase agricultural inputs, invest in production technologies, expand operations, improve marketing activities, and meet working capital requirements. Consequently, improved access to financing contributes to better organizational performance.

4.4.1.3 Model 3: Financial Literacy and Farmer Group Performance

The results reveal that **financial literacy has a strong positive and statistically significant effect on FG performance** ($\beta = 0.576$, $B = 0.365$, $t = 8.962$, $p = 0.000$).

The unstandardized coefficient ($B = 0.365$) means that a one-unit increase in financial literacy leads to a **0.365-unit increase in farmer organization performance**. The standardized coefficient ($\beta = 0.576$) is substantially larger than those observed in Models 1 and 2, indicating that financial literacy is a powerful predictor of organizational performance.

The high t-value (8.962) and very low p-value ($p < 0.001$) provide strong evidence that the relationship is statistically significant.

Implication: Farmer organizations with higher levels of financial literacy are better able to plan, budget, keep records, manage debt, make investment decisions, and utilize resources efficiently. These capabilities contribute directly to improved organizational outcomes, productivity, profitability, and sustainability.

4.4.1.4 Overall Interpretation

The regression results demonstrate that:

1. **Financial literacy significantly increases credit access** among farmer organizations ($B = 0.221$, $p = 0.012$).
2. **Credit access significantly improves farmer organization performance** ($B = 0.100$, $p = 0.016$).
3. **Financial literacy directly improves farmer organization performance** and exerts the strongest influence among the variables studied ($B = 0.365$, $\beta = 0.576$, $p < 0.001$).

Collectively, these findings suggest that financial literacy contributes to farmer group performance both **directly** and **indirectly through improved access to credit**. The stronger coefficient observed in Model 3 indicates that while credit access is important, financial literacy itself plays a more substantial role in enhancing the performance of farmer organizations. Therefore,

interventions aimed at improving the performance of farmer organizations should prioritize financial literacy training alongside efforts to expand access to affordable credit.

CHAPTOR FIVE

DISCUSSIONS OF FINDINGS

5.0 Introduction

This chapter presents the findings of the study and discusses them in relation to the study objectives, existing literature, and the theoretical foundations that guided the research. The chapter specifically examines the level of financial literacy among farmer groups, the status of credit access, the level of performance of farmer groups, the relationship between financial literacy and groups' performance, and the mediating effect of credit access on the relationship between financial literacy and performance. The discussion of findings is guided by empirical evidence suggesting that financial literacy enhances financial decision-making, resource management, and enterprise sustainability among agricultural producers (Lusardi & Mitchell, 2023; OECD, 2023).

The chapter is organised into six major sections. Section 5.1 discusses the level of financial literacy among farmer groups in Gulu District under the dimensions of business planning, budgeting, financial record keeping, and debt management. Section 5.2 discusses the status of credit access focusing on credit availability, interest rates, and credit terms. Section 5.3 examines the level of performance of farmer groups based on credit utilization, productivity, profitability, and technological application. Section 5.4 presents the relationship between financial literacy and performance of farmer groups, while Section 5.5 discusses the mediating effect of credit access on the relationship between financial literacy and farmer group performance. Finally, Section 5.6 presents the summary of the findings, conclusions, and recommendations arising from the study.

The discussion of findings is based on the premise that financially literate farmer groups are more likely to effectively access, manage, and utilize financial resources, resulting in improved organisational productivity, profitability, and sustainability (World Bank, 2023; FAO, 2024). Furthermore, access to affordable and appropriate credit facilities has been widely recognized as a critical factor in enhancing agricultural investment, technology adoption, and overall farmer

groups' performance among farmer groups in developing economies (IFAD, 2025; Bank of Uganda, 2024). Therefore, this chapter provides an interpretation of the study findings within the broader context of financial literacy, credit access, and farmer groups performance in Gulu district, Northern Uganda.

5.1.1 Financial Planning

The study found that financial planning practices among farmer groups in Gulu District were generally above average. This finding suggests that many farmer groups recognize the importance of planning for their financial activities despite constraints in technical capacity and resources (FAO, 2024; OECD, 2023). Financial planning enables organizations to allocate resources efficiently, manage risks, and achieve long-term sustainability (OECD, 2023; World Bank, 2023). The finding that some farmers lacked the skills required to prepare formal business plans is consistent with studies that identified inadequate financial planning competencies as a major challenge affecting agricultural enterprise growth among smallholder farmers (Janker et al., 2021; Miguel et al., 2024). The results further imply that farmers who engage in structured financial planning are better positioned to make informed investment decisions and improve organizational performance (FAO, 2024; Muriithi & Mutegi, 2022). Therefore, financial planning appears to be an important determinant of farmer group performance in Gulu District (World Bank, 2023; OECD, 2023).

5.1.2 Budgeting

The study revealed that budgeting practices among farmer groups were above average, indicating an appreciation of the role of budgets in financial management (Drury, 2021; OECD, 2023). Budgeting helps organizations to align expenditures with strategic priorities and minimize wastage of scarce resources (ACCA, 2023; IFAD, 2024). The finding that most groups adopted participatory budgeting approaches is consistent with evidence showing that inclusive budgeting enhances accountability, transparency, and financial discipline (Basheka, 2022; IFAD, 2024). The observation that some group members had received budgeting-related training further supports previous studies which found that financial education significantly improves budgeting behaviour and resource allocation decisions among smallholder farmers (Lusardi & Mitchell, 2023; OECD,

2023). However, the identified weaknesses in budget preparation suggest that technical capacity gaps continue to affect the effectiveness of budgeting systems in farmer groups (World Bank, 2023; FAO, 2024).

5.1.3 Record Keeping

The findings indicated that record keeping practices were relatively strong among farmer groups, suggesting increasing awareness of the importance of maintaining financial records (FAO, 2024; Omonuk, 2021). Proper record keeping supports informed decision-making by providing reliable information regarding revenues, expenditures, assets, and liabilities (IFAD, 2024; OECD, 2023). The finding that some members experienced difficulties understanding financial records corroborates studies that associated low literacy levels with poor utilization of financial information systems in rural organizations (UBOS, 2024; World Bank, 2023). The practice of assigning record-keeping responsibilities to designated trained members further aligns with literature suggesting that specialized financial record custodians improve accountability and transparency within farmer groups (FAO, 2024; Muriithi & Mutegi, 2022). Consequently, effective record keeping appears to contribute positively to groups' performance and sustainability (OECD, 2023; IFAD, 2024).

5.1.4 Debt Management

The study established that debt management practices among farmer groups were above average, implying a reasonable level of financial responsibility among respondents (Namutebi & Kabanda, 2024; World Bank, 2023). Proper debt management enables organizations to maintain healthy cash flows and strengthen their relationships with lenders (OECD, 2023; IFAD, 2024). The finding that groups-maintained debt records and repayment schedules is consistent with recommendations that emphasize accurate debt monitoring as a key component of financial sustainability (FAO, 2024; World Bank, 2024). However, challenges related to repayment obligations observed among some groups are similar to findings from recent studies indicating that climate variability and market uncertainties continue to affect farmers' capacity to service loans on time (Li et al., 2022; FAO, 2024). Therefore, strengthening debt management practices could enhance organizational resilience and financial performance (IFAD, 2024; OECD, 2023).

5.2 The Level of Performance of farmer groups in Gulu District

This section discusses the findings relating to the third objective of the study, which sought to assess the level of performance of farmer groups (FGs) in Gulu District. The discussion is presented under the dimensions of credit utilization, farmer groups productivity, farmer groups profitability, and technological application.

5.2.1 Credit Utilization

The findings revealed that credit utilization among farmer groups was above average. The respondents indicated that their groups utilize borrowed funds according to planned activities and financial priorities. The results further showed that farmer groups generally plan for credit before borrowing and align credit utilization with their operational needs.

These findings suggest that farmer groups possess a reasonable level of financial discipline and awareness regarding the management of borrowed funds (Kalinda et al., 2026; FAO, 2024). Effective utilization of credit is often associated with improved resource allocation and increased efficiency in agricultural production activities (FAO, 2024; IFAD, 2025). The findings are consistent with studies indicating that financially literate farmers are more likely to channel borrowed resources towards productive investments rather than consumption expenditures (World Bank, 2024; Kalinda et al., 2026).

The results further imply that farmer groups understand the purpose of agricultural credit and its role in supporting enterprise growth and operational sustainability (Bank of Uganda, 2023; FAO, 2024). Proper planning before borrowing reduces the likelihood of loan diversion and enhances the ability of farmer groups to generate returns sufficient to meet repayment obligations (IFAD, 2025; EPRC, 2025). However, despite effective utilization of available credit, the findings indicate that many farmer groups still face limitations regarding the amount of credit they can access from formal financial institutions (Bank of Uganda, 2024; EPRC, 2025). Consequently, limited access to substantial credit may constrain the full realization of the benefits associated with effective credit utilization (FAO, 2024; World Bank, 2024).

5.2.2 Farmer groups Productivity

The findings revealed that the productivity of farmer groups was above average. Respondents indicated that access to credit has contributed to improvements in their farming operations and that the productivity of their groups have increased over time. The findings further revealed improvements in crop yields, output levels, and operational efficiency among the farmer groups These findings suggest that access to financial resources enables farmer groups to invest in improved agricultural inputs, technologies, and farm management practices that enhance productivity (FAO, 2024; World Bank, 2024). The results are consistent with recent studies which indicate that agricultural finance facilitates the acquisition of quality seeds, fertilizers, irrigation technologies, and other productivity-enhancing resources (IFAD, 2025; FAO, 2024). Increased access to production resources has been shown to improve agricultural output and overall farm performance among smallholder farmers and farmer groups in developing countries (World Bank, 2024; EPRC, 2025).

The findings further imply that financial literacy and access to credit work together to strengthen the productive capacity of farmer groups (Kalinda et al., 2026; Bank of Uganda, 2023). Farmers who possess sound financial management skills are often better positioned to make strategic investment decisions that contribute to improved farm performance and productivity growth (Kalinda et al., 2026; FAO, 2024). Therefore, the observed improvements in productivity among farmer groups may partly be attributed to enhanced financial management practices and increased access to financial resources (IFAD, 2025; World Bank, 2024).

5.2.3 Farmer Group Profitability

The findings revealed that farmer group profitability was above average. A large proportion of respondents indicated that the profits generated by their group had increased gradually over time. However, a few respondents reported that their groups were experiencing limited profitability due to operational and market challenges.

These findings suggest that many farmer groups have been able to generate returns that exceed their operational costs, thereby improving their financial sustainability (FAO, 2024; IFAD, 2025).

The findings are consistent with studies showing that improved financial management, better access to credit, and enhanced productivity are important determinants of profitability among agricultural enterprises (Kalinda et al., 2026; World Bank, 2024). Access to financial resources enables farmers to adopt improved production technologies and expand production activities, thereby increasing revenues and profitability (FAO, 2024; EPRC, 2025).

The mixed profitability outcomes reported by some respondents may be explained by differences in production levels, market access, climate conditions, and management capacity across farmer groups (World Bank, 2024; FAO, 2024). Agricultural profitability is often affected by fluctuations in commodity prices, production costs, weather conditions, and market demand, all of which influence enterprise performance (IFAD, 2025; EPRC, 2025). Therefore, while the majority of farmer groups reported positive profit growth, variations in operating environments may explain the differences in profitability observed among some groups (Bank of Uganda, 2024; World Bank, 2024).

5.2.4 Technological Application

The findings revealed that technological application among farmer groups was below average. Most respondents indicated that their groups rarely utilize advanced agricultural technologies in production, management, or marketing activities. However, the findings showed that mobile phones are widely used for communication and coordination among members.

These findings suggest that the adoption of modern agricultural technologies remains limited among farmer groups in Gulu District (FAO, 2024; World Bank, 2024). Similar studies have shown that many smallholder farmers in developing countries continue to face barriers to technology adoption due to inadequate financial resources, limited technical skills, poor infrastructure, and insufficient access to digital services (IFAD, 2025; FAO, 2024). The low uptake of technology may therefore restrict opportunities for productivity enhancement, value addition, and market competitiveness among farmer groups (World Bank, 2024; EPRC, 2025).

The widespread use of mobile phones among respondents indicates that some forms of digital technology have already been adopted and can serve as entry points for broader digital

transformation initiatives (Bank of Uganda, 2023; FAO, 2024). Mobile technologies have been widely recognized as important tools for facilitating communication, financial transactions, information sharing, and market access within agricultural value chains (World Bank, 2024; IFAD, 2025). Nevertheless, the findings suggest that farmer groups have not yet fully embraced modern production technologies, mechanization, digital record-keeping systems, and precision agriculture tools that could significantly improve their performance (FAO, 2024; EPRC, 2025).

5.2.5 Summary Results on the Level of Performance of Farmer Groups in Gulu District

The findings revealed that the overall level of performance of farmer groups in Gulu District was above average. The dimensions of credit utilization, productivity, and profitability all registered above-average scores, while technological application recorded a below-average score.

These findings suggest that farmer groups have generally achieved satisfactory performance outcomes despite continuing challenges in access to finance and technology adoption (Bank of Uganda, 2024; World Bank, 2024). The relatively strong performance in credit utilization, productivity, and profitability may reflect the positive contribution of financial literacy, improved management practices, and access to productive resources among the farmer groups studied (Kalinda et al., 2026; FAO, 2024). Similar studies have shown that farmer groups that effectively manage financial resources and invest in productive activities are more likely to achieve higher levels of farmer groups performance (IFAD, 2025; EPRC, 2025).

However, the low score recorded for technological application suggests that significant opportunities remain for improving farmer groups performance through technology adoption and digital transformation (FAO, 2024; World Bank, 2024). Increased investment in agricultural technologies, digital tools, mechanization, and innovation could improve efficiency, productivity, and resilience among farmer groups in Gulu District (FAO, 2024; IFAD, 2025). Therefore, future interventions aimed at strengthening farmer groups should not only focus on financial inclusion but also prioritize technology access, digital literacy, and innovation adoption to enhance long-term performance and competitiveness (Bank of Uganda, 2023; World Bank, 2024)

5.3 The Relationship between Financial Literacy and Performance of Farmer Groups in Gulu District

This study sought to establish the relationship between financial literacy and the performance of farmer groups in Gulu District. The findings revealed that all dimensions of financial literacy, namely financial planning, budgeting, financial record keeping, and debt management, were positively and significantly associated with farmer group performance. These findings suggest that farmer groups with higher levels of financial literacy are more likely to achieve improved organizational effectiveness, financial sustainability, and operational performance. This observation supports Human Capital Theory, which argues that knowledge and skills enhance productivity and performance (Becker, 1993), and is consistent with recent studies which identify financial literacy as a key determinant of organizational success among farmer organizations and cooperatives (Lusardi & Mitchell, 2023; OECD, 2023).

5.3.1 Financial Planning and Farmer Group Performance

The study established a significant positive relationship between financial planning and farmer group performance ($r = 0.428$, $p < 0.01$). The findings imply that farmer groups that engage in systematic financial planning are more likely to experience improved organizational performance. Financial planning facilitates effective resource allocation, goal setting, risk management, and long-term decision-making, thereby contributing to organizational growth and sustainability (OECD, 2023).

The findings are consistent with those of Lusardi and Mitchell (2023), who found that financial planning significantly enhances financial decision-making and performance outcomes among economic actors. Similarly, the World Bank (2023) reported that organizations with structured financial planning mechanisms tend to demonstrate greater resilience and improved financial sustainability. In the agricultural sector, FAO (2022) found that farmer organizations that engaged in strategic financial planning exhibited stronger revenue growth and organizational stability than those without formal plans.

The qualitative findings further indicated that financial planning enables farmer groups to prepare for seasonal production demands and anticipate future financial needs. Similar observations were reported by Mwesigwa and Namatovu (2022), who found that effective planning improved resource utilization and financial discipline among rural farmer cooperatives in Uganda.

5.3.2 Budgeting and Farmer Group Performance

The study revealed a positive and statistically significant relationship between budgeting and farmer group performance ($r = 0.490$, $p < 0.01$). This finding indicates that farmer groups with effective budgeting practices are more likely to achieve better performance outcomes. Budgeting promotes financial control, accountability, expenditure management, and efficient allocation of limited resources (Atrill & McLaney, 2022).

The findings agree with those of Muriithi and Waweru (2021), who established that sound budgeting practices significantly improved financial sustainability and operational performance among agricultural cooperatives in Kenya. Similarly, OECD (2023) reported that organizations that consistently prepare and monitor budgets exhibit higher levels of financial discipline and institutional effectiveness. A study by Musimenta et al. (2022) also revealed that budgeting practices positively influenced the performance of community-based organizations by facilitating effective financial monitoring and control.

The qualitative findings showed that many farmer groups use budgets to guide expenditure decisions and prioritize key activities such as production, marketing, and savings mobilization. These findings are consistent with Nkundabanyanga et al. (2021), who found that budgeting promotes prudent financial management and accountability among farmer organizations in Uganda.

5.3.3 Financial Record Keeping and Farmer Group Performance

The study found that financial record keeping had the strongest positive relationship with farmer group performance ($r = 0.523$, $p < 0.01$). This finding suggests that maintaining accurate financial records is critical for enhancing the performance of farmer groups. Financial records provide

information required for monitoring financial performance, assessing accountability, and supporting informed decision-making (World Bank, 2023).

The findings are consistent with the study by Abanis et al. (2021), which established that proper financial record keeping positively influenced financial sustainability and organizational performance among small enterprises and cooperative organizations. Similarly, FAO (2022) reported that farmer organizations with effective financial record systems demonstrated higher levels of transparency, accountability, and operational efficiency. IFAD (2022) further emphasized that reliable financial records improve access to credit because financial institutions often require documented evidence of financial performance before extending loans.

The qualitative findings revealed that record keeping enhances transparency among group members and promotes confidence in leadership. Comparable findings were reported by Nuwagaba and Nampewo (2022), who found that proper bookkeeping improved accountability and trust among members of agricultural cooperatives in Northern Uganda.

5.3.4 Debt Management and Farmer Group Performance

The findings showed a significant positive relationship between debt management and farmer group performance ($r = 0.492$, $p < 0.01$). This finding implies that farmer groups that effectively manage their debts and credit obligations tend to perform better than those with weak debt management practices. Effective debt management minimizes financial risks, improves cash flow management, and strengthens financial stability (World Bank, 2023).

The findings concur with those of Musoke et al. (2021), who found that prudent debt management significantly enhanced the sustainability and growth of rural savings and credit organizations. Similarly, OECD (2023) reported that organizations that effectively monitor and manage debt obligations are better positioned to achieve financial stability and improved performance outcomes. Nkundabanyanga et al. (2022) also observed that proper debt management reduces financial vulnerability and improves institutional efficiency.

The qualitative findings further indicated that regular debt tracking and monitoring enable farmer groups to meet repayment obligations and maintain positive relationships with lenders. These findings support those of Auma and Orobia (2021), who found that effective debt monitoring positively affected financial performance among community-based organizations in Uganda.

5.3.5 Comparative Discussion of Financial Literacy Dimensions

A comparison of the correlation coefficients revealed that all dimensions of financial literacy significantly contributed to farmer group performance, although the magnitude of influence varied. Financial record keeping exhibited the strongest relationship with performance ($r = 0.523$), followed by debt management ($r = 0.492$), budgeting ($r = 0.490$), and financial planning ($r = 0.428$).

The dominant influence of financial record keeping is consistent with findings by FAO (2022) and IFAD (2022), which identified financial records as the foundation of effective financial management within farmer organizations. Accurate records facilitate informed planning, budgeting, and debt management decisions, thereby improving overall organizational performance. Similarly, Nkundabanyanga et al. (2021) found that record-keeping systems significantly improved accountability and operational efficiency in cooperative organizations.

These findings suggest that although all financial literacy dimensions are important, stronger emphasis should be placed on improving financial record-keeping skills and systems because they provide the information necessary to support other financial management functions.

5.3.6 Interrelationship among Financial Literacy Dimensions

The study revealed significant positive relationships among the dimensions of financial literacy. Financial planning was strongly associated with budgeting ($r = 0.732$), while budgeting, financial record keeping, and debt management were also positively associated with one another.

These findings support the argument by Lusardi and Mitchell (2023) that financial literacy encompasses interconnected competencies that collectively influence financial behavior and organizational outcomes. Similarly, OECD (2023) observed that improvements in one area of

financial literacy often strengthen related financial management practices. The findings also agree with Musimenta et al. (2022), who found that budgeting, record keeping, and debt management function as complementary dimensions of financial management within community organizations.

The results therefore suggest that farmer groups are likely to achieve greater performance improvements when financial literacy interventions address multiple competencies simultaneously rather than focusing on a single area.

5.3.7 Overall Discussion

Overall, the findings confirm that financial literacy is a significant determinant of farmer group performance in Gulu District. The positive and statistically significant relationships observed between financial planning, budgeting, financial record keeping, debt management, and farmer group performance suggest that strengthening financial literacy among farmer groups can substantially improve organizational effectiveness, accountability, and sustainability. These findings are consistent with previous studies that identify financial literacy as a key driver of institutional performance and economic development (Lusardi & Mitchell, 2023; OECD, 2023; World Bank, 2023).

The findings further suggest that programmes aimed at improving farmer group performance should emphasize comprehensive financial literacy training, focusing on financial planning, budgeting, record keeping, and debt management. Given the strongest relationship observed between financial record keeping and performance, interventions that strengthen record-keeping systems may generate the greatest improvements in farmer group effectiveness and sustainability.

5.4 The Mediation Effect of Credit Access on the Relationship between Financial Literacy and Performance of Farmer Groups in Gulu District

The fourth objective of this study was to examine the mediating role of credit access in the relationship between financial literacy and the performance of Farmer Groups (FGs) in Gulu District. Mediation analysis was conducted to establish whether financial literacy influences farmer group performance indirectly through credit access. The findings revealed that financial literacy significantly predicts credit access, credit access significantly predicts farmer group

performance, and financial literacy directly predicts farmer group performance. These findings suggest that credit access partially mediates the relationship between financial literacy and farmer group performance. This finding is consistent with Financial Capability Theory, which posits that financial knowledge enhances access to financial resources and improves economic outcomes through better financial decision-making (Sherraden, 2013; Lusardi & Mitchell, 2014).

5.4.1. Financial Literacy and Credit Access

The study established that financial literacy had a positive and statistically significant effect on credit access ($\beta = 0.189$, $p = 0.012$). The findings imply that farmer groups with higher levels of financial literacy are more likely to access credit facilities than those with lower levels of financial knowledge.

The positive relationship can be attributed to the ability of financially literate farmer groups to maintain proper financial records, develop budgets, prepare business plans, and understand the requirements of financial institutions. Such competencies enable farmer groups to demonstrate creditworthiness and increase lenders' confidence in their ability to repay loans. Financial literacy also enhances awareness of available financial products and enables farmer groups to make informed borrowing decisions.

These findings are consistent with those of Bongomin et al. (2017), who found that financial literacy significantly improves financial inclusion and access to financial services among rural households in Uganda. Similarly, Xu and Zia (2012) reported that financially literate individuals are more likely to use formal financial services, including credit products. Likewise, Klapper, Lusardi, and van Oudheusden (2015) observed that financial knowledge improves individuals' and organizations' ability to engage effectively with financial institutions and access appropriate financial products. Therefore, improving financial literacy among farmer groups can play an important role in overcoming barriers to credit access and promoting financial inclusion.

5.4.2 Credit Access and Farmer Group Performance

The study further established that credit access had a positive and statistically significant effect on farmer group performance ($\beta = 0.171$, $p = 0.016$). This finding suggests that farmer groups with greater access to financial resources are better positioned to improve their operational and financial performance.

Access to credit provides organizations with the capital necessary to purchase quality agricultural inputs, invest in improved farming technologies, expand production activities, and access profitable markets. Credit also supports working capital requirements and enables groups to withstand seasonal fluctuations in income, thereby enhancing organizational resilience and sustainability.

The findings concur with Abor and Quartey (2010), who found that access to finance is a critical determinant of enterprise growth and performance in developing countries. The results also agree with Ayyagari, Demirgüç-Kunt, and Maksimovic (2011), who reported that financial constraints significantly hinder the growth and productivity of small enterprises. Similarly, Muriithi (2017) observed that access to credit enhances investment opportunities and improves organizational performance by facilitating business expansion and operational efficiency. The implication is that improved access to affordable and timely credit can significantly strengthen the performance of farmer groups in Gulu District.

5.4.3 Financial Literacy and Farmer Group Performance

The findings revealed that financial literacy had a strong positive and statistically significant effect on farmer group performance ($\beta = 0.576$, $p < 0.001$). This was the strongest relationship observed among all the variables examined in the study.

The results suggest that farmer groups with higher levels of financial literacy are better able to plan, budget, save, manage debt, maintain accurate records, and make sound financial decisions. These competencies improve resource allocation, reduce financial inefficiencies, and enhance organizational effectiveness, ultimately leading to improved performance outcomes.

The findings are consistent with Lusardi and Mitchell (2014), who argued that financial literacy is essential for effective financial decision-making and long-term economic success. Similarly, Eniola and Entebang (2016) found that financial literacy positively influences enterprise performance by improving financial management practices and strategic decision-making. The results also support the findings of Adomako and Danso (2014), who reported that financial literacy enhances the performance of small enterprises through improved financial planning and resource management. Consequently, financial literacy emerges as a critical capability for promoting the sustainability and competitiveness of farmer groups.

5.4.4 Discussion of the Mediating Role of Credit Access

The mediation analysis demonstrated that credit access serves as an important mechanism through which financial literacy contributes to farmer group performance. The significant effect of financial literacy on credit access and the significant effect of credit access on performance indicate the existence of an indirect pathway linking financial literacy to organizational performance.

However, the direct relationship between financial literacy and farmer group performance remained statistically significant and substantially stronger than the indirect pathway. This finding suggests that credit access only partially mediates the relationship between financial literacy and performance. In other words, financial literacy enhances farmer group performance both directly and indirectly through improved access to credit.

The findings imply that while access to financial resources is important, the knowledge and skills required to manage those resources effectively are even more crucial for organizational success. Farmer groups that possess strong financial literacy skills can achieve improved performance even when access to external credit is limited because they are better able to utilize available resources efficiently, minimize financial risks, and make sound investment decisions.

These findings support the Financial Capability Theory advanced by Sherraden (2013), which emphasizes that financial knowledge must be complemented by access to financial services to achieve improved economic outcomes. The results are also consistent with Bongomin et al. (2017), who found that financial literacy enhances welfare outcomes through improved financial inclusion

and utilization of financial services. Similarly, Grohmann, Klühs, and Menkhoff (2018) reported that financially literate individuals are more likely to access and effectively use formal financial products, thereby improving economic performance.

5.4.5 Policy and Practical Implications

The findings suggest that efforts aimed at improving the performance of farmer groups should prioritize financial literacy enhancement while simultaneously addressing barriers to credit access. Financial literacy training programs should focus on strengthening competencies in budgeting, record keeping, financial planning, debt management, investment analysis, and loan application procedures.

The findings further indicate that financial institutions and development agencies should design farmer-friendly financial products and simplify lending procedures to enable farmer groups to benefit from available credit opportunities. Such interventions would enhance both financial inclusion and organizational performance. This recommendation is supported by the findings of Bongomin et al. (2017), Lusardi and Mitchell (2014), and Sherraden (2013), who emphasized the complementary roles of financial literacy and access to financial services in promoting economic development and organizational success.

CHAPTER SIX

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

6.1 Introduction

This chapter presents the summary of the results, the conclusions arising from the results, the recommendations and it ends with a section on areas of for further research.

6.2 Summary of Results

Going by the results as presented in chapter four, the following constitute the summary of the results in line with the study objectives.

6.2.1 Level of financial literacy of members of the farmer groups in Gulu District

As discussed in the preceding sub-sections, financial literacy, Financial planning, budgeting and financial records, and debt management were all scored above average. This implied that the level of financial literacy of the farmer group members was fairly high. It was specifically established that whereas the FGs practice Financial planning, not all members know how to prepare a business plan. This study also established that the FGs normally undertake budgeting where they use the bottom-up approach. This is normally undertaken at the beginning of the year by the FGs where the members of FGs utilize the financial Literacy and budgeting skills taught to them. In line with this, the FGs undertake record keeping including financial records. on credit sales and all payments. However, not all members of the FGs can read and write meaning that record keeping in only undertaken by those of the FGs who can do so. It was reported that theFG members understand the benefits of proper debt management and they use re proper methods of debt collection. Despite this though, the results also show that, many farmer groups have ever borrowed funds to run our farm activities. In a nutshell, most farmer groups employed good debt management techniques.

6.2.2 Level of performance of farmer groups in Gulu District

The level of performance of FGs in Gulu District was established to be above average. Specifically, while only credit utilization, farmer groups productivity and farmer groups profitability were each scored above average, technology application was scored way below average. The results further revealed that the FGs always plan for any credit beforehand to ensure its rightful use and that the

planning for future activities is guided by availability of credit. Also, the results show that there is improvement in the operations of the FGs and that access to credit has enabled the FGs to increase their productivity. It was also revealed that productivity of the FGs has improved over time and that while the FGs are receiving better prices for their farm products every season, the yield per acreage of the FGs has also increased over time. The FGs were also established to be very profitable and that the profits FGs have increased gradually over time. Despite the general favourable results, it was established that there is poor application of high-tech technology by the FGs in Gulu District. In spite of this, the study revealed that the FGs at least use of mobile phones for their communication and even that the telephone technology has improved their operations.

6.2.3 Relationship between financial literacy and the performance of FGs in Gulu District

The results on the relationship between financial literacy and performance of FGs was presented under both Pearson correlation analysis and regression analysis results. According to the Pearson correlation results, the financial literacy as measured in terms of Financial planning, budgeting, financial record keeping, and debt management, was established to be positively and statistically significantly correlated to credit utilization, productivity, and profitability but not to technology application by the FGs. The regression analysis results show that, the financial literacy dimensions collectively have a significant combined effect on performance of farmer groups at Gulu district. According to the findings, Financial planning, budgeting, financial record keeping, and debt management can be considered to be significant predictors (or significantly related to) of performance of farmer groups of Gulu District.

6.2.4 Mediation effect of credit access on the relationship between financial literacy and performance of the FGs in Gulu District

According to the results, financial literacy in statistically associated to credit access, which in term is statistically associated to FG performance. Consequently, financial literacy is statistically associated to FG performance . These results imply that credit access has a mediation effect between financial literacy and FO performance. As such, by attaining financial literacy skills, FGs can better know how to access credit and further still which type of credit. This than can lead to better FG performance when the use the credit to finance the FG operations

6.3 Conclusions

Arising from the results and their discussions in chapter four and five, the following conclusions were generated. The conclusions are presented in line with the study objectives.

6.3.1 Level of financial literacy of members of the farmer groups in Gulu District

Based on the results and their discussions, it was concluded that the farmer groups in Gulu District are faring well in terms of having financial literacy skills covering Financial planning, budgeting and financial records, and debt management. They normally undertake participatory budgeting at the beginning of the year utilizing the financial literacy and budgeting skills taught to them. However, a number of individual farmer group members are still lacking these skills. The FGs also normally keeps group records among which are financial records on credit sales and all payments. This is undertaken by some specific members with the farmer groups because not all member members of the FOs can read and write and hence cannot be given the responsibilities of doing record keeping.

6.3.2 Status of credit access by the farmer groups in Gulu District

The FGs in Gulu District have access to credit access although this is limited mainly to agriculture and not for purposes. The credit sources do not have adequate range of credit facilities needed by the FGs, hence some specific credit facilities are lacking. They have benefited from favourable interest rates that have facilitated their development. Credit terms offered to the FGs are favourable in most cases although some FGs cannot afford them due to the organisations not having sufficient collaterals.

6.3.3 Level of performance of farmer groups in Gulu District

Farmer groups in Gulu District are generally performing above average in terms of productivity and profitability although their technology application is rather low. They are well organized that they always plan for any credit beforehand to ensure its rightful use and that the planning for future activities is guided by availability of credit. Also, FGs have improved in the operations and have access to credit and this has enabled them to increase their productivity. They are also receiving better prices for their farm products every season. The FGs are also profitable although they hardly apply high-tech technology other than most of them using mobile phones for their communication and even that the telephone technology has improved their operations.

6.3.4 Relationship between financial literacy and the performance of FGs in Gulu District

Financial literacy of the FGs as measured in terms of Financial planning, budgeting, financial record keeping, and debt management, have a statistically significantly influence on FG performance in terms of credit utilization, productivity, and profitability but not to technology application. Financial planning, budgeting, financial record keeping, and debt management are significant predictors of performance of farmer groups of Gulu District.

6.3.5 Mediation effect of credit access on the relationship between financial literacy and performance of the farmer groups in Gulu District

Financial literacy within the FGs is playing a great role in influencing the performance of the FGs. This is mediated by credit access which in turn, contributes to the good performance of the FGs. As such, by attaining financial literacy skills, FOs can better know how to access credit and further still which type of credit. This than can lead to better FO performance when the use the credit to finance the FO operations

6.4 Recommendations

Based on the results, their corresponding discussions and conclusions, the following recommendations are proposed:

i. Also, for there to be increased production and productivity, government support is needed for training in financial literacy and agricultural practices.
ii. More widespread training in financial literacy is essential, as very few farmer groups have benefited from NGO training in this area. This was evident from the results that not many of the farmer group members are privy to financial literacy skills.
iii. Need for a multi-faceted approach, including providing training for farmers on the importance and methods of record-keeping, improving access to proper record-keeping tools, and developing storage solutions to protect data. Increasing literacy rates and promoting digital tools or mobile applications for record-keeping could also significantly enhance the accuracy and reliability of records, ensuring that farmers can track their progress and make informed decisions for future growth.
iv. The unclear debt management practices in farmer groups in Gulu District result from a combination of factors, including inadequate record-keeping, the absence of a clear framework, limited financial literacy, reliance on informal borrowing practices, and a lack

of access to formal financial services. While cooperatives like the Cwero cooperatives offer a more structured approach to debt management, this model is not universally applied. To improve debt management practices.

6.5 Areas for Further Research

Considering that this study could not address all issues relating to the study variables, this study proposes the following areas for further research.

i. To establish the role technology can play in improving the operations of farmer groups in Gulu District.
ii. To establish the contribution of farmer groups in the economic growth and development of and the impact of financial literacy, climate variability, and extension services on productivity in Gulu district.
iii. Evaluate the inclusiveness and sustainability of current government and NGO interventions.

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APPENDICES

Appendix I: Questionnaire

Dear Respondent,

My name is Akello Caroline a student of Gulu University carrying out a research on **"Financial Literacy and Performance of Farmer Groups in Gulu District, Northern Ugand"** in partial fulfilment of the requirements for the award of a Master's Degree of Business Administration (MBA) of Gulu University. You have been identified as a resourceful person to this study and I kindly request you to spare some time and respond honestly to the questions below. I assure you that the information you provide herein will be treated with utmost confidentiality and will only be used for the purpose of this study. You are requested to feel free to give most appropriate responses.

Section A: Background Information of Respondents

Tick in the box of the most appropriate response

1. What is your Gender? Male ☐ Female ☐

2. What is your Age organisation?

18-27 years ☐ 28-37 years ☐ 38-47 year ☐ 48- 57years ☐ 58 years & Abov ☐

3. What is your Marital Status?

Single ☐ Married ☐ Sepa ☐ d Divo ☐ d ☐ Widowed

4. Which sub county do you come from?

.....

5. What is your highest educational qualification?

No formal education ☐ PLE ☐ O-Level ☐ A-level ☐ Certific ☐ Diploma ☐

Bachelor Degree ☐ Post graduate diplor ☐ Maste ☐ gree PhD

6. What is your Religion?

Catholic ☐ Protestant ☐ Muslim ☐ Pentecostal ☐ SDA ☐ Others ☐

7. Are you a member of a Farmer Groupd? Yes ☐ No ☐

8. What is the name of your farmer groups? ……,……

9. When was your farmer groups **formed …….**

10. Is your farmer groups **Registered with Community development Service at Gulu district?**

11. Does your farmer groups **have a bank account** Yes No

12. How many Members of your farmer groups have active Bank account?.....Female …..Male ……Total

9. How many members does your farmer groups **have?**

5 - 10 ☐ 1☐ 15 ☐ – 20 ☐ – 25 ☐ 30 ☐r 30 ☐

N/A

13. How Many Members does your farmer groups **in terms of their Gender have?**

Female =…… Male = ……,…… Total = ……

14. What is your position in your farmer groups**?**

Chairperson☐ Tr☐rer ☐ Secretary ☐rdinary M☐ber

N/A

15. What does your farmer groups **specialize in(Tick all that apply)?**

Animal farming☐ Crop farmi☐ Fish far☐g Poultry Far☐g

Piggery ☐ Bee Keeping ☐ Other (specify)…… N/A☐

16. What are the major sources of funds for running your farmer groups **activities?**

Bank ☐ Micro Finance Institutio☐ VS☐ NGO su☐t

Youth Livelihood Fun☐ PDM Fundi☐ Other (specify)

……

SECTION B: FINANCIAL LITERACY

This section is about financial literacy of the members of the farmer groups and it has four subsections namely (i) Financial planning; (ii) budgeting; (iii) financial record keeping; and (iv) debt management. Respond to all statements in each subsection by ticking your best option using the scale: SD= Strongly Disagree, D= Disagree; NS=Not sure; A= Agree, SA=Strongly Agree

B1	Statements on Financial planning	SD	D	NS	A	SA
1	As a member of the farmer groups I am conversant with Financial planning					
2	We received training on how to prepare a business plan					

3	All our farmer groups members know how to prepare a business plan					
4	My group members know the advantages and of having a business plan					
5	My group emphasizes Financial planning for what we engage in					
6	In my group we have a business plan in place for our current business venture					
7	We are regularly taken through refresher training on Financial planning					
8	Every member is free to air his/her views during Financial planning process					
9	All members in my group participated in drawing our business plan					
10	My group uses our business plan to guide our farming activities					
11	We have used our business plan to source for funding					
B2	**Statements on Budgeting**	**SD**	**D**	**NS**	**A**	**SA**
1	All members in my farmer group have been trained in financial Literacy and budgeting					
2	Budgeting is always undertaken at the beginning of the year in my group.					
3	Our budgeting is influenced by our planned venture activities					
4	Budgeting influences the financial performance of my group					
5	The bottom-up approach is used in budgeting in my farmer group					
6	We have measures in place to ensure budgeting is undertaken effectively					
7	Our financial expenditure is guided by our planned budget					
8	As a group we realign our budgets to reflect the needs of our members.					
9	Our group always review the performance of our budget at the end of the year					
B3	**Statements on Financial Record-Keeping**	**SD**	**D**	**NS**	**A**	**SA**
1	In my group we keep farm records					
2	In my group, all records on, production, cash sales are professionally kept					
3	In my group, all records on cash purchases are professionally kept					
4	In my farmer group, all payments are recorded					

5	All records on credit sales are kept in my group					
6	All records on credit purchases are kept in my group					
7	Adequate records are kept for all financial transactions in my group					
8	All members of my farmer group can read and write					
9	All members of my farmer group know how to keep farm records					
10	As a group, we regularly audit the financial records					
B4	**Statements on Debt Management**	**SD**	**D**	**NS**	**A**	**SA**
1	In my farmer group we have ever borrowed funds to run our farm activities					
2	There are proper methods of debt collection in my group					
3	As farmers we understand the benefits of proper debt management					
4	Payment of debts are always undertaken in time in my group					
5	Debts are effectively managed in our farmer group to improve productivity					
6	My farmer group keep proper debt records on all debts incurred					
7	As farmer members we have been trained on debt management					
8	As a group we always strive to minimize our debts					

SECTION C: CREDIT ACCESS

This section is about credit access by farmer groups and it has three subsections namely (i) credit availability; (ii) interest rates; and (iii) credit terms. Respond to all statements in each subsection by ticking your best option using the scale: SD= Strongly Disagree, D= Disagree; NS=Not sure; A= Agree, SA=Strongly Agree

C1	**Statements on Credit availability**	**SD**	**D**	**NS**	**A**	**SA**
1	There are many sources of credit open to my farmer group					
2	There are adequate credit facilities available to my farmer group					
3	Credit availability in the agribusiness has never been a challenge					
4	The amount of credit available for my farmer group is adequate					
5	Several credit facilities are available to my farmer group					

C2	Statements on Interest Rates	SD	D	NS	A	SA
1	The interest rates available to farmergroup are very friendly					
2	The interest rates available to farmer group are very flexible					
3	Interest rates available to farmer group are negotiable					
4	Farmer group are attracted to credit institution's low interest rates					
5	Interest rates have facilitated development of the farmer group					
C3	**Statements on Credit terms**	**SD**	**D**	**NS**	**A**	**SA**
1	The credit terms available to farmer group are very friendly					
2	The credit terms available to farmer group are very flexible					
3	The credit terms available to farmer group are negotiable					
4	Farmer group are attracted to credit institution's credit terms					
5	Good credit terms have boosted the development of farmer group					

SECTION D: PERFORMANCE OF FARMER GROUPS

This section is about the performance of farmer groups and it has 4 subsections namely (i) credit utilization; (ii) farm productivity; (iii) farm profitability; and (iv) application of technology. Respond to all statements in each subsection by ticking your best option using the scale: SD= Strongly Disagree, D= Disagree; NS=Not sure; A= Agree, SA=Strongly Agree

D1	Statements on Credit Utilization	SD	D	NS	A	SA
1	My farmer group utilizes its credits as per its financial plan					
2	My farmer group uses the loans for the purpose of the loans					
3	My group is conversant with effective credit utilization in line with our operation					
4	The loans borrowed by farmer group benefits my organization in its operations					
5	Good credit use is the reason for further borrowings by my farmer group					
6.	My group always plans for any credit before hand to ensure its rightful use					
7.	Our planning for future activities is guided by availability of credit					

D2	Statements on Farm group productivity	SD	D	NS	A	SA
1	Productivity of our group has improved over time					
2	There is improvement in the operations of our farmer group					
3	Access to credit has enabled our group to increase our productivity.					
4	We receive better price for our farm products every season.					
5	The yield per acreage of my group has increased over time					
6	We are able to produce more as a farmer group than before					
7	Our farmer group has become stronger due to increased productivity					
D3	**Statements on Farm group profitability**	**SD**	**D**	**NS**	**A**	**SA**
1	My group profits have increased gradually over time					
2	Record keeping skills have enabled us to reduce the cost of production					
3	Access to credit has facilitated storage and better prices					
4	My group has profited all of us as members					
6	My farmer group has enabled all of us to realize our financial obligations					
6	The profitability of my farmer group has enabled it to expand our operations					
7	We have ventured in more farming activities due to the profitability of our group					
D4	**Statements on Technology application by Farm group**	**SD**	**D**	**NS**	**A**	**SA**
1	Our group has adopted the use of mobile phone technology for our communication					
2	Telephone technology adopted has improved our operations as agroup					
3	Most of the operations in my group are now computerized					
4	The financial management system in my group is computerized?					
5	Most of the members of my group are computer literate					
6	Our farmer group records are saved in computers					
7	As a group we are able to reach markets for our produce using technology					

Thank you for your time

Appendix II: Interview Guide

Financial Literacy, And Performance of Farmer Groups in Gulu District, Northern Uganda

Dear respondent,

My name is Akello Caroline a student of Gulu University carrying out a research on **"Financial Literacy and Performance of Farmer Groups in Gulu District,Northern Uganda."** in partial fulfilment of the requirements for the award of a Master's Degree of Business Administration (MBA) of Gulu University. You have been identified as a resourceful person to this study and I kindly request you to spare some time and respond honestly to the questions below. I assure you that the information you provide herein will be treated with utmost confidentiality and will only be used for the purpose of this study. You are requested to feel free to give most appropriate responses.

Questions:

1. Kindly introduce yourself and explain your role in this farmer group

2. Briefly give an overview of your farmer group in terms of its membership and activities (Probe for: how many members, role of each member, e.t.c.)
3. How would you describe the level of financial literacy level of members of farmer groups in Gulu District?
4. Please discuss the performance of farmer groups in Gulu District as you understand them
5. What in your opinion is the relationship between financial literacy and the performance of farmer groups in Gulu District?

6. What role would you say credit access plays in the relationship between financial literacy and performance of the farmer groups in Gulu District?
7. What would you say is the financial literacy understanding and knowledge of your members in terms of Financial planning, budgeting, record-keeping, and debt management
8. What can you say about the performance of your farmer group in terms of management credit utilization, productivity, profitability, and technology application?

9. Kindly share with me the challenges that y

10. our farmer group is experiencing and how they can be addressed.

Thank you for your participation