

**EMPIRICAL ANALYSIS OF MICROFINANCE INSTITUTIONS SUPPORT SYSTEMS  
ON PERFORMANCE OF DAIRY FARMERS IN KAKAMEGA COUNTY, KENYA**

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## DECLARATION AND APPROVAL

### Declaration by the candidate

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## DEDICATION

This research thesis is dedicated to my family members.



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## **ABSTRACT**

Efforts by the National Government and County Government of Kakamega have been directed toward improving dairy performance in the County. The county government has partnered with some MFIs to support dairy farming in the county in attempt to optimise milk supply and thus achieve dietary diversity, which is one of the 2030 Agenda For sustainable development (SDGs), as the county as well as the entire world rely on milk and dairy products from other counties. However, little attention has been directed toward the relationship between MFI support systems and the performance of smallholder dairy farmers in Kakamega. This study sought to find out an empirical study on microfinance institution's support systems' influence on the performance of dairy farmers in Kakamega County. The study's specific goals were to look into the impact of MFI technical support systems on dairy farmers' performance in Kakamega County, assess the influence of the MFI credit system on the performance of dairy farmers in Kakamega County, establish the influence of MFI micro insurance support systems on the performance of dairy farmers in Kakamega County, establish the influence of MFI saving systems on the performance of dairy farmers in Kakamega County and determine the influence of government policy on the relationship between microfinance institution support systems and the performance of dairy farmers in Kakamega County. The following three theories guided the research: knowledge-based theory, prospect theory, credit rationing theory and expected utility theory. The researcher identified Kakamega County as the target region of study because it has low milk production despite huge due potential in dairy farming. The study target population was 1310 dairy farmers spread in 12 sub-counties as obtained from 17 Microfinance institutions in the county. The study sample size was 297. Primary data was collected using questionnaires and an interview guide. Secondary data was obtained using document analysis. A pilot study was conducted. The findings were presented using tables, models, and charts. The Micro Finance Institutions' processes have a considerable impact on the performance of dairy producers in Kakamega, according to the data. Microfinance technical systems have played a key role in dairy farming performance because they improve the quality and quantity of dairy products by upgrading production technology. Micro Finance Institutions' credit systems had a positive contribution to the dairy performance. MFIs micro-insurance systems had a significant contribution to dairy farming through prompt compensation. MFI saving had a significant positive contribution to dairy farming performance. Government policies had substantial regulating variables on the association among dairy farming performance besides Micro Finance Institutions saving as well as technical systems. The study recommended that the Micro Finance Institutions need to collaborate with other organization and institution both government and non-government to ensure that farmers receive technical systems which will support dairy farmers.

## **TABLE OF CONTENT**

<b>DECLARATION AND APPROVAL .....</b>	
<b>ii</b>	
<b>DEDICATION.....</b>	
<b>iii</b>	
<b>ACKNOWLEDGEMENT .....</b>	
<b>iv</b>	
<b>ABSTRACT .....</b>	
<b>v</b>	
<b>TABLE OF CONTENT .....</b>	
<b>vi</b>	
<b>LIST OF TABLES .....</b>	
<b>xi</b>	
<b>LIST OF FIGURES .....</b>	
<b>xii</b>	
<b>LIST OF ABBREVIATIONS AND ACRONYMS .....</b>	
<b>xiii</b>	
<b>CHAPTER ONE: INTRODUCTION .....</b>	
<b>1</b>	
1.0 Introduction .....	1
1.1 Background of the study .....	1
1.1.1 Microfinance institution .....	1
1.1.2 Dairy Farming .....	4
1.1.3 Performance of dairy farmers .....	8
1.1.4 Location of the study .....	8
1.2 Statement of the problem .....	9
1.3 Purpose of the study .....	11
1.4 Objectives of the study .....	11
1.5 Hypotheses of the Study .....	11

1.6	Significance of the Study .....	12
1.7	Scope of the Study.....	12
1.8	Limitations of the Study .....	13
1.9	Delimitations of the study .....	13
1.10	Assumption of the study .....	13
1.11	Operational definition of key terms .....	14
<b>CHAPTER TWO: LITERATURE REVIEW .....</b>		
<b>15</b>		
2.0.	Introduction .....	15
2.1	Theoretical Review .....	15
2.1.1	Expected Utility Theory .....	16
2.2.2	Knowledge-based Theory .....	17
2.2.3	Prospects Theory .....	18
2.2.4	Credit Rationing Theory .....	19
2.2	Empirical literature .....	20
2.2.1	Micro-Insurance and Performance of dairy farmers. ....	20
2.2.2	MFI technical and training system on Performance of dairy farmers .....	24
2.2.3	Microfinance Institution saving system on Performance of dairy farmers. ....	27
2.2.4	Credit service and Performance of dairy farmers .....	31
2.2.5	Government Policies on Agricultural Financing .....	35
2.2.6	Dairy Farming Performance .....	39
2.3	Conceptual Framework .....	42
2.4	Recap of Literature Review and Research Gaps .....	44
<b>CHAPTER THREE: RESEARCH METHODOLOGY AND DESIGN .....</b>		<b>46</b>
3.0	Introduction .....	46

3.1 Research Philosophy .....	46
3.2 Research Design .....	46
3.3 Target Population .....	47
3.4 Sampling Techniques and sample size .....	48
3.5 Sample size determination .....	49
3.6 Construction of Research Instruments .....	50
3.7 Piloting of Research Instruments .....	51
3.8 Reliability of Research Instrument .....	51
3.9 Validity of Research Instrument .....	51
3.10 Data Collection Methods and Procedure .....	52
3.11 Data Analysis Techniques .....	52
3.11.1 Descriptive statistics .....	54
3.11.2 Inferential statistics .....	54
3.11.3 Diagnostic tests .....	56
3.11.4 Model Specification .....	58
3.12. Ethical Considerations.....	63
<b>CHAPTER FOUR: RESEARCH FINDINGS AND DISCUSSIONS .....</b>	<b>64</b>
4.0 Introduction .....	64
4.1 Response Rate .....	64
4.2 Demographic Characteristics .....	64
4.3 Descriptive Statistics .....	67

4.3.1 Microfinance institutions Technical systems .....	67
4.3.2 MFI Micro-Credit systems .....	69
4.3.3 Micro-insurance systems .....	70
4.3.4 MFI saving systems .....	72
4.3.5 Government Policies and Regulations .....	73
4.3.6 Dairy farmer performance .....	74
4.4 Validity and Reliability .....	75
4.5 Reliability Analysis .....	77
4.6 Tests of Statistical Assumptions .....	78
4.6.1 Test of Independence (non-autocorrelation) .....	78
4.6.2 Multi-collinearity Test .....	79
4.6.3 Homscedastic Test of Dairy farmer performance .....	80
4.6.5 Normality test .....	81
4.7 Correlation Analysis .....	82
4.7.1 Correlation Analysis between Independent Variables and Dairy farmer performance	82
4.8 Simple Linear Regression between MFI systems and Dairy farmer performance .....	84
4.8.1 Technical systems and Dairy farmer performance .....	84
4.8.2 Microfinance Credit systems and Dairy farmer performance .....	85
4.8.3 Micro-insurance systems and Dairy farmer performance .....	87
4.8.4 MFI saving systems and Dairy farmer performance .....	89
4.9 Multiple Linear Regression between MFI systems and Dairy farmer performance .....	90
4.10 Moderated Multiple Regression .....	93
4.11 Discussions .....	99
4.11.1 Influence of Technical systems on the dairy farmer performance .....	99
4.11.2 Role of credit systems of MFI on the dairy farmer performance .....	103
4.11.3 Effect of Micro-Insurance on the dairy farmer performance .....	109

4.11.4 Influence Micro-saving systems on the dairy farmer performance .....	116
4.11.5 Influence of MFI systems on dairy farming performance. ....	123
4.11.6 Intervening Effect of Government Policy on the influence of MFI systems on dairy farming performance. ....	.....
<b>126 CHAPTER FIVE .....</b>	<b>.....</b>
<b>133</b>	
<b>SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS .....</b>	<b>.....</b>
<b>133</b>	
5.0 Introduction .....	133
5.1 Summary of findings .....	133
5.1.1 Assess the influence of Technical systems on the dairy farming performance.....	134
5.1.2 The role of credit systems of MFI on the dairy farming performance .....	134
5.1.3 Influence of Micro-Insurance on the dairy farming performance .....	135
5.1.4 Establish the Micro-saving systems on the dairy farming performance .....	136
5.1.5 Role of government policy on the relationship between microfinance institution systems and the performance of dairy farmers .....	136
5.2 Conclusion .....	137
5.3 Recommendations .....	139
5.4 Suggestion for further studies .....	142
<b>REFERENCES .....</b>	<b>.....</b>
<b>144</b>	
<b>APPENDICES .....</b>	<b>.....</b>
<b>158</b>	
APPENDIX I: LETTER OF INTRODUCTION FROM THE CANDIDATE TO PARTICIPANTS .....	158

APPENDIX II: RESEARCH QUESTIONNAIRE FOR DAIRY FARMERS. .... 159

APPENDIX III: INTERVIEW GUIDE FORM ..... 165

APPENDIX IV: INTRODUCTORY LETTER FROM POSTGRADUATE STUDIES ..... 167

APPENDIX V: RESEARCH PERMIT FROM NACOSTI ..... 168

APPENDIX VI: MAP OF KAKAMEGA COUNTY ..... 171



<b>LIST OF TABLES</b>	
Table 1: Farmers per Sub County .....	<b>Error! Bookmark not defined.</b>
Table 2: Sample size category .....	48
Table 3: A summary of the objectives, hypothesis and analytical model .....	58
Table 4: Demographic Characteristics.....	63
Table 5: MFI Systems usage .....	64
Table 6: Technical systems Descriptive Results .....	66
Table 7: Microfinance Credit systems Descriptive Results.....	68
Table 8: Micro-insurance systems Descriptive Results.....	70
Table 9: MFI saving systems Descriptive Results.....	71
Table 10: Government Policies and Regulation .....	72
Table 11: Dairy farmer performance Descriptive Results .....	74
Table 12: Confirmatory Factor Analysis; Construct Validity .....	75
Table 13: KMO and Bartlett's Test.....	76
Table 14: Cronbach's Alpha Analysis .....	77
Table 15: Autocorrelation Test for Regression .....	78
Table 16: Collinearity Statistics .....	78
Table 17: Normality.....	80
Table 18: Correlation Analysis among Study Variables .....	81
Table 19: Regression Analysis of Technical systems.....	83
Table 20: Regression Analysis of MFI Micro-Credit.....	85
Table 21: Regression Analysis of Micro-insurance systems.....	86
Table 22: Regression Analysis of MFI saving systems.....	88
Table 23: Model Summary and ANOVA.....	90
Table 24: Coefficients of MFI Indicators .....	91
Table 25: Change in R Square as a result of Government Policy .....	93
Table 26: Regression Coefficient as a result of Socio-economic Factors .....	94
Table 27: Summary of Research Objectives, Hypotheses, Findings, and Verdict .....	131

## LIST OF FIGURES

Figure 1: Theoretical Framework .....	20
Figure 2: The Conceptual Framework .....	44
Figure 3: Homoscedastic Test of Dairy farmer performance .....	80
Figure 4: Normal Curve for Regression Residual.....	82
Figure 5: Moderating effect of Government Policy on dairy farming performance and Micro Finance Institutions micro-saving systems .....	97
Figure 6: Moderating effect of Government Policy on dairy farming performance and Micro Finance Institutions technical systems .....	98
Figure 7: Moderating effect of Government Policy on dairy farming performance and Micro Finance Institutions micro-saving systems .....	99



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## LIST OF ABBREVIATIONS AND ACRONYMS

<b>ALR</b>	: Annual Loan Loss Rate
<b>BPO</b>	: Business Process Outsourcing
<b>CPC</b>	: Cost per client
<b>CRR</b>	: Current Recovery Rate
<b>DRIFP</b>	: Disaster Risk Finance and Insurance Program
<b>FAO</b>	: Food and Agriculture Organization
<b>GIFT</b>	: Global Index Insurance Facility
<b>GNI</b>	: Gross National Income
<b>GNP</b>	: Gross National Product
<b>KCB</b>	: Kenya Commercial Bank
<b>KIHBS</b>	: Kenya integrated household budget survey
<b>LAR</b>	: Loan at Risk
<b>MIZ</b>	Micro insurance systems
<b>TSZ</b>	Technical systems
<b>MSZ</b>	Microfinance saving system
<b>MCZ</b>	Microfinance credit systems
<b>MSME</b>	: Micro Small and Medium Enterprises
<b>MFI</b> s	: Microfinance Institutions
<b>NGO</b> s	: Non-Governmental organization
<b>OER</b>	: Operating expense ratio
<b>PAR</b>	: Portfolio at Risk
<b>PRONAF</b>	: Programme for strengthening family farming
<b>RCT</b>	: Randomized control trial
<b>ROA</b>	: Return on Asset
<b>ROE</b>	: Return on Equity
<b>SACCO</b> s	: Savings and Credit Cooperatives Organizations
<b>SDG</b> s	: Sustainable Development Goals (SDGs)
<b>SME</b> s	: Small and medium enterprises
<b>SMEGF</b>	: Small and medium enterprises Guarantee Facility
<b>VRIO</b>	: Value, Rare, Imitable, and Organization
<b>WMP</b>	: Whole Milk Powder
<b>WOE</b> s	: Women-Owned Enterprises

# CHAPTER ONE: INTRODUCTION

## 1.0 Introduction

This chapter entails the background to the study, statement of the problem, the purpose of the study, objectives of the study, scope of the study, the significance of the study, hypotheses of the study, justification of the study, the scope of the study, limitations of the study, assumptions of the study and operational definitions of terms.

## 1.1 Background of the study

### 1.1.1 Microfinance institution

Microfinance is a set of financial and non-financial systems, including loans, savings, insurance, and training, that are available to poor entrepreneurs and small company owners who lack security and will not normally qualify for a traditional bank loan (Meyer, 2014). Microfinance has been largely regarded as a developmental instrument for low-income communities (Ibtissem and Bouri, 2013) and widely adopted by developing economists as such. Microfinancing, according to Avortri and Wereko (2016), is a promising strategy for united nations Sustainable Development Goals (SDGs) and structuring global financial institutions to fit the needs of the SDGs.

The systems provided to microfinance customers can be characterized into four unique classes. Financial intermediation, enterprise growth, social intermediation, and social systems are the four types of intermediation. Financial intermediation is the supply of financial products and systems that do not require continuing subsidies, such as savings, credit, insurance, credit cards, and payment systems. The process of developing human and social capital required for long-term financial intermediation for the poor is known as social intermediation. Microentrepreneurs benefit from enterprise development systems; Skills training, business training, marketing, and technology are some of the topics covered. Microentrepreneurs' well-being is improved through health, education, nutrition, and other social systems. These systems require continuous sponsorships and are constantly given by NGOs or the state (Ngehnevu and Nembo, 2010).

The majority of people associate microfinance with micro-credit, which is lending tiny sums of money to the poor. As a result, microfinance is regarded as the doorway to financial freedom (Moro Visconti, 2015). Microfinance encompasses more than just this; it also encompasses insurance, transactional systems, and, most significantly, savings. Weerasinghe and Dedunu (2017) argue that micro-financial systems include savings, credit, insurance, and payment systems. Appropriately, microfinance remains on three in number fillers, for example, Micro credit, Micro sparing, and Micro protection in giving frameworks to poor people. Bello (2012) states that growing admittance to sparing is critical to business endurance and execution since it allowed even the most unfortunate who may somehow have not qualified for microfinance frameworks, to make reserve funds and accordingly have the option to get to microcredit and consequently mitigate neediness. As indicated by Shastri (2012), Micro-investment funds frameworks permit individuals to set aside limited quantities of cash for some time later, frequently without the least equalization prerequisites.

As per the later gauges from the World Bank, there are more than 7,000 MFIs around the world. These organizations served more than 16 million customers just as given an aggregate of US\$2.25 billion in credits and other money-related help (Liman, Hashim, and Arshad, 2017). Aside from their enormous numbers, it is similarly essential to realize that MFIs vary incredibly in their temperament and significance. At a European Level, the European Investment Fund is engaged with the microfinance area through the SME Guarantee Facility (SMEGF) since 2000. In Western Europe, in any case, the area's development has been more restricted, regardless of expanding enthusiasm for its latent capacity. In Eastern Europe, Many private companies and families need admittance to budgetary frameworks despite the presence of a thick and able financial organization. Monetary prohibition is thought among those experiencing destitution and social underestimation

In Latin America and the Caribbean alone, approximately 600 microfinance establishments have loaned around \$12 billion to more than 10 million low-salary customers. In any case, the microfinance industry has essentially arrived at a metropolitan demographic in little nations, for example, Peru, Bolivia, or El Salvador yet it falls behind in the biggest LAC nations (Brazil, Mexico, or Argentina) where the vast majority of the poor in the district live. Weerasinghe and

Dedunu (2017) demonstrated a factually critical relationship between miniature credit, warning help, sparing, and expectation for everyday comforts of needy individuals. Additionally, relapse results likewise showed huge effects of miniature advance, warning help, and miniature saving money on expectation for everyday comforts of the poor in Sri Lanka.

Sanabbel (2010) detailed that Egypt is the biggest microfinance market regarding effort in the Arab locale. As of 2010, the Egyptian market comprises around 2,000,000 dynamic customers and a gross advance arrangement of US \$ 500 million. What's more, offering thought to the net advance portfolio they were better by morocco which has 45% of the piece of the pie contrasted with Egypt 21%. This infers that relatively the Arab African world is likewise very much engaged with microfinance elevating the need to have a comprehensive guideline for this market.

In an overview by MFRC, it was very much perceived that there was a galactic development regarding client base and advance records for Microfinance organizations. The report showed that by 2012 there were 175 million credit accounts with R.42 billion advances booked contrasted with 3.7 million moneylenders toward the finish of November 2000. The measurements from South African is threatening contrasted with the complete populace which infers that the galactic development of microfinance bank in African is the main solution for diminishing destitution since more 60% of the populace are engaged with microfinance industry in one manner or the other. The Nigerian microfinance industry has advanced fundamentally. It gloats about the entire four notable models in the business. A CBN concentrate on recognized, beginning in 2001, 160 selected Microfinance Institutions (MFIs) in Nigeria with absolute hold subsidizes worth N99.4 million and remarkable credit of N649.6 million, showing huge business trades nearby (Anyanwu, 2004).

Apalia (2017) saw that they are evaluated 3,460 honestly settled microfinance expert communities in Kenya, including 3,397 speculation assets and credit co-specialists and co-usable like organization based center individuals, 56 MFIS, four business banks, two design social orders, and the Kenya Post Savings Bank. Kept away from this summary were 17,305 turning venture assets and credit affiliations (ROSCAs), 115,884 enlisted women get-togethers, and 1,342 fundamental plant producers and exhibiting pleasant social orders, giving credit countrywide. Around 3.8 million Kenyans were depending upon money related NGOs, Cooperatives, and Kenya Post Office

Savings Bank for monetary systems (Dondo and Ongila, 2006). The 2013 report of the microfinance business shows an asset of 353.2 KES billion which is an extraordinary improvement from 226.7 KES billion recorded in the year 2010. The quantity of dynamic borrowers also extended astonishingly with figures at 832,794 from 789,533 saw in 2011. The development portfolio extended broadly to 48.1 KES billion from 42.5 KES billion out of 2011.

MFIs are not restricted to creating nations yet in addition to created nations that have progressed monetary frameworks. This suggests that microfinance establishments are a fundamental instrument for advancement. The information, upheld by thorough factual proof in related writing on the utilization of microfinance frameworks around the globe, shows that financial additions from microfinance frameworks have been more unassuming than what was once accepted. Then again, the examination proposes that the helpless spare to begin new organizations and that the presentation of formal items for little investment funds can be a key money-related development (Aggarwal, 2012). Accordingly, it is critical to analyze the part of microfinance foundation emotionally supportive networks on the presentation of dairy cultivating.

### **1.1.2 Dairy Farming**

In the horticulture and associated areas of the economy, dairying cultivating assumes an extremely huge job. Dairying is treated as a significant occupation particularly for ladies in country regions in practically all nations over the world. Almost one billion individuals live on dairying as significant work and are working through dairy homesteads and family type. Milk is treated as a significant supplement and is a crucial aspect of the worldwide food framework for the manageability of individuals in country regions. The dairy area in Kenya is a financially significant area giving work and a wellspring of salary esteem chain entertainers. The dairy area adds to 40% of all-out domesticated animals (GDP) and 3.5% of public GDP in Kenya (SNV 2013; Wambugu et al. 2011). The nation's dairy group size is the greatest in sub-Saharan Africa. Kenya appreciates special market access for its items in the eastern and southern African districts. It is a multi-layered organization of partners, including entertainers along the dairy esteem chain that are engaged with the creation, taking care of, transportation, stockpiling, bundling, and promoting of milk, monetary establishments, and dairy items (Msaddak et al., 2017). Kenya's milk isn't sold in monetary

amounts past its outskirts; mostly because of relatively low per bovine normal day by day creation of 6 kg and unreasonably significant expense of creation.

A portion of the primary requirements to expanded milk creation in Kenya has been distinguished as the absence of assets to buy high variety bovine, feed, and grain, Artificial Insemination frameworks, maladies, and bug control among different data sources. This training has sentenced smallholder dairy ranchers to resource creation, coming about to low pay, low sparing, and low interest in the dairy area, setting off the endless loop of low data sources, low efficiency, low innovation applications, and ecological corruption, which convert into servile destitution. TerHemen (2015) inferred that dairy ranchers are confronted with moves, for example, restricted admittance to monetary frameworks, absence of working capital, low liquidity (because of failure to get to budgetary frameworks), low spending on horticulture by most African governments, significant expenses of creation because of inadequate admittance to showcase data, inaccessibility of farming based financing and agrarian awards.

One of the procedures which can assist with misusing dairy cultivating potential is satisfactory institutional help, which empowers the ranchers to put resources into present-day creation innovations. In Kenya, there are barely any farming credit organizations, the principal one being the Agricultural Finance Corporation (AFC), which isn't the most mainstream. Another wellspring of credit is business banks, whose credit is normally unacceptable for cultivating. Banks are hesitant to loan cash to provincial ranchers and entrepreneurs who have restricted resources and no budgetary history. This absence of admittance to business money keeps numerous ranchers and business visionaries from developing their organizations (FAO, 2011). Miniature fund organizations are more famous with little and medium ventures (SMEs), including smallholder dairy ranchers. Smallholder ranchers', who are the predominant parts in dairy cultivating, low utilization of credit, is less because of the inaccessibility of credit than to the conditions and cost of credit, security necessities, and lacking beauty periods, among different components. Other significant foundations are NGOs and church-based associations which have gotten dynamic in dairy advancement in East Africa. Advancement accomplice organizations are likewise applicable in dairy improvement, as wellsprings of developments and assets (Muriuki, 2011).

Notwithstanding, horticultural venture is normally affected by various wellsprings of danger and vulnerability, for example, climate deviations, money related uncertainty, and other outside danger sources (Li and Miranda, 2015). These outer wonders close by the inborn dangers of the farming exercises make an uncertain circumstance forestalling outside financial specialists to put resources into the agribusiness area. In addition, inside speculators utilize a danger evasion conduct in their new ventures and they might be reluctant for new unsafe venture (Gine, 2009; Li and Miranda, 2015). Thus, budgetary projects not just produce a more secure salary for helpless ranchers, yet additionally, they may give them the capacity to put more in their business. In other words, agrarian monetary projects impact farming interests in two different ways. To start with, they cause very nearly a specific circumstance for speculation and bring more certainty for within and outside speculators. Besides, they can settle ranchers' pay and make enough fortitude among conventional ranchers to put resources into dangerous gainful exercises.

Because of the significance of dairy cultivating, numerous legislatures have different strategies and guidelines that would make little scope for dairy ranchers open to money-related frameworks. In 1995, the Brazilian government launched PRONAF, a major program to provide low-cost microcredit to small ranchers (National Program for Strengthening Family Farming). PRONAF was responsible for almost 1.8 million credit agreements in 2015. Despite propulsions in PRONAF money-related asset appropriation, cultivating dynamism has emphasized the disparities between the region's most and least profitable places, advancing significant rancher selection and widening the social divide in the open country. (Maia, Eusebio&Silveira, 2016). Micro account entered in all regions as and areas remembering the dairy area for Kerala. India. Dairy advancement picked up quickening in the province of Kerala with the consideration of the State under the second period of the Operation Flood program in 1983. Nonetheless, the vast majority of the ranchers in the dairy area are as yet poor and trouble to discover cash flow to grow their dairy cultivating.

In Zambia, a Heifer International task, through preparing individuals, bringing issues to light, and leading dealings at various levels have empowered ladies not exclusively to co-own animals with their spouses (Kristjanson, Waters-Bayer, and MacMillan, 2014). In an endeavor to close the hole among requests and gracefully of animal items in Ghana, MoFA allowed credits to animal ranchers in Wa Municipality under the Livestock Development Project (LDP). Notwithstanding, throughout

the long term, government microcredit plans in Ghana endured a high pace of default and appear not to have the ideal effect (Abdul-Moomin, 2012). In Ethiopia, disregarding such considerable potential and long-haul endeavors by advancement offices and the Government, the dairy sub-area isn't exceptionally evolved. There are not many cooperatives, associations, and budgetary establishments, especially to help dairy cultivating advancement (Edemo, 2017). To defeat the difficulties confronting dairy ranchers, the Government of Rwanda has embraced the Agriculture Gender Strategy arranged by MINAGRI in 2010. The task has seen the conveyance of more than 200,000 yearlings to families and creating specialized aptitudes in dairy creation (Umuzigambeho, 2017).

In Tanzania, Kimaro, Mlangwa, and Lyimo-Macha (2013) discovered that non-administrative and strict associations unequivocally began supporting nearby dairy ranchers through empowering arrangement of gatherings to make the most of getting to more open doors easily, for example, skilled dairy cows, preparing on animal wellbeing the board, credits, and so on which are all the more handily gave to bunch individuals. The outcomes indicated that pay from dairy cultivating contributes fundamentally to family unit salary and ladies in bunches won more pay than ladies not in bunches per annum. Suddenly, bunch enrollment didn't show a factual centrality as a determinant factor for dairy cultivating salary got.

The Government of Kenya has not built up an extensive dairy cultivating money-related frameworks technique even though it has recognized helpless admittance to cultivate acknowledge and monetary frameworks as a contributing variable to the decrease in dairy efficiency. Kenduiwa, Mwonya, and Kinuthia (2016) showed there is a low investment of dairy ranchers in microfinance establishments in Bomet County along these lines; smallholder dairy ranchers should grasp microfinance credit in financing their dairy cultivating for them to acknowledge higher milk yields.

Ranchers ought to likewise exploit the accessible and up-and-coming microfinance establishments in their push to acquire the essential funds for breed improvement and animal farming practices. Biwott and Tuwei (2016) set up that ranchers are given admittance to advances and this has impacted their work. Subsequently, ranchers incline toward obtaining since through acquiring they can better their lives. Nonetheless, a larger part of the ranchers get modest quantities of cash and

there is have to build up the ampleness as far as working capital prerequisites to run the dairy endeavors and reimbursement limit

Microfinance is the correct instrument to diminish pay imbalance, permitting residents from lower socio-affordable classes to partake in the economy. Also, its contribution has appeared to prompt an upward pattern in salary in non-rural areas. Past examination on the function of microfinance on dairy cultivating execution has given the agrarian area a more extensive compartment as lion's share of the investigations has focused on the non-horticultural area, particularly exchange. With an increment in microfinance inclusion in dairy cultivating, it was critical to inspect the impact of microfinance organization frameworks on the presentation of dairy cultivating in Kakamega. The region has 15 microfinance foundations with 63% of the family sharing dairy cultivating at the various size of creation.

### **1.1.3 Performance of dairy farmers**

Even though various studies have been conducted on the performance of microfinance-supported businesses, few have focused on dairy farming as a lot of studies have concentrated on small and medium enterprises (SMEs) excluding dairy farmers in their samples. Further, there have been mixed outcomes on the effect of MFI service on the performance with some studies indicating that some certain systems influence performance while others do not. For example, Amsi, Ngare, Imo, and Gachie (2017) found out that microfinance credit factors affect SMEs' financial performance in Kenya. Chole (2017) revealed MFI saving and loan systems have positively influenced the performance of MSEs in Kariobangi Light Industries but the training systems have not contributed positively. Micro-credit and micro-savings, according to Kisaka and Mwewa (2014), help MSEs develop and perform better. However, MFI's training does not address MSEs' actual demands, which has led to many MSEs avoiding MFI systems.

### **1.1.4 Location of the study**

The study was carried out in Kakamega County, which is situated in Kenya's western province. Kakamega town serves as the county's administrative center. According to the 2009 census, it has a population of 1,660,651 people and a land area of 1,395 km<sup>2</sup>. In terms of population, it is Kenya's

second-largest county. Farming, wholesale and retail trading, service and processing industries are only a few of the economic activities that take place in this county. Although this region is endowed with valuable resources such as gold, arable land, and forest, the age dependence ratio is 100:101. The Kakamega forest, for example, is a tourist attraction in the county.

The main economic activities include large-scale sugar farming, mixed farming, commercial businesses, and bodaboda transportation. Sugarcane, Maize, dairy products, millet, tea, sunflower, beans, and soya beans are among the agricultural items produced in this area.

Although there are various economic activities taking place, the poverty index is around 57% according to KIHBS 2009 which indicates that more than half the population are poor. This trend predicts challenges in accessing finance from various financial institutions. Kakamega County was chosen because there has been an increase in the number of both microfinance and other financial organizations. This index is above the national index of 33.6%.

## **1.2 Statement of the problem**

The performance dairy industry in Kakamega County is characterized by low raw milk production and poor marketing strategies implying income from dairy farming is low. The county has a deficit of 33.3% in milk and milk products annually meaning that it has to depend on neighboring counties to offset the deficit besides the potential to export milk to other counties (CGOK, 2017). Low milk production makes dairy farming in the county unsustainable and this record a project failure rate that is higher than the national average of 40%. Of the total cattle milk production, 4.6% is marketed through traders and cooperatives to processing plants implying that few households have surplus income for saving as selling through contract marketing assures lump sum payment. According to the Government of Kenya GoK (2017), Kakamega County has 254,450 zebu cows and 127,520 dairy cattle. The low ownership of improved cattle breed has been largely due to financial expenses associated with the rearing of exotic dairy cattle as most of the locals are unable to afford extensive systems, feed, and fodder among other systems.

Despite the existence of financial and non-financial systems from microfinance institutions, the performance of dairy farming in Kakamega County has been a source of concern to the national economy (CGOK, 2016). The county government of Kakamega has liaised with financial institutions such as Equity Bank Group Limited to provide micro finances to dairy farmers. The systems of MFI strive to ensure that dairy farming is a profitable agribusiness through the provision of credit, encourage saving behavior, improve the capacity of farmers and also shield them from risks. However, various performance indicators including sustainability and profitability have indicated that dairy farming in the county is not competitive and attractive (CGOK, 2016). This has resulted in to increase in the poverty rate, depending on milk and milk products from other counties, and the unemployment rate due to few agro-based processing industries in the county. There is no doubt that adequate measures need to be put in place to improve the performance of dairy farming in Kakamega County.

Efforts to improve dairy performance in Kakamega County have been undertaken by both government and non-governmental organizations. Development partners through NGOs have supported dairy farmers through the provision of improved dairy, capacity building, and market access. National Government through specific line ministry has also support dairy farming performance through research and development. The County Government of Kakamega started the One-cow initiative per household although the performance of the project is yet to be established. The initiative was also supported by Equity Bank Limited to support dairy farming in Kakamega County. Despite all these efforts, the performance of dairy farming in Kakamega County is not in line with the county's potential.

There have been numerous studies on the influence of microfinance institution systems on the performance of micro and small businesses both locally and globally, but none have directly addressed the impact of savings, loans, microinsurance, and training systems on the performance of dairy farming in Kakamega County, Kenya. The purpose of this study was to see if microfinance institutions' savings, loans, microinsurance, and training programs help dairy farmers in Kakamega County perform much better.

### **1.3 Purpose of the study**

The purpose of the study was to conduct an empirical study on microfinance institution's support systems' influence on the performance of dairy farmers in Kakamega County. The study was based in Kakamega County.

#### **1.4 Objectives of the study**

This study was guided by the following objectives:

- i. To investigate the effect of MFI technical systems on the performance of dairy farmers in Kakamega County.
- ii. To assess the influence of MFI credit systems on the performance of dairy farmers in Kakamega County.
- iii. To establish the influence of MFI micro-insurance systems on the performance of dairy farmers in Kakamega County.
- iv. To establish the influence of MFI saving systems on the performance of dairy farmers in Kakamega County.
- v. To determine the moderating influence of government policy on the relationship between microfinance institution systems and the performance of dairy farmers in Kakamega County.

#### **1.5 Hypotheses of the Study**

To achieve the above objectives of the study, the following hypotheses were tested

- i. H0<sub>1</sub>: There is no significant relationship between the MFI technical systems and the performance of dairy farmers in Kakamega County.
- ii. H0<sub>2</sub>: There is no significant influence of the MFI credit system on the performance of dairy farmers in Kakamega County.
- iii. H0<sub>3</sub>: There is no significant influence of the MFI micro-insurance system on the performance of dairy farmers in Kakamega County.
- iv. H0<sub>4</sub>: There is no significant influence of MFI saving systems on the performance of dairy farmers in Kakamega County.
- v. H0<sub>5</sub>: There is no significant moderating influence of government policy on the relationship between microfinance institution systems and the performance of dairy farmers in Kakamega County.

## **1.6 Significance of the Study**

The study findings were beneficial to the understanding of the role of microfinance institution's support systems on the performance of smallholder dairy farmers. This can form a basis for further research on what microfinance institutions play in the realization of economic development among small-scale dairy farmers. In addition, the findings may be used to help educate the MFI on better ways of managing their businesses and in turn enhancing the growth of the business that are supported more efficiently. This also leads to the generation of new ideas for the better and more efficient management of microfinance institutions which can help in the improvement of dairy farming performance. This study is also important to the government in that the findings of this study will provide the framework for regulating the operations of Microfinance institutions concerning dairy farming financing,

## **1.7 Scope of the Study**

The research was carried out in Kakamega County which is one of the 47 counties in Kenya. The study correspondence included all the 17 micro-financial institutions and their customers in Kakamega County who sought their systems for dairy farming. The Microfinance Institutions system was limited to microcredit, saving, technical systems, and micro-insurance systems. The performance of dairy farming was used as the independent variable. The research was grounded on the knowledge-based theory, prospect theory, and credit rationing theory, and expected utility theory. The research was carried from 2013 to 2019.

## **1.8 Limitations of the Study**

The research suffered from the limitation of openness among participants. Some respondents were conservative as far as their cultures were concerned and even some did not return the questionnaire. The researcher explained to the respondents that the study was purely for academic purposes. The study also suffered from inadequate resources due to fluctuation in the prices as well as the limited time available for the research to be carried out. The researcher provided a miscellaneous budget for unpredicted eventualities which affected the success of the study to some extent. Some of the

respondents were not conversant with English or Kiswahili. The researcher sought the services of a translator.

### **1.9 Delimitations of the study**

Delimitations of the research included the direction the researcher took to ensure that the limitations of the research are overcome. The research was carried in Kakamega County and the data collected was from clients of the 17 MFIs in the county.

### **1.10 Assumption of the study**

Microfinance has been increasingly relevant in discussions about poverty reduction around the world. The widely held belief is that allowing impoverished households access to finance encourages them to start micro-businesses, allowing them to improve their incomes and finally escape poverty. So far, evidence from additional studies has been sparse, and many of the findings have been hotly debated. The researchers also believed that the dairy farmers and MFIs who took part in the study had profited from or were active in contributing to economic growth. During data collection, the researcher assumed that the respondents provided precise and true information. The other assumption was that the dairy farmers are funded by the microfinance institutions in Kakamega County.

### **1.11 Operational definition of key terms**

**Micro-Credit system:** This is a category of modest loan granted to low-income people who don't have any assets, stable jobs, or a credit history that can be verified.

**Micro-Savings system:** This is a system that includes a small savings that is given to low-income people to encourage them to save money for the future. Users can store a large number of little amounts of money without incurring fees when minimum balance limits are removed or set to extremely low levels.

**Micro-Insurance system:** This is an item that shields low-pay individuals from specific dangers in return for a repetitive premium installment that is relative to the probability and cost of the

dangers. Harvest protection, animals protection, protection against robbery or fire, medical coverage, term extra security, passing protection, incapacity protection, and protection against regular calamities are only a couple of the miniature protection items accessible to deal with these dangers.

**Micro finance Institution Technical system:** a system that helps you build commercial and financial abilities faster. It helps grantees in making a smooth shift to higher-benefit exercises, drawing in new venture, and extending markets, deals, and work.

**Microfinance institutions** NGOs, part based associations, for example, town banks, credit associations, and reserve funds and credit cooperatives (SACCOs), specific government banks, and private business banks are among the gatherings that give monetary frameworks to low pay regions.

**Microfinance Systems:** This alludes to the arrangement of monetary frameworks and nonmonetary frameworks to low-pay families, including dairy ranchers by microfinance organizations.

## CHAPTER TWO: LITERATURE REVIEW

### 2.0. Introduction

The chapter contains theoretical literature/theoretical framework, empirical literature, conceptual framework, and recap of literature review. The review of literature has been done as per the objectives of the study to understand what the previous scholars have done and identify the research gaps.

### 2.1 Theoretical Review

The theoretical approach adopted defines and explains the various theories that have been used to explain MFI systems such as micro-insurance, saving, credit, technical systems, and training. It additionally characterizes and clarifies the different hypotheses or models that have been utilized to clarify the impact of microfinance organizations' emotionally supportive networks effect on the

presentation of smallholder dairy ranchers. MFI being at the focal point of credit offices in helpless networks, they play the part to teach, illuminate and propel the general population on the requirement for credit in the current society. This degree of instruction will prompt considerable business financing and relations with different players in the money area. Shepherd, et al. (2007) expressed that getting finance for new drives, especially independent companies, is quite possibly the most troublesome difficulty.

Exogenous theories are based on constant returns to accumulation that is, choices on investments and savings affect the long-run growth rates while neoclassical theories assume that actual output equals potential output, and therefore only technology can explain the differences in the economies of various countries (Begg et al, 2005). Endogenous theory on the other hand explains technology advancements as part of the growth model (Lipsey & Chrystal, 2007). The theories that have been used in this study are discussed below. They include Expected Utility theory; Knowledge-based theory, prospect theory, and credit rationing theory.

### **2.1.1 Expected Utility Theory**

This theory was proposed by Daniel Bernoulli in the year 1738. The beginning stages of expected utility hypothesis can be followed back to suggested deals with any consequences regarding the Saint Petersburg circumstance in the eighteenth century. Backers of expected utility speculation trust it is a managing theory of dynamic under weakness. The ordinary utility theory is similarly used to all the more promptly fathom assurance dynamic. The majority of people are thought to get a kick out of the chance to avoid some danger (Eeckhoudt et al., 2005)

Unsure costs to which dairy ranchers are oppressed forbid them from amplifying utility, subsequently it is best for them to ensure against them under specific conditions (Arrow, 1964; Mossin, 1968; Feldstein, 1973). The normal utility hypothesis contends that hazard disinclined business people will have an inward utility capacity and will get far reaching protection at an actuarially reasonable cost to boost their normal utility (Pratt, 1964; Arrow, 1965). In case there was protection that approached expected utility and people were hazard disinclined, they would get this is on the grounds that it would expand their utility under the reason that there is amazing

information. Practically speaking, actuarially reasonable protection is difficult to accomplish on the grounds that the organization cost and the danger premium for investors should be figured into the actuarially reasonable rate.

Expenses brought about by the security firm are known as association costs. The peril cost is a portion made to the protection office's financial backers as a trade-off for the risk they take in giving security. In like manner, the first class that ought to be paid outperforms the actuarially sensible premium. In case any excess parts stay reliable, the ideal proportion of interest is lower in this event, then, dairy farmers will to some degree defend subject to their risk tendencies (Mossin, 1968; Doherty and Schlesinger, 1991). Low-pay families and dairy ranchers, who are the designated customers of miniature protection, should be more danger loath and buy more protection to forestall the risk of misfortune, in view of the possibility that abundance is adversely associated with hazard avoidance (Laffont and Mantoussi, 1995; Guiso and Jappelli, 1998). Dairy makers oftentimes utilize an assortment of flow strategies to manage shocks, including hazard enhancement, getting, using investment funds, draining creation resources, and casual danger dividing between families. The objective of such exercises, like protection, is to smooth pay and spending (Chetty and Looney, 2011).

Ex-bet measures to restrict hazard openness, otherwise called pay smoothing, alludes to activities that dairy ranchers take part in to ensure themselves against unfavorable income shocks before they happen (Alderman and Paxson, 1994). What does this imply considering the interest for an outer protection instrument like miniature protection, considering that dairy makers as of now have set up frameworks for managing obscure costs?

As per research, the measure of utilization smoothing accomplished by dairy ranchers because of existing exercises notwithstanding quirky shocks is inadequate to scatter hazard all through networks or give long haul income. Eccentric shocks will be shocks novel to a family and inconsequential to shocks experienced by different families, for example, cracking a leg or having a coronary failure (Kazianga and Udry, 2006). This implies that if dairy ranchers are utility maximizers and can bear the cost of the protection expense, they would buy to some extent some level of microinsurance in case it were accessible. This hypothesis prompts the exploration

speculation that: There is no critical impact of MFI miniature protection on the exhibition of dairy ranchers in Kakamega County, Kenya.

### **2.2.2 Knowledge-based Theory**

Penrose invented the phrase "knowledge-based theory" (1959). This theory emphasizes the importance of knowledge in boosting productivity in businesses and the economy. As a result, firms and economies with highly educated and financially skilled employees are more likely to outperform those without these critical resources. In terms of finance, this is because well-educated and financially skilled dairy farmers are proactive and quick to learn and use new skills in order to improve their businesses' efficiency, productivity, risk-taking, and innovativeness (Brue, et al. 2009).

Based on the mode or context in which learning occurs, the knowledge-based theory distinguishes between two types of learning. First, there is exploitative learning, which is external to dairy farmers and so must be learned, with the duration, content, facilitator, and follow-up program all influencing acquisition. Second, it is critical to acquire explorative learning, which comes from within businesses and can only happen through internal experimentation, making it experiential. Therefore, this study relates to the acquisition of knowledge by dairy farmers and their technical systems. Technical systems and learning by doing are fundamental processes of knowledge development for dairy farmers. Technical systems and training can be used to integrate learning and attitudes with behavior. From a strategic point of view, well-informed dairy farmers could easily make correct decisions concerning the growth of their enterprises. Dairy farmers with such pieces of training manifest various knowledge bases on breeding, milk production, marketing, feeding, disease control, and financial management. These decisions invariably distinguish between high performing and low performing enterprises (Diamond, 2005)

Technical systems and training, therefore, impact breeding, milk production, marketing, and enterprise development of the dairy farmers. Moreover, it influences the vision, mission, culture, and values of the enterprises. Therefore, the rationale of using this theory was that it underscores the vitality of the level of technical systems and training of the dairy farmers which positively impact their performance.

### **2.2.3 Prospects Theory**

Kahneman and Tversky (1979) and Tversky and Kahneman (1980) introduced and developed prospect theory (1992). The properties of prospect theory can be summarized as follows. Rather than evaluating absolute values, decision-makers estimate gains and losses in relation to some reference level (of their wealth or consumption). Loss aversion is a psychological phenomenon in which people are more sensitive to losses than gains of the same amount. Furthermore, households decide not only how much to save, but also how to divide their savings among various sorts of assets.

Prospect theory would predict that farmers who were given savings accounts would be more likely to invest in agricultural inputs in order to prevent losses from not meeting their higher reference points for input use, output, and consumption. As a result, this theory will be useful in determining the impact of MFI savings systems on the performance of dairy farmers in Kenya's Kakamega County.

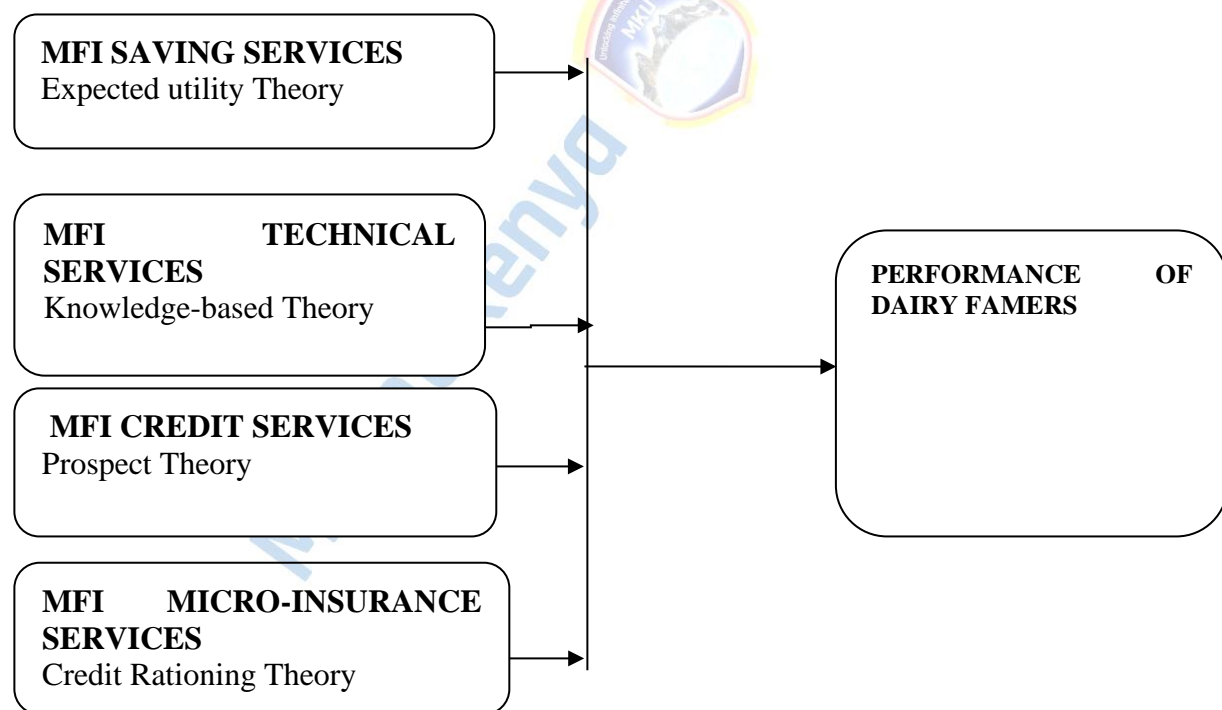
### **2.2.4 Credit Rationing Theory**

The Credit Rationing Theory by Stiglitz and Weiss is one of the most important hypotheses that has focused on the financing role study (1981). Stiglitz and Weiss (1981) claimed that office issues (an irreconcilable situation between the board of directors (specialists) and the association's investors (proprietors)) and data variations are the main reasons why dairy ranchers have been forced to fund. They claimed that sole dairy farmers are aware of their true budgetary structure, the true quality of the speculation endeavor, and the realistic goal to repay the debt, implying that corporations have unmatched private data (uneven data). Consequently, the bank supervisor settles on choices under lopsided data and works under an ethical danger and unfriendly choice danger.

Under deviating data and credit proportioning, Stiglitz and Weiss (1981) defined the decision between multiple financing sources. Obligated access to funds obtained through monetary foundations' credit proportioning practices is unlikely to be fruitful because administrators work in a situation of erroneous data. This may result in less profitable enterprises being funded while more profitable guesses are effectively overlooked, resulting in poor decision-making and

significant risk. As a result, erroneous data can explain the topsy-turvy of recognition among firms for indistinguishable qualities, with loan specialists not monitoring the specific insolvency probability for the organizations, knowing only that this probability is positive and thus deciding to build obligations' expense.

Data deviation issues are expected to have an impact on new businesses. There are a few types of clients who will face additional challenges as a result of the lack of security, such as dairy ranchers with limited options or those from restricted zones. Furthermore, there may be imbalances arising from the area, just as there may be imbalances arising from the area. Dairy ranchers in provincial areas, for example, may face difficulties in obtaining loans. Because small businesses are seen as particularly risky, they will almost certainly be penalized. Even if customers are willing to pay more to compensate for the increased risk, banks will boost the loan cost sufficiently to liken flexibility and request. This hypothesis impels research theory that: There is no significant role of MFI credit on the performance of dairy farmers in Kakamega County, Kenya.



**Figure 1: Theoretical Framework**

**Source: Researcher (2018)**

## **2.2 Empirical literature**

The empirical literature was based on the following study objectives: to evaluate the effects of microfinance institution technical systems on the performance of dairy farmers in Kakamega County, Kenya; to assess the impact of microfinance institution credit systems on the performance of dairy farmers in Kakamega County, Kenya; and to determine the impact of microfinance institution micro-insurance systems on the performance of dairy farmers in Kakamega County, Kenya.

### **2.2.1 Micro-Insurance and Performance of dairy farmers.**

Microinsurance is a component of microfinance, which offers poor people with financial systems. Micro-insurance, in addition to the more well-known micro-credit, plays an important part in development initiatives (Olaosebikan & Adams, 2014). Miniature protection is a developing worldwide miniature money business that started during the 1970s and gives hazard insurance to low pay gatherings and MSEs (Bhattacharya and Londhe, 2014). Miniature protection strategies are right now held by more than 135 million individuals internationally, with yearly development paces of up to 10% in some arising regions like the Seychelles and South Africa (Loewe and Zaccar, 2014). Miniature protection is particular from conventional protection in that it is a low-esteem item with a humble premium and arrangement for assistance, requiring interesting plan and conveyance procedures, for example, charges dependent on local area hazard evaluations as opposed to individual danger appraisals, just as dynamic cooperation of a go-between office addressing the objective local area (Mathur, 2012).

Namibia (11.2 percent), Seychelles (9.9%), Tunisia (7.3 percent), Uganda (6.9%), and Senegal are among the African nations having a generally high infiltration pace of miniature protection (4.9 percent). South Africa has the most elevated generally speaking number of lives covered (8.2 million), trailed by Uganda with 8.2 million (1.5 million). Kenya has 1.1 million individuals covered, though Ethiopia has 1.0 million (Matul, McCord, Phily & Harms, 2010). In contrast with other African nations, Kenya has a low pace of microinsurance infiltration. Kenya has a 8.1 percent

miniature protection infiltration rate, yet South Africa has a 40.4 percent entrance rate. This helpless infiltration rate could be inferable from business people's absence of familiarity with microinsurance items.

The low speed of development in Kenya could be clarified by the way that the low-pay market is generally dismissed by standard business and social protection conspires, and has needed admittance to suitable miniature protection items for quite a while (Njuguna&Arunga, 2013). Sickness and ailment, terrible lodging, food deficiencies, and cataclysmic events are among risks that low-pay people should battle with (Ramsay &Arcila, 2013). While more than 90% of Kenyans are presented to an assortment of risks in their regular routines, with poor people and private companies being the most powerless, the protection market benefits just 8.4% of the populace.

Low entrance, an inflexible administrative system, a high connection of dangers, a befuddle among reasonableness and maintainability, an absence of specialized ability, improper apparatuses for information assortment for record based protection, and an absence of ability to foresee environment perils are among the extreme dangers looked by miniature protection suppliers in Kenya. These dangers could be relieved through value changes, adaptability, and different methodologies (Arunga, 2012).

A portion of the variables that impact this low take-up of miniature protection incorporate; low access, nonattendance of an investment funds culture, and low livelihoods (Ogodo, 2010). Also, MSEs are presented to various dangers therefore denying themselves of occupation creation, hazard move and reimbursement, upgraded efficiency through protection sponsored hazard the board, and aversion of liquidations (Dionne, 2013). By and by, the MSE area contributed around 79.8% of new positions made in Kenya (RoK, 2014). Given the critical pretended by MSEs, miniature protection stays a superior choice to pad them from openness (IRA, 2014).

Ngera (2018) examined the effect of pioneering direction on MSEs' reception of microinsurance in Kenya. Illustrative and informative examination plans were utilized in this review. Nairobi County has an objective populace of 297,340 MSEs. A sum of 400 MSEs were utilized in the examination. The example was drawn from the populace utilizing separated irregular inspecting. Owner-managers of MSEs were surveyed using a structured questionnaire. The findings revealed

that taking risks and being proactive improves the likelihood of MSE businesses acquiring microinsurance coverage. The adoption of microinsurance by MSEs in Kenya is unaffected by MSE entrepreneurs' innovative behavior. The review, nonetheless, was restricted to non-agrarian MSEs in Nairobi County and didn't endeavor to decide the effect of miniature protection on execution.

Hosseini, Daneshvar, Dourandish, and Ghorbani are for the most part Iranian creators (2018) We checked out the effect of rural protection plans on interest in the Khorasan Razavi Province's rural industry utilizing staggered models. In 2012-2013, cross-sectional information were gathered utilizing a two-stage bunch testing system. The discoveries uncovered that the ranchers' craving to contribute was impacted by their protection foundation, safeguarded developed region, pay installments, and other financial factors, just as the district and meteorological conditions. Subsequently, protection inclusion ought to be founded on climatic conditions and custom-made to the particular conditions of individual areas. Moreover, remuneration installments ought to be made on time to animate speculation.

Hassan, Gathenya, and Iravo (2017) learned at the directing impact of Index-Based Livestock Insurance on factors affecting animals project execution in northeastern Kenya. The review designated family heads and utilized a cross-sectional methodology. The family heads inside the towns were picked utilizing a multistage inspecting strategy. Different relapse examination was utilized to inspect the directing impact of Index-Based Livestock Insurance, while quantitative information was gathered and investigated utilizing measurable models like Analysis of fluctuation (ANOVA). Outer elements like social-social components, financial contemplations, and political occasions were found to significantly affect the presentation of domesticated animals activities, as indicated by the discoveries. In any case, when a directing variable was brought into the autonomous factors (social-social components, financial elements, and political occasions), the investigation discovered that it had no impact on the cows venture's presentation. The objective of the review was to check whether protection moderatingly affected the exhibition of domesticated animals projects, while the current review will take a gander at the effect of MFI miniature protection on dairy cultivating execution.

In Machakos town, Kalui and Omwansa (2015) examined the impacts of microfinance establishments on the monetary exhibition of little and medium firms. The review utilized an unmistakable examination plan. The example still up in the air to be 372, with a 95 percent certainty stretch, utilizing a delineated irregular examining methodology. Polls were utilized to gather essential information. The information was assessed utilizing a relapse condition that checked out the relationship between Microfinance items and little and medium business monetary execution. The discoveries uncovered that MFIs' miniature protection items affect SMEs' monetary presentation.

Matiangi (2016) looked to research what Microfinance finance frameworks meant for the monetary exhibition of little and medium organizations in Kawangware, Nairobi County, Kenya. An elucidating overview study was taken on as the examination plan. The scientist utilized essential information from a self-regulated poll that included shut and open-finished inquiries. As per the discoveries, protection frameworks significantly affect SMEs' monetary achievement.

Mutua (2017) led research in Makueni County to decide the effect of microfinance frameworks on neediness easing. To decide the degree to which destitution mitigation is connected to microfinance frameworks, a distinct examination configuration was embraced. Six store taking foundations in Makueni County were the focal point of the examination. 244 store taking microfinance individuals were picked utilizing an orderly basic arbitrary inspecting method. Surveys were utilized to gather essential information, which was then introduced utilizing elucidating measurements approaches, for example, pie outlines and diagrams. SPSS rendition 2.1 was utilized to dissect the information. The general significance of the factors identified with neediness not really settled utilizing a multivariate relapse model. Microfinance frameworks have a positive and huge impact on neediness decrease in Makueni County, as indicated by the review.

### **2.2.2 MFI technical and training system on Performance of dairy farmers**

The lack of sufficient technical expertise in feeding, disease management, marketing, and production, according to Nabiswa and Samba (2016), is one of the most significant difficulties facing small-scale dairy farmers in Kenya. This has lowered their profits and harmed the longterm

viability of dairy projects. According to Makokha (2015), most dairy farmers in Kakamega County lack technical dairy production capabilities, which has impacted milk productivity.

While exploring the effect of microcredit on smallholder animals yield in Wa Municipality, Ghana, Abdul-Moomin (2012) recommended that microfinance organizations give specialized help with rearing, taking care of, and other veterinary frameworks. Microfinance and different organizations, as indicated by Mutai and Osborn (2014) and Madlani (2013), should give extra preparing projects to lift the dairy area, which has experienced because of an absence of mindfulness. This brought about an expansion in milk yield and further developed milk efficiency.

As per Zindiye (2008), the SME area in Zimbabwe puts a low need on monetary preparing and is regularly reluctant to partake in programs that expect them to fund the expenses of their tasks. Subsequently, their money the board, showcasing methodologies, and monetary administration are altogether deficient. The review proceeded to say that MFI-upheld undertakings ought to be prepared to guarantee their prosperity. As per the OECD (2013), proprietors of agribusinesses in New Zealand, the United Kingdom, Belgium, Poland, Turkey, and Canada don't take part in preparing programs because of an absence of time, significant expenses, and trouble getting its pertinence to the undertaking's requirements. Moreover, associations that didn't take an interest in these preparation programs were observed to do as such on the grounds that they accepted they previously had or could employ the gifts the organization required. Therefore, microfinance foundations should devise strategies for evaluating the effect of monetary abilities preparing on private companies.

In any case, Wright (2000) isn't excited with regards to the job of microfinance foundation preparing to organizations upheld, accepting that these assets ought to be redirected to different tasks that are frantically required, like the strength of individuals in an association, and that there is lacking gaining from the preparation programs presented by Microfinance Institutions. Mbithi (2016) found that, regardless of the way that MFI preparing works on the presentation of the organizations it upholds, most MFIs don't financial plan explicitly for their customers.

Microfinance organizations should prepare and give innovative frameworks to proprietors with the end goal for them to have the right stuff vital for a particular creation, business the board, and market access to profit from the assets they get. Low-pay workers' capacity to lead organizations, either straightforwardly or in a roundabout way, can be worked on through monetary abilities preparing. As a result of the intricacies of monetary choices, entrepreneurs should have the option to make informed decisions about saving, acquiring, spending, and putting away their cash (OECD, 2013). Accordingly, it's basic to investigate the effect of MFI specialized and preparing frameworks on the presentation of dairy cultivating endeavors, as they are every now and again the most weak firms with regards to monetary abilities. As McQuid and Egdell (2011) bring up, the outcomes of an absence of monetary fitness are not simply monetary; they can likewise prompt a large number of different issues for the individual, family, and then some, like obligation, expanded pressure, and lessened prosperity.

In Longisa sub-area, Bomet County, Kenya, Kenduiwa, Mwonya, and Kinuthia (2016) utilized a cross-sectional review research configuration to evaluate the effect of smallholder dairy ranchers' interest in microfinance on dairy cultivating. The review's 152 members were picked utilizing basic irregular determination. The analyst made the information assortment survey, which was then approved by experts in applied local area advancement. Preparing well affects the creation of dairy makers in the examination region, as per the discoveries. The review, notwithstanding, didn't determine which precise usefulness pointers were estimated to arrive at a resolution.

Kimutai and Kipchumba (2016) explored the effect of a monetary affiliation's arrangement of credits and preparing programs on ranchers' occupations in Kenya's North Rift Region. A clear review and an informative exploration approach were utilized in this review. The review's objective gathering included 12,745 individuals/ranchers from eight monetary help relationship in the North Rift Region. The 387 individuals were picked as the review test size utilizing a delineated examining method. The review's discoveries exhibited that preparation strategies decidedly affected dairy makers' vocations. The review didn't simply take a gander at microfinance establishments; it additionally checked out different kinds of monetary foundations, like SACCOs, that can help dairy efficiency. The concentrate additionally didn't see dairy ranchers' presentation, rather zeroing in on family pay.

Mutua (2017) directed examination in Makueni County to decide the effect of microfinance frameworks on destitution lightening. The review utilized a spellbinding examination plan. Six store taking foundations in Makueni County were the focal point of the examination. 244 store taking microfinance individuals were picked utilizing a precise basic arbitrary inspecting technique. Polls were utilized to gather essential information, which was then introduced utilizing clear measurements approaches, for example, pie diagrams and charts. Microfinance preparing affects neediness decrease in Makueni County, as indicated by the review. One of the critical weaknesses of the review was that it tried to explore the impact of MFI frameworks on neediness decrease instead of on the exhibition of dairy ranchers. Thusly, the review didn't likewise build up the impact of specialized frameworks presented by MFI.

Chole (2017) researched the effect of Microfinance Institutions' (MFIs) frameworks on the exhibition of MSEs in Nairobi's Kariobangi Light Industry. This review zeroed in on MSE administrators and was done in Kariobangi Light Industries in Nairobi County. The review utilized an elucidating research system to gather information from every one of the 210 MSEs. Design surveys were utilized to obtain essential information. The discoveries of the examination showed that MFI preparing methods have had nothing but bad effect. As per the review, MFIs and MSEs partners should devise strategies to further develop the failing to meet expectations preparing part of MFI frameworks in Kenya.

Utilizing an informative review approach, Rotich, Lagat, and Kogei (2015) inspected the impacts of microfinance frameworks on the exhibition of MSMEs. The study examined 270 organizations from 429 MSMEs enrolled with the Kiambu Municipal Council. Utilizing the SPSS factual instrument, the analysts utilized a different relapse investigation set to determine decisions about the review. Administrative preparing was observed to be genuinely significant in influencing MSMEs' achievement in the review. As indicated by the discoveries, expanding the accessibility of microfinance will work on the exhibition of microbusinesses. The review zeroed in on administrative preparing for miniature, little, and medium-sized organizations, barring general preparing and specialized frameworks that could influence execution. What's more, no dairy ranchers were surveyed as a component of the review.

### **2.2.3 Microfinance Institution saving system on Performance of dairy farmers.**

In like manner in the agrarian area, the level of progress achieved will generally rely on how the ranchers manage the extra salaries produced from their homestead exercises. This stems from the way that the development rate in the cultivating economy generally relies upon the supply of capital underlying a ranch association and the furrowing back of such stock in type of the homestead association. In the event that these augmentations are spent on family consumption, without developing the important foundation, the future financial improvement of the country will be hampered. Then again, future interest for credit can propel families to forego some current consumption (being the chance expense of putting something aside) for saving. Besides, existing speculations don't zero in on low-pay families, who are a greater part in the LDC,

Micro savings as a microfinance system permits individuals with restricted resources for save by permitting them to make week by week reserve funds and add to bunch reserve funds, which are then prepared by microfinance banks and used to loan to different customers (Mkpado and Arene, 2007). Thus, dairy ranchers have restricted admittance to formal investment funds, and many are uninformed about the worth of this assistance, which could fill in as a shock protection pad for them. Microfinance has progressively perceived reserve funds activation as a critical power. Microfinance used to be almost totally centered around credit; saving was the "lost half" of monetary intermediation (Vogel 1984).

Businesspersons who desire secure and appropriate deposit systems that permit for minor transactions and easy access to their assets rely on savings (Gardiol, 2004). Encouraging clients to save and utilize their small savings as collateral for loans over time helps individuals accumulate significant capital to overcome capital constraints and acquire extra credit to address emergency situations (Ayertey 2008). The succession of saves helps low-income workers to earn interest, take out larger loans, and accumulate assets in the future (Ayertey 2008). According to a research by Kurgat (2007) of the Kenya Women Finance Trust, clients favored savings and credit systems at the Microfinance Institution, and their reason for saving was to expand their business. He stated

that increased savings mobilization is crucial for improved financial performance and outreach, particularly in rural areas with restricted access to financial systems.

Low-income entrepreneurs save, but they don't have enough liquid savings to do so. Microfinance organizations are uniquely positioned to target this market in this situation. Only a few microfinance organizations have devised a system for gathering voluntary savings. Many, on the other hand, demand members to make an obligatory contribution into a savings account. This provides a safety net in the event of a loan default. Some financial organizations allow customers to put extra money into their obligatory savings account. The willingness of clients to deposit mandatory and voluntary savings reflects their ability and willingness to save with microfinance institutions. The experience of MFI and its mandatory savings mechanism provides insight into the potential role of microfinance institutions to collect savings. Offering saving systems would motivate clients to retain membership (Gathogo, 2014).

Notwithstanding, Bateman and Chang researched the proof on saving with microfinance foundations in Croatia and inferred that investment funds were essentially viable for MFI directors and outside investors to expand profit. The examination proceeds to say that, as in Malaysia, China, Taiwan, South Korea, and India, neediness decrease must be accomplished through an assortment of state-drove strategy measures. As indicated by Yeboah (2010), there has been little advancement in setting up microfinance establishments (MFIs) as undeniable monetary delegates, and MFIs predominantly give acknowledge, leaving reserve funds activation as the disregarded portion of microfinance. As indicated by a review done in Uganda by Akisimire (2010), MFI investment funds items to SMEs have experienced intense rivalry in the commercial center because of the presentation of new plug banks and downscaling of old organizations. While expanded loan fees on reserve funds might help SMEs, it might harm MFIs by restricting income accessible to loan.

Njamweah and Kidombo (2018) zeroed in their examination on the variables that impact espresso ranchers' saving conduct in Kenyan espresso helpful social orders in the Manyatta Sub-district of Embu County. The examination incorporates an enlightening overview of 12,340 enlisted ranchers and 44 representatives from three espresso cooperatives. There are 6,045 enrolled individuals

dependent on the populace size being referred to (ranchers). This present review's members were chosen utilizing separated arbitrary examining, which guarantees that everybody in the populace has an equivalent shot at being remembered for the last example. Information was gathered utilizing organized polls and meeting plans, yielding both subjective and quantitative outcomes. Most of respondents, as indicated by the discoveries, saved here and there or another, regardless of whether official or casual. Individuals' reserve funds propensities were additionally impacted by their confidence in monetary associations. The impact of saving money on execution was not set up in the past study, consequently this one will attempt to fill that hole.

Emile et al. (2016) tried to recognize factors affecting rancher reserve funds in Karongi District, Western Province of Rwanda. This review utilized a cross-area overview plan and enlightening study approach. Blended testing strategies were utilized to choose 202 respondents utilizing an organized poll. Key variables distinguished were ranch size, insight in investment funds, distance to the espresso washing station, expansion frameworks, and discernment. The review reasons that to expand ranchers' reserve funds policymakers and implementers in Rwanda need to zero in on augmentation frameworks and ranchers resources. The review zeroed in on factors affecting rancher saving suggesting that it didn't look at the impact of saving money on rancher execution. Further, the review didn't recognize which monetary organizations were designated while the current review will zero in on microfinance establishments.

Jalo, Onu, Margwa, and Dire (2015) explored the financial results of agreeable ranchers' reserve funds propensities in Adamawa State's Numan and Demsa Local Government Areas. The review locale and respondents were picked utilizing a multi-stage irregular and proportionate examining strategy. Information was gotten through surveys circulated to 68 enlisted helpful ranchers, and illustrative insights were utilized to dissect the outcomes. The majority of the respondents said they did low maintenance cultivating as an essential occupation, with 51.47 percent saying they did animals creation and 44.12 percent saying they started out with their own cash. When contrasted with different occupations, domesticated animals makers were demonstrated to be less keen on saving. Saving examples were utilized as a reliant variable in this review, and the objective was to perceive what financial elements meant for them. The current review, then again, will endeavor to decide the effect of saving money on dairy execution.

Kibet, Mutai, Ouma, and Owuor are four characters in the game Kibet, Mutai, Ouma, and Owuor (2009) The qualities that impact reserve funds among groups of educators, business people, and ranchers in country areas of Nakuru District were examined utilizing a microeconomic methodology. A multistage examining procedure was utilized to pick 359 instructors, money managers, and ranchers from the region's seven rustic managerial divisions. The key finding was that family saving is controlled by: kind of occupation, family pay, age and sex of family head, level of training, reliance proportion, administration charge, transportation expenses, and acknowledge accessibility, as determined by the least-squares approach. The analysts centered into the attributes that impact saving in an assortment of occupations, including ranchers. Nonetheless, on the grounds that the discoveries were not divided by the testing units, it is hard to disengage factors influencing rancher saving.

In Bungoma town, Otiso and Omambia (2016) explored the effect of microfinance rehearses on the exhibition of ladies possessed organizations. This review utilized a distinct study plan as its exploration strategy. The review's members were all ladies claimed organizations that were enlisted with microfinance banks. They were picked utilizing delineated inspecting to pick the ladies business people who are enlisted with microfinance organizations, and basic arbitrary examining to pick the ladies possessed organizations occupied with the review. Saving frameworks and the presentation of ladies possessed organizations have a positive significant connection. This shows that WOES can improve their proficiency by bringing down their expenses. The study, nonetheless, just saw ladies claimed organizations that were enlisted. Since most of ladies associated with dairy cultivating are not enlisted, they were discarded.

#### **2.2.4 Credit systems and Performance of dairy farmers**

Money accessibility impacts an organization's ability in an assortment of ways, including innovation determination, market access, and admittance to distinct advantages, all of which essentially affect an organization's suitability and achievement (Wole, 2009). One of the essential obstacles for any business visionary, as indicated by Wole, is acquiring financing for business new companies or tasks. Limited scope business visionaries are confined from getting credit from customary credit organizations because of an absence of substantial security and procedural

administration in credit acquiring. In this specific situation, limited scope business people's diligent impression of their difficulties with admittance to back are a significant wellspring of concern, which, if not tended to viably, might risk the casual area's endurance and extension.

Miniature credit is the arrangement of unobtrusive advances to low-pay people who need guarantee, stable work, and a record of loan repayment that can be checked. Microcredit loan costs shift incredibly, yet are ordinarily somewhere in the range of 20% and 40% each year. As per Roodman (2012), as MFIs age, inflexible terms will in general straightforwardness, bringing about lower loan fees, among different components. Worries about exorbitant loan fees come from the 'morality' of the ruined being compelled to pay excessive expenses and the chance of exploitative away from them. Straightforwardness, dependability, and versatility are different troubles with microcredit (Roodman 2012). Individual borrowers are progressively ready to get to miniature credit, which was previously just accessible through a gathering approach with shared security.

In agrarian social orders, rancher admittance to credit and effective advance utilization are basic for raising homestead yield, expanding country family salaries, and diminishing neediness levels. Ranchers' admittance to rural money is as yet restricted in Kenya, and in Africa overall. The justifications for why horticultural money has not had the option to satisfy the needs and assumptions for customers, as indicated by Meyer (2011), AUC, and MFW4A (2012). Hesitance of monetary foundations to loan to the horticultural area, high dangers related with loaning to the rural area, particularly smallholder ranchers who need insurance and creation, and political dangers predominant in Africa are among the issues announced by the creators as far as both supportable access and appropriateness of monetary items and systems. Few research on the credit difficulties of restricted asset (little) ranches have taken a gander at their perspectives in regards to getting without checking out the financial premise of those opinions (McManus; Otto; Snell, Hopkins, and Barnett; Spitze and Bevins; Spitze and Romans; Wise; Woodworth, Comer, and Edwards). These investigations all concur that credit is utilized by a minuscule level of little ranch activities.

Njuguna and Nyairo (2010) looked to decide how formal loaning conditions, for example, financing costs and guarantee necessities, influence the arrangement of rural credits to ranchers. The review utilized an elucidating research approach, utilizing credit directors and advance officials from four banks in Gatundu South: Kenya Commercial Bank (KCB), Equity Bank, Family Bank, and Cooperative Bank. The review utilized an essential relapse model to show that the previously mentioned conditions actually affect rural financing access. Since the review zeroed in on business banks instead of microfinance firms, the discoveries can't be reached out to the current review. Besides, the concentrate exclusively investigated the effect of loaning imperatives on credit supply.

Mgbakor, Uzendu, and Ndubisi (2014) explored the wellsprings of horticultural financing accessible to smallholder ranchers in Enugu State, Nigeria. A multi-stage arbitrary determination strategy was utilized to gather information for this review, with ten towns picked indiscriminately among the 21 towns that make up the nearby government area. The information for this review came from both essential and optional sources. Essential information came from organized polls and individual perception, while auxiliary information came from course books, periodicals, workshop papers, papers, diaries, and different works of writing identified with the subject. As per the discoveries, most of ranchers are hitched and really like to get from banks. Most of them were 45 years of age, with a family size of 6-10 kids. Most of the ranchers were self-trained and overseen 1-3 hectares of land for food creation. Ranchers occupied with crop development as their essential business and animal cultivating as a wellspring of meat, as per the discoveries. Farmers were able to borrow money from both institutional and informal lenders. The credit was utilized to boost productivity by purchasing new farm input varieties, purchasing land, and so on. Farmers face issues such as high interest rates, illiteracy, fund diversion, and a long term of loan payback to increase their farm produce at a low-interest rate and with consideration of the enterprise type for a repayment period.

Ali (2007) investigated the influence of the Sarhad Rural Support Programme's micro-credit program on livestock enterprise development in six villages in the district of Abbottabad, NWFP. The research was completed in April of 2006. SRSP granted loans on a pilot basis to 60 households for livestock enterprise growth, according to the field survey. All of the loanees were chosen for

the study to see how credit affected their lives. According to the findings, 33% of families used loans to achieve the project's goals. The income of the households improved as a result, which had a beneficial impact on consumption and children's schooling in the sample houses. The study also revealed that 67 percent of people misused credit and had no effect on their socioeconomic situation.

Eusébio et al. (2016) explored the impact of Brazil's PRONAF financing program on limited scope agrarian creation. The information comes from Brazil's 2006 Agricultural Census, which covers 5.2 million little ranchers. As well as utilizing a different straight relapse model to assess the net effect of PRONAF on absolute creation esteem, we utilized an inclination score coordinating with technique to distinguish sets of somewhat homogeneous family cultivates, one that utilized the credit and the other that didn't, and gauge the normal distinction in their creation esteems. Admittance to PRONAF had a 18% positive and critical net impact on creation esteem, as indicated by relapse investigation.

Ibrahim and Bauer (2013) set off to examine the issue of credit accessibility that actually exists in Sudan's drylands, utilizing North Kordofan for instance. It additionally looks to figure out the angles that impact ranchers' benefits from agribusiness. The exploration depends on an organized poll and a field review done in 2009. A multi-stage arbitrary example strategy was utilized to pick 200 ranch homes for the overview. The information was investigated utilizing unmistakable factual examination and the Heckman model. Homestead incomes for all classifications added up to SDG 920 (100 SDG 18 Euros), as indicated by the discoveries. Credit clients fared better compared to non-clients, with a benefit of SDG 955 contrasted with SDG 882 for non-clients. The Heckman model's discoveries uncovered that credit humbly affects ranch benefits. This proposes that credit levels are probably going to be deficient to generously affect ranch creation.

Sebatta, Wamulume, and Mwansakilwa (2014) tried to figure out what variables impact smallholders' choices to get to rustic money and how dynamic they are in the monetary business sectors. A family overview was done in five regions, with thirteen regions being picked indiscriminately. A pre-tried survey was dispersed to 1,326 families utilizing both purposive and irregular testing methods. A twofold cluster model was utilized to examine the information. The

quantity of every day suppers served, the size of the home, and the training level of the family head all impacted the choice to get to back, while advance recompense length, having a telephone, and individual reserve funds all affected the level of cooperation in the rustic monetary market.

Simon (2013) explored the components that impact rustic families' advance choices. An irregular example of 20-30 ranch families from each region was utilized in the review, and 97 families offered an explanation to the survey. The investigation discovered that the kind of harvest, family size, and sex of the family head all affected families' getting choices decidedly, while age squared had an adverse consequence.

In Nigeria's rustic networks, Ibrahim and Aliero (2012) explored the components that impact ranchers' admittance to formal financial advances. The data was accumulated in country parts of Katsina State. The components that impact ranchers' admittance to formal advances were inspected utilizing a probit demonstrating approach in this review. As indicated by the discoveries, pay, insurance, instructive fulfillment, and conjugal status all helpfully affect ranchers' admittance to formal money, though age and sex have an immaterial effect. Loan fees and handling costs, then again, adversely affect ranchers' admittance to formal financing. Because of the ebb and flow banking framework in Nigeria, rustic ranchers have practically zero admittance to credit from conventional banks, as per this exploration. Therefore, the review proposed utilizing both gathering loaning plans and character loaning to contact ranchers in rustic regions with formal money.

### **2.2.5 Government Policies on Agricultural Financing**

The arrangement is characterized as an administration mediation, or a game-plan done by the executives (on account of an association) or, even better, a person, to impact or show up not really settled results. The public area has constructed institutional help for farming as horticultural exploration, augmentation, item showcasing, input supply, and land go through guideline to speed the improvement of agribusiness (FAO, 2013). These are a couple of models. The private area's inclusion isn't restricted to neighborhood or unfamiliar direct and portfolio venture subsidizing, yet in addition remembers sponsorship of horticultural exploration and leap forwards for colleges, rancher limit building, and, most urgently, ranch business financing. Worldwide legislative and non-administrative associations, like the World Bank and the United Nations' Food and Agriculture Organization, contribute on-ranch and off-ranch support as money, input supply, and

the reinforcing of specialized limit of other help foundations, in addition to other things (World Bank, 2018).

Macroeconomic approaches that will in general advance the development of the area, for example, credit-diverting monetary arrangements, cost balancing out money related and conversion scale strategies, and ranch motivation loaded financial strategies including charge exclusions for horticultural organizations, obligation free import of homestead apparatus, among others. Monetary area establishments in emerging nations loan an excessively lower portion of their credit portfolios to agribusiness contrasted with the horticulture area's portion of GDP (FAO, 2013).

Agribusiness' improvement requires monetary frameworks that can uphold: bigger horticulture ventures and farming related foundation that requires long haul financing (considering that transportation and coordinations costs are at present excessively high, especially for landlocked nations), more noteworthy youth and ladies' interest in the area, and mechanical headways (both as far as motorizing the agrarian cycles and utilizing cell phones and electronic installment stages to upgrade get to and diminish exchange costs). Tending to foundational hazards through protection and other danger the board techniques, just as bringing down working expenses in managing smallholder ranchers, is a critical concern.

As per an exploration by the Food and Agriculture Organization of the United Nations (FAO, 2013), legislatures can help smallholders since they have restricted admittance to monetary frameworks, markets, are powerless against shocks, and have restricted capacity to control hazards. Because of the great cost of preparing and adjusting little unstable advances, limited scope ranchers have been dismissed previously. To purchase agribusiness inputs, provincial families depend on casual advances. The contention behind casual credit loaning is that it might have been driven by the public authority's guideline of the proper area. Despite the fact that there have been organizations, for example, Small and Medium Enterprises, Microfinance Institutions set up in the rustic regions where limited scope ranchers are, real interest in the agrarian area has been generally little (Idris, and Agbim,2015).

The World Bank centers around creating and carrying out agribusiness finance methodologies and instruments for the group in private area, further developing admittance to reasonable monetary

frameworks for ranchers – especially smallholders – and rural SMEs as a way of expanding rural usefulness and pay, and working with the combination/joining of creation and promoting elements in farming to accomplish economies of scale and more grounded agrarian SMEs (World Bank, 2018). They lead symptomatic examinations on the condition of rural money inside customer nations and produce substantial activity intends to change public approaches and guidelines to establish an empowering climate to activate agrarian money. A few instances of strategy and legitimate/administrative mediation regions incorporate loaning amounts, loan fee covers, bank office development guidelines, prudential guidelines affecting agrarian loaning, distribution center receipt financing systems, and elective debate components for contract cultivating. The World Bank likewise prompts state run administrations on strategies for farming protection (for example monetary motivating forces, premium sponsorships, and the general job of government to advance agribusiness protection) and on the improvement of powerful protection items. On explicit tasks and activities, we likewise work with the Global Index Insurance Facility (GIFT) and the Disaster Risk Finance and Insurance Program (DRFIP).

The World Bank has additionally been engaged with the fortifying of key establishments, giving specialized help to change and foster public monetary foundations, build product trades, and reinforce MFIs and different associations. Given the significance of monetary cooperatives as suppliers of monetary frameworks to smallholder ranchers, rustic MSMEs, and families, they run a specific program devoted to them. To all the more likely coordinate them into their country's monetary framework, this program endeavors to work on their presentation just as fitting enactment and oversight methodology (Cheston, and Kuhn, 2002). They likewise help plan and build an assortment of instruments, including as worth chain finance, halfway credit ensure plans for agribusiness area advances, coordinating with awards, crop protection, value supporting instruments, and sexual orientation finance, either as specialized help or as a component of loaning programs. They likewise focus on building up versatile banking and installment advances to work on monetary access and lower exchange costs in the biological system. The advancement of answers for limit the danger of horticulture by handling foundational perils has been a significant accentuation of their work in this field. Zero in on ways of limiting working expenses in arriving at smallholder ranchers and SME agribusinesses (for instance, the job of advanced money

innovation) and furthermore on procedures to lessen creation and climate hazards through protection and value supporting instruments (World Bank, 2018).

Sub-Saharan African nations, like Nigeria, have drives to assist with expanding agrarian yield. The Federal Government of Nigeria (FGN) perceived the significance of farming from the get-go, hence it selected to take on arrangements that help horticultural creation admittance to financing and monetary framework, with a definitive objective of achieving the country's formative objectives. The objective of Nigeria's agrarian financing strategy is to make a practical arrangement of horticultural financing plans, projects, and organizations that can give miniature and full scale advances to miniature, little, medium, and huge scope makers, processors, and advertisers (Olowa, and Olowa,2014).. The development of plans, projects, and associations to address and convey the public authority's points in the area are among the strategies focused on at boosting the farming and provincial monetary business sectors.

Farming approaches in Kenya incorporate government activities that influence the level and steadiness of info and yield costs, just as open speculations that influence agrarian creation, expenses and incomes, and asset circulation. These approaches in a roundabout way affect farming. Further developed rural usefulness has been distinguished as one of the nation's overall objectives for neediness easing. The farming area system's objectives have been to increment rural development, which is considered as basic for raising country wages and ensuring equivalent circulation.

Expanded efficiency and pay development, especially for smallholders; further developed food security and value; accentuation on water system to present soundness in agrarian yield; commercialization and heightening of creation, especially among limited scope ranchers; suitable and participatory approach definition; and ecological supportability are the primary objectives of Kenyan horticultural strategy. Expanding rural efficiency and livelihoods, especially for little holder ranchers, zeroing in on water system to decrease over-dependence on downpour took care of farming despite restricted high-likely rural land, empowering broadening into non-customary

rural products, and worth expansion to lessen weakness are a portion of the key strategy spaces of concern (Jayne, et al, 2010).

Agribusiness' failure to build creation and put resources into esteem added exercises is hampered by an absence of financing. Admittance to credit has restricted the scope of exercises, innovation utilized, and size of activities that a rancher can use on his homestead, particularly for limited scope ranchers and eminently ladies (Alila, and Atieno, 2006). Since freedom, the measure of horticultural money accessible to ranchers has would in general diminish. Regardless of the way that different establishments have been associated with agrarian financing consistently, real interest in the area has been unobtrusive. Thus, admittance to reasonable monetary credit is basic for working on horticultural creation and livelihoods, especially for smallholders, most of whom live in country regions. This is on the grounds that cutting edge cultivating hardware is a critical contribution to accomplishing the higher usefulness target (Alila, and Atieno, 2006). There has been a credit predisposition for enormous homesteads and money organizations. Poor monetary asset assembly through an unstable helpful construction and grassroots associations should be tended to.

### **2.2.6 Dairy Farming Performance**

All through the jungles, smallholder dairy cultivating was set up as a feature of social government assistance and provincial advancement plans, to give an ordinary income to ineffectively resourced and frequently landless ranchers. Presently it is a setup industry in many nations subsequently requiring a more business-disapproved way to deal with ranch the board. Not exclusively does privately created crude milk supplant imported dairy items, it gives some level of public food security to neutralize the vagrancies of the current worldwide budgetary and politically shaky world in which we live (APHCA, 2007). There are 15 proportions of execution in the dairy area as indicated by Diane, Polson, Oelker, and Gary (2008) because of 10 significant zones to be specific; creation rate, control of cost, proficiency of capital, liquidity, productivity, booked reimbursement, mission, dissolvability, continue families living normal and energized work power among others.

Phillip (2011) agrees on centered assessment of the Netherlands and Dutch dairy Cluster Micro budgetary parts of Profitability. In the Netherlands, the dairy bundle overpowers and is a champion among the most beneficial and charge arrangements on the planet. The anomalous condition of benefit is driven by refined family and neighborhood solicitation and contention, mechanical headway, high regulatory standards, and a skilled labor force.

Profitability is the ability to offer things and associations that meet the quality models of the nearby by and world business sectors at costs that are locked in and give alluring advantages for the preferences utilized or ate up in making them. To dairy agriculturists, it incorporates the ability to convey a quality product that is gainful in the area and overall market (Barney and Hasterly, 2008).

Barney and Hasterly (2008) moreover depict the Value, Rare, and Imitable and Organization (VRIO) framework as a not that entire terrible device to inspect the inner condition of an undertaking. It remains for four solicitations one must get some information around a favorable position or ability to pick its connected with potential. These incorporate the subject of; noteworthy worth does a benefit enable a firm to manhandle an environmental open entryway or conceivably execute a characteristic danger; the subject of anomaly is an advantage starting at now constrained by a solitary or few battling firms? Are the advantages for making things extraordinary; the subject of perpetual nature - do firms without a benefit stand up to cost trouble in getting or making it? Is what a firm doing hard to duplicate; the subject of affiliation is the affiliation's various game plans and systems made to help the maltreatment of its critical, exceptional, and extravagant to mimic resources? In case the advantages are not critical, there is a forceful shortcoming, and where they are beneficial and normal; there is engaged uniformity (correspondence), but instead when they are significant, extraordinary, not imitable, and formed, there is high ground.

Vertical coordination progresses regard chain budgetary perspectives. Regard chain for the dairy industry oozes from seed associations and collects farmers, by then to dairy agriculturists for channel age by then to dairy processors and in end to the purchaser. Vertical joining improves advantage. Baltenweck (2010) proposes that the appraisal to which degree close by dairy creators go facing imported things is to learn the unfamiliar expense of things. Import equity because of

the channel is figured by starting with the world expenses for Whole Milk Powder (WMP) and adding it to costs of transport to close by business sectors and the expense of progress.

Kamau (2011) believes that because of high fuel and crude materials costs the fabricated creature takes care of have gotten over the top expensive. This has prompted the offer of bad quality feeds by makers, which add to low milk creation. Anyway, the couple of makers who produce quality feeds sell them at excessive costs which are unreasonably expensive to most little scope ranchers which dissolves their edges. Raihan (2008) further relates that dependence on the atmosphere for the creation of feeds influences the dairy ranchers. When there are unfriendly climate conditions, dairy animals' feed filled in the ranches is scaled down, driving the ranchers to depend on business takes care of whose costs have raised.

Kiama (2009) further explains that information on elective profoundly nutritious plants among the little holder ranchers is low. For instance, Lucerne, leucopenia, caliangra and gliricidia is low. These other options and profoundly nutritious feeds could improve milk yields and diminish taking care of expenses and in this manner upgrade rancher's pay. He further notes that the low expansion frameworks and helpless perusing society combined with a detachment of data offices and archives have added to low creation limit and low quality of milk, diminishing its worth and pay to ranchers and their competitiveness in the rural area.

Shitanda (2004) noticed that a wide range of animal illnesses can without much of a stretch add to the low degree of milk creation among ranchers. Sickesses like mastitis, pneumonia, foot and mouth, ox-like tuberculosis give some examples of them influence the creature's wellbeing and milk creation. The expense of veterinary medications, frameworks, immunizations, and pesticides is high and whose application systems are not notable by most ranchers. Further noted is the significant expense of dairy hardware like draining balms, which would upgrade wellbeing and nature of milk, a significant serious edge in the dairy area.

Ondwasi (2009) uncovers that managed impregnation is one method of improving the stocks and expanding milk creation. The conventional technique for the nearby bull barely improves the variety. Be that as it may, to get the best semen is extravagant, disallowing most ranchers from getting to them. Likewise, information on keeping the best kind of breed is low. It is suggested

that the Friesian, Ashier, Jersey, and Guernsey types of cows ought to be maintained in control to create huge amounts of milk.

### **2.3 Conceptual Framework**

Different scientists portray the conceptual framework as shown by the subject under review anyway all feature comparable kind of methodology or guides of cycles and frameworks proceeded in dealing with an issue. Brouwer, Faramarzi, and Hoogendoorn (2014) describe the conceptual framework as a social event of thoughts that are intentionally figured out to give a gadget to the comprehension of information. It is considered as a visual or created thing, one that explains, either graphically or in story structure, the standard things to be inspected, the key components, thoughts, or factors and the expected associations among them (Mohan and Ganesh, 2012). A determined framework can in like manner be portrayed as a great deal of sweeping contemplations and norms taken from critical fields of request and used to structure a subsequent presentation (Vasquez, 2011).

In this investigation, the autonomous factors are MFI sparing frameworks, specialized frameworks, credit frameworks, and miniature protection with Government strategies as the mediating variable. Execution of dairy cultivating which is a reliant variable will be estimated as far as crowd size, amount and nature of milk, productivity.

Miniature protection take-up can be estimated by investigating the bought miniature protection, portfolio blend, and the reestablishment rate. The mindfulness and fulfillment execution pointers center on how promptly the objective market selects the miniature protection program and holds the inclusion (Wipf and Garand, 2010).

## Independent Variables

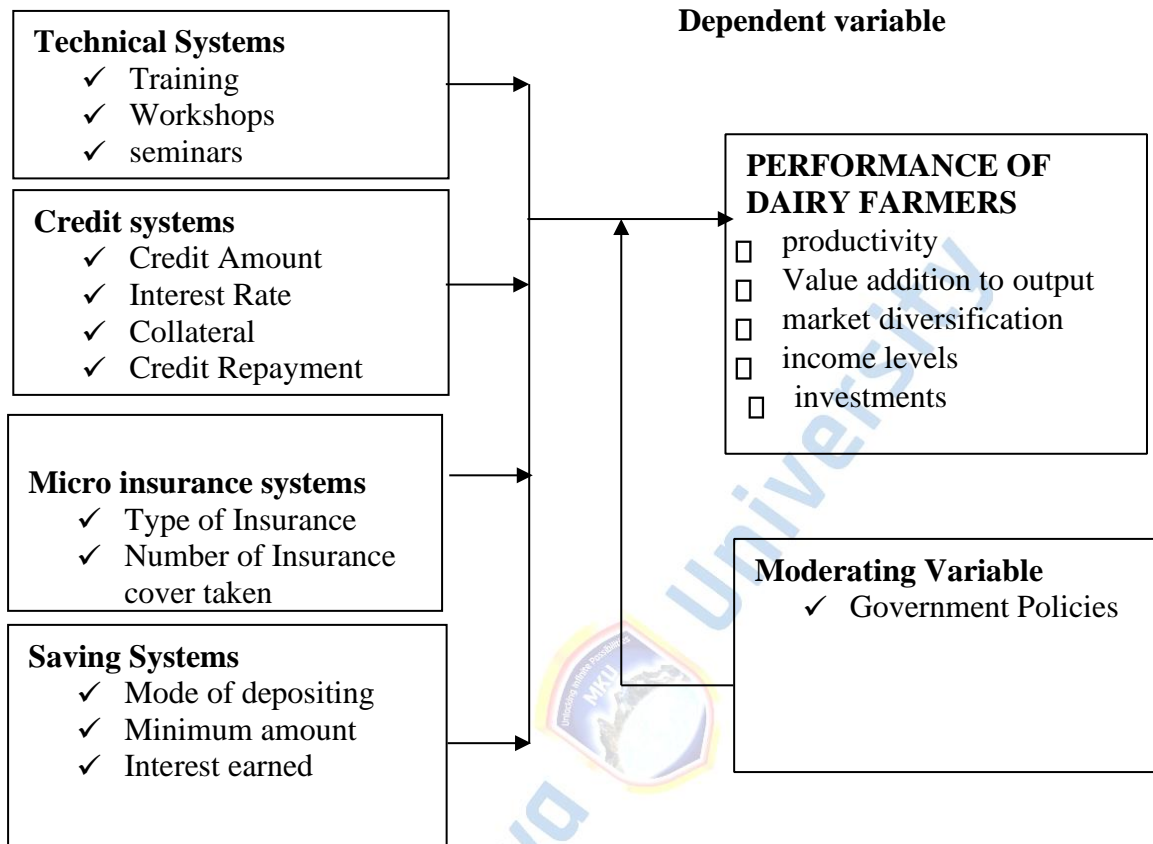


Figure 2: The Conceptual Framework

Source: Researcher (2018)

## 2.4 Recap of Literature Review and Research Gaps

Microfinance research is flourishing, and the connection between MFI systems and execution has gotten a ton of consideration (some continuous observational examinations join Harms et al., 2010; Grande et al., 2011; Lechner and Gudmundsson, 2012; Eggers et al., 2013; Kraus, 2013; Messersmith and Wales, 2013) thus, to submit the composition, one should initially see specific defects in it. As per an audit of past composition on MFI systems, numerous investigators are centered around the issue of SMEs and MFI credit accessibility (Harms et al., 2010; Lee and Chu, 2011; Pratono et al. 2013; Saeed et al. 2014).

To summarize the holes, there are not many examinations that gander at the forerunners of MFI frameworks as far as how they impact dairy ranchers' reception of miniature protection and reserve funds, just as lacking proof on what government strategies and laws mean for MFI reception as a mediating variable. Despite the fact that MFI is generally concentrated on today, there are as yet numerous unseen regions inside this idea, and this theory on MFI emotionally supportive networks and dairy rancher execution fills in a portion of the examination holes referenced above and adds to current information.



## **CHAPTER THREE: RESEARCH METHODOLOGY**

### **3.0 Introduction**

This chapter presents the study area, research design, population and sample size, sampling techniques, data collection instruments, research procedure, reliability and validity, data analysis tools, and ethical considerations.

### **3.1 Research Philosophy**

According to Blaxter, Hughes, and Tight (2001), research reasoning is a paradigm that can be used to strengthen an investigation. An exploration theory is a set of beliefs about how wonder is gathered, probed, and used. It is connected to epistemology which is a connection between the scientist and what is known to be valid, and philosophy alluding to what in particular is accepted to be valid. The examination theory that was received for this exploration is that sought after by positivists who accept the truth is steady and henceforth can be seen from a goal perspective. Positivists contend that wonder can be detached and perceptions can be copied (Creswell, 2006). This includes control of reality with varieties in autonomous variables to distinguish consistencies and structure connections between constituent components of the social world (Wilfred, 2006). Positivists' scientists accept a controlled methodology in leading examination by recognizing an exploration point, research theories, and an appropriate strategy. Positivism empowers one to apply factual strategies in testing speculations to dissect research information gathered utilizing quantitative examination methods.

### **3.2 Research Design**

A research design is program that directs the examination of the exploration in assortment, investigation and understanding of perceptions made (Nachmias 2005). It is a consistent model of evidence that permits inferences to be drawn concerning causal impact relations between the factors being scrutinized. It additionally characterizes the space of speculation to a bigger populace or to various circumstance, (Amazon 2008). Examination configuration can likewise be considered

as the design of exploration. It is the paste that holds each of the components in an exploration project.

This research assumed both Descriptive survey and explanatory research designs. Explanatory design builds up causal connections between factors. The accentuation is on concentrating on a circumstance or an issue to clarify the connection between factors (Saunders, Lewis and Thornhill, 2007). Creswell (2005) declares that explanatory design configuration can be utilized to foresee a result like execution of dairy ranchers. For this situation it included assembling of information to decide the impact of microfinance foundation administrations on the dairy cultivating execution. Further, Greene, (2012) prescribes utilization of relapse procedures to reveal the connections between factors. Hence, this review tries to explore the connection between MFI administrations and execution of dairy cultivating accordingly informative examination configuration is extremely applicable.

Descriptive design includes portraying the current status of a marvel, deciding the idea of the overall conditions, practices, mentalities and looking for exact depictions (Kombo and Trump, 2006). In this study, it was utilized to portray the attributes of the dairy ranchers and the microfinance establishment administrations. The enlightening review configuration, as indicated by Cooper and Schindler (2006), permits the analyst to depict how assorted activities and occasions happen. It signifies a wonder that happens in a populace without influencing the exploration subjects. A distinct report plan, for instance, was utilized to portray the presentation of dairy ranchers and microfinance organization administrations all through time or at one point on schedule.

### **3.3 Target Population**

The target population in this study consisted of dairy farmers who have received credit from 17 micro-finance institutions located in Kakamega County. There are 14 microfinance in Kakamega Town and 3 microfinance institutions in Mumias Town. Kakamega County has a total of 31,780 farmers in involving in agriculture. A preliminary study revealed that less than 50% of these farmers, 1310 have received credit from MFIs in the county. Of these numbers, 1,310 are practicing dairy farmers. This information was obtained from the 17 microfinance institutions that operate in

Kakamega County with assistance from loan officers. Even though the majority of residents in Kakamega County depend on agriculture, few of them have approached MFI for credit to support their agricultural production. This represents 19.3% of the total farmers. The distribution per Sub County is as shown in Table 1.

**Table 1: Farmers per Sub County**

<b>Sub Counties</b>	<b>Target Population</b>
Kakamega Central	87
Kakamega South	86
Kakamega East	87
Mumias East	111
Mumias West	134
Matungu	106
Lugari	144
Navokholo	133
Malava	149
Likuyani	151
Khwisero	63
Butere	59
<b>Total</b>	<b>1310</b>

**Source: Ministry of Agriculture Kakamega County (2018)**

### **3.4 Sampling Techniques and sample size**

According to Cooper and Schindler, (2008) a sampling technique is the method of selecting elements of the population that represents the population. To ensure representation of the 12 subcounties in Kakamega County, the study stratification to classify clients based on their subcounties. This ensured that the respondents that were used in this study were spread evenly in Kakamega County. Then they were randomly selected based on their sub-counties Simple random sampling was suitable since it allows for objectivity in selecting a sufficient number of subjects

from each stratum, thereby providing a sample size that is fairly representative of the population's characteristics. In this study the unit of analysis is the dairy farmers because they are the majority of the study population.

### 3.5 Sample size determination

The appropriate sample size is dependent on several factors which include the purpose of the study, availability of time and resources, heterogeneity of the population, the required confidence level, and sampling error (Kasomo, 2007). Samples were chosen using stratified sampling to ensure each sub-county in the county was proportionally represented. For primary data, Krejcie and Morgan formula was used

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

Where;

S is the desired sample size

$X^2$  is the table value of chi-square for one degree of freedom at desired confidence level which is  $1.96 \times 1.96 = 3.841$

N is the population size (1310)

P is the population proportion assumed to be 0.5 since this will provide the maximum sample size and d is the degree of accuracy expressed as a proportion of 0.05

$$S = \frac{3.8416 \times 1310 \times 0.5 (1 - 0.5)}{0.05^2 (1310 - 1) + 3.8416 \times 0.5 (1 - 0.5)} = 297.2250703 \text{ which is } 297 \text{ Respondents.}$$

The distribution per Sub County was done proportionally as shown in Table 2

**Table 2: Sample size category**

<b>Sub Counties</b>	<b>Target Population</b>	<b>Sample Size</b>
Kakamega Central	87	20
Kakamega South	86	19
Kakamega East	87	20
Mumias East	111	25
Mumias West	134	30
Matungu	106	24
Lugari	144	33
Navokholo	133	30
Malava	149	34
Likuyani	151	35
Khwisero	63	14
Butere	59	13
<b>Total</b>	<b>1310</b>	<b>297</b>

**Source: Researcher (2019)**

### **3.6 Construction of Research Instruments**

The study used research questionnaires, interviews, focus group discussions, and document analysis as the main tools for collecting data. The selection of these tools was guided by the nature of the data to be collected, the time available as well as the objectives of the study. The overall aim of the study was to empirically analyse the contributions of micro-financial institution systems on the performance of dairy farmers.

The study employed both closed-ended and open-ended questionnaires which were administered to the dairy farmers of the various microfinance institutions. Through the questionnaires, the researcher sought to collect data related to the dairy farming performance, micro-insurance

systems, MFI technical systems, MFI saving systems, and credit systems. The closed-ended statement was in a form of a Likert scale where 1-strongly disagree, 2-disagree, 3-somehow agree, 4-agree and 5-strongly agree.

Interviews were conducted with the officials from the 17 micro-finance institutions in Kakamega County. During the interview session, the researcher was able to collect secondary data on the amount of credit given to dairy farmers, forms of technical systems, various micro-insurance, and saving products in each microfinance institution. The researcher allowed the respondents to freely express their opinions and suggestion regarding microfinance support systems and the performance of dairy farmers in Kakamega County.

### **3.7 Piloting of Research Instruments**

This study conducted a pilot study which was carried out in Kakamega Central Sub County. Kakamega Town is located in Kakamega Central Sub County. The researcher purposively selected two microfinance institutions and 10% of the sample size (30) of their clients who have received credit from Micro Finance Institution. During the pilot study, all the variables which were likely to influence the studies finding were recorded accordingly and necessary adjustments were made if necessary before carrying out the actual study. Data from the pilot study were used to determine the reliability and validity of the research instrument.

### **3.8 Reliability of Research Instrument**

The reliability of an instrument is the proportion of how much an exploration instrument yields predictable aftereffects of information after rehashed preliminaries. To guarantee the reliability of the study, 30 respondents were haphazardly chosen to give every individual from the objective populace an equivalent shot at partaking in the review. The scores that were gotten from the respondents were then associated utilizing the Statistical Program for Social Sciences (SPSS) variant 20. Inside consistency of measures was set up through the calculation of Cronbach's Coefficient Alpha. The upsides of this test as a rule lie somewhere in the range of 0 and 1 (Hair, Anderson, Tatham and Black, 2006, Jooste and Fourie, 2009). As per Hair et al (2006), a Cronbach

Alpha coefficient worth of 1.0 shows amazing unwavering quality while that of beneath 0.70 might be considered to underneath. As indicated by Musiega, Olweny, Mukanzi, and Mutua (2017), Cronbach alpha of 0.7 or more are considered satisfactory and reliable.

### **3.9 Validity of Research Instrument**

Validity of research instrument is the degree to which the derivations made dependent on scores from an instrument are fitting, significant, and valuable. It is the judgment of the propriety of an action for explicit inductions or choice that outcomes from the scores that are produced. To put it plainly, it alludes to how much the instruments measure what or reason to do. Content legitimacy of the instrument was set up in three phases. The scientist fundamentally viewed as every thing to check whether it contains a genuine portrayal of the ideal substance and check whether it estimated what it should quantify in the wake of believing the ideas to be estimated. To guarantee the legitimacy of the instruments, the pre-arranged poll was submitted to my bosses, to assess their reasonableness and pertinence, and suitability of the substance. Any missteps acknowledged were checked on, adjusted, or wiped out. Factor investigation was utilized to test the appropriateness of the test things.

### **3.10 Data Collection Methods and Procedure**

Both Quantitative and qualitative methodologies were utilized in gathering information. The quantitative technique was viable with the review since it permitted the exploration issue to be directed in quite certain and set terms (Frankfort-Nachmias and Nachmias, 1992). In addition, quantitative examination clearly and unmistakably determined both the free and the reliant factors being scrutinized (Matveev, 2002). It additionally followed undauntedly the first arrangement of examination objectives, coming to more target end results, testing speculation, deciding the issues of causality, and takes out or limits subjectivity of judgment (Kealey and Protheroe, 1996). Qualitative makes an interpretational approach which took into account a more profound examination and comprehension (Matveev, 2002). At last, it gave accomplishing undeniable degrees of dependability of assembled information due to for example controlled perceptions, lab tests, mass reviews, or one more type of exploration controls (Balsley, 1970).

The information was gathered with the guide of the 12 exploration colleagues (each in each subprovince) while the meeting was led by the scientist himself to guarantee a significant degree of exactness of information and top to bottom examining. The distinguishing proof of the examined ranchers was made conceivable because of the presence of credit officials who were willing and prepared to work with the analyst. Information was gathered somewhere in the range of one and fourteen days as a portion of some sub-areas had in excess of 20 tested ranchers. The normal number of filled surveys each day was four remembering that these examples are scattered inside the sub-districts. The scientist had the option to administer the course of information assortment through spot checks to guarantee research targets are accomplished.

### **3.11 Data Analysis Techniques**

Data analysis is a course of examining, purging, changing, and demonstrating information to feature helpful data, proposing ends, and supporting dynamic. The information gathered in this review was initially assembled, organized, and characterized. Graphic and inferential insights were utilized in the review. Furthermore, the information was introduced utilizing recurrence conveyance tables, outlines, and charts. The information was altered by inspecting the gathered crude information to recognize blunders and exclusions and right them. This included examination of the finished polls or perception as well as meeting plans the information was then be coded by allotting mathematical answers so reactions can be placed into a predetermined number of classifications or classes. The information investigation was done per the goals.

#### **3.11.1 Descriptive statistics**

This was chiefly used to show the pattern of both primary and secondary data. The scientist utilized spellbinding insights that incorporate a proportion of focal inclination; mean and proportion of changeability; standard deviation, most extreme and least. These illustrative insights were utilized to foster files and measures to sum up the gathered information (Kothari, 2010). Mean is a proportion of focal inclination used to portray the most regular worth in a bunch of qualities. The standard deviation shows how far the circulation is from the mean. Least and most extreme were utilized to show the scope of the informational index. This information was

introduced in tables and outlines. Optional information was gotten from the budget report of MFIs and was introduced in type of a line diagram to show the patterns of microcredit, miniature protection, saving, and specialized help and frameworks.

### **3.11.2 Inferential statistics**

To test null hypotheses, this study used inferential statistics like regression analysis. The significance level for these statistical tests was set at 5%. The researcher was also able to use factor analysis to determine the study instruments' validity.

#### **3.11.2.1 Correlation Analysis**

The Pearson Correlation Coefficient (Pearson  $r$ ) is utilized to analyze the connection between factors (Jahangir and Begum, 2008). Pearson  $r$  is a proportion of the greatness and course of the direct connection between two factors (Mugenda and Mugenda, 2003). The upsides of the connection coefficient consistently territory from - 1 to +1. On the off chance that it lies close to - 1, it shows a solid negative relationship however on the off chance that it lies close to +1 it shows a solid positive connection (Kothari, 2014). Assuming the coefficient is equivalent to nothing, it suggests that there is no connection between's the factors. As indicated by Gujarati and Porter (2008), the relationship ought not go past 0.9 to keep away from multi-collinearity among free factors. As per Kariuki, Namusonge, and Orwa (2015), multi-collinearity happens when at least two factors in the model are corresponded and give excess data and along these lines upsides of  $r$  more prominent than 0.9 were utilized as markers of a multi-collinearity issue in this review. This will concentrate on utilizes bi-variate correlational investigation to survey the strength and course of the connection between the factors. As per Ngumi et al. (2013), when the importance level is tiny (under 0.05) then, at that point, the relationship is huge and the two factors are directly related and assuming the importance level is generally enormous, for instance, 0.50 or more, the connection isn't huge and the two factors are not straightly related.

#### **3.11.2.2 Factor analysis**

Factor examination is a factual technique for leading underlying investigations of datasets. Huge quantities of quantitative perceptions or reactions can be settled into "unmistakable examples of event" (Forbes et al., 2004). The examples that are inferred in a factor-scientific model are alluded

to as elements (Kline, 2000). Each factor clarifies a part of the change so that the main factor clarifies the best level of the difference and each progressive factor represents diminishing rates of the fluctuation. "Factor scores" gauge individuals' relative levels (number or seriousness) of indications related with each factor. A factor score consolidates an individual's reactions to things related with the factor and comparing loads that address the strength of relationship between individual things and the factor. In this review, factor investigation was utilized to evaluate develop legitimacy that looked to gauge whether things used to make up a built measure a similar report marvels or not. Factor Analysis trial of testing sufficiency and Sphericity was utilized. KaiserMeyer-Olkin (KMO) trial of testing sufficiency was utilized to build up the develop legitimacy of study factors; this was to empower the review to recognize whether things are fitting for additional investigation. Bartlett's Test of Sphericity was utilized to dissect if the examples are from populaces with equivalent differences to show the level of inspecting amplexness.

### **3.11.2.3 Multiple Regression Analysis**

Regression analysis is a productive measurable method that can be utilized to investigate the relationship between a bunch of free factors and a solitary ward variable (Lind, 2008). As per Jackson (2009), as referred to by Kariuki et al. (2015), various relapse investigation includes consolidating a few indicator factors in a solitary relapse condition. In our review, Multiple Regression examination was utilized to inspect what changes in the autonomous factors meant for changes in the reliant variable. Relapse model wellness was assessed utilizing the coefficient of assurance which clarifies how intently the indicator variable clarifies the varieties in the reliant variable. B measurement esteem was utilized to test the meaning of every indicator and the P-esteem was utilized to finish up whether to dismiss or acknowledge the invalid theories. The degree of meaning of 5% was utilized as a benchmark. On the off chance that the P-esteem was under 0.05 at a 5% importance level, reject the invalid speculations and acknowledge the other option as well as the other way around (Linyuru et al., 2015). The review had the option to apply both Standard Multiple Regression and Hierarchical, Multiple Regression models.

**The standard Multiple Regression model** was utilized to quantify the impact of microfinance establishment's emotionally supportive networks on the exhibition of dairy limited scope ranchers. This included basic direct relapse and numerous straight relapses. Basic direct relapse was utilized

for individual Microfinance foundation emotionally supportive networks while numerous straight relapses for all Microfinance establishment emotionally supportive networks as a square. To decide the connection between MFIs frameworks on the exhibition of dairy limited scope ranchers, the review depended on the R square, F proportion, and the importance level. The five models are displayed in Table 3.

**Hierarchical Multiple Regression Technique** was used to determine the intervening effect of government policies on the relationship between the Microfinance institution support systems and the performance of dairy small scale farmers. The intervening effect exists if the interaction effect is significant in the model. For each intervening variable, three-step analyses were conducted to conclude. In the first step, Microfinance institution support systems were added to the model, in the second step, the intervening variable was added and in the last step, the effect of the interaction was added. The researcher was interested in finding the change in F, change in R square, and significance level. The three models are shown in Table 3.

### 3.11.3 Diagnostic tests

Before applying the Multiple Regression models on the collected data, the researcher ensured that the following Multiple Regression assumptions were met: multi-collinearity, sample size, normality, linearity, homoscedasticity, and independence of residual.

**Sample size:** With small samples, one might get an outcome that doesn't sum up (can't be rehashed) with different examples. Results that don't sum up to different examples are of minimal logical worth. Various creators will in general give various rules concerning the quantity of subjects needed for a long time. For sociology exploration, Tabachnick and Fidel (2001) give an equation for ascertaining test size prerequisites, considering the quantity of autonomous factors that you wish to utilize:  $N > 50 + 8m$  (where  $m =$  a few free factors). For this review, it was guaranteed that the recommended test size is met prior to applying the Multiple Linear Regression model.

**Multicollinearity:** The link between the independent variables is referred to as multi-collinearity. When the independent variables are significantly correlated ( $r = 0.9$  and higher), multi-collinearity exists. This is especially true for several regressions. 'Think carefully before including two variables with a bivariate correlation of, say, 0.7 or higher in the same analysis,' Tabachnick and Fidell (2001) advise. VIF and its tolerance were also used in the study.

**Normality and Linearity:** The residuals should be regularly distributed around the expected dependent variable scores to ensure normalcy. The residuals should have a straight line connection with the expected dependent variable scores for linearity, indicating that there are no severe departures from normality. After the S-W failed to produce normality for each variable, we used the Normal Probability plot of regression normalized residual to observe normality and linearity.

**Homoscedasticity:** It's also referred to as variance homogeneity. It is the assumption that the dependent variable has comparable amounts of variance across a range of independent variable values. The variance of the residuals about projected dependent variable scores should be the same for all predicted scores for homoscedasticity. Using the normal P-P of regression normalized residual, we observed homogeneity of variance in this study.

### 3.11.4 Model Specification

The hypotheses were structured to ascertain the extent to which Microfinance institution support systems can enhance the performance of dairy farming in the study. This was expressed as:

H<sub>01</sub>: There is no significant relationship between the Microfinance institution technical systems and the performance of dairy farmers in Kakamega County, Kenya.

H<sub>01</sub>: was modelled as:

$$Y_1 = \alpha + \beta_1 TS_1 + \varepsilon \dots \dots \dots i$$

H<sub>02</sub>: There is no significant influence of Microfinance institution credit systems on the performance of dairy farmers in Kakamega County, Kenya.

$$Y_2 = \alpha + \beta_2CS_1 + \varepsilon \dots\dots\dots ii$$

H<sub>03</sub>: There is no significant influence of Microfinance institution micro-insurance systems on the performance of dairy farmers in Kakamega County, Kenya.

$$Y_3 = \alpha + \beta_3MS_1 + \varepsilon \dots\dots\dots iii$$

H<sub>04</sub>: There is no significant influence of Microfinance institution saving systems on the performance of dairy farmers in Kakamega County, Kenya.

$$Y_4 = \alpha + \beta_4SS_1 + \varepsilon \dots\dots\dots iv$$

H<sub>05</sub>: The joint contribution of Microfinance institution support systems on the dairy farming performance is greater and different than the individual influence of each of the variables.

$$Y_5 = \alpha + \beta_5TS_2 + \beta_6SS_2 + \beta_7MS_2 + \beta_8CS_2 + \varepsilon \dots\dots\dots v$$

H<sub>06</sub>: There is no significant role of government policy on the relationship between Microfinance institution support systems and the performance of dairy farmers in Kakamega County, Kenya.

$$Y_6 = \alpha + \beta_9TS_3 + \beta_{10}SS_3 + \beta_{11}MS_3 + \beta_{12}CS_3 + \beta_{13}GP_1 + \varepsilon \dots\dots\dots vi$$

Where:

Y = Dairy Farming Performance  $\alpha$  = regression

constant derived from the y-intercept,  $\beta_1$  to  $\beta_{13}$  =

regression coefficients,

TS = Technical Systems

CS = Credit Systems

MS = Micro-Insurance Systems

SS = Serving Systems GP=Government

Policies

$\varepsilon$  = error term.



A summary of the objectives, hypothesis, analytical model and interpretation of results is presented in Table 3.

**Table 3: A summary of the objectives, hypothesis and analytical model**

Objective	Hypothesis	Analysis model	interpretation
To investigate the effect of Microfinance institution technical systems on the performance of dairy farmers in Kakamega County, Kenya.	H <sub>01</sub> There is no significant relationship between the Microfinance institution technical systems and the performance of dairy farmers in Kakamega County, Kenya	Simple Regression analysis $Y_1 = \alpha + \beta_1 TS_1 + \varepsilon$ Y=Dairy Farming Performance $\alpha$ = constant (intercept) $\beta_1$ = Coefficient parameters to be determined TS=Technical Systems $\varepsilon$ = Error term	If $R > 0$ then a positive contribution exists.  If the p-value $\leq 0.05$ , then the contribution is significant.
To assess the influence of Microfinance institution credit systems on the performance of dairy farmers in Kakamega County, Kenya.	H <sub>02</sub> There is no significant role of Microfinance institution credit systems on the performance of dairy farmers in Kakamega County, Kenya.	Simple Regression analysis $Y_2 = \alpha + \beta_2 CS_1 + \varepsilon$ Y=Dairy Farming Performance $\alpha$ = constant (intercept) $\beta_1$ = Coefficient parameters to be determined CS = Credit Systems $\varepsilon$ = Error term	If $R > 0$ then a positive contribution exists.  If p value $\leq 0.05$ , then the contribution is significant.

<p>To establish the influence of Microfinance institution micro-insurance systems on the performance of dairy farmers in Kakamega County, Kenya</p>	<p>There is no significant influence of Microfinance institution micro-insurance systems on the performance of dairy farmers in Kakamega County, Kenya</p>	<p>Simple Regression analysis  <math>Y_3 = \alpha + \beta_3 MS_1 + \epsilon</math>  <math>Y = \text{Dairy Farming}</math>  Performance <math>\alpha = \text{constant}</math>  (intercept) <math>\beta_1 = \text{Coefficient}</math>  parameters to be determined  <math>MS_1 = \text{Micro-insurance Systems}</math>  <math>\epsilon = \text{Error term}</math></p>	<p>If <math>R &gt; 0</math> then a positive contribution exists.   If the p-value <math>\leq 0.05</math>, then the contribution is significant.</p>
<p>To establish the influence of Microfinance institution saving systems on the performance of dairy farmers in Kakamega County, Kenya</p>	<p>There is no significant influence of Microfinance institution saving systems on the performance of dairy farmers in Kakamega County, Kenya.</p>	<p>Simple Regression analysis  <math>Y_4 = \alpha + \beta_4 SS_1 + \epsilon</math>  <math>Y = \text{Dairy Farming}</math>  Performance <math>\alpha = \text{constant}</math>  (intercept) <math>\beta_1 = \text{Coefficient}</math>  parameters to be determined  <math>SS_1 = \text{Saving systems}</math>  <math>\epsilon = \text{Error term}</math></p>	<p>If <math>R &gt; 0</math> then a positive contribution exists.   If p value <math>\leq 0.05</math>, then the contribution is significant.</p>

	<p>H<sub>05</sub>: The joint contribution of microfinance institution indicators on the realization of increased value in</p>	<p><math>Y_5 = \alpha + \beta_5 TS_2 + \beta_6 SS_2 + \beta_7 MS_2 + \beta_8 CS_2 + \epsilon</math>  <math>Y = \text{Dairy Farming Performance}</math>  <math>\alpha = \text{regression constant derived from the yintercept,}</math></p>	<p>If adjusted <math>R^2</math> is <math>&gt;</math> than individual <math>R^2</math> values, then the joint influence is greater than</p>
	<p>agriculture is greater and different than the individual influence of each of the variables.</p>	<p><math>\beta_5</math> to <math>\beta_8 =</math> regression coefficients,  <math>TS = \text{Technical Systems}</math>  <math>CS = \text{Credit Systems}</math>  <math>MS = \text{Micro-Insurance Systems}</math>  <math>SS = \text{Serving Systems}</math>  <math>\epsilon = \text{error term.}</math></p>	<p>individual influence  If overall p-value <math>\leq</math> 0.05, then the contribution is significant.</p>

<p>To determine the role of government policy on the relationship between the microfinance institution support system and the performance of dairy farmers in Kakamega County, Kenya.</p>	<p>H<sub>06</sub>: There is no significant role of government policy on the relationship between microfinance institution support systems and the performance of dairy farmers in Kakamega County, Kenya.</p>	$Y_6 = \alpha + \beta_9 TS_3 + \beta_{10} SS_3 + \beta_{11} MS_3 + \beta_{12} CS_3 + \beta_{13} GP_1 + \varepsilon$ <p>Y = Dairy Farming Performance <math>\alpha</math> = regression constant derived from the yintercept,  <math>\beta_9</math> to <math>\beta_{13}</math> = regression coefficients,  TS = Technical Systems  CS = Credit Systems  MS = Micro-Insurance Systems  SS = Serving Systems GP = Government Policies <math>\varepsilon</math> = error term.</p>	<p>If <math>R &gt; 0</math> then a positive contribution exists.  If p Value <math>\leq 0.05</math>, then the contribution is significant.</p>
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Source: Researcher (2018)

### **3.12. Ethical Considerations**

According to Leedy and Ormrod (2005) researchers have the ethical obligation to inform research participants of the nature of the research in which the research participant is requested to participate. The major ethical problems in this study are informed consent, anonymity, privacy, and confidentiality. To meet the ethical expectations, a letter of introduction from Mt. Kenya University was provided to the researcher to identify him as a student of the University and having been permitted by the University to research the sampled MFI. Ethical review was done at Mount Kenya University and an approval permit was acquired. The researcher sought approval and permission at NACOSTI before conducting the study

The ethical considerations surrounding this study were explained to participants. Consent was also communicated in a language that was well understood by the respondent. The informed consent forms were attached to the questionnaire and an informed consent leaflet was handed to the respondent and a copy retained for record purposes. This was undertaken a thorough evaluation of the potential for harm to arise and ensure that the researcher and researcher assistants behave according to appropriate ethical standards; the researcher also considered how the questions might potentially negatively affect the respondents and lastly protection of the researcher and his assistants and Mount Kenya University being placed in situations in which individuals could make claims of inappropriate behaviour, resulting in public outcry or even being subjected to public litigation. During this study, each participant's privacy and anonymity were guaranteed. All data collected were treated as confidential and all personal information was coded. In addition, all respondents gave their verbal agreement to participate in the study voluntarily. Furthermore, the researcher secured permission to conduct the research from local authorities, including the county administration and MFI administrators.

## **CHAPTER FOUR: RESEARCH FINDINGS AND DISCUSSIONS**

### **4.0 Introduction**

The results of the data analysis and findings are presented in this chapter in accordance with the study's objectives. The study objectives influenced the presentation in this chapter, and the

data were prepared to correctly address the research objectives and test the hypotheses. Frequency, percentage, mean, and standard deviation were utilized as descriptive statistics. The data was tested for linear regression assumptions, and the findings were within the limits required for further statistical analyses. Simple and complex regressions were used to assess the study's four hypotheses. Correlations between various study variables were also conducted with a significance threshold of 0.05 and a 95.0 percent confidence level.

#### 4.1 Response Rate

Two hundred and ninety-seven questionnaires were issued to dairy farmers of sampled MFI. Two hundred and fifty-eight were returned. The response rate was 88.9%. The questionnaire yielded over 60% of response rate which is satisfactory according to Mugenda and Mugenda (2008).

#### 4.2 Demographic Characteristics

Not just for further discussions of the findings, but also for the authenticity and generality of the results, the demographic information of the respondents is deemed very important. As a result, this section presents respondents' background information, such as gender, age, and educational level, which is regarded critical for discussions in this study.

**Table 4: Demographic Characteristics**

<b>Gender</b>	<b>Frequency</b>	<b>Percentage</b>
Female	119	46.1
Male	139	53.9
<b>Total</b>	258	100
<b>Age</b>		
18-25 years	27	10.5
26-35 years	102	39.5
36-45 years	83	32.2
46-55 years	46	17.8

<b>Total</b>	258	100
<b>Education</b>		
KCPE	27	10.5
O-level	106	41.1
College Certificate	93	36
Diploma	27	10.5
Degree	7	2.7
<b>Total</b>	260	100

**Source: Field Data (2019)**

The results in Table 4 revealed that 53.9% were male while 46.1% were female. Even though they are more male as compared to female, the difference is small as compared to commercial banks where male accounts for more than 60% of their customers. This implies that microfinance in Kakamega County is achieving appropriate outreach, especially depth. The findings also found that 39.5 percent of respondents are between the ages of 26 and 35, while 32.2 percent are between the ages of 36 and 45. 10.5 percent of the sampled respondents were between the ages of 18 and 25, while 17.8 percent were between the ages of 46 and 55. From the finding, it can be deduced that MFIs in Kakamega County gave credit to borrowers between 18 and 55 years with a small difference. The results further revealed that a small majority of the respondent had a college certificate as shown by 36.0% while a slight majority had O-level education as shown by 41.1%. On the other hand, 10.5% had various diplomas while 2.7% were having various degrees. Ten point three percent were found to have completed primary education.

**Table 5: MFI Systems usage**

<b>Duration using Micro-Credit</b>	<b>Frequency</b>	<b>Percentage</b>
Less than 1	1	0.4
Between 1 and 3	3	1.2
Between 4 and 6	52	20.2
Between 7 and 9	129	50

10 and above	69	26.7
<b>Total</b>	<b>258</b>	<b>100</b>

**Duration using Micro-Saving**

Less than 1	21	8.1
Between 1 and 3	65	25.2
Between 4 and 6	133	51.6
Between 7 and 9	18	7.0
10 and above	21	8.1
<b>Total</b>	<b>258</b>	<b>100</b>

**Duration using Micro-insurance**

Less than 1	9	3.5
Between 1 and 3	187	72.5
Between 4 and 6	44	17.1
Between 7 and 9	13	5.0
10 and above	5	1.9
<b>Total</b>	<b>258</b>	<b>100</b>

**Duration using Technical Systems**

Less than 1	10	3.9
Between 1 and 3	89	34.5
Between 4 and 6	102	39.5
Between 7 and 9	37	14.3
10 and above	19	7.4
<b>Total</b>	<b>258</b>	<b>100</b>

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**Source: Field Data (2019)**

In Table 5, half of the sampled respondents have been using Microfinance institutions Credit systems between 7 and 9 years while over 10 years were 26.7% (69). Between 4 and 6 years were 20.2% (52) and between 1 and three years were 1.2% (3). Only one of the respondents has been using Microfinance institutions Credit systems for less than 1 year. The results also revealed that more than half (51.6%) of the sampled respondents have been using Microfinance institutions saving systems between 4 and 6 years and were followed by between one and three years as shown by 25.2%. Less than one years and over 10 years were 8.1% while the least was between 7 and 9 years as shown by 7.0%

Regarding micro-insurance systems, the majority of the sampled respondents have been using Microfinance institution's micro-insurance systems between 1 and 3 years as shown by 72.5% and were followed by between 4 and 6 years as shown by 17.1%. Between 7 and 9 years were 5.0% while less than one years and over 10 years were 3.5% and over 10 years were 1.9%. Lastly, a small majority of the sample respondents have been using Microfinance institution's technical systems between 4 and 6 years as shown by 39.5% and were followed closely by between 1 and 3 years as shown by 34.5%. Between 7 and 9 years were 14.3% while less than one year were 3.9% and over 10 years were 7.4%

### 4.3 Descriptive Statistics

For primary data, descriptive statistics included frequency, percentage, mean, and standard deviation, whereas Minimum, Maximum Mean Std. For secondary data collected between 2011 and 2014, the standard deviation was calculated.

#### 4.3.1 Microfinance institutions Technical systems

The respondents were asked to rate how much they agreed with five statements about the technical systems of a microfinance organization. The responses range from 1 strongly disagrees, 2-disagree, U-undecided, 4-agree, and 5-strongly agree. The metric means and standard deviation of the six statements were also computed.

**Table 6: Technical systems Descriptive Results**

Technical systems	SD% (f)	D% (f)	U% (f)	A% (f)	SA%	Mean	SDV
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(f)

MFI aggressively give technical systems which are beneficial to dairy farming	3.5%	8.1%	4.3%	27.5%	56.6%	4.26	1.09
	(9)	(21)	(11)	(71)	(146)		
MFIs assist farmers in obtaining inputs for the dairy farming	3.1%	4.7%	5%	27.9%	58.9%	4.35	1.00
	(8)	(12)	(13)	(72)	(152)		
Technical systems obtained from MFI have enabled me to change the dairy production system	1.9%	8.1%	4.7%	24%	60.9%	4.34	1.03
	(5)	(21)	(12)	(62)	(157)		
MFIs assist farmers in the mode of marketing the dairy products	1.9%	5.8%	10.1%	23.6%	58.5%	4.31	1.00
	(5)	(15)	(26)	(61)	(151)		
MFIs organize pieces of training for their members on various technologies to improve productivity	6.2%	8.9%	14%	23.3%	48.1%	3.98	1.24
	(16)	(23)	(36)	(60)	(124)		
MFIs collaborate with other institution in providing technical systems to dairy farmers	10.3%	12.8%	18.9%	22.8%	35.3%	3.60	1.35
	(27)	(33)	(49)	(59)	(91)		

**Source: Field Data (2019)**

From Table 6, 27.5 %(71) and 56.6%(146) of the sampled respondents agreed and strongly agreed respectively that their MFI aggressively gives technical systems which are beneficial to dairy farming. A mean of 4.26 implied that MFI aggressively gives technical systems which are beneficial to dairy farming. The results also revealed that 27.9 %( 72) and 58.9% (152)of the sampled respondents agreed and strongly agreed respectively that MFIs assist farmers in obtaining inputs for dairy farming. A mean of 4.35 indicated that MFIs assist farmers in obtaining inputs for dairy farming. The results further revealed that 60.9 %( 157) of the sampled respondents strongly agreed that technical systems obtained from MFI have enabled me to change the dairy production system while 24%(62) agreed that on the same. A mean of 4.34 implied that technical systems obtained from MFI have enabled me to change the dairy production system.

The results further revealed that 23.6 %( 61) and 58.5 %( 151) of the sampled agreed and strongly agreed that their MFIs assist farmers in the mode of marketing the dairy products. A mean of 4.31 implies that MFIs assist farmers in the mode of marketing dairy products. Further, 48.1 %( 124) of the sampled respondents strongly agreed that MFIs organize pieces of training for their members on various technologies to improve productivity and 23.3 %( 60) agreed on

the same. A mean of 3.98 implied that most of the MFIs organize pieces of training for their members on various technologies to improve productivity.

#### 4.3.2 MFI Micro-Credit systems

MFI credit access measures were employed by MFI, and the sampled respondents were asked to indicate their level of agreement on six assertions. The replies vary from 1 strongly disagree to 2 strongly disagree, 2 strongly disagree to U-undecided, 4 strongly agree to 5 strongly agree. The six statements' metric means and standard deviations were also calculated.

**Table 7: Microfinance Credit systems Descriptive Results**

Micro-Credit	SD% (f)	D% (f)	U% (f)	A% (f)	SA% (f)	Mean	SDV
MFI offers various loan products and sizes to meet the needs of dairy farmers It is quick to get financing from microfinance as compared to other financial institutions	6.1%(16)	4.2%(11)	5.8%(15)	52.9%(136)	31.1%(80)	3.99	1.04
The mode of disbursement Of loans from the MFIs is suitable	3.5% (9)	10.9% (28)	4.8%(12)	59.3% (153)	21.5% (55)	3.84	1.00
The repayment period of loans offered by the MFIs is appropriate	1.3%(3)	4.5% (12)	2.6% (7)	66.3% (171)	25.3% (65)	4.10	0.75
The rate of interest on loans offered by the MFI is appropriate	7.1%(18)	8.7% (22)	4.2% (11)	38.1% (98)	42% (108)	3.99	1.20
MFIs have created Group lending opportunities for dairy farmers	12.5% (32)	10.6% (27)	17.3% (45)	21.5% (55)	38.1% (98)	3.62	1.40
	3.5% (9)	3.5% (9)	18.3% (47)	21.8% (56)	52.9% (136)	<u>4.17</u>	<u>1.07</u>

**Source: Field Data (2019)**

From Table 7, 52.9 % ( 136) and 31.1 % ( 80) of the sampled respondents agreed and strongly agreed respectively that their MFI offers various loan products and sizes to meet the needs of dairy farmers. A mean of 3.99 indicated that most MFI offers various loan products and sizes to meet the needs of dairy farmers. The results also revealed that 59.3%(153) and 21.5%(55) of the sampled respondents agreed and strongly agreed respectively that it is quick to get financing from microfinance as compared to other financial institutions. A mean of 3.84 indicated that it is quick to get financing from microfinance as compared to other financial institutions.

The results further revealed that 66.3 % ( 171) of the sampled clients strongly agreed that The mode of disbursement Of loans from the MFIs is suitable and 25.3 % ( 79) of them agreed on the same. A mean of 4.10 indicated most mode of disbursement of loans from the MFIs is suitable. The majority of the respondents confirmed that the repayment period of loans offered by the MFIs is appropriate as indicated by 38.1 % ( 98) and 42 % ( 108) of the respondents who agreed and strongly agreed respectively. A mean of 3.99 implied that most repayment period of loans offered by the MFIs is appropriate.

A slight majority of the respondents confirmed that the rate of interest on loans offered by the MFI is appropriate as shown by 38.1 % ( 98) of the respondents who strongly agreed and 21.5 % ( 55) who agreed. A mean of 3.62 indicated that some of the MFI rates of interest on loans offered by the MFI are appropriate. Lastly, 21.8 % (56) and 52.9% (136) of the sampled respondents agreed and strongly agreed respectively that MFIs have created Group lending opportunities to a dairy farmer. A mean of 4.17 suggested that most MFIs have created Group lending opportunities to dairy farmers.

#### **4.3.3 Micro-insurance systems**

The sampled respondents were asked to indicate the extent of their agreement on six statements related to MFI micro-insurance systems measures adopted by MFI. The responses range from 1 strongly disagree, 2-disagree,3-undecided, 4-agree, and 5-strongly agree. The metric means and standard deviation of the six statements were also computed. For secondary that, line graphs were used to show the trend of credit officer ratio, operating expense ratio, and loan officer productivity. The section also presented the mean, standard deviation, minimum, and maximum of MFI micro-insurance systems indicators.

**Table 8: Micro-insurance systems Descriptive Results**

<b>Micro-insurance systems</b>	<b>SD% (f)</b>	<b>D% (f)</b>	<b>U% (f)</b>	<b>A% (f)</b>	<b>SA% (f)</b>	<b>Mean</b>	<b>SDV</b>
MFI provide insurance on loans granted	14.1%(36)	12.2%(31)	41.4%(107)	17.9%(46)	23.6%(62)	3.44	1.50
Micro-insurance covers	1%(3)	1%(3)	11.9%(31)	34.9%(90)	51.3%(132)	4.34	0.37
Micro-insurance portfolio mix has been of benefit to dairy farming	4.5%(12)	12.5%(32)	18.3%(47)	28.5%(74)	36.2%(93)	3.79	1.19
Micro-insurance renewal process and fee is affordable and simple	10.3%(27)	12.8%(33)	18.9%(49)	22.8%(59)	35.3%(91)	3.60	1.35
The time period taken to pay for the risk after occurrence is adequate	4.2%(11)	14.7%(38)	9.6%(25)	23.7%(61)	47.8%(123)	3.96	1.24
The amount of insurance premiums paid to the MFIs is manageable	8.7%(22)	10.3%(27)	22.1%(57)	20.8%(54)	38.1%(98)	3.70	1.31

**Source: Field Data (2019)**

From Table 8, 17.9 %( 46) and 23.6 %( 62) of the sampled respondent agreed and strongly agreed respectively that MFIs have various Micro-insurance covers. A mean of 3.44 implied that MFIs have various Micro-insurance covers or respondents are not aware of microinsurance products. The results also revealed that 17.9 %( 46) and 47.1 %( 122) of the sampled respondents agreed and strongly agreed that MFI provides insurance on loans granted. A mean of 3.72 suggested that some MFI provide insurance on loans granted. Similarly, 28.5 %( 74) and 36.2 %( 93) agreed and strongly agreed that their Micro-insurance covers have been of benefit to dairy farming. A mean of 3.79 indicated that most Micro-insurance covers have been of benefit to dairy farming

According to the findings, 35.3 percent (91) of the selected respondents strongly agreed that MFI provides insurance for dairy farming activities, whereas 22.8 percent (59) agreed. Some MFIs provide insurance on dairy farming activities, according to a mean of 3.60. Similarly, 47.8% (123) of the selected respondents strongly agreed that the time spent paying for the risk

after it occurs is adequate, while another 23.7 percent (61) concurred. The average MFI duration taken to pay for the risk after the occurrence is 3.96, indicating that most MFI periods are adequate. Finally, 20.8 percent ( 54%) and 38.1 percent ( 98%) of those surveyed agreed or strongly agreed that the amount of insurance premiums paid to MFIs is manageable. The amount of insurance premiums paid to MFIs is manageable, according to a mean of 3.70.

#### 4.3.4 MFI saving systems

Six statements about MFI saving systems were given to the sampled respondents, and they were asked to indicate how much they agreed with each statement. The replies vary from 1 strongly disagree to 2 strongly disagree, 2 strongly disagree to U-undecided, 4 strongly agree to 5 strongly agree. These replies were also used to calculate the metric means and standard deviations for the five statements.

**Table 9: MFI saving systems Descriptive Results**

Dairy farmer performance	SD% (f)	D% (f)	FA% (f)	A% (f)	SA% (f)	Mean	SDV
My saving has been used as collateral to obtain loan	3.8%(10)	5.4%(14)	9%(23)	28.8%(74)	52.9%(136)	4.21	1.07
The various types of saving accounts offered by the Micro Finance Institutions	9.9%(26)	13.8%(36)	20.5%(53)	39.4%(102)	16.3%(42)	3.38	1.20
I am comfortable with minimum savings allowed by the Micro Finance Institutions	4.8%(12)	6.7%(17)	3.2%(8)	31.4%(81)	53.8%(139)	4.23	1.11
The interest rate on savings offered by the MFIs is appropriate	15.1%(39)	17%(44)	10.6%(27)	26.6%(69)	30.8%(79)	3.41	1.45
I find it convenient and easy to make deposits into my account	1.3%(3)	15.4%(40)	2.2%(6)	28.8%(74)	52.2%(135)	4.15	1.12
My MFI does not charge exorbitant ledger fees on my saving account	1.3%(3)	6.7%(17)	10.6%(27)	39.4%(102)	42%(108)	3.78	1.01

**Source: Field Data (2019)**

From Table 9, 28.8% (74) and 52.9% (136) agreed and strongly agreed that their saving has been used as collateral to obtain a loan. A mean of 4.21 indicated that saving has been used as collateral to obtain a loan. According to the findings, 31.4 percent (81) and 53.8 percent (139) of the studied respondents agreed or strongly agreed with the MFI's various types of savings accounts. The MFI offers a variety of savings accounts, as evidenced by a mean of 4.23. The results also found that 39.4 percent (102) felt that the minimal savings allowed by the MFI is acceptable, and 16.3 percent (42) highly agreed. However, a mean of 3.38 suggested that they are content with the MFI's minimal savings requirement. In terms of interest rate, 30.8% (79) of the sampled respondents strongly agreed that the interest rate on savings offered by the MFIs is appropriate while 26.6% (69) agreed. A mean of 3.41 indicated that the interest rate on savings offered by the MFIs is somehow appropriate. Lastly, 39.4% (102) and 42% (108) of the sampled respondents agreed and strongly agreed respectively there MFI does not charge ledger fees on my saving account. From a mean of 3.78, it is evident that most MFI does not charge ledger fees on my saving account.

#### 4.3.5 Government Policies and Regulations

The respondents were asked to rate how agreeable they were with six statements about government policies and regulations. The replies vary from 1 strongly disagree to 2 strongly disagree, 2 strongly disagree to U-undecided, 4 strongly agree to 5 strongly agree. These replies were also used to calculate the metric means and standard deviations for the five statements.

**Table 10: Government Policies and Regulation**

<b>Government Policies</b>	<b>SD% (f)</b>	<b>D% (f)</b>	<b>FA% (f)</b>	<b>A% (f)</b>	<b>SA% (f)</b>	<b>Mean</b>	<b>SDV</b>
The CBK regulation on interest rate has affected MFI systems to the dairy farmers	0.4%(22)	8.5%(66)	25.6%(130)	50.4%(39)	15.1%(258)		
Government has created an enabling environment for MFI which has allowed them to expand	3.713178	0.838693					

their systems	1.2%(17)	6.6%(106)	41.1%(100)	38.8%(32)	12.4%(258)	3.546512	0.836757	Government
requires every MFI to include								
agricultural	0.4%(27)	10.5%(97)	37.6%(119)	46.1%(14)	5.4%(258)			
	3.457364	0.76913	products in					
their portfolio								
Government								
has liaised with								
MFI's so as to								
deliver MFI's								
systems to								
dairy farmers	1.2%(28)	10.9%(73)	28.3%(112)	43.4%(42)	16.3%(258)	3.627907	0.921594	

**Source: Field Data (2019)**

From Table 10, 50.4% (39) and 15.1% (258) of the sampled respondents agreed and strongly agreed respectively that the CBK regulation on interest rate has affected MFI systems to the dairy farmers. This is also supported by a mean of 3.71 and a standard deviation of 0.83 which implies that there is some deviation from the mean. The results also revealed that 38.8% (32) and 12.4% (258) of the respondents agreed and strongly agreed respectively that the government has created an enabling environment for MFI which has allowed them to expand their systems. These findings are further supported by a mean of 3.54 and some standard deviation as indicated by 0.83

Regarding loan portfolio, 46.1 % (14) of the respondents agreed and further 5.4% (258) strongly agreed that government requires every MFI to include agricultural products in their loan portfolio. A mean of 3.45 with a standard deviation of 0.77 suggested that the majority of the respondents did not indicate that government requires every MFI to include agricultural products in their loan portfolio. Lastly, 43.4% (42) and 16.3% (258) of the sampled respondents agreed and strongly agreed respectively that the government has liaised with MFI's to deliver MFI's systems to dairy farmers. A mean of 3.62 with a standard deviation of 0.93 implied that there is a significant deviation from the mean.

**4.3.6 Dairy farmer performance**

The sampled respondents were asked to indicate the extent of dairy farmer performance as a result of MFI credit. The responses range from 1 strongly disagree, 2-disagree, 3-fairly agree, 4-agree and 5-strongly agree. The metric means and standard deviation of the five statements were also computed. The results are shown in Table 11.

**Table 11: Dairy farmer performance Descriptive Results**

MFI saving systems	SD% (f)	D% (f)	U% (f)	A% (f)	SA% (f)	Mean	SDV
The is increase in herd size	0.3(1)	10.9(28)	17.3(45)	38.1(98)	33.3(86)	3.93	0.98
The quantity of milk has increased	1.6(4)	15.4(40)	22.8(59)	20.5(53)	39.7(102)	3.81	1.16
Income from dairy farming has increased	1(3)	12.5(32)	18.3(47)	13.1(34)	55.1(142)	4.09	1.15
Dairy farming assets have increased	1.9(5)	7.4(19)	19.9(51)	13.5(35)	57.4(148)	4.17	1.10
The number of calving has increased	4.2(11)	3.2(8)	9(23)	51(132)	32.7(84)	4.05	0.96
The quality of milk has increased	1.6(4)	12.5(32)	22.8(59)	38.1(98)	25(65)	3.83	0.54

**Source: Field Data (2019)**

From Table 11, 0.3 % (1) and 10.9% (28) agreed and strongly agreed respectively that there has been an increase in herd size. A mean of 3.93 implied that dairy farmer herds have been increasing. The results also revealed that 20.5% (53) and 39.7% (102) of the respondents agreed and strongly agreed that their quantity of milk has increased. A mean of 3.81 implied that dairy farmers' milk has been increasing. The results also revealed that 13.1% (34) and 55.1% (142) agreed and strongly agreed that income from dairy farming has increased. A mean of 4.09 implied that income from dairy farming has increased. The results also revealed that 51% (132) of the sampled respondents agreed that the number of calving has increased while 32.7% (84) strongly agreed on the same. A mean of 4.05 indicated that there has been an increase in several calves. Lastly, 38.1% (98) and 25% (65) of the sampled respondents agreed and strongly agreed that the quality of milk has increased due to proper feeding. A mean of 4.05 indicated that the quality of milk has increased due to proper feeding.

#### **4.4 Validity and Reliability**

To establish the validity of study variables, confirmatory factor analysis was done. This enabled the study to identify whether the items were appropriate for further analysis. Table 12 shows factor loading for each latent variable that was used for unobserved variables.

**Table 12: Confirmatory Factor Analysis; Construct Validity**

Item	Factor loadings				Government Policy	Dairy farmer performance
	Technical	Credit	Insurance	Saving		
TS1	.693					
TS2	.675					
TS3	.677					
TS4	.534					
TS5	.664					
TS6	.601					
MC1		.762				
MC2		.629				
MC3		.851				
MC4		.891				
MC5		.660				
MC6		.601				
MI1			.753			
MI2			.841			
MI3			.774			
MI4			.703			
MI5			.598			
MI6			.659			
MS1				.932		
MS2				.632		
MS3				.715		
MS4				.825		
MS5				.832		

MS6	.760	
GP1		.774
GP2		.801
GP3		.751
GP4		.727
P1		.676
P2		.851
P3		.860
P4		.723
P5		.834
<u>P6</u>		<u>.682</u>

**Source: Field Data (2019)**

Factor loadings ranged from 0.534 to 0.932 in Table 12 above construct. These variables were kept for further investigation. According to Tabachnick and Fidell (2007), factors with factor loadings greater than 0.40 should be kept for further study, whereas those with factor loadings less than 0.4 should be eliminated. The Kaiser-Meyer-Olkin (KMO) test and Bartlett's test of sphericity were also utilized in exploratory component analysis, as shown in Table 13. (EFA). The proportionate variance in the observed items that may have been caused by their underlying causes was measured using the KMO, which runs from 0 to 1. A low KMO value indicates a plausible impropriety of factor analysis, as it reveals potential dispersions in the examples of linkages, as the number of midway connections is enormous in comparison to the number of connections (Graham, 2006; Tavakol and Dennick, 2011).

**Table 13: KMO and Bartlett's Test**

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		710
	Approx. Chi-Square	671.500
Bartlett's Test of Sphericity	Df	15
	Sig.	.000

**Source: Field Data (2019)**

The KMO value was discovered to be 0.710 in table 13, which is a high number that is close to 1 and acceptable. The purpose of Bartlett's sphericity test is to see if there is a substantial link between the observed indicators. In this investigation, the Chi-square statistic for Bartlett's test was determined to be 671.500, with a p-value of 0.000. At the 0.05 level of significance, a pvalue less than 0.05 indicates that the correlation matrix of the indicators is not an identity matrix, indicating that the indicators have an obvious significance relationship, as predicted for further study.

#### 4.5 Reliability Analysis

Cronbach Alpha was used to determine the research instruments' reliability. Cronbach's alpha coefficients ranged from 0.705 (MFI saving systems) to.880 (MFI credit access) in Table 14, indicating that the measuring scales employed in the study were sufficiently trustworthy and adequately measured the variables. Cronbach's alpha for technical systems was 0.799, MFI micro insurance systems was 0.754, and dairy farmer performance was 0.740. All of the constructs utilized in this investigation had reliability coefficients that exceeded the 0.6 lower level of acceptability (Hair et al., 2006) and were within the 0.70 and above range proposed by Nunnally (1978) As a result, it's trustworthy and acceptable for further investigation.

**Table 14: Cronbach's Alpha Analysis**

<b>Variable</b>	<b>Alpha</b>	<b>N</b>
Technical systems	.799	5
MFI Credit systems	.880	6
MFI Micro insurance systems	.754	6
MFI saving systems	.705	5
Dairy farmer performance	.740	5
<b>Overall Reliability</b>	<b>0.776</b>	

**Source: Field Data (2019)**

#### 4.6 Tests of Statistical Assumptions

##### 4.6.1 Test of Independence (non-autocorrelation)

The Durbin-Watson test was used to determine the independence of error terms, which implies that observations are independent. Since the independence of the residuals is one of the main hypotheses of regression analysis, the Durbin Watson (DW) test was used to ensure that the residuals of the models were not auto-correlated (Montgomery et al, 2001). Table 15 summarizes the findings.

**Table 15: Autocorrelation Test for Regression**

Std. Error of the Estimate	Durbin-Watson
.4229358	1.718

**Source: Field Data (2019)**

According to Table 15, the study's results showed a Durbin – Watson coefficient of 1.718, which is within 1.5 to 2.5, indicating that the data residuals had no autocorrelation.

#### 4.6.2 Multi-collinearity Test

When two or more independent variables are highly correlated, this is referred to as multicollinearity. When multi-collinearity rises, the regression coefficient fluctuates, making the coefficient difficult to interpret as a predictor of variables (Cooper & Schindler 2011). Variable inflation factors (VIF) or tolerance levels were used to test multi-collinearity. If the VIF values are fewer than 10, or the tolerance values are one or less, there is no multicollinearity.

**Table 16: Collinearity Statistics**

Independent variable	Tolerance	VIF
Technical systems	.379	2.640
MFI credit access	.276	3.627
MFI micro-insurance systems	.214	4.598
MFI saving systems	.241	4.151

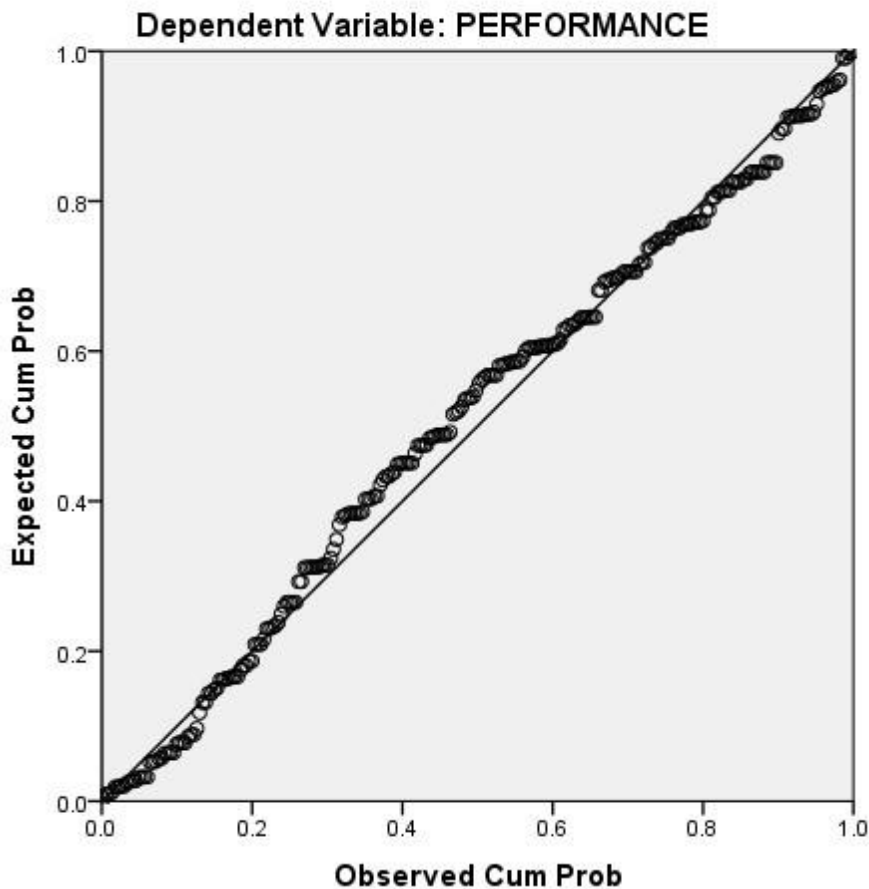
**Source: Field Data (2019)**

Table 16 shows the Multi-collinearity test embraced, in the current investigation resilience went from 0.204 to 0.379 which are on the whole above 0.2, and in this way it's equal, the VIF was

omewhere in the range of 2.640 and 4.898, which are beneath the limit estimation of 10 as required. This demonstrated that the informational index showed no multicollinearity

#### 4.6.3 Homscedastic Test of Dairy farmer performance

##### Normal P-P Plot of Regression Standardized Residual



**Figure 3: Homoscedastic Test of Dairy farmer performance**

**Source: Field Data (2019)**

Figure 3 depicts the results of the Homoscedasticity test, which determines whether the autonomous factors variable has equivalent change. If it does not, there will be a heteroscedasticity issue (Garson, 2012). In a relapse model, a test for homoscedasticity is a test for change in residuals. The homoscedasticity of information appropriation is represented by the likelihood–likelihood plot (P-P Plot) (Park, 20015). The usual P-P plot of execution shown

in figure 14 reveals that the focuses are quite close to the straight line that crosses across the plane. This means that the data used in this study is homoscedastic, and as a result, the model obtained a new direct relapse model, with no issue of heteroscedasticity.

#### 4.6.5 Normality test

Factual blunders are basic in writing; numerous parametric methods in a relationship, relapse, investigation of difference, and t-test depend on the presumption of Gaussian or typical circulation. On the off chance that this suspicion doesn't hold it will be difficult to reach a solid determination. With enormous examples (<30 or 40) the infringement of ordinariness presumption ought not to mess major up (Ghasemi and Zahediasl 2012). In this way, we can utilize parametric techniques as in enormous examples (<30 or 40) inspecting dissemination will, in general, be ordinary paying little mind to the state of the information. Ghasemi and Zahediasl 2012) states that the Kolmogorov-Smirnov test is a famous test for ordinariness, however ought to be utilized with alert because of its low force and suggests that ordinariness be evaluated outwardly.

**Table 17: Normality**

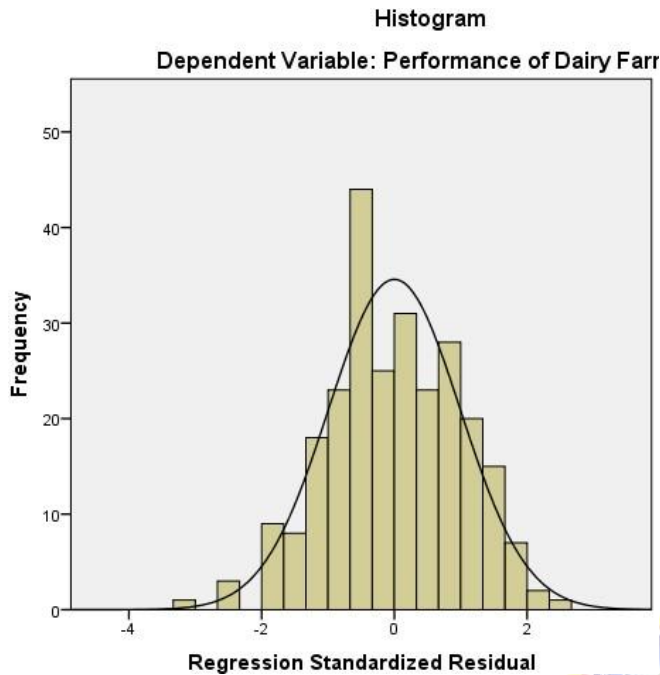
Variable	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	df	Sig.
Technical Systems	.135	258	.000	.972	258	.000
Micro-Credit	.093	258	.000	.972	258	.000
Micro-Insurance	.108	258	.000	.970	258	.000
Micro-Saving	.020	258	.033	.982	258	.002
Government Policy	.115	258	.000	.977	258	.000
Performance	.080	258	.000	.956	258	.000

a. Lilliefors Significance Correction

**Source: Field Data (2019)**

Table 17 for all variables reject their null hypotheses that the data sets for the eight variables are not normally distributed when both Kolmogorov-Smirnov test and Shapiro-Wilk as the significance is < 0.05. Even when the data is not normally distributed, Elliot and Woodward (2007) concur that parametric techniques can be applied. Normality should be judged visually, according to Ghasemi and Zahedias (2012). Individual factors are listed in Appendix III. Figure

2 shows that the deviation from normalcy was not as great as the approximation to the line of fit. As a result, the regression residuals were close to normal, and the assumption was met.



**Figure 4: Normal Curve for Regression Residual**

Source: Field Data (2019)

#### 4.7 Correlation Analysis

##### 4.7.1 Correlation Analysis between Independent Variables and Dairy farmer performance

Correlation analysis of the independent and dependent variables was performed in this study, and correlation coefficients were calculated. The correlation analysis helps in determining the impact of all research variables on the performance of dairy farmers. The study's objectives were used to guide the analysis. As a result, a study was conducted to see whether there was a significant association between each MFI system and the performance of dairy farmers. Table 18 summarizes the findings.

**Table 18: Correlation Analysis among Study Variables**

	MI	MS	TS	MC	GP
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Micro-Insurance	Pearson Correlation	1				
	Sig. (2-tailed)					
	N	258				
Micro Saving	Pearson Correlation	.289**	1			
	Sig. (2-tailed)	.000				
	N	258	258			
Technical Systems	Pearson Correlation	.400**	.625**	1		
	Sig. (2-tailed)	.000	.000			
	N	258	258	258		
Micro-Credit	Pearson Correlation	.402**	.479**	.691**	1	
	Sig. (2-tailed)	.000	.000	.000		
	N	258	258	258	258	
Government Policy	Pearson Correlation	.351**	.400**	.446**	.433**	1
	Sig. (2-tailed)	.000	.000	.000	.000	
	N	258	258	258	258	258
Performance of Dairy Farmers	Pearson Correlation	.518**	.548**	.627**	.665**	.563**
	Sig. (2-tailed)	.000	.000	.000	.000	.000
	N	258	258	258	258	258

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

#### Source: Field Data (2019)

The results indicated that all independent variables had a significant relationship with the dependent variable (dairy farmer performance). The relationship between micro-insurance and dairy farmer performance was found to be moderate and positive ( $r=0.518$ ,  $p=0.000$ ). The relationship between technical systems and dairy farmer performance was moderate and significant ( $r=0.548$ ,  $p=0.000$ ). Both microfinance credit and MFI saving systems were found to have strong and positive relationships with dairy farmer performance, ( $r=0.665$ ,  $p=0.000$ ) and ( $r=0.627$ ,  $p=0.000$ ) respectively. Besides, the results also indicated that there is a significant relationship among the independent variables used in this study ( $P<0.05$ ). The results indicated that moderating variable had a significant relationship with the dependent variable (dairy farmer performance). The relationship between government policy and dairy farmer performance was found to be moderate and positive ( $r=0.563$ ,  $p=0.000$ ).

#### 4.8 Simple Linear Regression between MFI systems and Dairy farmer performance

Regression analysis was conducted between individual MFI systems and dairy farmer performance. The coefficient of determination,  $R^2$  was relied on to overcome the problem of determining causality as it indicates the amount of variability in one variable that is explained by the others. The null hypotheses were tested using the B coefficient at a 5% significant level. The criteria were  $B \neq 0$  and  $P < 0.05$ .

##### 4.8.1 Technical systems and Dairy farmer performance

A simple linear regression was carried to assess the influence of Technical systems on the dairy farmer performance in Kakamega County. This entails composite variable of Technical systems index which was mean obtained from six metrics that was used to measure Technical systems in this study. Similarly, the composite value of dairy farmer performance was obtained by getting a mean of five metrics that were used to measure dairy farmer performance. The results are presented in Table 19.

**Table 19: Regression Analysis of Technical systems**

Model Summary						
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate		
1	.627 <sup>a</sup>	.393	.391	.4764045		
a. Predictors: (Constant), Technical systems						
b. Dependent Variable: Dairy farmer performance						
ANOVA <sup>a</sup>						
Model		Sum of Squares	Df	Mean Square	F	Sig.
	Regression	37.689	1	37.689	166.057	.000 <sup>b</sup>
1	Residual	58.102	256	.227	Total 95.791	
257						
a. Dependent Variable: Technical systems						
b. Predictors: (Constant), Dairy farmer performance						
Coefficients <sup>a</sup>						
Model	Unstandardized Coefficients		Standardized Coefficients		T	Sig.
	B	Std. Error	Beta			
(Constant)	1.843	.121			15.242	.000

Technical systems	.446	.035	.627 12.886	.000
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a. Dependent Variable: Dairy farmer performance

**Source: Field Data (2019)**

The proportion of variance in Dairy farmer performance explained by the independent variable (Technical systems) is 39.3% ( $R^2=0.393$ ). From the findings, the F ratio is greater than 1, as indicated by a value of 166.057, which means that improvement due to fitting the model is much greater than the model inaccuracies ( $F(1,257)= 166.057, P=0.000$ ). This implies that technical service is a useful predictor of dairy farmer performance. From the findings presented in the Table above, technical systems carried positive significant predictive power ( $B=0.446, p=.000$ ) implying that a unit change in technical systems would result in a significant change in dairy farmer performance value by 0.446 units. Therefore, the linear regression results indicated that there was a statistically significant positive relationship between technical systems and dairy farmer performance. The study developed an analytical model for predicting dairy farmer performance from technical systems is stated in the form of: **Dairy farmer performance=1.843+0.446Technical systems**

During an interview with the officers of the MFIs, the researcher noted that most of the MFIs have practiced technical systems. Some of the MFI technical systems were practices included training, workshops, seminars which offer technical systems on marketing, breeding technologies, marketing, livestock health technologies, and milk production technologies. The interview with MFIs officials also revealed that they have conducted various training programme for the various group such as youth and women. The training aimed to ensure that loan is well invested so that they can repay on time and avoid taking of household items. The clients affirmed that they have been given training especially before loan disbursement and they indicated that more training and education is needed as most of them lack basic financial skills. This is key to the growth and development of the MFIs.

**4.8.2 Microfinance Credit systems and Dairy farmer performance**

A simple linear regression was conducted to assess the influence of MFI credit systems on the performance of dairy farmers in Kakamega County. This entails a composite variable of the MFI credit access index which was the mean obtained from six metrics that were used to measure MFI credit access in this study. Similarly, the composite value of dairy farmer performance was obtained by getting a mean of five metrics that were used to measure dairy farmer performance. The results are presented in Table 20.

**Table 20: Regression Analysis of MFI Micro-Credit**

<b>Model Summary</b>					
<b>Model</b>	<b>R</b>	<b>R Square</b>	<b>Adjusted R Square</b>	<b>. Error of the Estimate</b>	
1	.665 <sup>a</sup>	.442	.440	.4568347	
a. Predictors: (Constant), MFI credit access					
b. Dependent Variable: Dairy farmer performance					
<b>ANOVA<sup>a</sup></b>					
<b>Model</b>	<b>Sum of Squares</b>	<b>Df</b>	<b>Mean Square</b>	<b>F</b>	<b>Sig.</b>
Regression	42.364	1	42.364	202.992	.000 <sup>b</sup>
Residual	53.427	256	208.699		
Total	95.791	257			
a. Dependent Variable: MFI credit access					
b. Predictors: (Constant), Dairy farmer performance					
<b>Coefficients<sup>a</sup></b>					
<b>Model</b>	<b>Unstandardized Coefficients</b>		<b>Standard Coefficient Beta</b>	<b>T</b>	<b>Sig.</b>
	<b>B</b>	<b>Std. Error</b>			
(Constant)	1.547	.130		11.905	.000
Portfolio quality	.522	.037	.665	14.248	.000
a. Dependent Variable: Dairy farmer performance					

**Source: Field Data (2019)**

The percentage of variance in dairy farmer performance accounted for by MFI credit access is 39.3% or  $R^2=0.442$ . The F ratio is greater than 1, as indicated by a value of 202.992, which means that improvement due to fitting the model is much greater than the model inaccuracies ( $F(1,257)= 202.992, P=0.000$ ). This implies that MFI credit access is a useful predictor of dairy

farmer performance. MFI credit access carried positive significant predictive power ( $B=0.0.522$ ,  $p=.000$ ) implying that a unit change in MFI credit access level would result in a significant change in dairy farmer performance value by 0.0.522 in the same direction. Therefore, the linear regression results indicated that there was a statistically significant positive relationship between MFI credit access and dairy farmer performance. The study developed an analytical model for predicting dairy farmer performance from MFI credit access is stated in the form of:

$$\text{Dairy farmer performance} = 1.547 + 0.0.522 \text{MFI credit Systems}$$

According to the interviews done concerning the MFI credit systems, it was realized that some of the MFIs took a long time to process the loans, and interviews with MFI officials revealed they take a long time due to screening of risky clients before awarding loans. Some of the respondents revealed that the loan amount disbursed was not sufficient to cater to the purpose they applied for. The interview with MFI officials still revealed that dairy farmers need credit to address the issues of poor capitalization, low levels of use of modern inputs, and low productivity. They need both long-term and short-term finances. But most of them prefer shortterm finances that they can pay within one year.

#### 4.8.3 Micro-insurance systems and Dairy farmer performance

A simple linear regression was carried out to establish the influence of MFI micro-insurance systems on the performance of dairy farmers in Kakamega County. This consisted of the composite variable of the MFI micro-insurance systems index which was the mean obtained from five metrics that were used to measure MFI micro-insurance systems in this study. Similarly, the composite value of dairy farmer performance was obtained by getting a mean of seven metrics that were used to measure dairy farmer performance. The results are presented in Table 21.

**Table 21: Regression Analysis of Micro-insurance systems**

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.518 <sup>a</sup>	.268	.266	.5232126

a. Predictors: (Constant), MFI micro-insurance systems

b. Dependent Variable: Dairy farmer performance

**ANOVA<sup>a</sup>**

<b>Model</b>		<b>Sum of Squares</b>	<b>Df</b>	<b>Mean Square</b>	<b>F</b>	<b>Sig.</b>
1	Regression	25.710	1	25.710	93.918	.000 <sup>b</sup>
	Residual	70.080	256	.274		
	Total	95.791	257			

a. Dependent Variable: MFI micro insurance systems

b. Predictors: (Constant), Dairy farmer performance

**Coefficients<sup>a</sup>**

<b>Model</b>	<b>Unstandardized Coefficients</b>		<b>t</b>	<b>Sig.</b>
	<b>B</b>	<b>Std. Error</b>		
(Constant)	1.551	.189	8.219	.000
Micro-insurance	.563	.020	.518	9.691

a. Dependent Variable: Dairy farmer performance

**Source: Field Data (2019)**

The coefficient of determination ( $r^2$ ) was found to be 0.268. MFI micro-insurance systems, in other words, can account for much to 26.8% of the variation in dairy farmer performance in Kakamega County. The F test yielded a result of  $(1, 257) = 93.918$ ,  $P < 0.01$ , indicating that the model is good at describing the variation in the dependent variable. It also suggests that MFI micro-insurance systems in Kakamega County are a good predictor of dairy farmer success. MFI micro-insurance systems had an unstandardized regression coefficient ( $\beta$ ) of 0.563 and a significance level of  $p = .000$ . This meant that a change of one unit in MFI micro-insurance systems would result in a 0.563-unit change in dairy farmer performance. As a result, the regression equation used to assess dairy farmer performance in Kakamega County as a result of MFI microinsurance schemes was:

**Dairy farmer performance (Y) = 1.551 + 0.563MFI(X<sub>3</sub>) micro-insurance systems**

During an interview with the officers of the MFIs, the researcher noted that most of the MFIs have are insuring the loans that they grant to the dairy farmers. The interview further revealed that Micro Finance Institutions have purposively offered various insurance portfolio mixes to make them attractive to dairy farmers. Some of the insurance portfolio mixes that come with a given package have enabled the dairy farmers to earn a bonus regardless of whether they suffer a loss or not. This has encouraged dairy farmers to uptake insurance cover for their products since at the end of the day; they stand to gain from Micro Finance Institutions insurance systems.

#### 4.8.4 MFI saving systems and Dairy farmer performance

A simple linear regression was conducted to establish the influence of MFI saving systems on the performance of dairy farmers in Kakamega County. This consisted of the composite variable of the MFI saving systems index which was the mean obtained from six metrics that were used to measure MFI saving systems in this study. Similarly, the composite value of dairy farmer performance was obtained by getting a mean of seven metrics that were used to measure dairy farmer performance. The results are presented in Table 22.

**Table 22: Regression Analysis of MFI saving systems**

Model Summary						
Model	R	R Square	Adjusted R Square	. Error of the Estimate		
1	.548 <sup>a</sup>	.300	.297	.5118338		
a. Predictors: (Constant), MFI saving systems						
b. Dependent Variable: Dairy farmer performance						
ANOVA <sup>a</sup>						
Model	Sum of Squares	Df	Mean Square	F	Sig.	
Regression	28.725	1	28.725	109.650	.000 <sup>b</sup>	
Residual	67.065	256	.262			
Total	95.791	257				
a. Dependent Variable: MFI saving systems						
b. Predictors: (Constant), Dairy farmer performance						
Coefficients <sup>a</sup>						
Model	Unstandardized Coefficients	Standard Coefficient	T	Sig.		

	<b>B</b>	<b>Std. Error</b>	<b>Beta</b>	
(Constant)	1.492	.181	8.263	.000
Saving Systems	.519	.050	.54810.471	.000

a. Dependent Variable: Dairy farmer performance

**Source: Field Data (2019)**

The outcomes uncovered a coefficient of determination ( $r^2$ ) of 0.300. Which means MFI saving frameworks can disclose up to 30.0 % of the fluctuation in dairy rancher execution in Kakamega County. The F test gave a worth of  $(1, 257) = 109.650$ ,  $P < 0.01$ , which upholds the decency of attack of the model in clarifying the variety in the reliant variable. It additionally implies that MFI saving frameworks is a helpful indicator of dairy rancher execution in Kakamega County. The unstandardized relapse coefficient (B) worth of MFI saving frameworks was 0.519 and the importance level of  $p = .000$ . This showed that a unit change in MFI saving frameworks would result in to change in dairy rancher execution by 0.519 altogether. The relapse condition to gauge dairy rancher execution in Kakamega County because of MFI saving frameworks was henceforth expressed as: **Dairy farmer performance(Y) = 2.681 + 0.519 (X<sub>4</sub>) MFI saving systems**

During an interview with the officers of the MFIs, the researcher noted that most of the MFIs have incorporated saving systems. The interview with MFIs officials revealed that different clients do savings after opening bank accounts with them. The majority of the clients are youth and women. This included saving and loan products and borrowers were allowed to select products according to their ability.

#### **4.9 Multiple Linear Regression between MFI systems and Dairy farmer performance**

The purpose of the study was to conduct an empirical study on microfinance institutions systems influence on smallholder dairy farmers' performance in Kakamega County. This was achieved by carrying out standard multiple regressions with the model consisting of each of the MFI indicators. The study was interested in knowing the effect of each of the MFI systems on

dairy farmer performance when all these systems were entered as a block in the model. The results of multiple linear regression analysis were presented in Table 23 which contained ANOVA (goodness of fit; F Ratio, Sig Value) and model summary (R, R<sup>2</sup>, Adj R<sup>2</sup>) results while Table 24 contained regression coefficient (Unstandardized & standardized), t-value and Sig. value results.

The study sought to determine the overall percentage change in the dairy farmer performance that was explained by all MFI systems by use of R<sup>2</sup>. The results in Table 27 present R, R<sup>2</sup>, Adj R<sup>2</sup>, F ratio, and Sig. value.

**Table 23: Model Summary and ANOVA**

Model Summary						
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate		
1	.760 <sup>a</sup>	.578	.572	.3996054		
a. Predictors: (Constant), Saving, Insurance, Credit, Technical systems						
ANOVA <sup>a</sup>						
Model		Sum of Squares	Df	Mean Square	F	Sig.
	Regression	55.391	4	13.848	86.719	.000 <sup>b</sup>
1	Residual	40.400	253	.160		
	Total	95.791	257			

a. Dependent Variable: Dairy farmer performance

b. Predictors: (Constant), Saving, Insurance, Credit, Technical systems

**Source: Field Data (2019)**

The outcomes from the model synopsis in Table 23 give data on the general outline of the model. Taking a gander at the R square segment, we can reason that all the MFI frameworks represent a 57.8% huge difference in dairy rancher execution (R square =.578, P=0.000) inferring that 42.2% of the fluctuation in dairy rancher execution is represented by different factors not caught in this model. From the discoveries, likewise balanced R square worth is gotten, which is an adjusted R square an incentive to give a helpful gauge of genuine investigation populace. The contrast between R<sup>2</sup> and balanced R<sup>2</sup> is acquired by deducting the latter from the previous (.578-.572=0.006) a worth when duplicated by 100% outcomes in 0.6

percent. This decrease suggests that should the model began from the whole populace rather than an example, it would clarify about 0.6% less variety in the investigation result.

To evaluate the importance of the model, essentially whether the investigation model is a superior critical indicator of the dairy rancher execution instead of utilizing mean score which is considered as an estimate, the examination depended on F Ratio. The F esteem from study discoveries demonstrates the extent of the improvement in foreseeing the outcomes from fitting the model comparative with the mistake or blunders that wins in the investigation model. From the discoveries, the F esteem is multiple, as shown by an estimation of 86.719, which implies that improvement because of model fitting is a lot bigger than the model mistakes/errors that were not utilized in the model ( $F(4,257) = 86.719, P=0.000$ ). The huge F esteem is probably not going to exist by some coincidence (99.0%), in this way suggesting that the last examination model has a huge improvement in its forecast capacity of dairy rancher execution in Kakamega County.

The introduced in Table 24 shows unstandardized coefficients, normalized coefficients, t measurement, and huge qualities. The examination has a choice of either utilizing Unstandardized Coefficients or Standardized Coefficients relying upon the kind of information. The examination utilized an unstandardized coefficient segment since we need to look at determinants impact across the same measures (Likert Scale 1 through 5). Notwithstanding, on the off chance that the measure was unique, at that point, normalized coefficients which depend on standard deviation would be suitable.

**Table 24: Coefficients of MFI Indicators**

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	.422	.180		2.342	.020
Technical systems	.102	.046	.143	2.213	.028
Micro-credit	.285	.045	.363	6.294	.000
Micro-insurance	.276	.049	.254	5.593	.000
Micro-saving	.200	.050	.211	4.019	.000

a. Dependent Variable: Dairy farmer performance **Source:**

**Field Data (2019)**

From the discoveries introduced in Table 24, we take a gander at the model outcomes and output down through the unstandardized coefficients B section. For frameworks had a noteworthy impact on the dairy rancher execution. If the frameworks are held at zero or it is missing, the dairy rancher execution in Kakamega County would be huge at 0.422,  $p=0.020$ . It was uncovered that specialized frameworks had a noteworthy commitment to the model with  $B=.102$ ,  $p=.028$  recommending that controlling of different factors in the model, a unit change in specialized frameworks would result in a critical change in dairy rancher execution by 0.102units because of better-specialized frameworks in the bank. Consequently, the main speculation was dismissed since  $\beta_1 \neq 0$  and  $P$  esteem  $<0.05$ .

The biggest B coefficient was 0.285, which is coefficient esteem for Micro-credit. These qualities are noteworthy ( $B=.285$ ,  $p=.000$ ) and certain. This implies that Micro-credit has the most grounded extraordinary commitment to clarifying the dairy rancher execution in Kakamega County when the fluctuation clarified by all different factors in the model is controlled. This infers that a unit change in miniature credit would result in to change in dairy rancher execution by 0.285units. Consequently, the subsequent theory was dismissed since  $\beta_2 \neq 0$  and  $P$  esteem  $<0.05$ .

Another variable that likewise had a novel noteworthy commitment to the model was the incentive for miniature protection frameworks ( $B=.276$ ,  $p=.000$ ), lower than miniature credit frameworks. At the point when different factors in the model are controlled, unit changes in miniature protection frameworks would result in a noteworthy change in dairy rancher execution by 0.276 a similar way. Hence, the third speculation was dismissed since  $\beta_3 \neq 0$  and  $P$  esteem  $<0.05$ . Further, MFI sparing frameworks had likewise a remarkable noteworthy commitment to the model with  $B=0.200$ ,  $p=.000$  inferring that when different factors in the model are controlled, a unit change in MFI sparing frameworks would result in a critical change in dairy rancher execution by 0.200units a similar way. Thusly, the primary theory was dismissed since  $\beta_4 \neq 0$  and  $P$  esteem  $<0.05$ .

A relapse of the four indicator factors against dairy rancher execution set up the different straight relapse model as shown in Table 24:

$$\text{Dairy rancher performance}(Y) = 0.422 + 0.102X_1 + 0.285X_2 + 0.276 X_3 + 0.200X_4$$

#### 4.10 Moderated Multiple Regression

Further to the direct relapse investigation, progressive directed numerous relapses (MMR) was done to survey the directing impact of government strategy and guidelines. The MMR was embraced for the various leveled stepwise examination included. The progressive MMR is a three-venture examination where an indicator or a lot of indicators is added to the model at each stage and the impact on the general model surveyed. In stage one of the examination, the 4 estimated MFI frameworks were remembered for the model. In the subsequent stage, the directing variable was acquainted with the model and the impact of the expansion surveyed. In the third stage to survey the directing impact of directing variable, the association terms between directing variable and the MFI frameworks were additionally acquainted and the impact with the model evaluated.

**Table 25: Change in R Square as a result of Government Policy**

Model	R	R <sub>2</sub>	Adj. R <sub>2</sub>	Std. Error of the Estimate	R Square Change	Change Statistics			Sig. F Change
						F Change	df1	df2	
1	.760 <sup>a</sup>	.578	.572	.3996054	.578	86.719	4	253	.000
2	.786 <sup>b</sup>	.617	.609	.3815134	.039	25.564	1	252	.000
3	.819 <sup>c</sup>	.670	.658	.3569456	.053	9.971	4	248	.000

a. Predictors: (Constant), Micro Saving, Micro-Insurance, Micro-Credit, Technical Systems

b. Predictors: (Constant), Micro Saving, Micro-Insurance, Micro-Credit, Technical Systems, Government Policy

c. Predictors: (Constant), Micro Saving, Micro-Insurance, Micro-Credit, Technical Systems, Government Policy, MIZ, TSZ, MSZ, MCZ

**Source: Field Data (2019)**

The summary statistics show the effect of each stage of the analysis in Table 25. The study assessed the change statistics including the change in R-square and the change on F-statistics as the effect at each stage. In model 1, the R-square of 0.578 shows that 57.8% of the variation in the dependent variable (dairy farmer performance) is explained by the variation of the

predictors (MFI systems) in model 1. Model 2 shows an R-square of 0.617. The R-square change is 0.039 as the increase due to the introduction of the moderating variable (government policy). The change is significant at a 5% level of significance as portrayed by the p-value of the change in R-square of 0.032 which is less than 0.05. This is an implication that the change in the model due to the addition of the variable government policy has a significant effect on the model. In stage 3, the interaction terms between each MFI system and the moderator were added to the model and the effect assessed. The R-square of the third model is 0.670 implying that 67.0% of the variation in dairy farmer performance is explained by the variation of the predictors in model 3. The R-square change due to the introduction of the interaction terms is 0.053. The change is significant at a 5% level of significance as implied by the p-value of the F-statistics for model 3 which is less than 0.05. The significant improvement to the model due to the introduction of the interaction terms is an indication that government policy moderates the relationship between the MFI systems and dairy farmer performance. Table 30 shows the coefficient estimates of the 3 MMR models.

**Table 26: Regression Coefficient as a result of Socio-economic Factors**

Model	Coefficients <sup>a</sup>				
	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	.422	.180		2.342	.020
Technical Systems 1	.102	.046	.143	2.213	.028
Micro-Credit	.285	.045	.363	6.294	.000
Micro-Insurance	.276	.049	.254	5.593	.000
Micro Saving	.200	.050	.211	4.019	.000
(Constant)	-.030	.194		-.155	.877
Technical Systems	.078	.044		1.769	.078
Micro-Credit	.252	.044	.110	5.764	.000
2	.233	.048	.321	4.875	.000
Micro-Insurance			.215		
Micro Saving	.162	.048	.171	3.368	.001
Government Policy	.274	.054	.231	5.056	.000

(Constant)	4.608	.905		5.094	.000
Technical Systems	.622	.293		2.126	.034
Micro-Credit	-.562	.267	.874	-2.102	.037
Micro-Insurance	-.596	.262	-.715	-2.276	.024
Micro Saving	-.158	.348	-.548	-.454	.650
3	-1.059	.263	-.167	-4.024	.000
Government Policy			-.894		
TSZ	.247	.080	1.185	3.110	.002
MCZ	.077	.102	.440	.756	.450
MIZ	-.158	.086	-1.040	-1.829	.069
MSZ	.239	.079	1.477	3.007	.003

a. Dependent Variable: Performance of Dairy Farmers

**Source: Field Data (2019)**

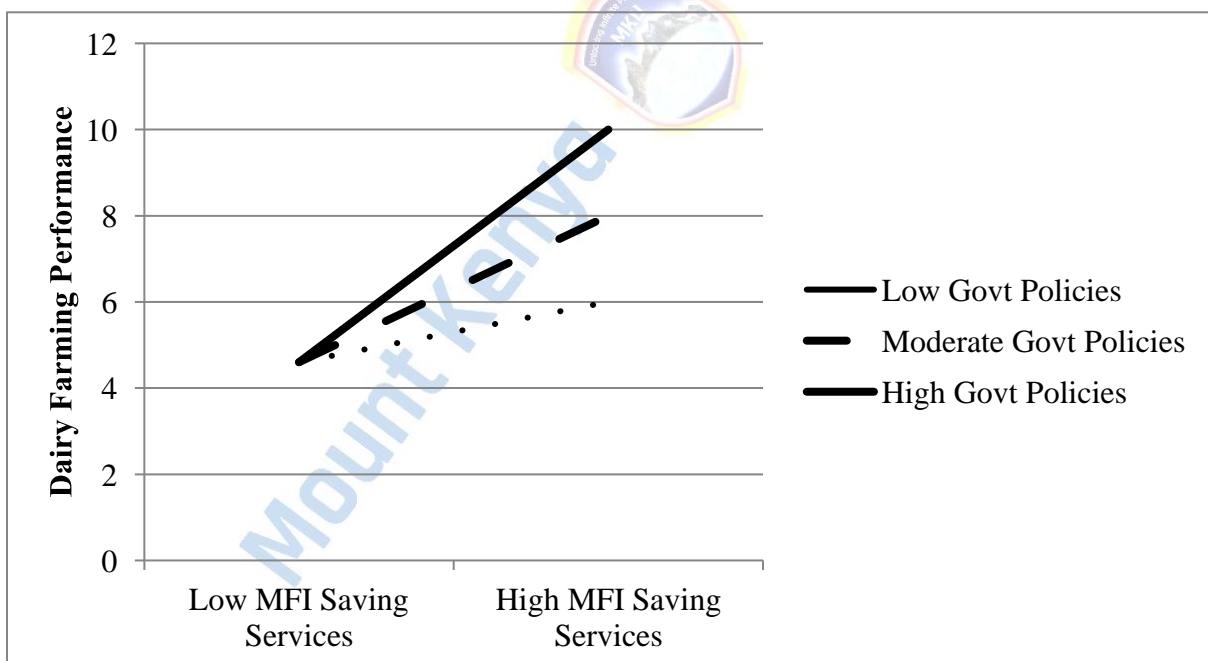
The coefficients of model 1 were positive and huge. The expansion of government strategy to the model had huge upgrades to the model. The additional variable government strategy ( $\beta = .274$ ,  $p = .000$ ) has a p-esteem under 0.05 inferring that in model 2, government strategy affects dairy rancher execution. Model 3 that saw the option of the collaboration terms was, nonetheless, it was tracked down that 2 of the additional connection terms were observed to be critical. MFI specialized frameworks association government strategy ( $\beta = 0.247$ ,  $p = .002$ ) and MFI saving frameworks communication government strategy ( $\beta = .239$ ,  $p = .003$ ) both have pvalues under 0.05 inferring huge impact.

The aftereffects of model 3, accordingly, show that administration strategy has a huge directing impact on the connection between MFI saving frameworks and dairy rancher execution and that between specialized frameworks and dairy rancher execution. This implies that, as government strategy increments by one unit, the degree of MFI saving frameworks impact on dairy rancher execution essentially increments by 0.239 units. Essentially, as government strategy increments by one unit, the degree of MFI Technical frameworks impact on dairy rancher execution altogether increments by 0.247 units. The model for the gauge of dairy cultivating execution as produced from the MMR model 3 is given by the situation beneath;

$$Y = 0.247X_1 Z + 0.239X_4 Z$$

#### 4.10.1 Graphical Presentation of the Moderating Effect of Government Policy

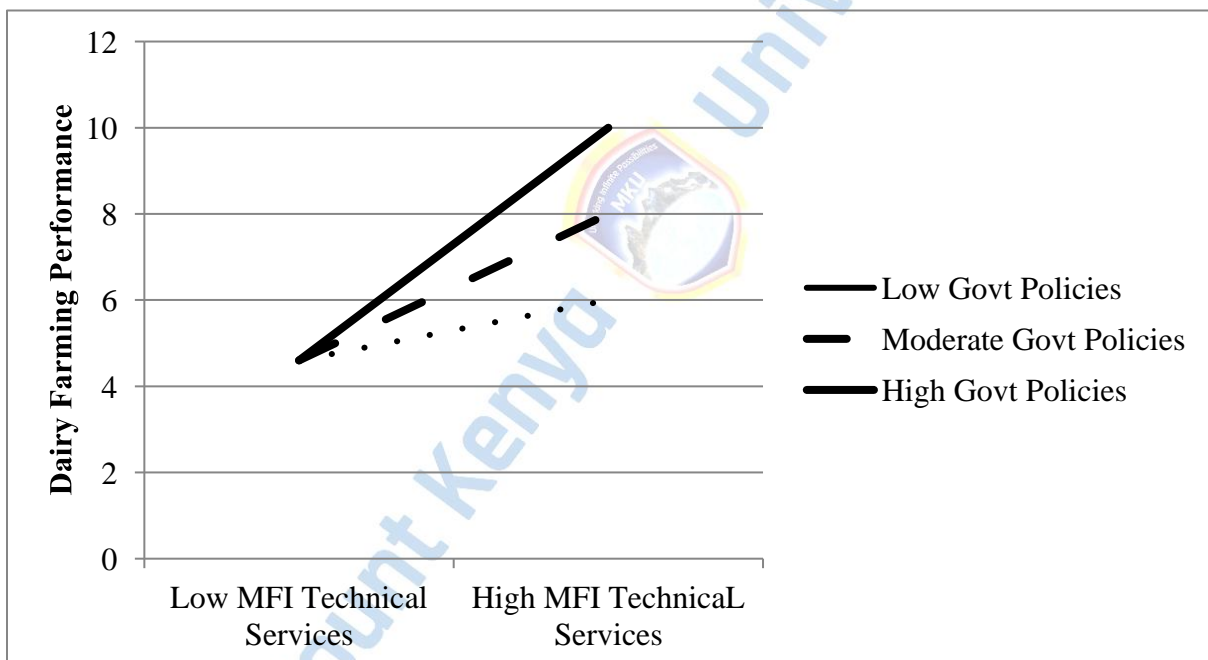
Government strategy was subsequently found to direct the connections between dairy cultivating execution and two Micro Finance Institutions frameworks in Kakamega County. Graphical show of the directing impact was in this manner developed for the 2 impacts. Figure 4.4 shows a graphical show of the directing impact of government approaches on the connection between dairy cultivating execution and Micro Finance Institutions saving frameworks in Kakamega County. As displayed, low degrees of government approaches show a slow slant which is because of the presence of a causal connection between Micro Finance Institutions miniature saving frameworks and dairy cultivating execution in Kakamega County. Expanding the degrees of government strategies shows an expansion in the slant of the bend between Micro Finance Institutions miniature saving frameworks and the presentation of dairy ranchers. The slant continues to increment at more significant levels of government strategies inferring that expanding the degrees of government has a positive directing impact which builds the strength of the causal connection between Micro Finance Institutions saving frameworks and dairy execution of Kakamega County.



**Figure 5: Moderating effect of Government Policy on dairy farming performance and Micro Finance Institutions micro-saving systems**

Source: Field Data (2019)

Figure 6 shows a graphical show of the directing impact of government approaches on the connection between dairy cultivating execution and Micro Finance Institutions specialized frameworks in Kakamega County. As displayed, low degrees of government approaches show a slow slant which is because of the presence of a causal connection between Micro Finance Institutions specialized frameworks and dairy cultivating execution in Kakamega County. Expanding the degrees of government strategies shows an increment in the slant of the bend between Micro Finance Institutions specialized frameworks and the presentation of dairy ranchers. The slant continues to increment at more elevated levels of government strategies inferring that expanding the degrees of government has a positive directing impact which builds the strength of the causal connection between Micro Finance Institutions specialized frameworks and dairy execution of Kakamega County.

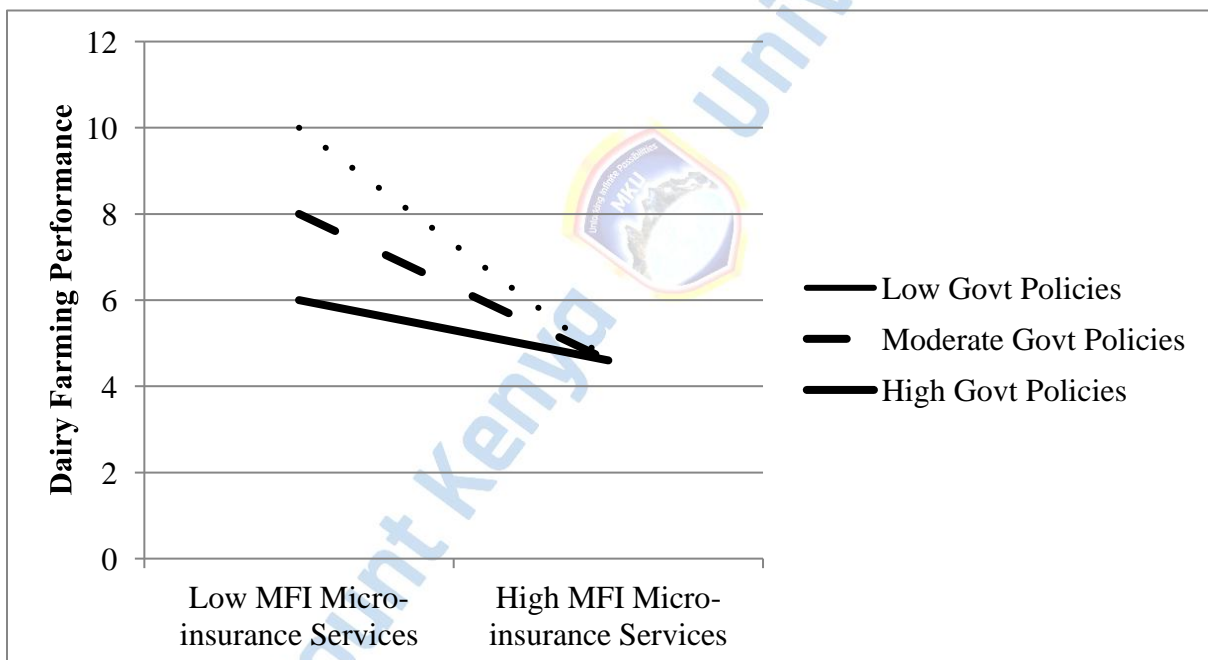


**Figure 6: Moderating effect of Government Policy on dairy farming performance and Micro Finance Institutions technical systems**

Source: Field Data (2019)

The study found it worthwhile to demonstrate the negative effect of government policy on the influence of Micro Finance Institutions micro-insurance systems on dairy farming performance. Figure 7 shows a graphical show of the directing impact of government approaches on the connection between dairy cultivating execution and Micro Finance

Institutions miniature protection frameworks in Kakamega County. As displayed, low degrees of government approaches show a steady certain slant which is a causal connection between Micro Finance Institutions miniature protection and dairy cultivating execution in Kakamega County. Expanding the degrees of government approaches causes a shift in the course of the relationship as displayed in the negative slant of the bend between Micro Finance Institutions miniature protection frameworks and dairy cultivating execution at medium degrees of legitimate systems. The incline continues to diminish at more elevated levels of government arrangements suggesting that expanding the degrees of government approaches has a negative directing impact which diminishes the strength of the causal connection between Micro Finance Institutions miniature protection frameworks and dairy cultivating execution in Kakamega County.



**Figure 7: Moderating effect of Government Policy on dairy farming performance and Micro Finance Institutions micro-saving systems**

Source: Field Data (2019)

#### 4.11 Discussions

The purpose of the study was to conduct an empirical study on microfinance institutions' indicators on contribution to the dairy farmer performance in Kakamega County. The

discussion of this is appropriately conducted to link the results with other empirical studies as well as theories that guided the study. Therefore, various concepts used in the study have been explained hence, filling the existing contextual, theoretical, and conceptual gaps.

#### **4.11.1 Influence of Technical systems on the dairy farmer performance**

Objective one of the review looked to explore the impact of MFI specialized frameworks on the presentation of dairy ranchers in Kakamega County. This goal meant to discover what MFI specialized frameworks have meant for dairy cultivating execution in Kakamega County. Hence, it was theorized that there is no huge connection between the MFI specialized frameworks and the exhibition of dairy ranchers in Kakamega County. MFI specialized frameworks were estimated via preparing, studios, courses which offer specialized frameworks on advertising, rearing advancements, promoting, animals wellbeing innovations, and milk creation advances. Respondents had been approached to demonstrate the degree to which they concurred on the components of the Technical framework. These actions were subsequently identified with dairy cultivating exhibitions which were controlled by efficiency (nature of milk and amount of milk), market availability, speculations (dairy resources), and dairy esteem increases. The discoveries of the review were finished utilizing unmistakable insights like rate, recurrence, mean and standard deviation. To test the main invalid speculation, inferential insights were utilized, this included Pearson relationship and straight relapse investigations. The majority of the respondents confirmed that MFI aggressively gives technical systems which are beneficial to dairy farming which was supported by 56.6% of the respondents who strongly agreed and 27.5% who agreed. A mean of 4.26 is supported this assertion indicating that Micro Finance Institutions aggressively give technical systems which are beneficial to dairy farming. However, a significant standard deviation of 1.1 implies that not all Micro Finance Institutions are aggressive as far as technical systems to dairy farmers are concerned.

It was worthwhile to note that Micro Finance Institutions assisted farmers in the acquisition of dairy farming inputs such as feed and fodder, A. I systems to improve the breed as indicated by 58.9% of the respondents who strongly agreed. A mean of 4.35 also supported the findings as MFIs can offer technical systems due to economies of scale as compared to individual farmers.

However, this assertion was not universal as indicated by a standard deviation of 1.00 implying that some Micro Finance Institutions failed to offer dairy farming inputs.

The majority of the dairy farmers who participated in this study affirmed that technical systems offered by dairy farmers have enabled them to change the system of production as shown by 60.9% of the respondents. Technical systems have forced dairy farmers in Kakamega County to shift from an extensive production system to intensive production which has resulted in to increase in milk and dairy production. A mean of 4.34 supports this evidence indicating that Micro Finance Institutions technical systems have improved the production system of the government. However and surprisingly, not all Micro Finance Institutions are offering technical systems on a dairy production system.

The results further proved that Micro Finance Institutions have been assisting farmers in the mode of marketing of dairy products as indicated by a mean of 4.31. This evidence was supported by the majority of the sampled dairy farmers who confirmed that Micro Finance Institutions have provided information on dairy marketing especially value addition before selling milk. As result dairy farmers are discouraged from selling raw milk which fetches little money from the market. However, from the standard deviation, it is evident that some Micro Finance Institutions do not offer market information to dairy farmers and this was supported by 7.7% of the sampled dairy farmers.

Micro Finance Institutions were found to organize training and capacity building for dairy farmers. Studies have indicated that dairy farmers are unable to adopt improved dairy production due to their inability in form of experience and skills. However, those who are clients of Micro Finance Institutions indicated that Micro Finance Institutions organize pieces of training for their members on various technologies to improve productivity as shown by 72.4% of the respondents. Although the standard deviation revealed that some Micro Finance Institutions did not organize training for their dairy farmers' clients, the results were in agreement with a mean of 3.98. Some microfinance institutions (MFIs) are actively pursuing techniques to teach entrepreneurial skills. Fast-growing economies and those with competitive capabilities have recognized the importance of Human Resource Development (HRD) and have

invested extensively in the form of capacity building and modern skill training. Dairy farming can remain competitive through improving human skills (Bennett, 2007).

Micro Finance Institutions were also found to collaborate with other institutions in providing technical systems to dairy farmers. Micro Finance Institutions are primarily concerned with financial systems, but they must also provide non-financial systems in order to expand their reach and sustainability. Only other groups and entities can provide these non-financial systems. This was evident as shown by 58.1% of the sampled dairy farmers who affirmed that Micro Finance Institutions collaborate with other institutions in providing technical systems to dairy farmers. Nonetheless, a tremendous standard deviation of 1.35 suggests that there is a critical deviation from the mean of 3.60, which is additionally upheld by 23.1% of the inspected dairy ranchers. Venture advancement frameworks are not an essential for getting monetary frameworks and they are not offered for nothing. These charges are at times financed by the public authority or an outside party since recuperating the full expense of giving the frameworks will be unthinkable by the MFI (Bennett, 2007). The venture advancement frameworks might be exceptionally significant to organizations however the effect and information that is acquired can't be estimated since it doesn't for the most part include any quantifiable product. It has been seen that there is practically no distinction between endeavors that get credit alone and those that get both credit bundles and coordinated undertaking improvement frameworks (Ledgerwood, 2009).

It was extremely challenging to sum up these discoveries without leading inferential investigation. Prior to testing the speculation, a connection examination was led to decide the strength and heading of the connection between the elements of Micro Finance Institutions specialized frameworks and the dairy rancher execution. The aftereffects of the connection examination showed that the connection between Micro Finance Institutions specialized frameworks and dairy rancher execution was positive and measurably critical. The concentrate additionally completed a relapse examination to decide the greatness of the connection between Micro Finance Institutions specialized frameworks and dairy rancher execution. The composite file of the Micro Finance Institutions specialized frameworks and dairy rancher execution was registered and straightforward relapse investigation was performed to set up the impact of Technical frameworks on dairy rancher execution. The review set up that there was a positive

and huge connection between specialized frameworks and dairy rancher execution in Kakamega County, Kenya. The discoveries showed that technical systems clarified 39.3% of its variety in dairy rancher execution ( $R^2=.393$ ). Different direct relapse uncovered that specialized frameworks had the most un-extraordinary huge commitment to the model with  $B=.102$ ,  $p=.028$  recommending that controlling of different factors in the model, a unit change in Micro Finance Institutions specialized frameworks would bring about a critical change in dairy rancher execution by 0.102units. Thusly, the primary invalid theory was dismissed since  $\beta_1 \neq 0$  and  $P\text{-esteem} < 0.05$ . In affirming that Micro Finance Institutions Technical frameworks affect dairy rancher execution, the outcomes accomplished target one of the review.

From the findings, the study deduced that some of the Micro Finance Institutions in Kakamega County are offering technical systems to dairy farmers and it is well-known dairy farmers need appropriate technology in feed, breeding, health, milk production, and marketing to realize profits and make the venture sustainable. In dairy farming, there are two types of entrepreneurs, the first one is those who are in dairy farming and the second batch is those who are forced to practice dairy farming due to the provision of dairy cows by the county government or other non-governmental organizations. The latter required a lot of technical support to upscale their dairy production.

These findings are in agreement with limited studies that were carried out to examine the relation between Micro Finance Institutions' non-financial systems (technical systems and performance).

Training systems are crucial for dairy ranchers as well as Micro Finance Institutions. Karlan and Valdivia (2006) find that microfinance customers exposed to the preparation programs are bound to keep a perfect reimbursement record contrasted with undeveloped customers. They contend that this outcomes from the further developed business result, which on normal is 16% higher for prepared customers as far as deals. Comparable outcomes were gotten by OECD for deciding the connection between the preparation and SMEs intensity and efficiency shows that the nature and effect of preparing and abilities advancement in firms are seen by firm directors just like a significant supporter for company's turn of events. Little firms keep on having an

inclination for orchestrating their bits of preparing in accordance with their specific business needs (Henriken and Svoldal, 2010).

In an alternate report completed by Henriken and Svoldal (2010) on the effect of giving business preparing to microfinance customers in Tanzania, the review revealed that preparation was not pondered the business visionary's benefits. The overall judgment was that business preparing prompts shifts towards business structures that are related with higher benefit. This is on the grounds that business visionaries with business preparing have all the more regularly become different entrepreneurs (Karlan and Valdivia, 2006).

The frameworks given by MFI incorporate advertising and innovation frameworks, business preparing, creation preparing, and subsector investigation and intercessions. Endeavor improvement frameworks can be figured out into two classes (Karlan and Valdivia, 2006). The first is endeavor arrangement which is the contribution of preparing to people to get abilities in a particular area like weaving and just as people who need to fire up their own business. The second classification of big business improvement administration delivered to its customers is the venture change program which is the arrangement of specialized help, preparing, and innovation to empower existing SMEs to progress as far as creation and showcasing (Bennett, 2007).

#### **4.11.2 Role of credit systems of MFI on the dairy farmer performance**

Objective two of the study sought to investigate the role of credit systems of Micro Finance Institutions on dairy farmer's performance. Microfinance Credit systems were conceptualized into credit amount, interest rate, collateral, and credit repayment. To find its influence on dairy performance, the study measured dairy performance using investments, income level, marketing opportunities, productivity, and value addition.

Respondents had been asked to indicate the extent to which they agreed on these measures of Micro Finance Institutions credit service. The study sought to find out measures that MFIs have put in place for credit systems and if these measures are having any influence on dairy farmer performance. Therefore, it was hypothesized that there is no significant influence of credit systems of Micro Finance Institutions on the dairy farmer's performance.

Primary data was collected from dairy farmers who have utilized credit systems from Micro Finance Institutions. The results indicated that to great extent credit from Micro Finance Institutions has impacted dairy farming performance. The characteristics and attributes of Micro Finance Institutions credit such as size, variety, interest rate, loan repayment, and disbursement resonate well with dairy farmers. Specifically, most of the sampled respondents confirmed that Micro Finance Institutions offers various loan products and sizes to meet the needs of dairy farmers as shown by 84.0% of the sampled respondents although more than half of them agreed. This was supported by a mean of 3.99 which implies that Micro Finance Institutions provided a variety of loan products and different sizes to suit dairy farming needs. However, this was not uniform in all Micro Finance Institutions in Kakamega County.

Micro Finance Institutions were also found to speed up loan processing implying that farmers can quickly attend to dairy farming needs. This was supported by the majority of the respondents who indicated that it is quick to get financing from microfinance as compared to other financial institutions. A mean of 3.84 supported these assertions although there was a significant difference among the Micro Finance Institutions as indicated by a standard deviation of 1.00. Most financial institutions such as commercial banks take time to offer credit to ventures that are perceived to be risky. Dairy farming is one of them and therefore, dairy farmers are not comfortable with such institutions.

The mode of credit disbursement to dairy farmers was favorable as this was vital to the performance of dairy farming. The result indicated that most of the dairy farmers (91.6%) confirmed that the mode of disbursement of loans from the MFIs is suitable. This was also supported by a mean of 4.10 and an insignificant standard deviation of 0.75. Dairy farming is labor-intensive and therefore, it needs a lot of time for better performance. A financial institution that offers credit that is suitably disbursed ensures that farmers can offer maximum attention to the cows. It was noted that Micro Finance Institutions preferred to disburse their loan through mobile banking as such dairy farmers are not required to travel to banking to receive the loans.

A good number of sampled dairy farmers revealed that Micro Finance Institutions' repayment period is convincing as compared to other financial institutions. This was revealed by 42.0%

of the respondents who strongly agreed that the repayment period of loans offered by the Micro Finance Institutions is appropriate to dairy farmers. A mean of 3.99 also supported this observation although a standard deviation of 1.20 indicated that dairy farmers have mixed opinions on the repayment period of their Micro Finance Institutions. Just like any agricultural enterprise, dairy farming does not guarantee immediate returns. This implies that financial institutions advancing credit to dairy farmers ought to give them a reasonable grace period before repayment.

Some of the Micro Finance Institutions were found to offer a rate of loan interest that is suitable to dairy farmers. In practice, commercial banks before interest rate capping have been charging high-interest rates to loan advanced to farmers due to inherent risk. However, the objective and goals of Micro Finance Institutions are to ensure unbanked can access credit at a reasonable cost. The results indicated 38.1% of the respondents confirmed that the rate of interest on loans offered by the MFI is appropriate and further 21.5% agreed on the same. A mean of 3.62 suggested that not all Micro Finance Institutions were offering reasonable loan interest rates to dairy farmers. This was further supported by a standard deviation of 1.40.

The Micro Finance Institutions were also found to ensure that dairy farmers access to credit at all costs. This was achieved by an ingenious method such as group lending. The suitability of group lending is that, their group liability and group collateral. The method seems to favor Micro Finance Institutions but if utilized properly, the benefit of credit access can be realized by dairy farmers. The majority of the sampled dairy respondents confirmed that Micro Finance Institutions have created Group lending opportunities to dairy farmers. This was supported by a mean score of 4.17 although there was a significant standard deviation. It can be deduced that some Micro Finance Institutions are conservative regarding group lending practices.

The study further conducted inferential analysis and therefore yield inferential statistics such as R, R square, coefficients, and their respective significance value. The purpose was the test the second null hypothesis before concluding. Before testing the hypothesis, a correlation analysis was conducted to determine the strength and direction of the relationship between the dimensions of Micro Finance Institution's credit systems and the dairy farmer's performance in Kakamega County. The results of the correlation analysis indicated that the relationship

between Micro Finance Institutions technical systems and dairy farmer performance was positive and statistically significant as indicated by  $R=0.665$ ,  $P=0.00$ .

The study further carried out a regression analysis to determine the magnitude of the Micro Finance Institutions credit systems contributions to dairy farming performance in Kakamega County. The composite index of the micro Finance Institutions' credit systems was derived from observed six statements given to dairy farmers. The same procedure was applied to measure the latent variable of dairy farming performance. The resultant values were subject to simple and multiple linear regression analysis. The findings indicated that Micro Finance Institutions credit systems explained 44.2% of its variation in dairy farmer performance ( $R^2=.442$ ). Multiple linear regression revealed that Micro Finance Institutions credit systems had the largest unique significant contribution to the model with  $B=.285$ ,  $p=.000$  suggesting that controlling of other variables in the model, a unit change in Micro Finance Institutions saving systems would result in a significant change in dairy farmer performance by 0.285 units. Therefore, the second null hypothesis was rejected since  $\beta_2 \neq 0$  and  $P\text{-value} < 0.05$  as there was sufficient evidence to accept the second null hypothesis.

Note dairy rancher execution is impacted by credit availability from Micro Finance Institutions. Dairy ranchers need credit to resolve the issues of helpless capitalization, low degrees of utilization of current data sources, and low efficiency. Horticultural item esteem chain entertainers require present moment (occasional) credits for times of short of what one year, medium-term advances for times of as long as five years, and long haul advances for times of somewhere in the range of six and ten years. Transient advances are needed to meet significant financing needs in the agrarian creation cycle, including the arrangement of advances for harvest and animals admissions, creation necessities, and other related frameworks that incorporate the taking care of, make, pressing, handling, stockpiling, transport, and showcasing of horticultural items. Medium-and long haul credits are needed for the help of interest in preparing and homestead apparatus, in water supply and water system hardware, in domesticated animals constructions and fencing, in fish cultivating (lakes and confines), and in ranch ranger service improvement. Specifically, long haul advances might be required as foundation advances for lasting yields (cocoa, elastic, oil palm, and others.) or sugarcane

ranches and citrus and deciduous natural product plantations. Long haul advances are additionally required for obtaining cultivating hardware, executes, cultivating vehicles, and domesticated animals, and for the improvement of constructions and water system frameworks.

From the results and subsequent interpretation, the ensued discussions have been discussed based on the empirical, conceptual, and theoretical review. Various aspects of Micro Finance Institutions' credit systems affect dairy farming performance. A favorable repayment period is a plus to most dairy farmers as it offers the advantage of accumulating adequate capital to stabilize their dairy farming enterprise. As indicated in this study, dairy farmers found Micro Finance Institutions attractive as far as the repayment period is concerned. However, the favorable repayment can only be meaningful if dairy farmers can use the grace period to increase their productivity. At the same time, Micro Finance Institutions with flexible payment periods are attractive to dairy farmers since they can negotiate for extended in case, they fail to honor the earlier agreed plan.

This contrasted well and Luyirika (2010) shows that a short reimbursement period influences the progression of cash from the business to the MFI. Eighteen percent of the respondents uncovered that they needed to get from other MFI to support the credits or hazard the taking of their property by the MFI. The reimbursement period for some MFI was week by week while for other people, it was fortnightly. For the respondents, this period was excessively short for any significant benefits to have been acknowledged from which to get cash for reimbursing part of the advance. Twelve percent of the respondents additionally referenced that on occasion it was hard for them to satisfy the reimbursement timetables and they wound up defaulting. This might have been because of conditions outside their ability to control like climate for dairy ranchers yet the MFI would call them defaulters and take their insurance property. In this way, Armendariz (2004) proposed that the MFIs can ceaselessly sharpen their customers on advance usage and reimbursement and talk about with their customers before they seize their property. This is on the grounds that the customers say that whenever given more adaptable terms they would have the option to repay the credit. Notwithstanding, the test of MFIs backing to entrepreneurs is the absence of adaptability from the MFIs when their customers fall wiped out, lose relatives, or are engaged with mishaps

Credits are made to people, however the gathering in general is held mutually responsible should reimbursement troubles emerge. Financial scholars have been especially intrigued by bunch loaning, and practically all of the monetary work on microfinance centers around the impetuses instigated by joint risk in bunch loaning contracts, expanding on loaning models spearheaded by microfinance pioneers like Bangladesh's Grameen Bank and Bolivia's BancoSol (de Aghion, 2000). As per Carlton and Wien (2001), bunch based loaning plans furnish SMEs with a chance to fabricate their social resources by supporting corresponding connections and informal organizations. Participation of microfinance bunches joins people, families, and ventures into an imperative snare of business and individual connections that empowers individuals to more readily adapt to the difficulties of life. Nonetheless, sometimes, participation to gatherings can likewise turn into a social risk, particularly where there is a predictable example of non-installment and mounting peer pressure (Natarajan, 2004). Admittance to monetary frameworks likewise permits SMEs to adapt to shocks or financial pressure occasions once these occur. SMEs use MFI credits to re-stock their organizations and to smooth utilization. As most MFIs offer just insufficient investment funds frameworks, a couple of SMEs can utilize these as a wellspring of liquidity in the midst of crises (Armendariz and Morduch, 2004).

This technique for giving little credits to the poor is generally utilized by MFIs that give advances without security. The premium charged is far lower than the premium charged by individual cash banks (Natarajan, 2004). The Grameen bank is a run of the mill illustration of MFI utilizing a gathering loaning technique. The reimbursement rate is exceptionally high since every part is obligated for the obligation of a gathering part (Stiglitz, 2003). Gathering development is made by individuals who realize themselves well indeed or have some friendly ties. Advances are not conceded to people all alone yet to people having a place with a gathering that goes about as insurance. Sanusi and Adedeji(2010) uncover that degree of instruction, participation in a helpful, contact with an augmentation specialist, and presence of guarantee security emphatically and fundamentally influence the probability of ranchers' admittance to formal credit, while cultivating experience contrarily influences the likelihood of ranchers approaching proper credit.

Carlton et al. (2001) tracked down a positive effect of admittance to bunch credits on food utilization and business. Among families that were offered bunch credits the probability of possessing a venture increments by a modest amount more than in control towns. Endeavor benefits increment after some time also, especially for the less-instructed families. For individual loaning, then again, there was no critical expansion in utilization or endeavor proprietorship. These outcomes are in accordance with hypotheses that pressure the training impact of gathering loaning as the joint responsibility might prevent borrowers from utilizing advances for non-venture purposes. Borrowers in bunch loaning towns are more averse to make casual exchanges to families and companions while borrowers in individual-loaning towns are bound to do as such.

The discoveries of the review uncover that countless the SMEs profited from the MFIs credits in both financial and social-prosperity of individual customers, despite the fact that a couple of them were adequately competent to get the necessary sum required. Curiously, most of the SMEs recognize positive commitments of MFIs credits towards advancing their piece of the pie, monetary validity, number of business, deals income, net benefits, and diminished liabilities. It, in this way, suggests that improvement in the arrangement levels of microcredit will bring about expanded huge effects on the exhibition of business ventures (Monge, 2016).

#### **4.11.3 Effect of Micro-Insurance on the dairy farmer performance**

Objective three of the study sought to establish the influence of MFI micro-insurance systems on the performance of dairy farmers in Kakamega County. Micro-insurance systems were measured using indicators such as type of insurance, number of insurance cover taken by dairy farmers, renewal rate, and portfolio mix of micro-insurance. From these indicators, six observable constructs were formulated to measure the latent variable of micro-insurance systems. The overall means were then correlated/regressed against dairy farming performance metrics. Therefore, it was hypothesized that there is no significant relationship between Micro Finance Institutions micro-insurance and the dairy farming performance in Kakamega County, Kenya.

Insurance firms have avoided insuring farmers in developing countries as most of their practices depend on the natural cause which may result in fluctuation in income and high risk. Weather is the main reason why insurance companies are shunning small-scale farmers. This has been even made worse by the scourge of climate change. Therefore, micro-insurance has not gained credence among dairy farmers. Descriptive results indicated a good number of respondents; specifically more than half, 51.3% confirmed that MFIs have various Microinsurance covers although a standard deviation of 1.27 was interpreted as not all Micro Finance Institutions were offering a variety of micro-insurance. This was also supported by 20.9% of the sampled dairy farmers who did not affirm that their Micro Finance Institutions are offering various micro-insurance systems. A variety of micro-insurance covers to dairy farmers is advantageous since they can select which covers are comfortable with. In some cases, some potential dairy farmers have been unable to cover as the offer available either is too expensive or they are too small to fit their expectations. However, Micro Finance Institutions which have studied the dairy market comprehensively can sell their systems according to their locality.

Therefore, dairy farmers can be contently compensated.

Regarding insured loans, the results (64.0%) confirmed that Micro Finance Institutions ensured that loans awarded to them are granted and thus, they are a shield for any eventuality in the course of using the loan products. A mean of 3.72 with a standard deviation of 1.50 can be interpreted as some Micro Finance Institutions do not insure the loan grants. However, most financial institutions insure the loan awarded to borrowers. This act of insuring loans may increase the cost of credit which may end up discourage borrowers at the bottom of the pyramid especially dairy farmers. However, studies have indicated that some of the borrowers prefer their loan to be insured as long as the insurance amount does not affect their credit amount. In this case, borrowers are expected to pay for insurance before disbursing the loan, or in some cases, insurance amounts are usually deducted from the amount awarded. In this study dairy farmers are comfortable with loan insurance as the nature of the enterprise is highly unpredictable. This implies, weather changes, can either result in to increase or decrease in milk and dairy products or an increase/decrease of returns from dairy farming. In case of a decrease in earning, farmers can cover by the insurance cover as they look for an alternative. In this case,

dairy farming is not negatively affected as a result of stress that emanates from decreased earnings.

The results also revealed that dairy has benefitted a lot from the insurance portfolio mix an assertion that is fully supported by another statement that measured micro-insurance systems. It is worth noting that Micro Finance Institutions have purposively offered various insurance portfolio mixes to make them attractive to dairy farmers. Some of the insurance portfolio mixes that come with a given package have enabled the dairy farmers to earn a bonus regardless of whether they suffer a loss or not. This has encouraged dairy farmers to uptake insurance cover for their products since at the end of the day; they stand to gain from Micro Finance Institutions insurance systems. A mean of 3.79 and a standard deviation of 1.2 postulated that most of the dairy farmers in the county of Kakamega have benefitted from the insurance portfolio mix. However, from the results, it can also be deduced that some Micro Finance Institutions' insurance portfolio mix has not benefitted dairy farmers.

The respondents also lauded the renewal of insurance policies offered by Micro Finance Institutions as been simple and affordable. This implies that the purpose of Micro Finance Institutions is to increase the switching cost to dairy farmers as they are renewing their policy cheaply as compared to new applications. One advantage of the affordable insurance renewal process is that dairy farmers can save monies that would otherwise be used in the renewal process and secondly, the shortest time allows them to attend to their cows. As supported by a mean of 3.60 with and 58.1%, it is evident that some Micro Finance Institutions have affordable renewal processes. However, a standard deviation of 1.35 with the support of 23.1% of the respondents indicated that the renewal process is not affordable and simple in some Micro Finance Institutions.

The results also revealed that Micro Finance Institutions in Kakamega County were swift and prompt when it comes to compensating dairy farmers in case they suffer a risk. As shown by a mean of 3.96 and further supported by 71.5% of the sampled dairy farmers, the respondents were comfortable with the time taken by Micro Finance Institutions to pay them and this ensures continual participation in dairy farmers. In most rural areas, dairy farmers have suffered losses related to the death of cows as exotic breeds require intensive care. In such cases, the

loss of cows leaves a huge loss to dairy farming households. However, if farmers are assured of compensation, they can increase their herd which increases their income. However, not all Micro Finance Institutions can compensate their dairy farmer client on time as indicated by a standard deviation of 1.24 and further supported by 18.9% of the respondents in this study. This postulate, this delay may hurt dairy farmer performance.

Regarding insurance premiums, the results revealed that to a fair extent, respondents confirmed that insurance premiums are manageable. One of the key characteristics of insurance is periodic premiums which can either be weekly, bi-monthly or monthly. Well-spread insurance premiums do not overburden dairy farmers as such, farmers can balance dairy expenses and payment of insurance premiums. This assertion was supported by 58.9% of the sampled dairy farmers who affirmed that the amount of insurance premium paid to Micro Finance Institutions is manageable. This was further supported by a mean of 3.70. However, a close examination of the standard deviation of 1.31 could lead to a conclusion that some Micro Finance Institutions' insurance premiums are not attractive to dairy farmers. A small percentage of 19.0 justify did conclusion as they did not agree or strongly agree that the amount of insurance premiums paid to the MFIs is manageable. In this case, dairy farmers' performance is affected negatively and in some cases, they may consider opt-out of insurance plans which may further put them to risk.

The study further undertook inferential analysis specifically Pearson correlation and linear regression analysis to yield R, R square, coefficients, and their respective significance value (set at  $P < 0.05$ ). The purpose was to test the third null hypothesis before arriving at a conclusion and recommendation. Before testing the hypothesis, a correlation analysis was conducted to determine the strength and direction of the relationship between the dimensions of Micro Finance Institution's credit systems and the dairy farmer's performance in Kakamega County. The results of the correlation analysis indicated that the relationship between Micro Finance Institutions technical systems and dairy farmer performance was positive and statistically significant as indicated by  $R=0.518$ ,  $P=0.00$ . This can deduce increase in Micro Finance Institutions insurance systems is likely to increase the performance of dairy farmers in Kakamega County.

The study further carried out a regression analysis to determine the magnitude of the Micro Finance Institutions micro-insurance systems contributions to dairy farming performance in Kakamega County. The composite index of the micro Finance Institution's insurance systems was derived from observed six statements given to dairy farmers. The same procedure was applied to measure the latent variable of dairy farming performance. The resultant values were subject to simple and multiple linear regression analysis at a 0.05 level of significance. The findings indicated that Micro Finance Institutions credit systems explained 26.8% of its variation in dairy farmer performance ( $R^2=.268$ ). Multiple linear regression revealed that Micro Finance Institutions credit systems had a second-largest unique significant contribution to the model with  $B=0.276$ ,  $p=.000$  suggesting that controlling of other variables in the model, a unit change in Micro Finance Institutions insurance systems would result in a significant change in dairy farmer performance by 0.276 units. Therefore, the third null hypothesis was rejected since  $\beta_2 \neq 0$  and  $P\text{-value} < 0.05$  as there was insufficient evidence to accept the third null hypothesis. This concurs with Johnson (2000), who also supported the inclusion of microinsurance to increase the performance of small businesses.

It is vital that dairy farmers need micro-insurance to shield them from the risk that is inherent in dairy farming. In this study, it is evident that insurance from Micro Finance Institutions is not popular among dairy farmers. However, dairy farmers need micro-insurance to ensure consistent income and increase in dairy farming assets. Farming protection can work on the efficiency of horticulture, by assisting makers with putting resources into more useful, however possibly more hazardous, agribusiness exercises ("The Actuary Magazine," 2015). Advancement of the protection market and expanded accessibility of horticultural protection frameworks will assist ranchers with adapting to the dangerous idea of farming undertakings. Protection can provide helpless ranchers with a feeling of safety that permits them to try to seek after benefit arranged exercises and henceforth to acquire since a pay shock will be limited when protection claims are settled.

Microinsurance is the insurance of low-pay individuals against explicit hazards in return for standard charge installment proportionate to the probability and cost of the dangers implied

(Elabed, and Carter, 2015). Microinsurance can likewise be supposed to be protection with low charges and low covers or inclusion yet run following commonly acknowledged protection rehearses which ought to incorporate the ICP (Mathews, 2015). Significantly this implies that the danger protected under a miniature protection strategy is overseen dependent on protection standards and subsidized by charges (Ndirangu, 2015).

As indicated by Issa (2013) agribusiness includes an exceptionally undeniable degree of hazard. Consequently, hazard moderation measures are expected to support speculation, both on-ranch and further down agrarian worth chains. Customary homestead the executives strategies for overseeing hazard—for instance, intercropping species with various dampness prerequisites, staggered planting (even in downpour took care of horticulture), interseasonal on-ranch food stockpiling, and upkeep of a possibility investment funds reserve—are immeasurably significant conventional methods, however they are terribly insufficient to help the degree of venture and monetary frameworks needed for the fruitful execution of Nigeria's agrarian change plan (ATA).

Mohammed and Mukhtar (2012) researched the possibilities of miniature protection in rustic spaces of Nigeria. The review suggested that the pay level of the provincial tenants ought to be thought about while setting the superior, endeavors to give, essentially fundamental instruction in the spaces ought to be escalated. The review suggested that the pay level of the provincial inhabitants ought to be thought about while setting the superior, endeavors to give, basically fundamental instruction in the spaces, ought to be heightened it is likewise recommended that genuine assembly and refinement ought to go before the presentation of Micro-Insurance. Miniature protection in country regions should put more accentuation on cultivating, being the significant occupation in the provincial regions. Thusly, we suggested Agricultural Microprotection in rustic Nigeria, basically toward the beginning.

Müller, Ramm, and Steinmann (2014) stated that protection keeps ranchers from experiencing huge misfortunes that happen because of unfavorable occasions. It keeps them from selling useful resources or utilizing their reserve funds. It additionally works on their ability to face

challenges like new yields, expanded surface development, or expanded utilization of pesticides and composts. Taking protection ought to diminish the fluctuation of pay, lower shocks, more pay for future venture prompting higher long haul pay. The smallholder ranchers can put resources into wellbeing and schooling which benefits them in the long haul (Cole, et al. 2012).

Sherman (2010) found that microinsurance can give the resources to expand their ways of life since they don't need to allot an enormous piece of their investment funds in overseeing hazards. These reserve funds could be put resources into the ranches or in non-cultivating exercises which can produce pay. Also, it limits the requirement for crisis advances that have exorbitant loan fees consequently, expanded expenses for the ranchers.

Yield miniature protection advances true serenity and individual strengthening; it lightens dread and stress by expanding ranchers' feeling that everything is good with regards to what's to come. Moreover, it keeps them from decreasing utilization for example eating less, not teaching their kids (Churchill & Matul, 2012). Harvest credit protection decreases the danger of smallholder ranchers becoming defaulters of credit. The ranchers don't need to look for advances from private cash loan specialists and pay revenue for the borrowings (Raju & Chand, 2008).

The microinsurance movement itself ought to in this way fall inside the domain of the applicable homegrown protection controller or boss or some other skilled body under the public laws of any purview. This protection works by hazard pooling, is financed through ordinary charges, and is custom-made to the helpless who might some way or another not have the option to take out protection. Akotey, (2015) contended that microinsurance was straightforwardly identified with the presentation of insurance agencies as far as creation and charge announcing. This relationship is broadly influenced by the size of the firm, reinsurance reliance, accessibility of assets, and strong organization strategy structures. He saw that the bigger the organization, the more grounded the approaches are calibrated towards MI improvement and the more the endorsing benefits.

Owuor (2016) contended that clients would prefer to cover more modest month to month bills for the charges while the guarantor repaid the whole case sum on the double. This implied that couple of expenses got, were completely dispensed to claims paying little mind to full premium installment or not bringing about less benefit for the firm over the long haul. Under these conditions, the organization needed to get additional assets from different exercises to run the miniature cases office effectively. Microinsurance is the assurance of low-pay individuals by the method for hazard pooling (Bendig and Arun, 2016).

Microinsurance suppliers frequently sell their items along with different items or projects that the potential clients come in contacts with, like seed or manure retailers, portable transporters, associations, or other microfinance organizations (Yeboah and Obeng, 2016). One more way that microinsurance frequently contrasts from standard protection is the sorts of dangers they cover, this is mostly in light of the fact that destitute individuals are presented to various types of dangers than customary protection clients, however it additionally has to do with costs. To sell miniature protection the organizations need to have a substantial spotlight on cost decrease which implies that the sorts of dangers covered should be effortlessly controlled, savvy in circulation and guaranteeing, and legitimize low charges.

#### **4.11.4 Influence Micro-saving systems on the dairy farmer performance**

Objective four of the study sought to establish the influence of MFI saving systems on the performance of dairy farmers in Kakamega County. Micro Finance Institutions saving systems were used as a latent variable and therefore, six observable constructs were derived from the frequency of saving, amount saves, interest earned, mode of saving, and purpose of saving to measure saving systems. The composite mean was later applied against the composite mean of dairy farming performance through Pearson correlation and linear regressions Respondents had been asked to indicate the extent to which they agreed on these observable measures of saving. Therefore, it was hypothesized that there is no significant relationship between Micro Finance Institutions saving systems and dairy farming performance in Kakamega County.

One of the most crucial determinants of dairy farmers is the ability to attain income over expense. This implies that income from dairy farming exceeds their expense. However, a

wellperforming dairy farmer can achieve surplus income after paying dairy farming expenses as well as household expenses. In this case, the dairy farmer can save the surplus income. A Micro Finance Institutions that encourage its member to save simply means they are investing. In such incidences, dairy farmers can depend on their saving to expand their enterprise.

In this study, descriptive results indicated that dairy farmers have been using their savings as collateral to obtain loans. Some Micro Finance Institutions to increase their liquidity, they have encouraged the client to save with a promise of up to six times of loan from their saving. In this case, farmers have been encouraged to expand their income with a promise for expanded venture after receiving credit. This was fully supported by a mean of 4.21 and more than half of the respondents who confirmed that their saving has been used as collateral to obtain a loan. On the other hand, a small number of respondents 9.2% supported by a standard deviation of 1.07 indicated that their saving has been used as collateral to obtain a loan. This implies that some Micro Finance Institutions do not rely on saving as loan collateral. This can have its advantage and disadvantage for dairy farmers. Firstly, farmers can withdraw their savings for their use regardless of the loan borrowed from the Micro Finance Institutions. This applies that Micro Finance Institutions that have other credit risk management practices which may be detrimental to farmers.

Micro Finance Institutions in Kakamega County were also found to offer various types of saving accounts. Just like micro-insurance systems and credit systems, the multiplicity of Micro Finance Institutions systems afford them the best fit and therefore, farmers have control in their hands. This was supported by a mean of 4.23 and 85.2% of the sampled dairy farmers affirmed that various types of saving accounts offered by the Micro Finance Institutions. A Micro Finance Institutions that does not limit its clients to saving product stands to gain from outreach and at the same dairy farmers can have several saving products at their disposable. However, a significant standard deviation of 1.11 was interpreted in this study to means that some dairy farmers did not have variety-saving products. In this case, what was on offer was expected to be adopted by dairy farmers. This in itself is detrimental to dairy farmers' performance if the saving plan is not popular.

Not all sampled dairy farmers were comfortable with minimum savings allowed by the Micro Finance Institutions as indicated by a mean of 3.38 and a standard deviation of 1.20. Further, half of the sampled respondents confirmed that they are comfortable with minimum savings allowed by the Micro Finance Institutions implying that Micro Finance Institutions need to relook at their minimum saving amount. Dairy farming in Kakamega County is mostly practiced on a small scale. This implies that returns are little. In some households, they depend on the income from dairy to buy food, pay for schools, and other household expenses. When dairy farmers are unable to meet the minimum amount of saving requirement, some of the expenditure would be foregone. In some cases, dairy farming is affected negatively especially the purchase of inputs such as fodder and feed. Although significant deviation indicated that some Micro Finance Institutions offered dairy farmers affordable base saving requirements.

Regarding interest rate, half of the respondents (57.4%) confirmed that the interest rate on savings offered by the MFIs is appropriate. This was further supported by a mean of 3.41 which means that some of the respondents were in agreement to some extent that the interest rate on savings offered by the MFIs is appropriate. For dairy farmers to save, they need incentives such as interest earned. A Micro Finance Institutions which offers attractive interest rates to saving will encourage its members to work hard to save the surplus income. However, this was not the case with some of Micro Finance Institutions in Kakamega County as indicated by 32.1% of the respondents who indicated that the interest rate on savings offered by the MFIs is appropriate. Moreover, it is supported by a standard deviation of 1.45 which implies that some dairy farmers are not comfortable with saving interest rates. In this case, dairy farmers are discouraged to save to get loans or to save so that the fund can be used in case of an emergency.

The majority of the Micro Finance Institutions in Kakamega County have appropriate methods to be used by the dairy farmer to make deposits to their saving account. As indicated by a mean of 4.15 and supported by 81.0% of the respondents, it was revealed that it is convenient and easy to make deposits into my account. Dairy farming is a labor-intensive trade and therefore, financial inclusion of the Micro Finance Institutions should consider such clients. In most cases, Micro Finance Institutions need saving to boost their liquidity, and therefore, they should have multiple channels to make deposits. The most common channels are through agency banking as well as the use of mobile money. However, it is important to note that not all Micro Finance

Institutions have convenient and easy methods to save as indicated by a standard deviation of 1.12. This implies that dairy farmers need to incur extra costs to make a deposit and this may act as a deterrent.

Lastly, to a fair extent, MFI does not excessively charge ledger fees on my saving account implying that the saving of dairy farmers does not attract transaction costs. This assertion was supported by 81.4% of the dairy farmers and a mean of 3.78. From these results, it can be deduced that dairy farmers prefer Micro Finance Institutions which do not apply numerous chargers to their saving. For saving to have a meaningful impact on Micro Finance Institutions' clients, it must reflect its true value. This can be avoided by limiting the number of charges and therefore, dairy farmers can use the saving as loan collateral or in case of emergencies. However, a significant mean of 1.01 indicated that some dairy farmers were excessively charged on their loan savings. In that case, saving of dairy farmer shrinks which affect their investment in dairy farming.

The inferential examination created factual outcomes that demonstrated microfinance there is a connection between Micro Finance Institutions saving frameworks and the presentation of dairy ranchers in Kakamega County. The Pearson connection examination was directed at first to build up if there exists a straight connection between the two factors. The outcomes demonstrated that without a doubt a direct relationship and there was an issue of multicollinearity. The concentrate then, at that point, led a basic straight relapse investigation to discover the singular commitment of miniature saving frameworks of Micro Finance Institutions. The R square coefficient showed that 30.0% of dairy rancher execution is because of Micro Finance Institutions miniature saving. This shows that all alone, miniature saving ascribes of Micro Finance Institutions also as qualities can somewhat affect execution. In conclusion, different direct relapses which were utilized to test invalid speculation four uncovered that miniature saving conveyed a positive and critical prescient force. This infers that an expansion in miniature saving by units will bring about dairy cultivating execution change by 0.200 units. The discoveries are upheld by Kemei (2011) who noticed that reserve funds had a solid relationship with the monetary exhibition of SMEs. Cooper (2012) likewise noticed that investment funds added to the development of SMEs.

From the findings, it is evident that micro-saving systems offered by Micro Finance Institutions are a significant determinant of dairy farming performance in Kakamega County. In particular, micro-saving ensures that dairy farmers can access credit, which is a great source of funds. Savings are vital to building dairy farming assets and at the same time to meet any financial emergencies related to dairy farming. It is particularly admittance to investment funds that can give freedoms to resource amassing, assurance against shocks, and lessening weaknesses by overseeing hazard and incomes. Miniature investment funds, should empower those with a variable pay to work on their monetary arranging, for instance setting aside cash for yearly cultivating expenses, for example, feed and grain for dairy cultivating. Reserve funds are hence more averse to expand commitment in financial freedoms, in spite of the fact that they might support commitment for the individuals who as of now have a pay. The accessible proof proposes that miniature investment funds don't fundamentally build needy individuals' commitment in financial freedoms.

Miniature investment funds ought to, in principle, empower better monetary arranging, which may smooth pay, and conceivably increment longer-term pay, for instance by empowering accumulated investment funds to be spent on broadening a business or supporting a business by covering occasional setbacks. The accessible proof shows that miniature investment funds utilizing a responsibility account expands the worth of savers' organizations, however don't build their business benefits. Common bank accounts effectsly affect customers' pay. In principle, microfinance is probably going to effectsly affect customers' investment funds. While the accessibility of investment accounts, and especially responsibility accounts, may support and work with saving any accessible benefits, the necessity inside miniature credit to make obligation reimbursements may be relied upon to diminish levels of reserve funds, essentially until those obligations have been paid off. Numerous miniature credit plans expect borrowers to collect reserve funds before credit is made accessible, and some of the time all through the advance time frame.

Investment funds are extremely basic for supporting and creating Micro Finance Institutions. It gives a few immediate and circuitous advantages for Micro Finance Institutions ranchers like

speculation, showing reimbursement capacity, increment FICO assessment, and as security in the credit market (Obayelu, 2012)). Omondi and Jagongo (2018) presumed that the chosen microfinance frameworks utilized in the review which included admittance to credit, investment funds activation, monetary abilities preparing, and job demonstrating fundamentally impacted the monetary presentation of SMEs in Kisumu County, Kenya

Van Rooyen, Stewart, and De Wet (2012) showed that miniature investment funds do altogether expand individuals' investment funds in Malawi and Kenya; albeit in Kenya this is just valid for ladies. The best accessible proof on miniature credit (from Bosnia and Herzegovina) proposes that miniature credit has diminished individuals' degree of reserve funds, while somewhat less dependable proof from Uganda and Zimbabwe recommends that borrowers' reserve funds increment. In Peru credit is found to no affect investment funds. Information from Kenya and Indonesia track down no huge impacts of consolidated miniature credit and miniature reserve funds on degrees of reserve funds, albeit these information are not 100% solid. They discovered no proof that miniature reserve funds empowers commitment in monetary freedoms, albeit now and again, not all, it expands pay, reserve funds, consumption, and the collection of non-monetary resources. The most thorough proof on miniature investment funds comes from considers in Malawi and Kenya. The principal shows that responsibility investment funds accounts<sup>1</sup> increment levels of nonfinancial resources among savers while the proof from Kenya recommends investment accounts increment female market merchants' degrees of investment funds and use.

A survey on Mpanga tea growers by (Meier zu Selhausen, & Musinguzi, 2011) indicates that some farmers fail to save because they do not have enough money to save or their income is too little to allow them to set aside money for saving purposes. The result indicates that farmers with a high level of perception of savings have a higher probability to save. The result is consistent with the literature. According to the expected utility theory, it is logical that farmers who save have higher production and financial banks perceive to be financially stable. The findings of the study are in line with Omondi & Jagongo (2018).

A research by Kurgat (2007) of the Kenya Women Finance Trust shows that customers favored credit and reserve funds frameworks in the Microfinance Institution with their justification

behind saving being to extend their business (62%), training for their kids (40%), and for crises (26%) moreover 71% of the customers saw obligatory investment funds as a chance to save. In this review, it is inferred that reserve funds assembly is significant for worked on monetary execution and effort particularly in the rustic regions where admittance to monetary frameworks is testing.

In any case, it tends to be contended that reserve funds assembly is expensive and unsafe comparative with different wellsprings of financing and furthermore that it would be better in case business people were assisted with building resources through saving as opposed to assume obligation. A concentrate by Bateman and Chang basically inspected proof on saving with microfinance foundations in Croatia and found that investment funds were just helpful in expansion of benefits for MFI chiefs and outside investors. The concentrate further contends that neediness decrease must be done through a scope of state facilitated strategy mediations as occurred in Malaysia, China, Taiwan, South Korea, and India.

A review in Uganda by Akisimire (2010) found that MFI reserve funds items to SMEs have experienced solid rivalry at the commercial center with the section of new advertisement banks and downscaling of old banks' while contest might be helpful to the SMEs due to higher financing costs on reserve funds, it could influence the MFIs by lessening the income accessible to loan. Also, Yeboah (2010) fights that little advancement has been made to build up microfinance establishments (MFIs) as undeniable monetary delegates and MFIs offer just credit, and reserve funds activation stays the failed to remember half of microfinance. Microfinance Institutions can acquire effort to SMEs by giving suitable reserve funds items. The MFIs should research to guarantee that the valuing of their reserve funds items will guarantee monetary maintainability.

Essentially the Important of reserve funds to SMEs is accentuated by Citi's "susu" in Ghana where 200 to 800 individuals save between US dollars 40,000 and 800,000 for every cycle with the gathered investment funds being paid out to the individuals over a 100-week cycle for every week's assortment (Bass and Henderson 2014, p.10).

This model is obvious proof of the accomplishment of saving with Microfinance Institutions anyway Bass and Anderson further contend that this achievement is exclusively not subject to the plan of the investment funds items yet additionally on evaluating and promoting. It tends to be contended that this sort of firm would require a solid investment funds foundation to empower them to boost their development openings, MFIs ought to set up powerful reserve funds programs by changing their capacities to help SME saving frameworks. Notwithstanding, it ought to likewise be noted by Gray, Saunders, and Goregaokar (2012, p.8) that a lot of liquidity is destructive as SMEs probably won't go through it admirably viable preparing on income the board is additionally significant..

#### **4.11.5 Influence of MFI systems on dairy farming performance.**

The purpose of the study was to conduct an empirical study on microfinance institutions systems influence on smallholder dairy farmers' performance in Kakamega County. In this case, the study dissected Micro Finance Institutions systems into micro-saving, microinsurance, technical systems, and microcredit. On the other dairy, performance was used as the dependent variable. To find out how Micro Finance Institutions systems influence dairy farming performance, multiple linear regression was conducted whereby independent variables were entered in the model as a block. The B unstandardized coefficients and their respective pvalues were used to test the null hypotheses. Before subjecting the null hypotheses to test, latent variables were measured from observable constructs. The measurement of independent variables has been exhaustively and comprehensively discussed. This section presented descriptive results for dairy farming performance.

It was revealed that there has been an increased in size due to Micro Finance Institutions systems offered to dairy farmers as indicated by a mean of 3.93 and it was further supported by 71.4% of the sample dairy farmers. Various systems offered to dairy farmers by Micro Finance Institutions such as micro-credit enable them to acquire additional cows. Further, technical systems such as training, capacity building, and extension systems have resulted in to increase in calves and improved breeds. Similarly, access to market and value addition has increased returns allowing farmers to afford additional herds. However, the increase was not registered

across the board as indicated by a standard deviation of 0.86 and 11.2% of the respondents who did not agree.

The quantity of milk has also increased as indicated in this study by a mean of 3.81 and further supported by 60.2% of the sample dairy farmers. Quantity of milk can only be realized with the better quality breed, proper feeding, advanced milking technologies as well as pest and disease control. Most dairy farmers are unable to carry out all these functions since they lack capital for the improved breed, feed, and fodder, pest, and disease control as well as advanced milk technologies. On the other hand, technical systems have resulted in proper feed, pest, and disease control which has resulted in to increase in the quantity of milk. However, some dairy farmers did not realize an increase in milk quantity as indicated by a standard deviation of 1.6.

It is also worthwhile to indicate that income from dairy farming has increased as a result of Micro Finance Institutions' systems. The main purpose of dairy farming is to generate income and therefore alleviate poverty especially in a rural population where poverty is high and alternative income-generating options are limited. A mean of 4.09 and further 68.2% of the sampled dairy farmers also indicated that income from dairy farming has increased. For this to be achieved, farmers need to access dairy inputs such as feed and fodder, access the market, perform value addition, and be able to keep healthy cows. This means that the quality and quantity of milk would increase, and farmers would be able to undertake value additions before marketing their dairy products. In practice, these farmers would be able to earn more than 50% of the total milk shelf price. This means that dairy farmers need capital and capacity building.

Micro Finance Institutions offer technical systems that upscale dairy farmers' capacity while on the other hand, there offer financial support through micro-credit, micro-insurance, and micro-saving. Through insurance, dairy farmers can be compensated promptly, and therefore, they cannot incur great losses as compared to those who are not insured.

Dairy farmers have also increased their assets and this is largely because of Micro Finance Institutions systems. Dairy farming requires an asset and for any farmer to succeeds, various assets such as feeding and fodder production assets, housing structures, milking machines as well as milk testing equipment, pest and disease control equipment, and other assets like milk

containers. Lastly and most importantly is the dairy cow. For dairy farmers to accumulate these assets, they need capital and a shield from risk and other eventualities. These two systems are offered by Micro Finance Institutions through micro-credit, micro-saving, and microinsurance. Dairy farmers can use their saving to acquire an additional asset and this has a significant impact on dairy farming performance.

The results indicated that 70.9% of the respondents confirmed that their dairy farming assets have increased and this was further supported by a mean of 4.17. However, not all sampled dairy farmers experienced an increase in the asset as indicated by a standard deviation of 1.10.

The results further revealed that dairy farmers in Kakamega County have realized an increase in the number of calving. The major limitation of dairy farmers has been the use of indigenous breeds which have a limited number of calves. Further, disease and pests have also reduced the number of calving as well as some dairy farmers have failed to offer appropriate micro-nutrients to hasten the calving rate. All these can be achieved without the support of Micro Finance Institutions which offers technical systems and source of finance through micro-credit and micro-saving. This was supported by 83.7% of the respondents who confirmed that the number of calving has increased as a result of Micro Finance Institutions. A mean of 4.05 also indicated that indeed farmers have realized increased calving. However, the increased calving was not experienced by all sampled farmers as indicated by a standard deviation of 0.96.

Lastly, the results revealed that the quality of milk has increased due to proper feeding as indicated by a mean of 3.83 with an insignificant standard deviation. This was further supported by 63.1% of the respondents who confirmed that the quality of milk has increased. The quality of milk has a significant effect on the income as dairy farmers with dairy cows producing milk with high-fat contents can fetch high income. High-quality milk can be achieved through proper feeding and better breed. In this case, farmers need capital to acquire high-quality breeds which can be obtained through Micro Finance Institutions saving and micro-credit; on the other hand, Micro Finance Institutions technical systems can assist farmers on proper feed and fodder as well selection of breed with high-quality milk.

The inferential analysis produced statistical results that indicated microfinance there is a relationship between Micro Finance systems and the performance of dairy farmers in Kakamega County. The Pearson correlation analysis was conducted initially to establish if there exists a linear relationship between the five variables. The results indicated that indeed a linear relationship between independent and dependent variables and there was the problem of multicollinearity. Multiple linear regression was used to test the four null hypotheses and the results as indicated in the earlier sections. However, when all four independent variables are entered into the model, there exists a significant positive relationship between Micro Finance Institutions systems and dairy farming performance ( $R=0.760$ ). The Micro Finance Institutions systems were found to contribute up to 57.8% of performance variance among dairy farmers in Kakamega County. Therefore, Micro Finance Institutions' systems are significant predictors of dairy farming performance.

From these results of this study, is evident that Micro Finance institution systems which include micro saving, microcredit, micro-insurance, and technical systems jointly influence dairy farming performance. Micro Finance Institutions must improve their systems to improve the performance of dairy farming. These discoveries are equivalent to Mutua (2017) who found that Microfinance frameworks have a positive and huge impact on Poverty decrease in Makueni County. Reserve funds had the most noteworthy effect followed by Micro-credit, Microprotection, lastly preparing

Mbugua, (2010) inferred that SMEs got reserve funds frameworks, credit frameworks, and preparing frameworks from SMEs. The SMEs generally get speculation capital and utilize the loan(s) for the reason for which they were taken. The review uncovered that most SMEs don't have one more wellspring of financing other than that from miniature money organizations. The concentrate at last presumes that ROA expanded with each sequential advance appearance that microfinance frameworks improve the monetary presentation of SMEs in Kenya

Abor and Quartey (2010) tracked down that the arrangement of money, preparing projects, and warning frameworks impacts the exhibition of organizations possessed by ladies. The three factors were considered to impact execution when they are utilized as one bundle by the microfinance establishments since they lead to further developed execution through expanded benefit. The outcomes showed that the MFIs' items offered (miniature reserve funds, microcredit, miniature protection, and preparing) have impacts on the monetary exhibition of SMEs.

Rotich, Lagat and Kogei (2015) reasoned that there existed a connection between the degree of arrangement of microfinance and the exhibition of microenterprises and that microfinance altogether influenced the presentation of miniature ventures. It, accordingly, suggests that improvement in the arrangement levels of microfinance will bring about an expanded impact on the exhibition of miniature ventures. Waithaka, Marangu, and N'gondu (2014) discovered admittance to investment funds plans, administrative preparing, and credit elegance period to be genuinely critical in deciding the exhibition of MSMEs. This review reasons that expanding arrangement levels of microfinance will bring about expanded execution of miniature ventures.

#### **4.11.6 Intervening Effect of Government Policy on the influence of MFI systems on dairy farming performance.**

Objective five of the study sought to determine the role of government policy on the relationship between microfinance institution systems and the performance of dairy farmers in Kakamega County. Government policy was used as a latent variable and therefore, four observable constructs were derived from policies and regulations that are advanced to ensure Micro Finance Institutions systems influence dairy farming performance. The composite mean was later applied against the composite mean of dairy farming performance through Pearson correlation and linear regressions Respondents had been asked to indicate the extent to which they agreed on these observable measures of government policy. Therefore, it was hypothesized that there is no significant role of government policy on the relationship between microfinance institution systems and the performance of dairy farmers in Kakamega County.

The government as a regulator through various institutions and agencies plays a vital role in ensuring Micro Finance Institutions are having an impact on dairy performance. It worth noting that financial institutions have shunned dairy farmers and other agricultural activities. Therefore, dairy farmers have continuously depended on non-formal sources of credit to support their dairy enterprise. Unregulated sources of finance may be helpful to farmers, but they come at a cost, the interest rate is normally high and the payment period is less than two weeks of which dairy farmers stand to lose property including livestock. Further, they are only interested in income from their capital (interest earned) and they do not offer additional systems which Micro Finance Institutions offer. Therefore, dairy farmers need financial institutions that are tailored to their needs, and as such government is expected to play a significant role to ensure this is achieved.

The results indicate that more than half of the respondents (65.5%) CBK regulation on interest rate has affected MFI systems to the dairy farmers and this was further supported by a mean of 3.71. The government through CBK offers various prudential regulations to financial institutions to ensure that citizens are protected from financial institutions. Some of the regulation includes interest rate through interest capping. Others are liquidity regulations, credit regulation, and capital regulation. Therefore, when interest rates are not regulated, Micro Finance Institutions will charge exorbitant rates of interest making it expensive to acquire a loan. On the other hand, if the CBK base interest rate is low, Micro Finance Institutions would be forced to either choose one option between the two, the first option is to shrink loans this will mirror what commercial banks are doing and therefore they will not be sustainable. On the other hand, they would be a force to give out credit to several dairy farmers to increase their revenue. In this case, existing and potential dairy farmers will benefit from CBK interest rate regulations.

The results also indicated that to a fair extent, the government has created an enabling environment for MFI which has allowed them to expand their systems as indicated by 51.2% of the respondents with a mean of 3.5. On the other 41.1% of the respondents were undecided whether the government has created an enabling environment for MFI which has allowed them to expand their systems. Dairy farmers have been forgotten a lot as far as financial institutions are concerns. Dairy farmers have only received attention from non-governmental organizations

and development partners. In the wake of devolution, county governments have increase efforts to combat food security and poverty through dairy farming. The national government's Big Four Agenda also focuses on food security and dairy farming is one of the key aspects to achieve it. For this to be achieved, the national government and county governments ought to provide an incentive to Micro Finance Institutions through taxation so as they can spread to various parts of the country especially rural areas. An increase in security and infrastructure also ensures that Micro Finance Institutions can bring their systems closer to dairy farmers.

The results also indicated that to a fair extent, the government requires every MFI to include agricultural products in their loan portfolio. As earlier indicated, small-scale dairy farmers which are predominate in rural parts of Kakamega County. The findings indicated that more than half of the respondents (51.4%) confirmed that government requires every MFI to include agricultural products in their loan portfolio although 37.6% did neither agree nor disagree on loan portfolio this was supported by a mean of 3.4. It can be deduced that some Micro Finance Institutions have not included dairy farming products such as credit, loans, saving, insurance, and technical systems. In this case, the presence of Micro Finance Institutions in rural areas would not have an impact on dairy farmers if there are not products and systems tailored to them. The government through various acts of parliament can compel Micro Finance Institutions to include products and systems in their portfolio that will cater to dairy farmers before given a license to operate. In this case, dairy farmers will be able to save, acquire credit, insure their products, and at the same time receive support from Micro Finance Institutions.

Over half of the respondents (59.7%) confirmed that Government has liaised with MFIs to deliver MFIs systems to dairy farmers and this assertion was supported by a mean of 3.63. This implies that both the national government and county government work together with Micro Finance Institutions so that they can have an impact on dairy farming performance. On the other hand, a significant standard deviation of 0.92 implies that not all respondents agreed with the mean (Agree). Some respondents had the opinion that governments need to do a lot to make sure dairy farmers benefit from Micro Finance Institutions. In particular, the County Government of Kakamega has partnered with the Equity Bank microfinance section to assist in the purchase of dairy cows to farmers through the one cow initiative program. In this case, the

county government of Kakamega acts as a guarantee, and Equity bank supplies credit to potential dairy farmers.

The study also sought to find out the intervening effects of government policies on the relation between Micro Finance Institutions systems and dairy farming performance in Kakamega County. This was achieved during hierarchical regression analysis whereby in step one, Micro Finance Institutions systems was entered in the model, step two government policies and step three the interaction between government policies and Micro Finance Institutions systems. Before this test, Pearson Correlation analysis was conducted to establish if a linear relationship exists between government policy and Micro Finance Institutions systems as well as between government policy and dairy farming performance. The results indicated that government policy indeed was linearly related to Micro Finance Institutions systems and dairy farming performance ( $P < 0.05$ ). The results revealed that government policy as an additive model had a significant effect on dairy farming performance. The findings revealed that a 3.9% variation in dairy farmer performance is significantly accounted for by government policy such as interest rates and taxation. Therefore, government policy, on its own is a significant predictor of dairy farming performance. The interaction between Micro Finance Institutions systems and government policy accounts for a 5.3% change in dairy farmer performance. This can be deduced that government policy as an intervening variable is a significant predictor of dairy farming performance.

Specifically, government policies have a significant influence on the relationship between Micro Finance Institutions saving and technical systems while they had an insignificant relationship with micro-credit and micro-insurance. It was found that an increase in government policies by a unit would result in to increase in the effect of Micro Finance Institutions saving on dairy farming performance by 0.239 units ( $P = 0.002$ ). Similarly, it was found that an increase in government policies by a unit would result in to increase in the effect of Micro Finance Institutions technical systems on dairy farming performance by 0.247 units ( $P = 0.003$ ). However, government policies increase would result in an insignificant effect on the relationship between Micro Finance Institution's credit systems and dairy farming performance ( $P = 0.450$ ). On the other hand increase in government policies would results in an insignificant

decrease of the Micro Finance Institutions insurance systems on dairy farming performance (B3=-0.158, P=0.069).

Blavy, Basu, and Yülek(2004) tracked down that the Kenyan government has not set up an effort program to help MFIs like the Ugandan government. It has been accounted for that the public authority of Uganda has planned and set up a multi-contributor, private area driven microfinance outreach intend to spread manageable microfinance frameworks to underserved regions in Uganda (Bateman, 2010). This microfinance outreach plan has the point of benefiting however many dynamic country poor as could reasonably be expected, on the side of the public authority's level headed of destroying neediness and building a prosperous and stable country (Bateman, 2010). The vision of this microfinance outreach plan is to create an organized, expertly productive, and practical microfinance industry giving reasonable monetary frameworks particularly to the provincial Ugandans. The targets of this microfinance outreach plan have been recognized as expanding investment funds assembly, helping microfinance zenith establishment to help and construct the limit of their part foundations, creating and fabricating limit in the microfinance preparing market, and improving the country populace's ability and business direction to get to monetary frameworks for money age ((Bateman, 2010).

Any administration keen on the improvement of their economy ought to be associated with the arrangement of guidelines to oversee the microfinance programs, the financing cost, and protect the property of the SMEs (Gallardo, 2002). For instance, a few states in Africa have neglected to control business banks' financing costs, which are currently restrictively high. Moreover, the MFIs are mentioned to set up advance items for social issues like school expenses, weddings, and memorial services, team up and share victories and disappointments of organizations, fit the assistance conveyance.

**Table 27: Summary of Research Hypotheses, Findings, and Verdict**

<b>Hypothesis</b>	<b>Findings</b>	<b>Verdict</b>
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There is no significant relationship between the MFI technical systems and the performance of dairy farmers in Kakamega County.	MFI technical systems significantly influenced the performance of dairy farmers in Kakamega County positively	H <sub>01</sub> was Rejected
There is no significant role of MFI credit on the performance of dairy farmers in Kakamega County.	MFI credit systems significantly influenced the performance of dairy farmers in Kakamega County positively	H <sub>02</sub> was Rejected
There is no significant influence of MFI micro-insurance on the performance of dairy farmers in Kakamega County.	MFI micro-insurance systems significantly influenced the performance of dairy farmers in Kakamega County positively	H <sub>03</sub> was Rejected
There is no significant influence of MFI saving systems on the performance of dairy farmers in Kakamega County	MFI micro-saving systems significantly influenced the performance of dairy farmers in Kakamega County positively	H <sub>04</sub> was Rejected
There is no significant moderating effect of government policy on the influence of MFI technical systems on the performance of dairy farmers in Kakamega County	Government policy significantly moderated the influence of MFI technical systems on the performance of dairy farmers in Kakamega County positively	H <sub>05i</sub> was Rejected
There is no significant moderating effect of government policy on the influence of MFI saving systems on the performance of dairy farmers in Kakamega County	Government policy insignificantly moderated the influence of MFI credit systems on the performance of dairy farmers in Kakamega County positively	H <sub>05ii</sub> was Accepted
There is no significant moderating effect of government policy on the influence of MFI micro-insurance systems on the performance of dairy farmers in Kakamega County	Government policy insignificantly moderated the influence of MFI insurance systems on the performance of dairy farmers in Kakamega County negatively	H <sub>05iii</sub> was Accepted
There is no significant moderating effect of government policy on the influence of MFI saving systems on the performance of dairy farmers in Kakamega County	Government policy significantly moderated the influence of MFI saving systems on the performance of dairy farmers in Kakamega County positively	H <sub>05iv</sub> was Rejected

**Source: Field Data (2019)**



## **CHAPTER FIVE**

### **SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS**

#### **5.0 Introduction**

This chapter gives an overview of what has been covered in the previous chapters. It also highlights the conclusions made based on the findings of the study as well as the recommendations and suggestions for future studies.

#### **5.1 Summary of findings**

The purpose of the study was to conduct an empirical study on microfinance institutions systems influence on smallholder dairy farmers' performance in Kakamega County. Five objectives were developed to guide the study. The Independent variable was MFI systems which included Technical systems, MFI credit systems, Micro-insurance, and micro-saving. The dependent variable was the dairy farming performance. Government policy was used as an

intervening variable. Data for the study was collected using questionnaires from dairy farmers in Kakamega County. A review of related literature was done to establish the basis of the study. A sample size of 258 dairy farmers participated in this study

To achieve these objectives, six hypotheses were formulated and tested using multiple regressions and hierarchical regression. From the purpose of the study, the findings revealed that most of the sampled dairy farmers registered an increase in the dairy cattle herd, quantity and quality of milk, accumulation of assets, and value addition thereby increase in income from dairy farming. Overall, Micro Finance Institutions systems were a significant predictor of dairy farming performance in Kakamega County as indicated by r-square. Jointly, they contributed to over 50% of dairy farming performance in the County of Kakamega. The results supported all six hypotheses of the study as discussed in the following sections.

#### **5.1.1 Assess the influence of Technical systems on the dairy farming performance**

The first objective of the study was to investigate the effect of MFI technical systems on the performance of dairy farmers in Kakamega County. Descriptive results indicated that MFI was offering to great extent technical systems to their clients. This included information on dairy farming input especially feeds and fodder, breeding technologies such as Artificial Insemination (A.I). The study also found that MFI organized capacity building with dairy farmers through training as well as collaboration with other institutions and organizations dealing with the dairy value chain. This has seen farmers accessing the market; add value to their milk such as yoghurt and other by-products. The income of farmers has increased due to the increase in milk quantity and accessibility of the market. The results indicated that Technical systems had a statistically significant influence on the dairy farming performance in Kakamega. The hypothesis that there is no significant relationship between the Technical systems on the dairy farming performance was rejected by the study.

#### **5.1.2 The role of credit systems of MFI on the dairy farming performance**

The second objective was to assess the influence of MFI credit systems on the performance of dairy farmers in Kakamega County. This objective sought to test the second null hypothesis that posits: There is no significant role of MFI credit on the performance of dairy farmers in

Kakamega County. Descriptive statistics revealed that the majority of dairy farmers have been using MFI credit systems for over five years. The MFI was found to offer various loan products to dairy farmers implying that, farmers had a wide spectrum to choose from. Microcredit from microfinance was found to have to be also delivered using dairy farmers groups and associations, thus, the majority of dairy farmers were beneficiaries of these loans. Another advantage of microcredit from MFI was that it takes short time between application and disbursement. Hence, dairy farmers can attend to the routine tasks on time. However, not all dairy farmers in Kakamega County were comfortable with interest rates and repayment periods of micro-credit advanced by MFI.

The results indicated that MFI credit access had a statistically significant positive influence on the dairy farming performance in Kakamega. This implies when MFIs can improve interest rate terms and repayment period, the performance of dairy farmers will improve in Kakamega County. Similarly, an increase of dairy farming loan products and systems, as well as favorable application procedures, would improve the performance of dairy farmers. The hypothesis that there is no significant role of credit systems of MFI on the dairy farming performance was rejected by the study.

### **5.1.3 Influence of Micro-Insurance on the dairy farming performance**

The third objective was to establish the influence of MFI micro-insurance systems on the performance of dairy farmers in Kakamega County. Compared to microcredit systems, microinsurance is a not common MFI product. Most of the respondents associated insurance with loan insurance and not a stand-alone product from MFI. However, the respondents affirmed that MFI has various insurance covers that are not limited to loans although all loans granted were insured. Dairy farmers have realized substantial benefits from MFI micro-insurance covers. The MFI was found to offer affordable insurance premiums which were attractive to farmers. On a high note, the dairy farmers indicated that MFI promptly compensated them in case of any risk.

The results indicated that MFI micro-insurance systems had a statistically significant positive influence on the dairy farming performance in Kakamega. Specifically, insured loans ensure

farmers have a buffer in case of default as dairy farming is a highly unpredictable venture. Therefore, they can concentrate on dairy farming. An increase in other insurance products also offers dairy farmers opportunities to withstand risks that are inherent in dairy farming. Therefore, the hypothesis that there is no significant influence of MFI micro-insurance on the performance of dairy farmers in Kakamega County was not supported.

#### **5.1.4 Establish the Micro-saving systems on the dairy farming performance**

The fourth objective was to establish the influence of MFI saving systems on the performance of dairy farmers in Kakamega County. Even though most MFIs are synonymous with credit, they also offer saving systems and they also encourage their members to save. The study established that MFIs have various saving products and therefore, dairy farmers have the freedom to select which of the product is appropriate. The saving has in most cases been used as collateral for loans and therefore, dairy farmers with higher saving are likely to benefit. Another advantage of MFI saving systems is that dairy farmers are offered a convenient way to deposit their money to the account. This has been mostly implemented through a mobile device. Therefore, farmers are free from the hassle of travelling to bank hall to make their deposits. Further, the customer of dairy farmers can conveniently deposit money to their accounts when making payments.

The results indicated that MFI saving systems had a statistically significant positive influence on the dairy farming performance in Kakamega. This implies that improvement in MFI saving systems would result in a performance increase in dairy farming. Some of the saving systems aspects that need improvement are the appropriate interest rate, reduction in ledger fees and other monies levied on saving accounts. The hypothesis that posits there is no significant influence of MFI micro-saving on the performance of dairy farmers in Kakamega County failed to be accepted.

#### **5.1.5 Role of government policy on the relationship between microfinance institution systems and the performance of dairy farmers**

Government policy was found to be a significant moderating variable as it moderates the relationship between MFI systems and the performance of dairy farmers in Kakamega County.

Since MFI are under the regulation of the central bank, guidelines on interest rate have made credit to be available to farmers as the cost of acquiring credit is manageable. On the other hand, MFI has been encouraged to focus on agriculture which previously, has been neglected by commercial banks due to inherent risk. Therefore, most MFIs have introduced dairy farming products in their loan portfolio. The government has also liaised with some MFIs to deliver MFI systems such as micro-credit products to farmers. In this case, farmers can access MFI systems which are vital for their performance. In this regard, the inferential analysis indicated that government policy has a significant moderating effect on the influence of MFI systems on dairy farming in Kakamega County.

## **5.2 Conclusion**

Several conclusions can be drawn from this study, however; the conclusions are presented according to the study objectives.

The objective of the study sought to test the first null hypothesis which posits: There is no significant relationship between the MFI technical systems and the performance of dairy farmers in Kakamega County. From the findings, there was sufficient evidence to reject the null hypothesis and conclude that there is a significant relationship between the MFI technical systems and the performance of dairy farmers in Kakamega County. Increase in technical systems from Micro Finance Institutions such as feed and fodder, breed technologies, marketing, milking technologies, and upscaling of the technologies. Most small-scale farmers are unable to access technical systems especially extension systems and capacity building as this has impact dairy farming performance. Both governments (National and County) have been unable to offer this service effectively and therefore, alternative actors such as Micro Finance Institutions have a significant role to play to ensure farmers who are their client receive the required technical systems to service the credit and the same time to meet their livelihood needs. Most of the Micro Finance Institutions extending Micro Finance Institutions systems to dairy farmers in Kakamega County have aggressively offered technical systems that are beneficial to dairy farmers.

Objective two of the study sought to test the first null hypothesis which posits: There is no significant role of MFI credit on the performance of dairy farmers in Kakamega County. From the findings, the study failed to accept the second null hypothesis and therefore, it was concluded that there is a significant role of MFI credit on the performance of dairy farmers in Kakamega County. This implies that an increase in Micro Finance Institutions credit systems would result in to increase in dairy farming performance. There is adequate evidence both in academic and practice that supports the notion Micro Finance Institutions' credit systems have been instrumental in the performance improvement of SMEs including dairy farming. Although Micro Finance Institutions have continued to extend credit to dairy farmers in Kakamega County, success has been realized on the credit portfolio and various loan sizes. The inclusion of group lending techniques ensures collective responsibility and collateral enhance the increase in dairy performance and at the same time repayment of loans hence they can get subsequent loans. This has made Micro Finance Institutions' credit systems to be attractive to dairy farmers besides prompt approval and disbursed to dairy farmers. However, dairy farmers were not comfortable with the repayment period and interest rate charged on the microcredit as they indicated it is not appropriate for dairy farmers. In this case, farmers are stretched during repayment and this has affected their investments in dairy farmers.

Objective three of the study sought to test the first null hypothesis which posits: There is no significant influence of MFI micro-insurance on the performance of dairy farmers in Kakamega County. From the findings, the study failed to accept the third null hypothesis, thus it was concluded that there is a significant influence of MFI micro-insurance on the performance of dairy farmers in Kakamega County. In this case, Micro Finance Institutions with better microinsurance systems were found to have improved dairy farmer performance. However, not all Micro Finance Institutions were offering micro-insurance systems apart from insuring loans which they advance to dairy farmers. This implies that their portfolio was limited and therefore some farmers were not afforded to freedom to insure their dairy farming farmers as they lack micro-insurance products that suit them. On the other hand, the Micro Finance Institutions which offered spectrum micro-insurance portfolio mix was found to be attractive to dairy farmers. Dairy farming like any other farming is highly susceptible to losses due to

overdependence on rain-fed. With climate change, dairy farming is risk and insurance ensures the accumulation of dairy assets and consistent income flow from the ventures.

For micro-insurance to have an impact on dairy farming in Kakamega, the premium should be appropriate so that farmers can invest in dairy farmers. This implies that farmers can pay their premium on time and at the same time meet their household basic needs. In this case, only farmers with excess income from dairy farmers can pay a premium this can be interpreted that well-performing dairy farmers can go for insurance. The insurance policies were also found cheap and simple on renewal as compared to insurance policies from insurance companies. Dairy farmers in Kakamega County also enjoyed prompt compensation from Micro Finance Institutions in case of loss. This was associated with the accumulation of dairy farming assets and income to farmers as farmers can continue with their dairy farming uninterrupted.

Objective four of the study sought to test the first null hypothesis which posits: There is no significant influence of MFI saving systems on the performance of dairy farmers in Kakamega County. The evidence presented supported that there is a significant influence of MFI saving systems on the performance of dairy farmers in Kakamega County. Micro Finance Institutions make compulsory saving before awarding credit to borrowers, however; some Micro Finance Institutions have other saving products which may be used as an investment to expand dairy farming. The compulsory saving was used as collateral for micro-credit and some of the Micro Finance Institutions pegged the amount of credit based on the saving. In this case, dairy farmers are encouraged to save to access credit. This implies that they have to earn excess to save. Micro Finance Institutions saving systems attractive to dairy farmers as the minimum saving balance does not hinder the performance of dairy farmers; this implies that farmers can access their savings so as long they do not have loans to repay. Another attractive feature of Micro Finance Institutions' saving systems is that they do not apply excess ledger fees and farmers can easily make deposits to their saving accounts. However, the interest rate for saving was not attractive and farmers have few options for saving protects. This in itself may be a hindrance for saving which may impact negatively dairy farmers.

### **5.3 Recommendations**

From the conclusion, the following recommendations were made concerning the objective of the study.

Offering financial systems alone is no assurance that dairy farming performance would increase. It was found that some of the Micro Finance Institutions were offering technical systems while others were not. The study recommended that Micro Finance Institutions need to improve on the technical systems offered to dairy as not all Micro Finance Institutions were found to offer each aspect of technical systems that is needed to improve dairy farming performance. Specifically, the Micro Finance Institutions need to collaborate with other organization and institution both government and non-government to ensure that farmers receive technical systems which will support dairy farmers. Through this collaboration, Micro Finance Institutions would ensure that their systems are been utilized profitably therefore achieve the social and economic mission of Micro Finance Institutions. The government should make it compulsory for Micro Finance Institutions to offer credit to dairy farmers to support technical systems through corporate social responsibility programs. On the other hand, dairy farmers should be support technical systems offered by Micro Finance Institutions especially capacity building through self-help group formations.

Micro Finance Institutions credit has been essential for dairy farming performance. However, interest rate and repayment period have to some extent affected dairy farmers negatively. Therefore, the study recommended that, even though Micro Finance Institutions are keen to maintain their portfolio quality, there is a need for them to restructure loan repayment periods to address the problems inherent in dairy farmers like seasonality. Further, interest rates are income to Micro Finance Institutions that ensures their sustainability, Micro Finance Institutions should come up with various micro-credit systems with different prices (interest rate) so as dairy farmers can have the freedom to select which products are suitable for them. Further, Micro Finance Institutions can ensure that income from dairy farming increases so that farmers can repay their loan prompt and at the same time loan expenses surpasses dairy farmers' income. This can be done by providing market information to farmers as well as help farmers to develop new markets for their products.

The conclusion was that Micro Finance Institutions in Kakamega County offered limited micro-insurance products to dairy farmers although they insured loans granted to them. In this case, the study recommends that Micro Finance Institutions should move out of insuring microcredit and offer other types of micro-insurance policies to farmers. The micro-insurance systems should be well spread so that dairy farmers can fit according to their income and thus access other Micro Finance Institutions systems. On the other hand, Micro Finance Institutions should create awareness of micro-insurance systems that are available to dairy farmers. Government policy concerning Micro Finance Institutions micro-insurance systems has negatively but insignificantly affected dairy farming performance. The study recommended that government should come up with policies that would enhance dairy farmers can insure their assets especially livestock.

The study established there are limited saving products available to dairy farmers although compulsory saving has been used as loan collateral. Therefore, the study recommended that Micro Finance Institutions should introduce more saving systems and this would make them more liquid and at the same time increase their sustainability. The study also recommended that Micro Finance Institutions should offer competitive interest rates to dairy farmers to encourage farmers to save with Micro Finance Institutions. The study also recommended that dairy farmers ought to take advantage of saving systems offered by Micro Finance Institutions as the saving systems are characterized by minimum saving balance, low ledger fees, and a convenient mode of making deposits. This would increase their loan collateral thus access more funds to invest in dairy farming. The government through various agencies and line ministries should come up with policies and regulations that would allow Micro Finance Institutions to introduce saving systems, especially to dairy farmers.

Objective five of the study sought to test the first null hypothesis which posits: There is no significant role of government policy on the relationship between microfinance institution systems and the performance of dairy farmers in Kakamega County. The evidence presented supported that there is a significant role of government policy on the relationship between microfinance institution systems and the performance of dairy farmers in Kakamega County. The government policies played a significant role in the influence of Micro Finance Institutions technical systems on dairy farming performance as well as Micro Finance Institutions saving

systems. However, Micro Finance Institutions' credit and insurance systems were insignificantly affected by government policies on their influence on dairy farming performance. It was concluded that an increase in government policies would result in to increase in the influence of Micro Finance Institutions saving on dairy farming performance. The same was also mirrored for Micro Finance Institutions technical systems. On the other hand, an increase in government policies resulted in to decrease in the influence of Micro Finance Institutions insurance on dairy farming performance

#### **5.4 Suggestion for further studies**

The findings add to the existing conceptual and empirical evidence that Micro Finance Institutions' systems contribution to the dairy farmer performance. In addition, the findings add to the existing conceptual and empirical evidence that this relationship is intervened by government policy. Therefore, the following recommendations arrived for further studies.

Conceptually, the study limited itself to Micro Finance Institutions systems such as saving, insurance, micro-credit, and technical systems on dairy farming performance. Empirical studies have indicated that other factors inherent in Micro Finance Institutions also influence dairy farming performance, this includes their outreach, portfolio quality, efficiency, and sustainability. Therefore, future studies should consider these variables as moderating variables to find out if Micro Finance Institutions' systems have direct or indirect influence via them on dairy farming performance.

Methodologically, the study confined itself to Kakamega County and borrowers of Micro Finance Institutions who are involved in dairy farming. This was informed by a concerted effort by the county government to boost milk production through dairy farming. However, some counties have better milk production as compared to Kakamega County such as Kiambu County, Makueni County, and Trans Nzoia County among others. This county forms ideal study areas in which this study can be replicated.

The findings indicated that Micro Finance Institutions' systems influence dairy farming performance in Kakamega County. This implies that micro-saving, micro-insurance, microcredit, and technical systems. Further study should also be conducted on the credit risk

management strategies adopt by Microfinance institutions and how these strategies affect dairy farming performance.

In findings, the study established that government policies as a moderating variable have a significant moderating effect as shown by R square. However, the interaction of government policy with Micro Finance Institutions credit, technical systems, and saving had a positive influence on dairy farming while micro-insurance had a negative influence. On the other hand, the interaction was significant for saving and technical systems. Therefore, based on these empirical results, further studies should be conducted with special attention on government policies, micro-credit, and micro-insurance on dairy performance to establish why the two interactions are insignificant.



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## APPENDICES

**APPENDIX I: LETTER OF INTRODUCTION FROM THE CANDIDATE TO PARTICIPANTS**

**Mount Kenya University**

Kakamega Campus

P.O. Box553– 50100

KAKAMEGA

**Date.....**

Dear Sir /Madam,

I am Sangoro Oscar a Ph.D. student from Mount Kenya University, researching for the academic purpose the title “*AN EMPIRICAL ANALYSIS OF MICROFINANCE INSTITUTIONS SUPPORT SYSTEM ON PERFORMANCE OF DAIRY FARMERS IN KAKAMEGA COUNTY*”

I kindly request your input as my respondent for the attached questionnaire to honestly fill in your views as per the questions. I further wish to reaffirm confidential and you need not indicate your identity. The research is purely for academic purpose and you will be allowed to access the final report arising from the work.

**Yours faithfully,**

**Sangoro Oscar**

## APPENDIX II: RESEARCH QUESTIONNAIRE FOR DAIRY FARMERS.

### Introduction

Dear Respondent,

I am a Student of Mount Kenya University undertaking research on “*AN EMPIRICAL ANALYSIS OF MICROFINANCE INSTITUTIONS SUPPORT SYSTEM ON PERFORMANCE OF DAIRY FARMERS IN KAKAMEGA COUNTY*”

Your assistance in filling out the questionnaire will help this study achieve its objectives. I will like to assure you most sincerely that whatever information is supplied by you through these questions will strictly be confidential and used for the research purpose only.

Instruction: kindly answer the following questions

### PART A: DEMOGRAPHIC INFORMATION

1. What is your Gender?

Male ( )

Female ( )

2. What is your age?

18 – 25 ( )

26 – 35 ( )

36 – 45 ( )

46 – 55 ( )

56 and above ( )

3. What is your educational level?

O Level ( )

A Level ( )

Diploma ( )

Degree ( )

Masters ( )

4. For how long have been in Dairy Farming?

0– 3 ( )

4– 6 ( )

7– 9 ( )

10 – 12 ( )

13 and above ( )

5. Name of the microfinance institutions

..... **SECTION B: MFI TECHNICAL SYSTEMS**

Please indicate to what extent you agree with the following statement about the following MFI technical systems offered by your MFI. Rate using a scale of 1 to 5 where 1=strongly disagree, 2=disagree, 3= neutral 4 = agree 5= strongly disagree.

<b>MFI Technical Systems</b>	<b>SA</b>	<b>A</b>	<b>U</b>	<b>D</b>	<b>SD</b>
MFI aggressively give technical systems which are beneficial to dairy farming	1				
MFIs assist farmers in obtaining inputs for the dairy farming	2				
Technical systems obtained from MFI have enabled me to change the dairy production system	3				
MFIs assist farmers in the mode of marketing the dairy products	4				

MFIs organize pieces of training for their members on various technologies to improve productivity	5				
MFIs collaborate with other institution in providing technical systems to dairy farmers	6				

### C: MFI MICROCREDIT

Please indicate to what extent you agree with the following statement about MFI microcredit systems. Rate using a scale of 1 to 5 where 1=strongly disagree, 2=disagree, 3= neutral 4 = agree 5= strongly disagree.

<b>MICROCREDIT</b>	<b>SA</b>	<b>A</b>	<b>U</b>	<b>D</b>	<b>SD</b>
MFI overs various loan products and sizes to meet the needs of dairy farmers	2				
It is quick to get financing from microfinance as compared to other financial institutions	3				
The rate of interest on loans offered by the MFI is appropriate	4				
MFIs have created Group lending opportunities for dairy farmers	5				
The mode of disbursement Of loans from the MFIs is suitable					
The repayment period of loans offered by the MFIs is appropriate					

### SECTION D: MFI MICRO-INSURANCE SYSTEMS

Please indicate to what extent you agree with the following statement about MFI micro-insurance systems. Rate using a scale of 1 to 5 where 1=strongly disagree, 2=disagree, 3= neutral 4 = agree 5= strongly disagree.

<b>MICRO-INSURANCE SYSTEMS</b>	<b>SA</b>	<b>A</b>	<b>U</b>	<b>D</b>	<b>SD</b>
MFIs have various Micro-insurance covers					
MFI provides insurance on loans granted					
Micro-insurance covers have been of benefit to dairy farming					
MFI Provide insurance on dairy farming activities					

The period taken to pay for the risk after the occurrence is adequate					
The amount of insurance premiums paid to the MFIs is manageable					

### SECTION E: MFI SAVING SYSTEMS

Please indicate to what extent you agree with the following statement about MFI micro-saving systems. Rate using a scale of 1 to 5 where 1=strongly disagree, 2=disagree, 3= neutral 4 = agree 5= strongly disagree.

<b>MFI SAVING SYSTEMS</b>	<b>SA</b>	<b>A</b>	<b>U</b>	<b>D</b>	<b>SD</b>
My saving has been used as collateral to obtain a loan					
The various types of saving accounts offered by the MFI					
I am comfortable with the minimum savings allowed by the MFI					
The interest rate on savings offered by the MFIs is appropriate					
I find it convenient and easy to make deposits into my account					
My MFI does not charge ledger fees on my saving account					

### SECTION F: GOVERNMENT POLICY

Please indicate to what extent you agree with the following statement about government policies on MFI and dairy farmers. Rate using a scale of 1 to 5 where 1=strongly disagree, 2=disagree, 3= neutral 4 = agree 5= strongly disagree.

<b>GOVERNMENT POLICY</b>	<b>SA</b>	<b>A</b>	<b>U</b>	<b>D</b>	<b>SD</b>
The CBK regulation on interest rate has affected MFI systems to the dairy farmers					
The government has created an enabling environment for MFI which has enabled them to expand their systems					
The government requires every MFI to include agricultural products in their loan portfolio					
The government has liaised with MFIs to deliver systems to dairy farmers					

## SECTION G: DAIRY FARMING PERFORMANCE

Please indicate to what extent you agree with the following statement about dairy farming performance. Rate using a scale of 1 to 5 where 1=strongly disagree, 2=disagree, 3= neutral 4 = agree 5= strongly disagree.

<b>DAIRY FARMING PERFORMANCE</b>	<b>SA</b>	<b>A</b>	<b>U</b>	<b>D</b>	<b>SD</b>
The is an increase in herd size					
The quantity of milk has increased					
Income from dairy farming has increased					
Dairy farming assets have increased					
The number of calving has increased					
The quality of milk has increased due to proper feeding					

**Thank you for your cooperation**

### **APPENDIX III: INTERVIEW GUIDE FORM**

Name of the MFI (Optional)

#### **MFI Technical Systems**

Which technical systems do you offer to farmers?

What is the frequency of these systems?

What has been the effect of these systems on dairy farmer productivity?

What are some of the challenges do you face during the provision of technical systems?

What recommendations would you make concerning the provision of technical systems?

#### **MFI Credit Systems**

Name credit systems offered to dairy farmers

What attributes make you dairy farmers' lender of choice?

What is the impact of your credit on dairy farmer's productivity?

What are some of the challenges do you face during the provision of credit systems?

What recommendations would you make concerning the provision of credit systems to dairy farmers?

#### **MFI saving Systems**

State saving products offered to dairy farmers

What attributes make you dairy farmers' saving institution of choice?

What is the impact of your saving products on dairy farmer's productivity?

What are some of the challenges do you face during the provision of saving systems?

What recommendations would you make concerning the provision of saving systems?

### **MFI Micro-insurance Systems**

Name micro-insurance systems offered to dairy farmers?

What attributes make you dairy farmers' insurer of choice?

What is the impact of your micro-insurance products on dairy farmer's productivity?

What are some of the challenges do you face during the provision of micro-insurance systems?

What recommendations would you make about the provision of micro-insurance systems?

	<b>2018</b>	<b>2017</b>	<b>2016</b>	<b>2015</b>	<b>2014</b>
Number of loans awarded to dairy farmers					
Number of saving accounts related to dairy farmers					
Number of micro-insurance related to dairy farmers					
Number of training conducted to dairy farmers					

### **APPENDIX IV: INTRODUCTORY LETTER FROM POSTGRADUATE STUDIES**

# Mount Kenya University



## SCHOOL OF POSTGRADUATE STUDIES

PHD/000210/113/23727

20<sup>th</sup> August, 2013

To Whom It May Concern



Dear Sir/Madam,

RE: SANGORO OSCAR ONYANGO - REG. NO. PhD/000210/113/23727

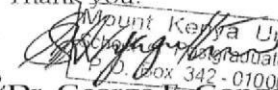
The purpose of this letter is to introduce the above named student who is pursuing a PhD in Business Administration (Finance Option) in the Department of Accounting and Finance School of Business and Public Management.

The title of his research project is "Critical analysis of the role of Micro-Finance institutions in the Realization of vision 2030: A case of Kakamega County."

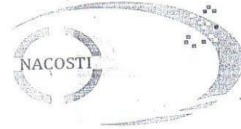
He now has to proceed to the field to collect data for his research project in the course of this semester (*September- November 2013*).

Any assistance extended to him will be highly appreciated.

Thank you.

  
Mount Kenya University  
School of Postgraduate Studies  
P.O. Box 342 - 01000 Thika  
Dr. George E. Gongera  
Dean, School of Postgraduate Studies

## APPENDIX V: RESEARCH PERMIT FROM NACOSTI



### NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY AND INNOVATION

Telephone: +254-20-2241349, 20-267 3550,  
0713 788 787, 0735 404 245  
Fax: +254-20-2213215

Email: secretary@nacosti.go.ke  
Website: www.nacosti.go.ke

When replying please quote

Our Ref: NCST/RCD/14/013/1549

Oscar Onyango Sangoro  
Mount Kenya University  
P.O.Box 553-50100  
Kakamega.

#### RE: RESEARCH AUTHORIZATION

Following your application dated *21<sup>st</sup> August, 2013* for authority to carry out research on "*Critical analysis of the role of microfinance institutions in the realization of Kenya Vision 2030: A case of Kakamega County,*" I am pleased to inform you that you have been authorized to undertake research in **Kakamega County** for a period ending **31<sup>st</sup> December, 2013.**

You are advised to report to **the County Commissioner and the County Director of Education, Kakamega County** before embarking on the research project.

On completion of the research, you are expected to submit **two hard copies and one soft copy in pdf** of the research report/thesis to our office.

*SAID HUSSEIN*  
SAID HUSSEIN

FOR: SECRETARY/CEO  
NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY & INNOVATION

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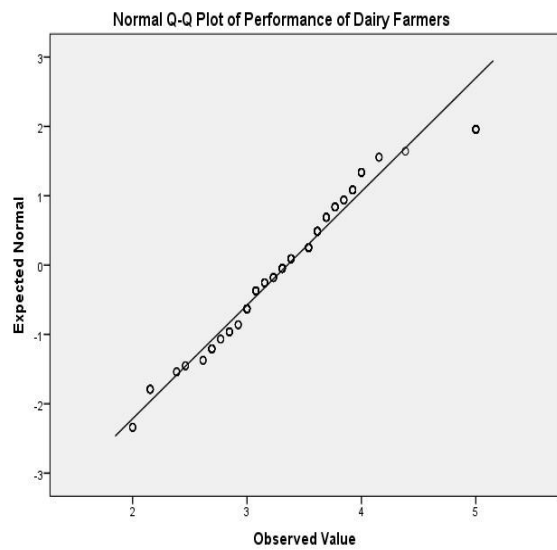
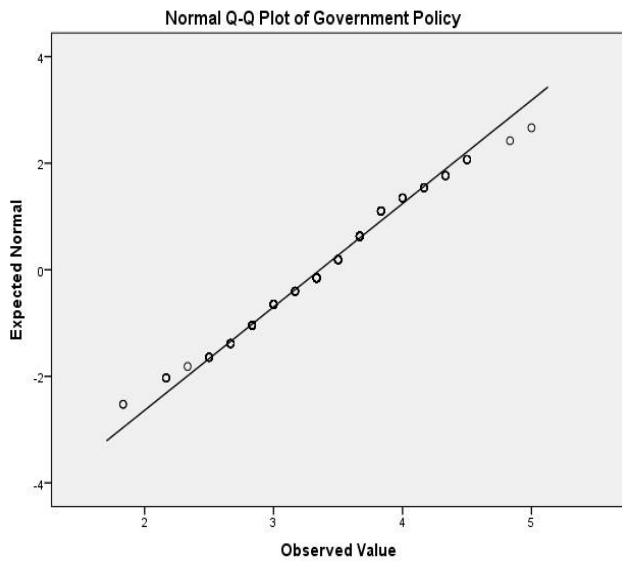
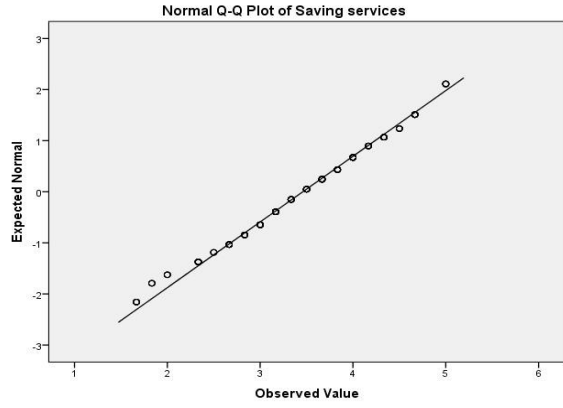
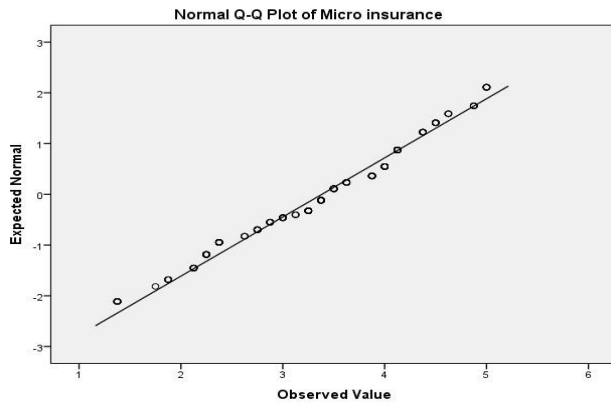
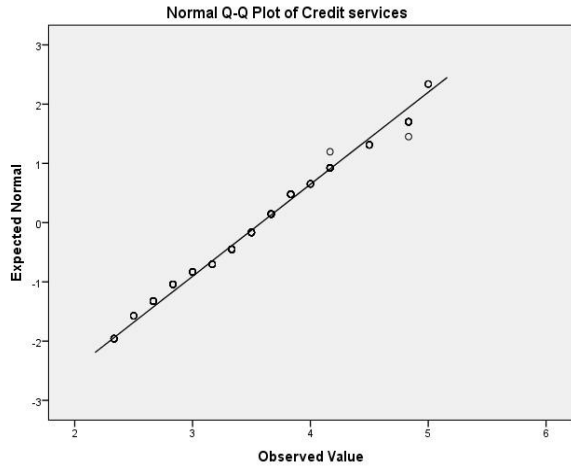
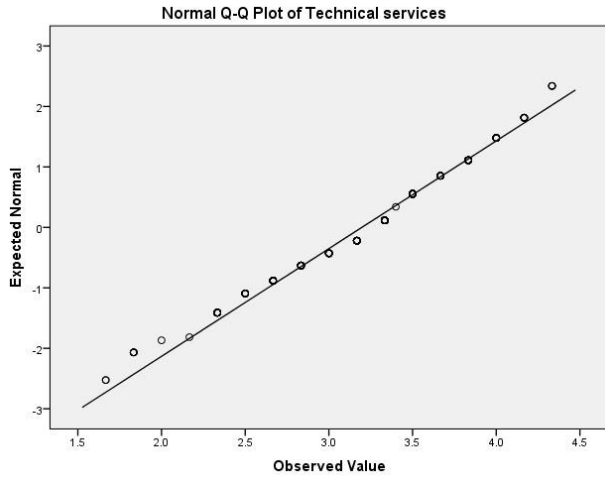
The County Commissioner  
The County Director of Education  
Kakamega County.

9<sup>th</sup> Floor Utalii House  
Uhuru Highway  
P.O. Box 30623-00100  
NAIROBI-KENYA

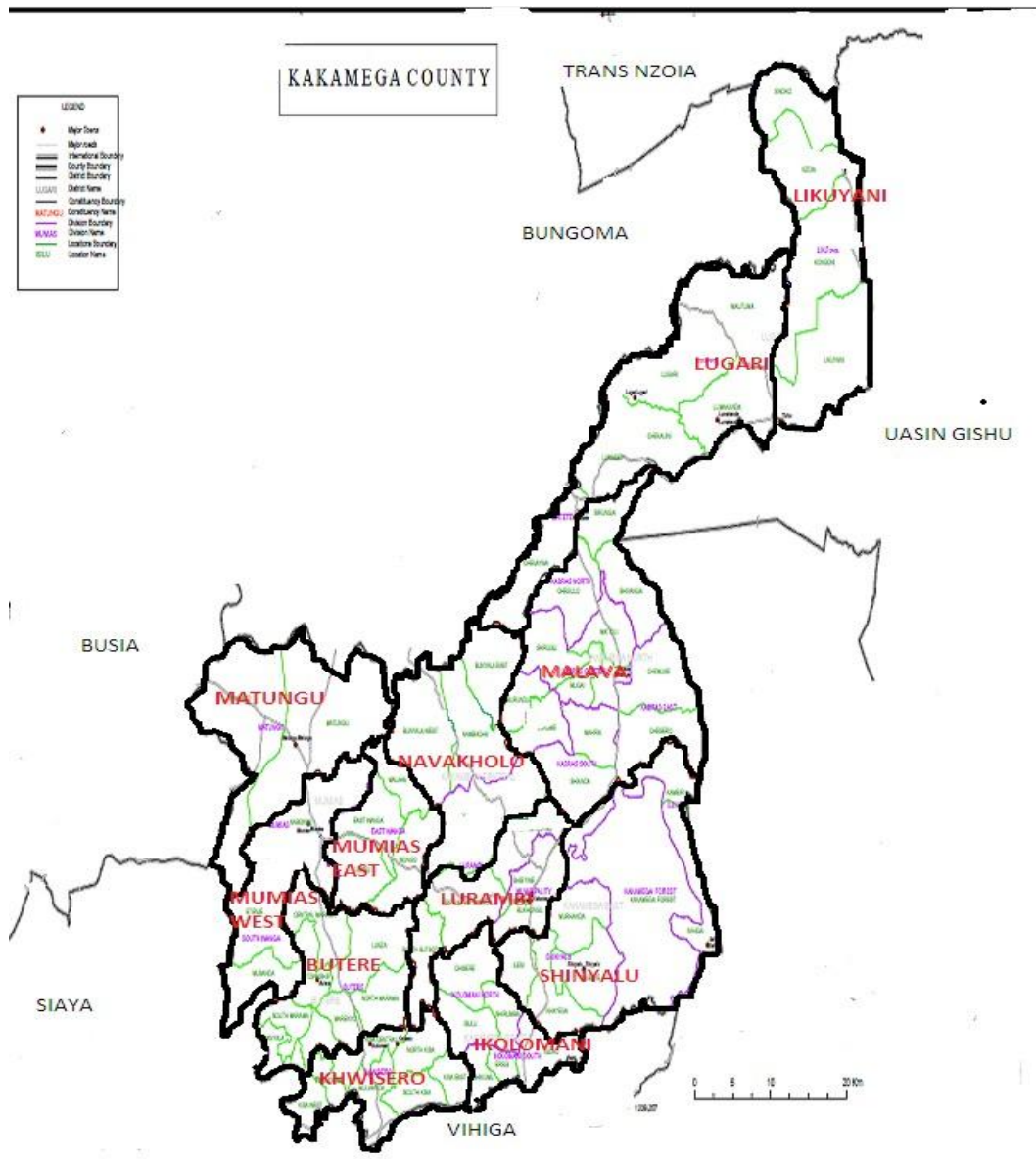
Date:

**23<sup>rd</sup> September, 2013**





## APPENDIX VI: MAP OF KAKAMEGA COUNTY



Source: KNBS, 2010