ACCESS TO CAPITAL FINANCE AND PERFORMANCE OF SMALL SCALE FARMS IN NYANDARUA COUNTY, KENYA

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DECLARATION

This project is my original work and has not been presented for a degree in any other University or any other award.

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I confirm that the work in this project was done by the candidate under my supervision.

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DEDICATION

This work is dedicated to the hard working farmers in Nyandarua County who toil hard to make ends meet and contribute to the economic growth of the county and nation at large.

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ABBREVIATIONS AND ACRONYMS

FAO	Food and Agricultural Organisation
GDP	Gross Domestic Product
Ha	Hectare
IAMO	Institute of Agricultural Development in Central and Eastern Europe
SME	Small and Medium-sized enterprises
SPSS	Statistical Package for Social Sciences
UK	United Kingdom
UN	United Nations
USA	United States of America
CBK	Central Bank of Kenya

OPERATIONAL DEFINITION OF TERMS

Access to Capital Finance	Refers to the ability of entrepreneurs or farmers to access economic resources measured in monetary terms with the purpose of investing in production to serve the intended market or wide reach to financial services for individuals or enterprises without unnecessary barriers like money markets condition, cost of credit, terms of credit and financial knowledge.
Capital Finance	It is defined as any economic resource that is measured in monetary terms and is used by businesses and entrepreneurs to buy what they need for production purposes to serve the market for which they are based in.
Cost of Credit	This is the total amount of loan payable inclusive of the bank fees and charges, estimated third party costs such as valuation fees, legal fees and stamp duty for the case of loans with a physical asset as security; that determines accessibility to finance.
County	This is a second level government headed by a Governor with assistance from County assembly members (MCAs), overseen by a Senator in the Senate chambers and a Women's Representative in the national parliament chambers, created after the promulgation of the Constitution in 2010 and meant to bring government services closer to Kenyans.

Farm performance	Farm performance is essentially the idea of measuring the result of a specific cycle in the farm cultivating system.
Financial Knowledge	Refers to having the set of skills and literacy that enables an individual to effectively make financial decisions on budgeting, investing and personal finance management.
Small Scale farms	Refers to somewhat little land parcel used for cultivating of yields and raising of domesticated animals. Rigorous labour using hoes and ploughing using animals, minimum use of agrochemicals and supply to the nearby markets characterize this form of farming. It typically serves as a source of food for consumption and minimal income from surplus sales locally.
Terms of Credit	These are the conditions by which financial institutions provide credit to its customers. They set out the criteria to use in advancing credit, the interest to apply, the duration or credit period, schedules on repayment of the credit advanced and specific actions if payments are not made.

ABSTRACT

As per the World Bank, the common farmer in Sub-Saharan Africa delivers only one ton of grain for every hectare, which is less than 50% of what an Indian farmer creates, a fourth of what a Chinese rancher produces, and a fifth of what an American rancher produces. The situation is equally worrying in the food basket region of Nyandarua County-Central Kenya, where the productivity of major crops produced like potatoes, peas and cabbages has been constant or declining significantly in recent years, even as the population continues to increase. Latest Food and Agricultural Organisation statistics show a country wide drop from an average of twenty tonnes per hectare for potatoes in the year 2010 to nine tonnes per hectare in 2020. This points out to dwindling financial fortunes for the Kenyan farmer. Access to capital finance is considered an important factor in growing the yields of populations in rural areas, primarily by marshalling resources to more fruitful activities. The general objective of this study is to establish the effect of access to capital finance on the performance of small scale farms in Nyandarua County. The specific objectives include identifying the effect of money market, cost of credit, terms of credit and, financial knowledge on the performance of small scale farmers in Nyandarua County. Finance and growth theory, finance and inequality theory are the two main theories that guided the research. The study used descriptive research design whereby questionnaires were used to collect primary data. Proportionate sampling technique was applied to select the required sample size. The sampling frame was proportionately calculated as per the sub-counties population in the 2019 Census using a sample of 100 farms. The study applied panel random effect regression model. Statistical Package for Social Sciences STATA, was used to analyse the data. Multiple regressions was applied for analysis of data. The study establishes that costs of credit, terms of credit and financial knowledge significantly influence the performance of small scale farmers in the county while money market has insignificant influence. Other factors that influence the performance of small scale farmers are education level and account ownership. The study recommends that financial institutions should lower lending rates to small scale farmers to enable financial flow in order to enhance crop yield and spur economic growth for the farmers and Kenya at large. Further, the financial institutions should provide credit at affordable terms by extending repayment period to allow the farmers to harvest their produce, sell and then make repayment. Further research should be carried out in other counties to determine which factors influence crop production to promote food security and accelerate economic growth. Further studies should also be done to determine what contributes to low agricultural yield, even though Kenya is considered to have a well-developed financial sector to support agricultural production. Lastly, research should be done to determine the insignificant influence of money market on the performance of small scale famers in Kenya and how it can be harnessed to increase agricultural productivity.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Small scale farming is frequently denoted reciprocally with family means, low-pay, resource poor, low-info, or low-innovation cultivating, albeit not always appropriately (Heidhues and Brüntrup, 2003). Small scale farms in rural America serve a dual purpose as a source of household food security and also as a source of revenue for small scale farms. Small scale farms here have a more efficient farming process than most other parts in the world. Small scale farming also enhances local economic development as it creates a source of employment for the locals while ensuring that the income stays local as it is predominantly localized. In traditional USA the produce from small scale farming is first meant for households after which the surplus is sent to the market; thereby in essence ensures that there is food security (Kutya, 2012).

In recent years in the United Kingdom (UK), small scale farmers have received attention both in economic talk as well as political. The UK has 'agricultural advisors' that offer managerial knowledge thereby ensuring performance of small scale farmers and facilitate easy access to capital finance. The United Nations (UN) 2014 resolution affirmed that family farming and smallholders farming are important bases for a maintainable food creation and guaranteed food security.

The "green revolution" in east, south-east, and portions of south Asia created the best examples of overcoming adversity in farming development and destitution decrease. This is particularly true of China and India, which when combined make up 40% of the global population. In the last 25 years, the two nations have presented a progression of fiscal changes: China started in the last part of the 1970s, while India started in the mid-1990s.

The changes have brought about fast fiscal development in China and India, with annual growth rates of 8–9% and 6–7% respectively. New harvest assortments (of wheat and rice), water system, and the utilization of inorganic composts and pesticides were totally connected to huge growths in farm yields. Parallel to this, the countries invested heavily in countryside infrastructure, agronomic science, extension, credit structures for input buys, and input and cereals market interventions (Dorward *et al.* 2004).

As indicated by World Bank (2020), the normal rancher in sub-Saharan Africa creates only one ton of grain for every hectare, which is less than 50% of what an Indian farmer delivers, a fourth of what a Chinese rancher produces, and a fifth of what an American rancher produces. Kenya need to draw on the experiences of land-scarce Asian countries where yield increases in crops were the defining characteristic of the Green Revolution and transformation of the rural sectors between the 1960s and the 2000s. The success of the Asian Green Revolution's was dependent on smallholder productivity transformation, which had significant consequences for poverty reduction, food security, and economic development.

Literature in Kenya and in other emerging nations is loaded up with conversations of factors viewed as significant in determining farming performance. Technical shift, consumer access, input use, agricultural research and extension, education, relative factor commodity prices, and credit availability are all examples of quantifiable factors. (Odhiambo, 2003).

Land ownership trends, climate unpredictability, farm production policies, insufficient beneficiary participation in decision-making, and the legal and regulatory climate are among the other factors. Different development projects and activities in Kenya have attempted to eradicate constraints related with these elements by providing offices

which give schooling, showcasing networks, credit, data, farm inputs, framework etc. At the point when these constraints are taken out, it is acknowledged, can prompt expanded result at farm level and an increment in farm returns. This is essential for reducing poverty, stimulating growth in non-farm activities and increasing household food security in Kenya. As a matter of fact, declining farming efficiency has been noted as an essential driver of poverty in Kenya (Odhiambo, 2003).

Agriculture hires about half of the population, with the majority of people working on their family's farm (Exploring Kenya's Inequality, 2018). With a total arable land area of 184,900 ha, crop farming is the most common agricultural practice in Nyandarua; nearly 46% of this land was under crop farming in 2019. Crop farming is practiced by 76.9% of households. With approximately 65.1 percent of households rearing cattle, sheep, goats, chickens, pigs, and rabbits, livestock farming is the second largest employment field in agriculture. Cattle and sheep make up the majority of the population. For a growing number of households, fishing is becoming a source of jobs and revenue.

Food shortages, underemployment, and low incomes from agricultural produce have all resulted from declining agricultural productivity, as has deprived nutritional status, which further decreases labour productivity (Republic of Kenya, 2001). Recent statistics from Food and Agriculture Organization (FAO, 2020) indicate Potato yield, the major Nyandarua cash crop, has dropped from 22 tonnes per hectare in the year 2010 to nine tonnes per hectare in 2020. This is far below the recommended agronomic yields of up to 40 tonnes per hectare by the National Potato Council of Kenya. This poor performance calls for a detailed study of the factors causing the poor yields and provide recommendations on how to reverse this trend. This study

examined the performance of small scale farmers in Nyandarua County and how the performance is affected by access to capital finance from the available sources.

1.1.1 Access to Capital Finance in Kenya

Smallholders' access to fiscal services is typically perceived as one of the limitations restricting their ability to benefit from credit services. However, in most cases, particularly in formal financial organizations, the access issue is one that the institutions have generated basically through their loaning policies. This shows itself as set minimum advance sums, convoluted application requirements, and credit limitations for specific purposes (Schmidt and Kropp, 1987). Dependable access to short-term and lesser amounts of credit is more important to small businesses, and emphasizing it in credit programs targeted at them could be more fitting. Schmidt and Kropp go on to say that the sort of monetary organization and its arrangements are often the deciding variables in access issues. Prospective borrowers will not apply for loans even if it is available if the credit length, payment conditions, necessary protection, and complementary services offered do not meet the needs of the target community.

Demand for large credit in the agricultural industry usually comes from the large scale farmers who are less risk averse which makes it possible for them to overcome liquidity constraints, and enable them to engage in investments that can boost employment and earnings. A study conducted on East African countries showed that formal banks are reluctant to fund small scale farmers due to the fact that they have a high risk, that entails high cost of loaning, they lack collateral and have a low return on lending that is associated with such a product (Okurut, Schobee, & Van Der Berg, 2007). The enactment of the law on capping of interest rates (2016) in Kenya, which has since been reviewed, has had an impact on access to credit by small scale farmers.

Lately, there has been a developing pattern in developing nations to finance credit programs aimed at small businesses. In spite of endeavours to expand the accessibility of credit to small and microenterprises (SMEs) in Kenya, access to credit remains one of the significant difficulties they face.

Many developing countries, such as Kenya, have experienced a gap in the availability of regular credit for small farms as a result of fiscal sector reforms implemented as a component of structural adjustment programs. Large commercial farms are serviced by private banks, and microfinance institutions have sprung up to meet the financial requirements of poor people. The cyclical nature of farm credit needs, as well as the greatly covariate nature of most agronomic output and advertising risks, make farm credit borrowing groups unviable. Due to the failure of government funded agricultural development banks, most small farmers must now rely on personal or family funding, which includes cattle and other properties, as well as transmittals from relatives. To improve small farmers' ability to save and invest, an entire rural financial system must be created to offer financial services at reasonable pricing. Even though a return of wasteful and intensely subsidized agrarian development banks isn't advocated for, there is a solid requirement for public action to assist with filling this gap (Hazell, P. B. R, 2005).

According to the Central Bank of Kenya annual report of the year 2020, the largest proportion of the banking industry gross loans and advances were channelled to the Personal and Household, Trade, Real Estate and Manufacturing Sectors. In total, these four economic sectors accounted for 74.0 percent of gross loans in December 2020 (CBK, 2020). The financial institutions surveyed in Nyandarua County, were observed to shy away from agricultural loans due to their high administration costs and high default, as compared to other personal and business loans.

In other countries fiscal intermediaries have not been able to support small scale farmers in rural areas, as they term them risky and costly and define their involvement with them as a problematic task associated with extra transaction costs. Information gaps has prevented the intermediaries from providing loans to small scale farmers. The method of practice in farming for most farmers in this region does not meet the requirements by the financial intermediaries present in this section. Spio (2002) in his study on the credit worthiness of small scale farmers in Limpopo South Africa, established that the dissimilarity between credit borrowers and those with no access of the same is due to the fact that those who have access to credit have better performing farms than their colleagues with no access to capital finance.

1.1.2 Performance of Small Scale Farms in Nyandarua County

It is generally recognized that although minimal, small scale farmers make an impact in the economy of any developing country. Their presence in any enterprise ensures a thriving business environment that significantly impacts on the economy of any particular locality. Some of the factors that create an impact in small scale farming include; the use of technology, training and credit access. These factors greatly affect performance of small scale farms in terms of output and profitability.

Farm performance is the idea of evaluating the productivity of a specific process in the farming process and identifying ways to improve efficiency. Improvement of farm performance is that concept of change in which the management of that unit, in this case the farmer, puts into place and also manages a program which will measure the current performance against the future performance of the past one to outline a graphical shape of the production level. The principal objective of farm performance being to increase the farms effectiveness and efficiency thereby increasing output.

Additionally, the aim of farm performance is to ensure there is efficacy which is the setting up of goals and objectives that need to be attained in a continuous cycle.

In Kenya agriculture contributes 25-26 percent of GDP with small scale farming assuming a crucial part. Most rural homes are estimated to contribute to this, with each home estimated to be practicing some kind of small scale farming. Small scale farming in Kenya still needs to undergo considerate restructuring to ensure an increase in production. This is one field that should be readily considered as it has the potential to be highly productive (Njenga, 2005).

A large portion of the land in Nyandarua County has been partitioned, assigned and settled by small scale farmers. The land holding sizes are likely to decrease to below 3.5 acres as partitioning and sale of land continues to accommodate the snowballing populace and increase in urban centres. (Nyandarua County Integrated Plan, 2018-2022). Nyandarua County has a climate suitable for farming, many small scale farmers engage in the farming of potatoes, peas and dairy keeping.

The yield of major crops produced in Kenya has been steady or diminishing significantly in recent years. This is accentuated by the unreasonably expensive costs of inputs especially certified seeds and fertilizer. Low output in peas, carrots, Irish potatoes, cabbages, and kales is also impacted by the weighty dependence in rainfall during their production. In the livestock subsector, factory-made feeds for cattle and poultry are pricey for farmers. Moreover, the failure of various agricultural cooperative societies suggest that many of the member ranchers can’t access cheap inputs that were provided by the cooperatives as they benefitted from economies of scale. Yield inconsistency as a result of favourable weather effect on beans and cabbages which require shorter periods to mature. Conversely, yields for crops such as wheat and potatoes has dropped as the rains dwindled. Cultivating under irrigation

and utilization of higher yielding assortments along with manure would invert this pattern. (Nyandarua County Integrated Plan, 2018). Below graphical representation of data from FAO (Figure 1.1) and (Figure 1.2) illustrate the gloomy situation of plummeting potato yield, which is Nyandarua's major crop farmed, and wheat productivity in the country.

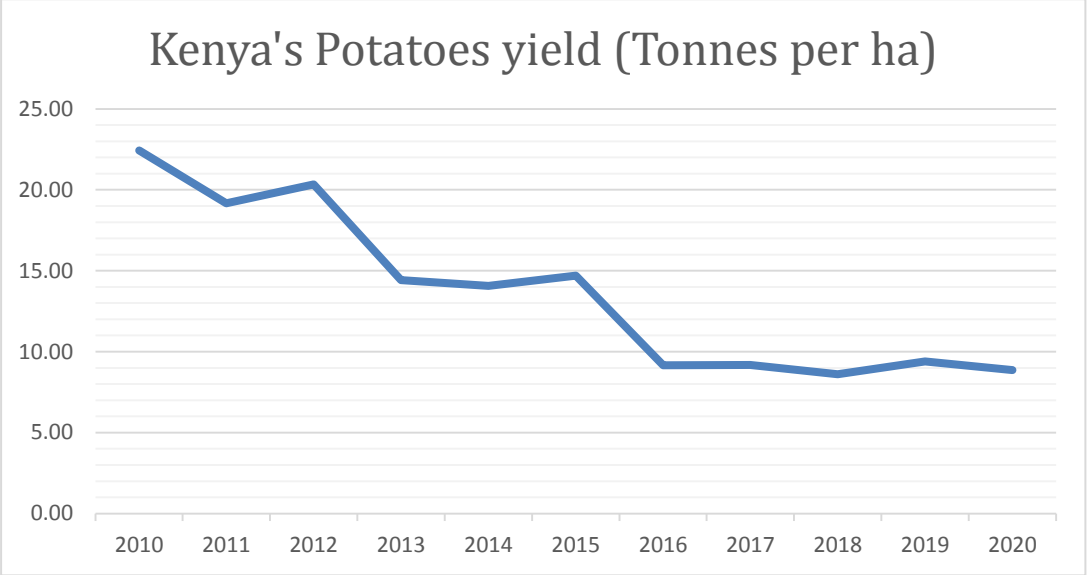


Figure 1.1 Kenya's Potato yield (Tonnes per ha) Source: FAO statistics (2020)

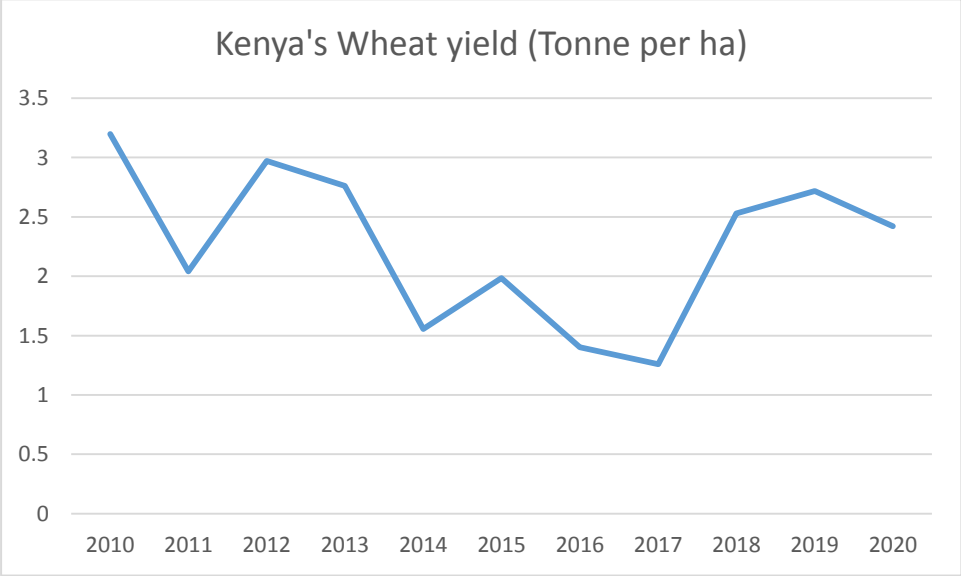


Figure 1.2 Kenya's Wheat yield (Tonnes per ha) ***Source: FAO statistics (2020)***

1.2 Statement of the Problem

Fiscal access in today's economy is vital for small and micro business enterprises as well as a major determinant of financial performance (Cracknell, 2012). Due to the unpredictable nature of the agricultural sector, only informal and semiformal financial institutions are interested in lending finances to the farmers. These informal and semiformal institutions have one common characteristic; they are unregulated, which increases the challenge of high interest rates charged, consequently lowering the margins realized by the farmers (Michael and Cesare, 2006).

In Nyandarua County, the productivity of major crops produced like potatoes, peas and cabbages has been constant or declining significantly in recent years. Latest Food and Agricultural Organisation statistics show a country wide drop from an average of twenty two tonnes per hectare for potatoes in the year 2010 to nine tonnes per hectare in 2020 (FAO statistics, 2020). This points out to dwindling financial fortunes for the Kenyan farmer.

Past studies carried out on the effect of access to capital finance by small scale farmers on performance show conflicting results. Spio (2002) in his study on the credit worthiness of small scale farmers in Limpopo South Africa found out that those who have access to credit have better performing farms than their colleagues with no access to capital finance. In their research, Cressy and Ollofson (2006) found that managerial and psychological factors were more important than the availability of external finance in limiting firm growth and financial performance.

Another study by Walter, Xianli and Koech (2016) probed procedural effectiveness of small holder potato farmers in Kenya and established that increased use of technology, better seeds and agricultural extension services significantly increase farm output. The variables used in the above studies are different from the ones that

will be used in this study namely; money markets, cost of credit, terms of credit and financial knowledge, and how each affect performance of small scale farmers in Nyandarua County.

There is a need to study the significance of access to capital finance to these small scale farmers and the influence it has to access the other farming needs noted in similar studies done. The study focused on Nyandarua County, well-known for small scale potato, milk and peas farming.

1.3 Research Objectives.

The research has two sets of objectives denoted as general and specific objectives.

1.3.1 General Objective

The general objective of this research was to study access to capital finance as a key factor affecting performance of small scale farms in Nyandarua County.

1.3.2 Specific Objectives

1. To identify the influence of money market on the performance of small scale farms in Nyandarua County.
2. To evaluate the influence of cost of credit on the performance of small scale farms in Nyandarua County.
3. To examine the influence of the terms of credit on the performance of small scale farms in Nyandarua County.
4. To determine the effect of financial Knowledge on access to capital finance and performance of small scale farmers in Nyandarua County.

1.4 Research Questions

1. What is the influence of money markets on the performance of small scale farms in Nyandarua County?

2. What is the influence on the cost of credit on the performance of small scale farms in Nyandarua County?
3. What is the influence of the terms of credit on small scale farms performance in Nyandarua County?
4. What is the effect of financial knowledge on the access to capital finance among small scale farmers in Nyandarua County?

1.5 Significance of the Study

The research findings avails useful information on access to capital formation by small scale farmers in Kenya. The findings will also be useful to the government of Kenya, County governments and other agricultural stakeholders to establish how the availability of capital finance contribute towards the performance of Small scale farms. Specifically the findings will proof to be useful to financial institutions like commercial banks, NGOs and microfinance institutions in their follow up in ensuring they help implement the government's strategy to finance small scale farmers in Kenya. In addition this research will contribute greatly towards the understanding of the subject matter at hand. The research provides a better understanding of the financial sector and how it affects agriculture as a key economic activity in Kenya.

1.6 Scope of the Study

The research was conducted in Nyandarua County targeting the small scale farms. This study focused on the issues specified in the research questions and research objectives. The study explored the challenges encountered by small scale farmers in the access of capital finance in Nyandarua County, which is among the major food baskets in Kenya.

The findings may be extrapolated to other counties with caution, because the significance of access to finance is affected by numerous factors like farm

characteristics, financial management practices, entrepreneurial knowledge, together with climate, and may vary from one county to the next. The study used data collected from both primary and secondary sources including county government expenditure, financial institution records, agricultural production and economic development, since 2010 when the counties were established by the current Kenyan constitution.

1.7 Limitations of the Study

Research limitations included inadequate literature on the topic of study; Access to capital finance in the county government structures, which are relatively new in Kenya and not many studies have been done to examine them after the Agriculture sub sector was devolved, when 2010 Kenya Constitution was enacted.

This study involved small scale farmers' private life, touching on their livelihood and income levels. Most people are unwilling to share information on their level of income. This is because many people consider it private. This was dealt with by reassuring them of the privacy and confidentiality on any information shared. They were made aware that the reason for the study is purely academic and any participant does so voluntarily.

The research required traversing different areas in Nyandarua County which needed substantial amount of funds and time which was not be readily available. The study was structured to be carried out within the available resources.

Assumption of this research was that the small scale farmers in Nyandarua County have challenges in the access of capital finance. That there are numerous sources of capital available in the Country and in Nyandarua County, but not readily available to small scale farmers. That the access to capital finance significantly impacts on the performance of small scale farms in the county. That there exists a huge potential

among the small scale farmers in Nyandarua County; if the above challenges are addressed; greater financial inclusion, economic growth and food security can be realised in the country through increased yields.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

Chapter two reviews both theoretical and empirical literature on the access to capital finance and performance of small holding farms. The chapter also develops a conceptual framework and provides a critical review on the research gaps.

2.2 Theoretical Review

The study's theoretical structure is an outline that may uphold a research work's concept. It expounds on why the issue under study persists by offering a hypothesis. A theory is a statement about the cause and effect relationships between two or more variables that has been tested or not. It allows the researcher to clearly see the variables of the study, offers a general basis for analysis of data. This is crucial in the preparation of a research proposal using descriptive and investigational methods. (Saunders *et al*, 2009). The research adopted two major theories to guide the study; finance and growth theory, and finance and inequality theory.

2.2.1 Finance and Growth Theory

Better designed financial structures, according to theory and evidence, help businesses overcome external financing constraints, illuminating one process by which financial development affects economic growth. (Ross Levine, 2010). Investors and capital markets send money to individuals and institutions with investment opportunities through financial systems. Financial structures then generate appropriate data and provide risk distribution to investors by developing diversified portfolios, through borrowing from and lending to large groups.

Theories that expect that capital streams toward more gainful undertakings, typically disregard the way that financial backers don't generally have the ability to gather sufficient data to make the most profitable ventures. To enhance resource allocation, collecting information and improving incentives for obtaining information are critical issues. Financial intermediaries, according to a large body of theoretical literature, boost the ex-risk evaluation of speculative openings, with positive ramifications for asset portioning, by bringing down the expenses of getting knowledge. (Ramakrishnan and Thakor 1984, Bhattacharya and Pfleiderer 1985, Boyd and Prescott 1986, Allen 1990).

A part of this writing unequivocally joins the role of data in a development model. Financial intermediaries, according to Greenwood and Jovanovic (2010), produce better knowledge, improve resource allocation, and foster development. More people can afford to enter financial intermediaries as a result of growth, which enhances the intermediaries' ability to generate better information. Financial intermediaries, according to King and Levine (2013), will build the pace of mechanical advancement by tracking down business people with the best possibilities of effectively launching new products and manufacturing methods.

2.2.2 Finance and Inequality Theory

Financial growth impacts income circulation, since it affects the fiscal prospects of individuals. A colossal group of empirical study proposing that more evolved monetary frameworks lessen inequality. However, hypothetical investigations are not indisputable. Demirgüç-Kunt and Levine (2010) survey the writing on the finance imbalance nexus and recognize three distinct kinds of impacts: direct intensive margin effects, direct extensive margin effects, and indirect effects.

Direct extensive margin effects insinuate the utilization of monetary services by people who had never utilized services. One bunch of models contends that monetary advancement might further develop pay appropriation since admittance to monetary services ought to permit low-pay people to work on their human and tangible capital. For example, models by Becker and Tomes (1986) and Galor and Zeira (1993) feature data and exchanges costs related with financing schooling. Their models estimate that imbalance drops when low-pay families borrow to pay for the education of their minors.

A second set of models contends that monetary improvement might lessen the impacts of outside bad shocks that overall influences all the more emphatically the unbanked, low-pay sections of the populace. Jacoby and Skoufias (1997) and Baland and Robinson (1998) call attention to the association among education and the smoothing of antagonistic pay shocks. Their models gauge that imbalance falls when low-pay families utilize monetary services to limit pay shocks. In these models, guardians with access to monetary services that face a negative pay shock are less inclined to decrease interest in the education of their kids than guardians without access to those services.

A third set of models calls attention to the role of business. Aghion and Bolton (1997) and Bardhan (2000), observed that low-pay business visionaries will quite often stay in poverty because of monetary markets that loan just to individuals with adequate security rather than to the people who have the most productive thoughts.

A direct extensive margin mechanism is consistent, for instance, with recent theoretical and empirical studies that suggest that foreign banks tend to be choosy on their clienteles (see, for example, Beck and Brown 2010; Detragiache, Tressel, and Gupta 2008; Gormley 2010; and Mian 2006). As per the theory, foreign bank invasion

is relied upon to develop the portion of metropolitan, rich, and expert families with existing bank accounts as opposed to broadening the utilization of monetary services. Henceforth, an upper degree of monetary advancement because of an expanded foreign bank infiltration might achieve greater imbalance.

An enormous collection of hypothetical research presents that monetary improvement might influence imbalance through backhanded instruments (Beck, Levine, and Levkov 2010; Gine and Townsend 2004; Townsend and Ueda 2006). In these models, monetary improvement can affect both the dissemination of credit and financial development, which raises requests for both low and high talented labourers, with connected results on the flow of income. Monetary advancement that for the most part develops the interest for low-skilled workers will decrease disparity while monetary improvement that generally builds the interest for high talented labourers will expand imbalance (Jerzmanowski and Nabar 2007).

2.3 Empirical Literature Review

2.3.1 Money Markets, Access to Finance and Performance of small scale farms

Anang, Sipiläinen, Bäckman and Kola (2015) study focused on farmers in rural Ghana and examined determinants of access to credit for agriculture. The study looked at both the admittance to credit by the ranchers and the size of credit accessed. Heckman selection model was used as the analytical tool. The study's findings were that gender, sex, income, farm assets, technology, farm location, and knowledge of credit organizations in the area influenced access to credit and the size of loan accessed. The current study considered money market, cost of credit, terms of credit and financial knowledge as its variables to measure access to capital finance.

Nosiru, (2010) conducted a study on micro credits and agricultural productivity in Ogun State, Nigeria. The study used structured questionnaire to collect data from a sample of ninety small- scale farmers where 31 are microcredit beneficiaries and 59 non-beneficiaries. The study demonstrated that microcredit permitted ranchers to buy the inputs they needed to expand their agricultural productivity using the OLS regression model. The current study focused on the effect of access to capital finance on performance of small scale farms in Nyandarua County, Kenya.

Akinseinde (2012) conducted research in the Egbede local government of Oyo state on nonfarm operation and farm household output performance. The utilization of data envelopment examination and the Tobit model uncovered that access to credit facilities further developed a family's production effectiveness in Nigeria's humid forest agro-natural district. However the study focused on Tobit model and was conducted at Oyo state which is a state in Nigeria which is a more developed and depend on crude oil as the main source of GDP. The current study focused on Nyandarua County small scale farmers in Kenya.

Similarly, (Obwona, 2010) demonstrated that access to credit helped tobacco farmers in Uganda boost their productivity by using the Trans log output function. One of the major constraints to increasing farm output in developing countries is the lack of financial resources available to farmers. However, his findings show that land fragmentation, hired workers, family size, health status, level of education, credit accessibility, and extension services are significant determinants of tobacco growers in Uganda, which explains other variables leading to the success of small scale farmers in Uganda. This study looked at the variables money market, cost of credit, terms of credit and financial knowledge to explain the relationship.

2.3.2 Terms of Credit and performance

The American Bankers' Association (0021 Booklet) refers to credit as money lent. Credit cards, overdrafts, mortgage loans, and personal loans are all common types of credit. These words likewise apply to the length of your loan servicing plan with a bank, like two years or three years. MFIs are the major source of external financing for SMEs, according to the Organization for Economic Co-operation and Development (OECD, 2013).

As per Maertens (2011) credit constraint is a significant issue to small holder ranchers in Senegal. The study observed that such ranchers are credit constrained as they need access to credit by any means, while others access yet not to satisfactory sums important to buy the fundamental inputs and make essential ventures. Thusly, Maertens noticed that credit limitations among smallholder ranchers limit their farm production and productivity development. The study saw the necessity for smallholder ranchers to look for off ranch business and pay to ease credit and information limitations.

2.3.3 Cost of Credit and Performance

Access to credit is viewed as a critical variable for speeding up business development (Shinozaki, 2012). Shinozaki noticed that less credit constrained small and medium enterprises can build their business development compared to credit constrained enterprises.

Aivazian, Mazumdar and Santor (2013) investigated on monetary constraints and investment: assessing the impact of a World Bank advance program on Sri Lanka's little and medium-sized businesses**.** The study discovered that small businesses have a harder time getting credit when fiscal markets are undeveloped, sectioned, or exposed

to unpredictable credit allocation mechanisms As indicated by the authors, the World Bank interventions have given Sri Lankan financially constrained small and medium businesses with greatly subsidized credit facilities. The current study evaluated the relationship between these constraints of credit access and the effect on performance of the small scale farmers.

Hatab and Hess (2013) recommend that small agrarian exporters suffer liquidity challenges which make it hard for the organizations to cater for expenses of exportation and trade changes. It is likewise seen that such firms lack sufficient capital, experience significant expenses of credit access and export advances from monetary institutions. In certain conditions, the author noticed that small agricultural firms don't get credit because of the reluctance of the banks to serve them. Certainly, the creator notes that firms should foster closer connections and joint efforts with firms that supply them with quality agrarian items and furthermore accumulate data about costs and guidelines of foreign markets.

Sasu and Egyir (2010) in their paper tobit assessment of the power of export success of agrarian ventures in Ghana, set up that limits in getting to working capital are a significant obstacle to level of export success. It is additionally noticed that absence of admittance to working capital antagonistically impact the level of export success of Ghanaian horticultural exporting firms. The author noticed that partners and government mediations are key in tending to absence of working capital in horticulture exporting firms. However the study was concerned with working capital, the current study focused on access to capital finance as the independent variable.

2.3.4 Financial Knowledge and Capital Access

Njoroge (2013) researched on the correlation between entrepreneurial success and monetary literacy among SMEs in Nairobi County. The objective was to establish whether there exists a relationship between entrepreneurial successes in SMEs in Nairobi County. The findings concluded that the formal SMEs entrepreneurs were more financially literate as compared to their informal counterparts. There was a positive link between monetary Literacy and commercial success among Nairobi County SMEs. However the research focused on SMEs in Nairobi County whereas the current study focused on small scale farmers in Nyandarua County.

Isaiah (2013) studied the effect of monetary literacy on the productivity of some small scale businesses in Calabar, Nigeria. The study investigated their level of financial literacy adoption and reviewed relevant literature. A carefully designed questionnaire and a financial literacy test were applied to collect statistics on the extent of acceptance of monetary literacy. To split the small scale firms into ten bands, stratified random sampling was applied, and then random sampling was used. The study data were analyzed using one-way analysis of variance (ANOVA) and a dependent T-test with a 5% degree of significance. The findings revealed that small businesses in Calabar Municipality have a low level of financial literacy and that the use of accounting records has a direct impact on their profitability. In the current study financial knowledge is just a variable among the four, the study shows the relationship of monetary literacy to performance of the small scale farmers.

Sabana (2014) conducted research to determine the relationship between financial literacy and financial access among Nairobi County micro entrepreneurs. The study's results revealed that entrepreneur financial literacy has a statistically important impact

on business performance, indicating that the concept that financial literacy impacts on business performance is endorsed. The study also revealed that monetary literacy has an important impact on commercial access, proving the hypothesis that financial literacy has an impact on financial access. The study however focused on entrepreneurship in Nairobi County, which is quite different from the financial knowledge in Nyandarua County which is less developed and has lesser knowledge of financial services.

Chamwanda (2015) investigated the impact of financial literacy on SMEs' financial success in Nairobi County's Kibera Slums. The research was conducted using a descriptive survey design. SMEs in the Kibera slum were the study population, and a representative sample was chosen using a simple random sampling technique. Financial literacy among SME owners remained low, according to the study. The research also discovered that monetary literacy and the scale of the business had a substantial positive impact on fiscal results, while the amount of investment had a negligible impact. The results of the multiple regressions showed that there is a clear positive relationship between monetary literacy, capital invested, scale, and monetary performance of small and medium-sized businesses. The current study focused on financial knowledge of small scale farmers in Nyandarua C**ou**nty which is an agricultural producing region.

2.4 Summary of Empirical Literature and Research Gaps

Table 2.1 Research Gaps

Author	Year	Topic	Findings	Research gap
Greenwood & Jovanic	2010	Finance & Growth	Financial intermediaries improve resource allocation, generate better knowledge, and promote development and growth.	Researched on industrialists and thus need to extend research to other sectors like agribusiness
Nosiru	2010	Micro credits and Agricultural Productivity	There exists a positive relationship between micro credits and productivity to a certain limit since farmers do not use the money for agriculture only.	There is need to question the level of education of these financial access if the money utilization is sufficient for productivity growth.
Obwona	2010	Finance & Growth	Access to credit aided tobacco farmers in Uganda in increasing their production.	Need to research on small scale farmers who find it difficult to access capital as compared to large scale farmers of products like tobacco.
Allen *et al*	2012	Money Markets Access and Performance	Diversity of monetary designs can prompt high rates of financial development	Need to establish the robustness of money market access effect on growth.
Akinseinde	2012	Nonfarm activity and production efficacy of farm household	In Nigeria's humid forest agro-ecological region, access to credit facilities had a positive contribution on household's production quality.	Further research on relationship in the concept of Kenya and agricultural productivity
Aivazian, Mazumdar and Santor	2013	Constraints of access to credit	According to the author World Bank constrained small and medium firms with heavily subsidized loans	To further the knowledge of the effect of cost of credit on performance of small scale farmers.
Isaiah	2013	Financial knowledge on the profitability	Small businesses in Calabar Municipality have a low level of financial literacy, and their use of accounting records	Need to adopt the variable as a measure in the context of Kenya since Kenya depends heavily on agriculture unlike Nigeria which

			has a significant direct impact on their profitability.	depends on crude oil as the main source of GDP.
Sabana	2014	Financial literacy and financial access	The hypothesis that financial literacy affects enterprise performance was supported because entrepreneur financial literacy had a statistically significant impact on enterprise performance.	Need to conduct the study specifically for the agribusiness and specifically the small scale farmers in a less knowledgeable population.
Anang, Sipiläinen, Bäckman tableand Kola	2015	Access to credit for agriculture	Gender, sex, income, farm assets, technology, farm location, and knowledge of credit organizations in the area influenced access to credit and the size of loan accessed	Need to consider other variables to show the impact of access to capital finance on performance.

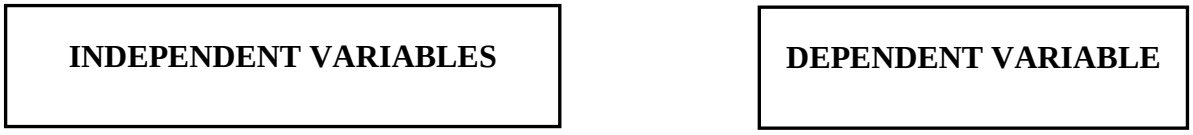
Source: Researcher (2023)

Largely, the findings from the reviewed literature suggests that economies with small and medium-size monetary frameworks comparative with their GDP will more often than not perform better as they put a greater amount of their assets into finance; this impact anyway turns around once the monetary area turns out to be excessively huge. A possible reason why excessive money might adversely affect monetary development is the misallocation of assets. As per Beck and et al. (2010). Albeit by and large, monetary depth might decidedly affect extended financial development, excessive money is dangerous for the household economy. As a result, administrative approaches that lessen the size of the monetary area are probably going to diminish the amplitudes of the leveraging/deleveraging cycle, which could boost economic growth in countries with excessive credit. The theme of much of the literature surveyed above is that too little money isn't great however that an excessive amount of money is additionally bad. This study establishes if a happy medium exists among

the small scale farmers of Nyandarua County in terms of access to capital finance and how other factors like efficiency, access, costs of credit, terms of credit, and financial knowledge are important in influencing their performance.

2.5 Conceptual Framework

The conceptual framework contains the factors that affect the performance of small scale farms as a result of the introduction of capital finance. The Independent variables were; Money markets in Nyandarua County, cost of credit available to small scale farmers in the county, terms of credit and financial knowledge. The dependent variable was the performance of small scale farms. Illustrated in figure 2.1



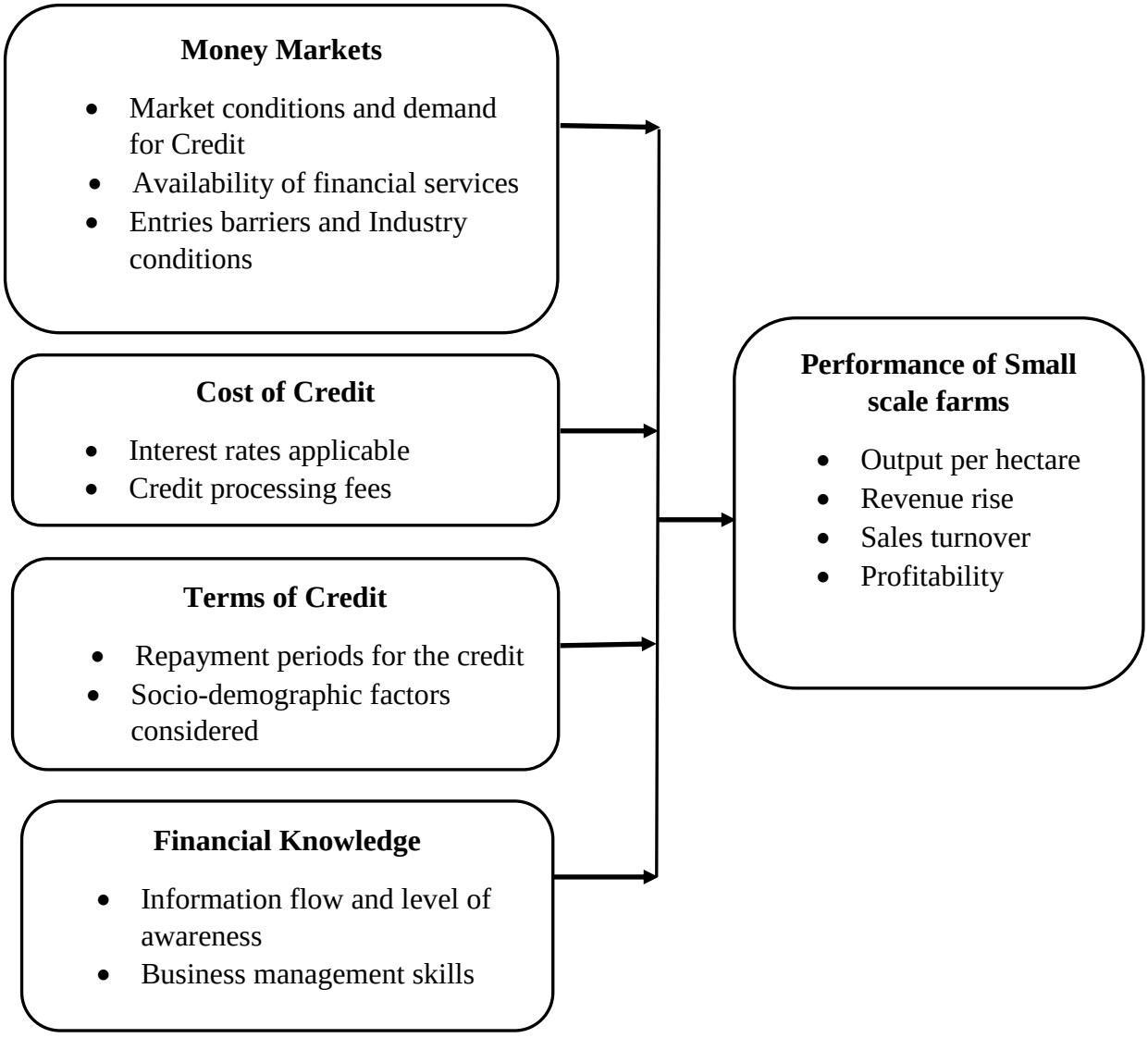


Figure 2.1 Conceptual Framework

Source: Researcher (2023)

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter covers the actual methods that were be applied in completing the research, and how data was be gathered and assessed. It stipulates details of the research plan and procedure, the target populace of the review and test size, adopted

sources of data, sampling plan and sampling methodology, information collection techniques and instruments, data handling and analysis.

3.2 Research Design

As indicated by Mugenda (2008), research configuration currently alludes to the entire origination of the review, which incorporates depictions, all variables considered, definitions, and classifications, relational suggestions, information collection and examination techniques. The researcher adopted descriptive research design during the study. This design is appropriate because it sets up the degree of a scope of issues like wellbeing, schooling, nourishment, wrongdoing and gives the establishment whereupon co-social and trial review emerge (Mugenda, 2008). It will ascertain and ready to characterize the qualities of factors in a situation. In this case the study establishes how the access to capital finance has impacted on the livelihood of Nyandarua County residents more specifically those involved in agricultural production.

A descriptive study decides and records the current state of affairs. A questionnaire survey, an interview, or observation will usually be used to collect descriptive data. Exploratory architecture, on the other hand, addresses the need for specific inquiries to concentrate on questions that require responses in order to comprehend individuals, events, and circumstances (Chandra, 2004). A descriptive study's purpose is to provide the researcher with a profile of the phenomenon or to explain important aspects of it.

Descriptive studies aid in the understanding of a group's characteristics in a given situation, as well as providing suggestions for further investigation and study.

3.3 Target Population

This study focused on the farmers of Nyandarua involved in small scales farming. According to the 2019 population census, Nyandarua County had a population of 638,274 (Appendix V). This comprised of 315,011 males and 323,243 females, projected to grow at 2.4 per cent annually. The small scale farmers number 149,067 from where a well distributed sample was picked using ratified random probability sampling technique to guarantee reasonable representation and generalization of finding to the overall populace. Nyandarua was chosen as the target population as it is dominated by small scale farms and financial inclusion is not well advanced as compared to other counties.

3.4 Sampling technique

The study used a proportionate sampling method to choose the necessary sample size from the seven Nyandarua sub-counties, thus giving a good representation of the county of Nyandarua.

3.4.1 Sample size

The final sample estimate was calculated using the formula. Nf = n/(1+n)N by Andrew Fisher Where:

Nf = desired sample size (when the population is less than 10, 000)
N = desired sample size (when the population is more than 10, 000)
N = the estimate of the population size 100/ (1+100) (0.01) =100/1+1
Nf = 100

3.4.2 Sampling Frame

Sampling frame refers to the list of everything in your population. It's a directory of anyone or everything you want to learn about. The sampling frame is proportionately calculated as per the sub-counties population in the last census done in 2019.

Table 3.2 Sampling Frame

Sub-County	Number of Small scale farmers Households
Kinangop	17
Nyandarua South	15
Mirangine	11
Kipipiri	15
Nyandarua Central	12
Nyandarua West	15
Nyandarua North	15
Total	**100**

Source: Researcher 2023

3.5 Empirical Model

This study applied panel random effect regression model by Whisman and McClelland, (2005). Thus the performance of small scale farms in terms of output per hectare was expressed as a function of Money markets, Cost of Credit, Terms of Credit and Financial Knowledge.

$$Y_{it} = \alpha + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{3it} + \beta_4 X_{4it} + \epsilon_{it} \quad \text{.....3.1}$$

Where: Y_{it} = Composite index of Performance of small scale farms in Nyandarua.

α = Constant

X_{1it} = Money markets

X_{2it} = Cost of Credit

X_{3it} = Terms of Credit

X_{4it} = Financial Knowledge

$\beta_1 - \beta_4$= Regression coefficients

ϵ_{it}= Error term, it captures the omitted variables in the model

Variable	Type	Operationalization	Measurement	Hypothesized Direction
Performance of small scale farms	Dependent	Farm yield	Output per hectare Revenue rise Sales turnover change Profitability change	Positive/ Negative
Money markets	Independent	Market conditions Availability of financial services Entry barriers & Industry conditions	Financial institutions available & financing agribusiness	Positive/ Negative
Cost of Credit	Independent	Interest rates applicable Processing fees	Interest rates level Processing fees charged	Positive/ Negative
Terms of Credit	Independent	Repayment period Socio-demographic factors considered	Credit period offered Socio-demographic factors considered	Positive/ Negative
Financial Knowledge	Independent	Information flow and level of awareness Business management skills	Information flow and level of awareness Business management skills	Positive/ Negative

Table 3.2 Operationalization and Measurement of Variables

Source: Researcher (2023)

3.6 Data collection instrument

The main data collection methods was interviews, questionnaires, and observation techniques. To ensure relevance to the research problem in the study, the data collection instruments was generated and organized based on the research questions and specific objectives.

The nature of this study necessitates the use of a questionnaire. A questionnaire, according to Best and Khan (2004), is simple to use. Questionnaires often eliminate bias because, unlike a face-to-face survey, respondents are not influenced by the

researchers' own views when answering questions. Each questionnaire has two parts. Part one consists of personal data of the respondents and section two contains data on factors influencing access to capital finance. The questionnaire is intended to have both open and close ended questions.

3.7 Validity and Reliability of the Study

Oluwatayo, (2012) defines validity as the consistency of a research instrument while reliability as the ability of an instrument to maintain accuracy and consistency of measurements of unchanging values. A pilot study of respondents (who will be left out from the modified sample to be considered for the final research) drawn from the target population was conducted so as to ascertain both validity (content and construct) and reliability of the questionnaire.

Mugenda and Mugenda (2013) states that to ensure content validity of an instrument, advice of a professional or expert in the field is paramount. Therefore to guarantee content legitimacy, the questionnaire was given to specialists in the space of study to give their perspectives and ideas for its improvement. Construct legitimacy then again was protected by looking into empirical and hypothetical writing to comprehend the suitable idea and that the instrument items are built dependent on literature.

Reliability is supported by including many related items on a measure, by testing a varied sample of people and by utilizing uniform testing methodology. It is generally used to find out whether the queries and measures that are conceived for ideas are steady and acceptable. The review utilized Cronbach's alpha (threshold 0.70) in view of internal consistency to discover the dependability of the information collection instrument. The index alpha was processed for all things in the questionnaire

containing each study variable. Additionally, the review built up the total dependability for the whole questionnaire.

3.8 Data Analysis

The gathered data was cleaned to identify incorrect, incomplete, or unreasonable data, and the quality was improved by correcting noted errors and omissions. After cleaning the data, the researcher edited, coded, and classified it before entering it into the computer for analysis. In addition, qualitative data produced during the process was analysed by the use of each variable. For the study of quantitative data, computer programs that are compliant with data analysis, such as Statistical Package for Social Sciences (SPSS), was used. SPSS can deal with a lot of information because of its wide scope of statistical systems, many of which are tailored to the social sciences and are very effective. Multiple regressions was used to analyse the results.

3.8.1 Diagnostic Tests

Diagnostic test for stationarity, normality, correlation, and hausman tests was conducted in the study. Diagnostic tests are performed in a study to ensure that the data is adequate for analysis.

3.8.1.1 Stationarity Test

A time series is said to be stationary if it's mean, variance or pattern doesn't exhibit an upward and descending trend. The series is non-stationary under the null hypothesis, while the series is stationary under the alternative hypothesis. False results are generated by a non-stationary data set. The null hypothesis is dismissed if the statistical p value is less than 0.05, indicating that the data set is stationary.

3.8.1.2 Test for Correlation

As indicated by Green, (2008), that a couple of variable has a correlation of 0.8 or -0.8 (i.e. r2 of 64% or more), then the pair is strongly correlated and this implies that multi-collinearity does not exist. Correlation test reveals how strongly a pair of variable is correlated. The results show that all the variables are not highly correlated since all the coefficients are less than 0.8.

3.8.1.3 Normality Test

Normality test is conducted in a review to guarantee that the information is normally distributed. The non-normal distribution of data could lead to making wrong conclusions. As per Green, (2008), the null hypothesis is that the data is not normally distributed while the alternative hypothesis is that the data is normally distributed. A p value of below 0.05 shows non-normality of the data whereas a p value of above 0.05 shows that there is normality. From the results presented p-value is more than 0.05 at 5% level of significance, thus random effect was used to analyse the study findings.

3.8.1.4 Hausman Test

The hausman test was used to determine which model was best to use when performing a panel regression performance. The null hypothesis is that the chosen model has a random effect, while the alternative hypothesis is that it has a fixed effect. The null hypothesis is rejected when the p value is less than 0.05, so the fixed effect model is used. The results show that the probability of Chi-square is greater than 0.05 at 5 percent level of significance.

3.9 Research Ethics.

Research ethics are guidelines and norms which are expected to be adhered to in a research by a researcher. All researches are conducted in accordance to certain

professional standards and ethical principles. Observing moral standards in a study is crucial as it upgrades the objective of the research study. The research was directed by moral principles and standard applicable to Kenyatta University and Kenya at large. The researcher utilized the research permits to be acquired from the pertinent organizations for data collection. All ethical standards and considerations regarding research was wholly followed.

CHAPTER FOUR

RESEARCH FINDINGS AND DISCUSSIONS

4.1 Introduction

The chapter presents the findings of the study and shows how each objective of the study has been achieved. The chapter also presents demographic characteristics of the respondents, descriptive statistics, correlation analysis and inferential findings.

4.2 Demographic Characteristics

Demographic characteristics of the respondents include; gender, age, sub-county of resident and education level. The results are presented in table 4.1

Table 4.1 Demographic Characteristics

Variables	Sub-category	Frequency	Percentage
Gender	Male	60	60.0
	Female	40	40.0
	Total		**100.0**
Age	Below 25 years	5	5.0
	25-34 years	10	10.0
	35-44 years	35	35.0
	45-50 years	10	10.0
	Above 51 years	40	40.0
	Total		**100.0**
Education Level	Certificate	65	65.0
	Diploma	30	30.0
	Degree	5	5.0
	Total		**100.0**
Su-county	Kinangop	17	17.0
	Kipipiri	15	15.0
	Mirangine	11	11.0
	Nyandurua Central	12	12.0
	Nyandurua North	15	15.0
	Nyandurua South	15	15.0
	Nyandurua West	15	15.0
	Total		**100.0**

Source: Researcher (2023)

The results show that male gender are engaged in small scale farming in the county at 60 percent relative to female counterpart at 40 percent. Those who engage in small

scale farming were mainly above 50 years at 40 percent followed closely by age group 35-40 years at 35 years this is because they have a right to own land and able to decide what to do with the land in terms which crop to grow on the piece of land. Additionally, the results reveal that those with certificate level of education dominate the small scale farming in Nyandarua County at 65 percent while those with degree level of education do not engage so much in small scale farming in the county. Lastly, the findings show that small scale farming is spread across the county at an average of 14.3 percent; however, Kinangop sub-county leads in small scale farming at 17 percent while Mirangine sub-county comes last at 11 percent.

4.2.1 Response Rate

The researcher engaged 112 respondents, out of which 100 of the respondents sought filled and availed the questionnaire. This made a response rate of 89.3%. The responding rating was satisfying in drawing conclusive results for summarizing. According to Mugenda and Mugenda (2003), a sample of 30% of the population is considered representative, while a sample of above 50% is considered good. Thus the sample used can be considered adequate for the study.

4.3 Descriptive Statistics

The study categorizes descriptive statistics into two that is discrete or categorical and continuous variables. The results are presented as follows

4.3.1 Discrete Variables

These are variables which are categorical in nature. The results are presented in table 4.2.

Table 4.2: Descriptive Statistics for categorical variables

Variables	Sub-category	Frequency	Percentage
Gender	Female	40	40.0
	Male	60	60.0
	Total		**100.0**
Education Level	Certificate	65	65.0
	Diploma	30	30.0
	Degree	5	5.0
	Total		**100.0**
Crop grown	Kales	4	4.0
	Peas	4	4.0
	Maize	24	24.0
	Cabbage	8	8.0
	Irish potato	60	60.0
			100.0
Su-county	Kinangop	17	17.0
	Kipipiri	15	15.0
	Mirangine	11	11.0
	Nyandurua Central	12	12.0
	Nyandurua North	15	15.0
	Nyandurua South	15	15.0
	Nyandurua West	15	15.0
	Total		**100.0**
Account possession	No account	5	5.0
	Sacco	10	10.0
	Bank	50	50.0
	Bank & sacco	35	35.0
			100.0

Source: Researcher (2023)

The results in table 4.3 show that majority of small scale farmers in Nyandarua County were mainly male at 60 percent slightly above 50 percent however, female who engage in the activity are at 40 percent. This implies that men value small scale farming than female in the region. Majority of small scale farmers have certificate level of education at 65 percent, this is because of failure to secure jobs in the formal sector resorting to small scale farming to earn a living. Those with diploma level of education comes second at 30 percent while small scale farming is less dominated by those with degree level of education at 5 percent, this is because majority of degree holders in the county have secured decent jobs in the formal sector. The results also

show that majority of small scale farmers, grow Irish potato at 60 percent followed by maize farmers at 24 percent then cabbage farmers at 8 percent and kales and peas farmers at 4 percent respectively. This shows that most small scale farmers in Nyandarua County prefer growing Irish potatoes as opposed to other crops, this is because of returns received from the sale of Irish potato is higher than the return from other crops in the region.

The results also revealed that most of these small scale farmers are in Kinangop sub-county at 17 percent followed closely by Kipiriri, Nyandarua North, Nyandarua South and Nyandarua West at 15 percent each. Nyandarua Central, Mirangine at 12 percent and 11 percent respectively. Most of the small scale farmers were found to own account in commercial banks at 50 percent and 35 percent have accounts with both banks and saccos. Only 5 percent were found to not own account in any financial institution. This enables small scale farmers to acquire loans from banks and saccos to improve their small scale farming in the county and also save the excess revenue generated from crop sales.

4.3.2 Continuous Variables

The results for descriptive statistics for continuous variables are present in table 4.3

Table 4.3: Descriptive Statistics for Continuous Variables

Variables	Obs.	Mean	Std. dev	Minimum	Maximum
Age	100	2.7	1.23501	0	4
Credit cost	100	1.8833	0.4174	1	2.5
Financial knowledge	100	2.4333	0.72125	0.16667	3.3333
Performance	100	1.9125	0.75910	0.5	3
Money market	100	1.7167	0.41405	0.8333	2.5

Source: Researcher (2023)

The results show that majority of small scale farmers in county are aged between 45-50 years with a standard deviation of 1.235. Small scale farmers have a maximum age

of above 51 years and a minimum age of below 25 years. The age group 45-50 years is the most energetic amongst the population and is capable of active engagement in farming activities in the county. Credit cost has a mean of 1.9 with a standard deviation of 0.42 implying that majority of small scale farmers disagreed that cost of credit hinder access to credit hence affecting crop production. Financial knowledge has a mean of 2.43 with a standard deviation of 0.72 indicating that small scale farmers disagreed that financial knowledge does not affect their crop farming implying that small scale farmers are not well equipped with farming and financial knowledge in terms of where to access credit, rate of interest in the market, credit terms prevailing in the market.

Similarly, financial information does not flow to villages where these farmers reside and there is lack of awareness on source of cheap credit to boost small scale farming in the region. Money market has a mean value of 1.72 with a standard deviation of 0.41 implying that money market conditions were not favourable to small scale farmers because of barriers and conditions set to access credit were beyond the ability of small scale farmers to provide in order to access credit to improve farming activity. The performance of small scale farmers has a mean value of 1.91 with a standard deviation of 0.76 indicating that performance of small scale farmers was not to the standard because of low output per hectare. On the other hand, all the variables have a minimum value of about 1 and a maximum value of about 3 implying that small scale farmers disagreed with measures of these variables and some were neutral with the statements.

4.4 Correlation Analysis

Correlation analysis was carried out using Pearson Correlation coefficient to ensure that both the independent and dependent variables not highly correlated to avoid

chances of getting spurious results. The results in table 4.5 show that all the variables are not highly correlated since all the coefficients are less than 0.8 and according to the rule of the thumb, a correlation coefficient less than or equal to 0.8 implies no chance of high

Variables	Credit cost	Financial Knowledge	Performance	Money market	Credit terms	Gender	Age	Educ. Level	Crop grown	Bank account
Credit cost	1.000									
Financial knowledge	0.333	1.000								
Performance	0.120	0.708	1.000							
Money market	0.424	-0.149	-0.120	1.000						
Credit terms	0.070	0.430	0.717	0.143	1.000					
Gender	0.385	0.066	0.007	0.512	-0.028	1.000				
Age	-0.10	-0.174	-0.150	0.244	-0.031	0.382	1.000			
Educ. Level	0.399	0.163	0.080	0.090	-0.093	0.210	-0.042	1.000		
Crop grown	0.133	0.095	0.122	0.050	0.075	0.166	0.083	0.009	1.000	
Bank account	0.737	0.311	0.126	0.360	-0.089	0.412	-0.262	0.303	0.018	1.000

correlation and therefore all the variables can be used in the same equation or estimation model.

Table 4.4: Correlation Analysis results

Source: Researcher (2023)

4.5 Reliability Analysis

The test was carried out suing Cronbach's Alpha techniques to ensure that the variables stand future test and results are consistent over time. The results are presented in table 4.5.

Table 4.5: Reliability Analysis

Variables	Observations	Sign	Cronbach's Alpha	Decision
Money Market	100	Positive	0.6554	Reliable
Cost of Credit	100	Positive	0.6372	Reliable
Financial Knowledge	100	Positive	0.6562	Reliable
Credit Terms	100	Positive	0.7015	Reliable
Gender	100	Positive	0.7023	Reliable
Age	100	Negative	0.7399	Reliable
Education level	100	Positive	0.7043	Reliable
Crop grown	100	Positive	0.7268	Reliable
Account Possession	100	Positive	0.6501	Reliable
Performance	100	Positive	0.6693	Reliable
Overall Cronbach alpha Index			0.6920	Reliable

Source: Researcher (2023)

The results show Cronbach alpha is between 0.6 - 0.7 and the overall Cronbach alpha index is found to be 0.6920. This indicates that the instrument was reliable and good for analysis due to its internal consistency. According to Ursach, Horodnic & Zait (2015) a Cronbach alpha index between 0.6-0.7 is generally accepted and implies an adequate level of reliability of the research instrument. All the variables were found to be positive except age of the respondent was found to be negative.

4.6 Hausman Test

The test was carried to determine which model between the fixed effect and random effect is the best estimation model. The results are presented in table 4.6.

Table 4.6 Hausman Test

Test	Chi-square	Probability
Hausman	0.52	1.000

Source: Researcher (2023)

The results show that the probability of Chi-square is greater than 0.05 at 5 percent level of significance and according to Hausman if p-value is less than 0.05 then fixed effect model is adopted and if p-value is greater than 0.05 then random effect is used. From the results presented p-value is more than 0.05 therefore random effect is used to analyze the study findings.

4.6 Regression Analysis

Regression analysis was carried out using panel random effect regression model to determine how the independent variables influence the dependent variable of the study. The results for the analysis are presented in table 4.7

Table 4.7: Panel Regression Results

Dependent Variable: Performance				
Variables	**Coefficient**	**Standard error**	**z**	**p>|z|**
Terms of credit	1.1544	0.1381	8.36	0.000
Financial knowledge	0.4926	0.0693	7.11	0.000
Cost of credit	-0.4244	0.1768	-2.40	0.011
Money market	-0.1175	0.1745	-0.67	0.503
Gender	0.0064	0.1187	0.05	0.957
Age	-0.01454	0.04367	-0.33	0.798
Education level	0.1258	0.0775	1.62	0.011
Crop grown	0.0441	0.0362	1.22	0.223
Constant term	-0.6087	0.2959	-2.06	0.040
Sigma_u Sigma_e Rho	0 0.4139 0	Wald Chi-square p-value		261.06 0.000

Source: Researcher (2023)

The results show that rho value is zero implying that the variability within the sub-counties is large relative to between sub-counties hence no difference within the sub-counties. Similarly, the p-value of Chi-square is 0.000 indicating that performance of small scale farmers in Nyandarua County is influenced by credit terms, financial knowledge, cost of credit, money market conditions, gender, age, education level, crop grown and account holding. Further, the results show that constant term value is -0.6087 indicating that in the absence of the factors the study considered, the

performance of small scale farmers in Nyandarua County would be negative meaning that the farmers would be making losses from the farming activities in the area.

The coefficient of terms of credit was found positive (1.1544) with a p-value of 0.000 less than 0.05 at 5 percent level of significance implying that terms of credit significantly influence access to credit which ultimately influence performance of small scale farmers in terms of food production in the county. This means that a change in credit terms by one percent point leads to an increase food production by 115.4 percent points. The finding confirms Prasad *et al*., (2005) and Maerters (2008) that access to credit facilitated by good credit terms in the market greatly determines the degree of credit access leading to high level of food production by the small scale farmers. Similarly, the findings show that the coefficient of financial knowledge was positive (0.4926) and statistically significant at 5 percent level of significance, meaning that financial knowledge importantly influence performance of small scale farmers in terms of food production. An improvement in financial knowledge by one percent, food production increase by 49.3 percent points, this indicate that better information flow on credit availability allows farmers to apply for credit and access credit leading to better production. The finding agrees with Njoroge (2013) and Isaiah (2013) that a financial literate farmer is able to access credit and also maintain good accounting records in terms of productivity and monitor production standards at each level. The finding also corroborates Sabana (2014) that financial literacy of the entrepreneurs boost business performance and also increases credit access by small scale farmers in the county.

The coefficient of cost of credit was negative (-0.1175) and significantly influence performance of small scale farmers. This means that an increase in the cost of credit by one percent leads to a reduction in food production by small scale farmers by 42.44

percent points. The p-value was also found to be less than 0.05 indicating that cost of credit importantly influences small scale farmers' production capacity in the county. The finding disagrees with Aivazian *et al*., (2013) small scale businesses do not have hard time accessing credit in Sri Lanka though the country is undeveloped and that the financial institutions constraint small businesses with a subsidized credit.

The coefficient of money market was also found negative (-0.1175) and insignificantly influence the performance of small scale farmers in Nyandarua, this means that a change in money market conditions by one percent, performance of small scale food producers in Nyandarua changes by 11.75 percent points. The finding confirms Nosiru (2010) that found no importance of money market on total yield of small scale farmers in Ogun region, Nigeria due to lack of sensible use and redirecting of credit acquired to other uses apart from farming venture. Although money market functions normally in the Nyandarua, credit access is used for various business ventures other than farming hence having no direct relationship. Similarly, the study opined that gender of the applicant does not greatly influence output of the small scale farmers since it have no influence in access to credit. The finding shows that a change in gender status from female to male farm production increases by 0.64 percent points implying that a male small scale farmer is likely to produce more food crops than female counterparts by 0.64 percent holding all other factors constant. The finding contradicts Anang *et al*., (2015) that found out that gender and sex of the applicant positive influence credit access which subsequently lead to high farm yield. Moreover, age of the respondent was negative (-0.01454) and statistically insignificant at 5 percent level of significance, meaning an increase in age of the farmers by one year leads to a decline in farm output by 1.45 percent in Nyandarua

County. This implies as the farmer grows old, the energy and strength needed in farming activities declines leading to low production hence low performance.

The coefficient of education was positive (0.1258) and statistically significant at 5 percent level of significance implying that a change in literacy level facilitates knowledge acquisition on the availability of credit hence improving the farm performance of such a farmer. The finding confirms Anang *et al*., (2015) and Obwona (2010) that found education level of the farmers to importantly influence farm yield in Nigeria. Holding an account in any financial institution improves farms performance of the farmers in Nyandarua because the small scale farmers are able to access credit from the financial institutions and buy farm inputs such as fertilizer, chemicals, quality seeds and hire tractors to prepare and even labourers leading to more yield per hectare. From the above findings it is evidenced that access to capital market by small scale farmers importantly influences performance of farmers in terms of crop yield in Nyandarua County.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

The section presents key summary from the study regarding the access of capital finance on performance of small scale farmers in Nyandarua County. Further, key conclusions that emanate from study findings are drawn and recommendations are articulated from study findings. Lastly, the study highlights areas for further studies

5.2 Summary of the Study

Financial access in modern economy is important in the growth of both small and medium enterprises as well as the performance of small scale farmers in various parts of the country. Agricultural sector in Kenya is very unpredictable therefore only informal and semi-informal financial institutions are playing key roles in advancing credit to small scale farmers even though they are normally unregulated by the monetary authority. These financial institutions often offer credit at higher interest rates to farmers leading to a reduction in profit margins once credit has been serviced. In Nyandarua County, the production of major food crops has been on the decline in recent past leading to food insecurity in the country as Nyandarua is one of counties that supply the country with food. A report by FAO show a consistence decline in potato production from 22 tonnes per hectare in 2010 to 9 tonnes in 2020 FAO (2020), pointing to the ever dwindling food production in Kenya. This necessitated the current study to investigate the role played by financial capital market in performance of small scale farmers in Nyandarua County.

The study was supported by four objectives; the first objective was to identify the influence of money market on the performance of small scale farmers in Nyandarua County, secondly, to evaluate the influence of cost of credit on the performance of

small scale farmers in Nyandarua County, third was to examine the influence of the terms of credit on the performance of small scale farmers in Nyandarua County and lastly, to determine the effect of financial knowledge on access to capital finance and performance of small scale farmers in Nyandarua County. The study has shown that costs of credit, terms of credit and financial knowledge significantly influence the performance of small scale farmers in the county, while money market had insignificant influence.

The study was guided by two theories; theory of finance and growth together with theory of finance and inequality, where the theory of finance and growth articulates that finance flows towards sectors or activities that have gainful undertakings while other dormant regions or undertaking are discriminated in terms of capital access.

The study employed descriptive research design with a stratified and random sampling technique to select the participants in the study. The primary data was collected using semi-structured questionnaire from 100 respondents selected. The data collected was analyzed using panel regression model in order to estimate the influence of capital finance market on performance of small scale farmers in Nyandarua County. The findings show that access to capital finance greatly influences performance of small scale farmers in Nyandarua.

5.3 Conclusion of the Study

The study sought to achieve four objectives namely; to identify the influence of money market on the performance of small scale farmers in Nyandarua County, to evaluate the influence of cost of credit on the performance of small scale farmers in Nyandarua County, to examine the influence of the terms of credit on the performance of small scale farmers in Nyandarua County and lastly, to determine the effect of

financial knowledge on access to capital finance and performance of small scale farmers in Nyandarua County.

The study concluded that terms of credit and financial knowledge positively and significantly influence access to credit and performance of small scale farmers in Nyandarua County. Terms of credit was measured by sub-variables such as repayment period and socio-demographic factors, while financial knowledge was measured by information flow and business management skills.

On the other hand, cost of credit negatively influenced access to credit and performance of small scale farmers in Nyandarua County, while money market was established to insignificantly influence the performance of small scale farmers in the region. The cost of credit was measured by rate of interest and credit processing fees while money market was measured by barrier to entry, credit demand and availability of financial services. The study also considered the influence of financial knowledge on the performance of small scale farmers and concluded that education level and holding an account with financial institutions greatly influence the performance of small scale farmers in the county.

5.4 Recommendations

The study has shown that costs of credit, terms of credit and financial knowledge importantly influence the performance of small scale farmers in the county. Other factors that influence the performance of small scale farmers are education level and account ownership.

From the findings, therefore, the study recommends that financial institutions should lower lending rates to small scale farmers to enable financial flow in order to enhance crop production and ensure food security in the county as well as in the country. Further, the financial institutions should provide credit at affordable terms by

extending repayment period to allow the farmers to harvest their produce, sale and then make repayment.

Similarly, both county and national governments should provide cheap loans to farmers to enhance food production and economic growth in the country. These cheap loans could be interest-free with a longer repayment period to eliminate barriers posted by the financial institutions. Non-governmental organizations with interest in agriculture should training farmers on the best farming practices and sources of cheap loan so as to ensure financial information flow among the small scale farmers thus facilitating credit access hence improving food production and economic growth in the county.

Both county and national governments should ensure free education to all on agricultural production at the technical college so that all are equipped with technical know-how to improve food production in the country.

Government should introduce agricultural extension officers within the agricultural zones to create awareness on the existence of market for the farms produce as this accelerates production of food crops due to ready market across the country and abroad, leading to improved economic wellbeing of the farmers.

5.5 Areas for Further Study

The study has shown that access to financial capital market significantly influence performance of small scale farmers in the county, therefore, further research should be carried out in other counties to determine which factors influence agricultural production to ensure food security and economic growth in the country at large. Further studies should also be done to determine low agricultural production even though Kenya is considered to have a well-developed financial sector to support agricultural production. Lastly, research should be done to determine the

insignificance influence of money market on the performance of small scale famers in Kenya and how it can be harnessed to increase agricultural productivity and grow the economy.

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APPENDICES

APPENDIX I: LETTER OF INTRODUCTION

Dear Sir/Madam,

ACADEMIC RESEARCH

I'm a student at Kenyatta University seeking after a Master's degree in MBA-Finance. As a prerequisite for the consummation of this course I am conducting a research project on access to capital finance and performance of small scale farms in Nyandarua County, Kenya.

I hereby request you to be a respondent in my selected sample population. I guarantee confidentiality and absolute discreteness during my information collection process; this study will be for scholastic purposes as it were.

Thank you very much in advance.

William Njui.

APPENDIX II: Questionnaire

This survey is to gather information for absolutely scholarly purposes. The review looks to research on the effects of access to capital finance on performance of small scale farms in Nyandarua County. All data will be dealt with confidentially. Please do not put any name or recognizable proof on this form. Kindly respond by ticking in the spaces provided with the responses you consider fit for these queries.

PART A: GENERAL INFORMATION

1. Please indicate your gender?
   Male [ ] Female [ ]
2. Which is your age bracket?
   Below25 Years [ ]

   35-44 Years [ ]

   45-50 Years [ ]

   Above 51[ ]
3. What is your highest education level?
   Certificate [ ] Diploma [ ] Degree [ ] Masters [ ] PhD [ ]
4. Which crop do you grow?
   Irish potatoes [ ] Cabbages [ ] Kales [ ]

   Peas [ ] Maize [ ] Others [ ]
5. Do you have an account?
   With a bank [ ] with a SACCO [ ] no bank/SACCO account [ ]

PART B: MONEY MARKETS

Below are statements related to the effect of money markets on performance of small scale farmers in Nyandarua County, Kenya, kindly respond by showing how much you concur or contradict the assertions. Use a scale of 1-5 where 1= Disagree, 2= Disagree, 3= Neutral, 4= Agree and 5= Strongly agree.

Statement	**1**	**2**	**3**	**4**	**5**
Within a walking distance there are several financial institutions in my farm location					

I can easily access credit/ loan from financial institutions to fund my small farm					
There are several options for borrowing money when I want					
Accessing credit has made my economic status better					
Lack of collateral limits my access to credit facilities					
Advancement in technology makes loan application easier and faster					

PART C: <u>COST OF CREDIT</u>

Below are statements related to the effect of cost of credit on performance of small scale farmers in Nyandarua County, Kenya. Using the same procedure in PART B above, kindly respond by filling in the boxes provided below.

Statement	**1**	**2**	**3**	**4**	**5**
Interest rates charged are favorable for profit margins from the returns gained					
Short term credits charge significant amount of interest					
Long term credits are more favorable for repayment procedures and interest rate charged					
Credit processing fee influence the decision to access credit from a particular service provider					
Legal fee is a factor considered when acquiring credit facility					
Both credit processing fees and interest rate are negotiable to suit the demand of credit facilities					

PART D: <u>TERMS OF CREDIT</u>

Below are statements related to the effect of terms of credit on performance of small scale farmers in Nyandarua County, Kenya. Using the same procedure in PART B &C above, kindly respond by filling in the boxes provided below.

Statement	**1**	**2**	**3**	**4**	**5**
My income level determines the amount of credit I can access					
The financial institutions give enough time that I can make my payment					
The financial institutions have a well spread installment payment schedule					
Insufficient initial capital is a constraint I face in accessing credit					
The credit terms are good when seeking credit services					
My credit payment history is required before I am considered for credit					

PART E: <u>FINANCIAL KNOWLEDGE</u>

Below are statements related to the effect of financial knowledge on performance of small scale farmers in Nyandarua County, Kenya. Using the same procedure in PART B, C&D above, kindly respond by filling in the boxes provided below.

Statement	**1**	**2**	**3**	**4**	**5**
I make strategic investment decisions using financial knowledge					
Through financial education I can evaluate financial products to manage my debt properly					
I have created a saving plan					
I meet my financial obligations through wise planning					
I am able to compare bank accounts					
I can make optimal decisions on credit and loan options					

PART F: PERFORMANCE OF SMALL SCALE FARMS

Below are statements related to the performance of small scale farmers in Nyandarua County, Kenya. Using the same procedure in PART B, C, D & E above, kindly respond by filling in the boxes provided below**.**

Statement	**1**	**2**	**3**	**4**	**5**
There has been increased production due to the access to credits/ loans					
Revenue has been on a rise due to accessibility of finances					
Sales turnover has been on a rise due to financial accessibility of loans					
Profitability levels have been improving since the inception of credit financing in the small scale farming					

Thank you very much for finding time to participate in this process.

APPENDIX III: NACOSTI LICENSE

NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY & INNOVATION

Ref No: 265296

Date of Issue: 07/September/2022

RESEARCH LICENSE

This is to Certify that Mr William Njui of Kenyatta University, has been licensed to conduct research in Nyandarua on the topic: ACCESS TO CAPITAL FINANCE AND PERFORMANCE OF SMALL SCALE FARMS IN NYANDARUA COUNTY, KENYA
for the period ending : 07/September/2023.

License No: **NACOSTI/P/22/20113**
Applicant Identification Number: **265296**

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APPENDIX IV: Distribution of Nyandarua Population by Sex and Sub-County

Table 3.1: Distribution of Nyandarua Population by Sex and Sub-County. Source: KNPHC, 2019

	Male	**Female**	**Intersex**	**Total**
Kinangop	54,727	56,679	4	111,410
Nyandarua South	46,157	47,708	5	93,870
Mirangine	33,447	33,766	1	67,214
Kipipiri	46,113	47,740	2	93,855
Nyandarua Central	37,329	37,931	2	75,262
Nyandarua West	48,752	49,209	4	97,965
Nyandarua North	48,486	50,210	2	98,698
Total	**315,011**	**323,243**	**20**	**638,274**