Assessment of access and use of credit amongst smallholder farmers in the Capricorn District Municipality, of Limpopo Province in South Africa.

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DECLARATION

I, Moloko Lovedelia Motlhatlhana, hereby declare that this dissertation for the Masters degree in Agricultural Economics (MSAEC) at the University of Venda hereby submitted by me, has not been submitted previously for a degree at this or any other university, that it is my own work in design and in execution, and that all reference material contained therein has been duly acknowledged.

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DEDICATION

I dedicate this dissertation to the Great Almighty who made it possible for me to finish the dissertation. I also dedicate it to my daughter, parents, siblings, my husband and my grandparents.

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ABSTRACT

In South Africa, among other things, lack of finance is one of the fundamental problems hampering production, productivity and income of smallholder farmers. Pre and post 1994 South Africa witnessed a number of initiatives that were established to extend financial assistance to the smallholder farmers. The study was pursued to ascertain factors that affect smallholder farmer's access to formal credit sources in the Capricorn District Municipality and also determine the impact of government programmes that are aimed at enhancing access to credit by smallholder farmers. A stratified and quota sampling methods were employed to select 250 smallholder farmers in the Capricorn District Municipality. Structured questionnaires were developed, pre-tested and used for collecting qualitative data for the study from the sampled smallholder farmers. Face to face interviews and field observations were held to generate qualitative data. The data collected was analysed using descriptive statistics. A logistic regression model was run to determine the factors that influence an individual's ability to access credit from formal or informal financial institutions.

The results of the study indicate that 84 (33.6%) of the sampled smallholder farmers were formal and informal credit users, whereas the remaining 166 (66.4%) were non-credit users. Of the respondents who accessed credit, 36.9% did access the credit through government programmes whereas the remaining large proportion (63.1%) failed to access the resource. This finding implies that there are challenges in terms of implementing the programmes to benefit target clients. It was also found that access to credit to female headed households is still limited. From the empirical results factors such as: lending procedures, repayment period, attitude towards risk, need for credit, distance between a borrower and lender, extension contact and value of farm assets were highly significant in influencing access to credit as evidenced by the model output. Therefore, policy aimed to accelerate agricultural development in the study area could be successful if these factors are taken into consideration in order to improve access to credit from the formal financial sources. The results also suggests that the government programmes aimed at enhancing access to credit by the smallholder farmers are dominated by defaults and they are of serious concern to the farmers in the study area. The study recommend as follows:

- *Initiation of policies to provide an enabling environment for increased female participation*
- *Clear outline of services provided by farmers' associations*
- *Assessment of effectiveness of smallholder farming*

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ACB	Agricultural Credit Board
Agri-BEE	Agricultural Black Economic Empowerment
CBFOs	Community –Based Financial Organizations
CDM	Capricorn District Municipality
DBSA	Development Bank of Southern Africa
DLA	Department of Land Affairs
DTI	Department of Trade and Industry
FAO	Food and Agriculture Organisation
GGP	Gross Geographic Product
LDA	Limpopo Department of Agriculture
LRAD	Land Redistribution for Agricultural Development
MAFISA	Micro Finance Institutions of South Africa
MALA	Ministries of Agriculture and Land Affairs
MERECAS	Mechanization Revolving Credit Access Scheme
MFIs	Micro finance Institutions
NDA	National Department of Agriculture
NGOs	Non-Governmental Organisations
NLC	National Land Committee
OECD	Organisation for Economic Co-operation and Development
PDFCs	Provincial Development Finance Corporation
PDIs	Previously Disadvantaged Individuals
PWAL	Promoting Women's Access to Land
RCBs	Rural and Community Banks
ROSCAs	Rotating Savings and Credit Associations
SAMAF	South African Micro- Finance Apex Fund

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SMMEs	Small, Micro and Medium Enterprises
SPSS	Statistical Package for Social Science
STATSSA	Statistics South Africa

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CHAPTER 1

INTRODUCTION

1.1. Introduction

Access to credit by smallholder farmers in the developing countries is predominantly disappointing. Smallholder farmers have insufficient access to credit due to their demographic characteristics. Access to credit will improve the agricultural productivity of the smallholder farmers and will enable them to produce on sustainable basis and thus contribute towards food security. Credit will also assist the smallholder farmers to invest in highly profitable endeavors and improve their livelihoods. Various studies in the Developing Countries have been carried out, investigating what are the factors influencing access to credit by smallholder farmers and the findings were that even though various initiatives were introduced to improve the situation, smallholder farmers still have insufficient access to credit due to their demographic characteristics.

This chapter presents the background of the smallholder farmers' history and current situation in terms of access to agricultural credit in Developing Countries and South Africa. Thereafter, covers the statement of research problem, research objectives, justification of the study, research hypothesis, research questions, conceptualization of the study, and limitations of the study as well as organization of the study.

1.2. Background

In many developing countries such as Botswana, Mozambique and Ethiopia, access to credit for smallholder farmers has been burdensome for many decades (Manganhele, 2010). Kula and Farmer (2004) supports this view by indicating that even before the actual financial crisis "most of the over one billion smallholder farmers worldwide and many of the rural entrepreneurs of the developing world had minimal access to financial service". However, Jama and Pizarro (2008) argue that "for instance a successful input credit system in the smallholder sector, could have an important payoff for poverty alleviation. In many developing countries banks tend to advance loans/ credit only to those who offer lower risk and better collateral, which implies that only the rich receive loans at cheaper rates and leaving the small and poor borrowers to seek loans from the unorganized credit market (Mohamed, 2003). For example a study conducted in Ethiopia by Yehuala (2008) on the determinants of smallholder farmers' access to formal credit indicates that the majority of the rural households do not have access to credit from formal credit institutions. Generally, smallholder

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farmers rely on informal lenders to fulfill their credit needs even though they are provided as small loan for a short period especially for consumption. Furthermore, when credit is requested for purchasing farm equipment and other agricultural inputs, including the introduction of modern irrigation system and other technological developments, access to it becomes a serious concern for smallholder farmers (Mohamed, 2003).

Hence in the Republic of South Africa, historically agriculture has been operating along two parallel structures having little or no formal links between each other. The first structure (dubbed the first economy) served the commercial agriculture and was predominantly for the white community, while the other (second economy) served subsistence farming, typically an informal system found within the black communities (Zeller, 2001). The first structure largely funded by the formal banking sector - is a modern and sophisticated sector that serves the economic needs of the commercial agricultural sector while on the other hand the second economy is highly dependent on the informal micro lending sector (Zeller, 2001).

Smallholder farmers are characterized by small holdings of land, poor soils and farming under unfavorable climates. The majorities of these farmers have little capital and lack access to financial institutions for inputs and markets for the disposal of their produce. Most of the farmers are poor elderly women, with low levels of educational achievements. Management and decision making skills are poor due to lack of access to information and training (Tripp and Longley, 2006).

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The agricultural sector in South Africa is categorized in a generalized statistical analysis wherein the farmers are categorized according to their resources and contribution to national food production as presented in Figure 1.1 below. Figure 1.1 below shows that the majority (56%) of the farmers are smallholder farmers hence they face challenges of not accessing credit. Therefore this study will focus on the factors that influence accessibility of the smallholder farmers to credit and also make some recommendations on how the policies and micro lending schemes can be in a better position to service the smallholder farmers. According to Machethe (2004), pre-1994 and post-1994 a number of initiatives were established in order to render financial assistance to the farmers but presently the smallholder farmers are still not catered for by the micro lending schemes such as MAFISA and other initiatives. Therefore this study will investigate the socio-economic factors affecting access to credit by smallholder farmers and what made the government interventions fail to improve access to credit by smallholder farmers. The study will also give recommendations in order to guide the policy makers to enhance a paradigm shifts in terms of advancing credit to smallholder farmers.

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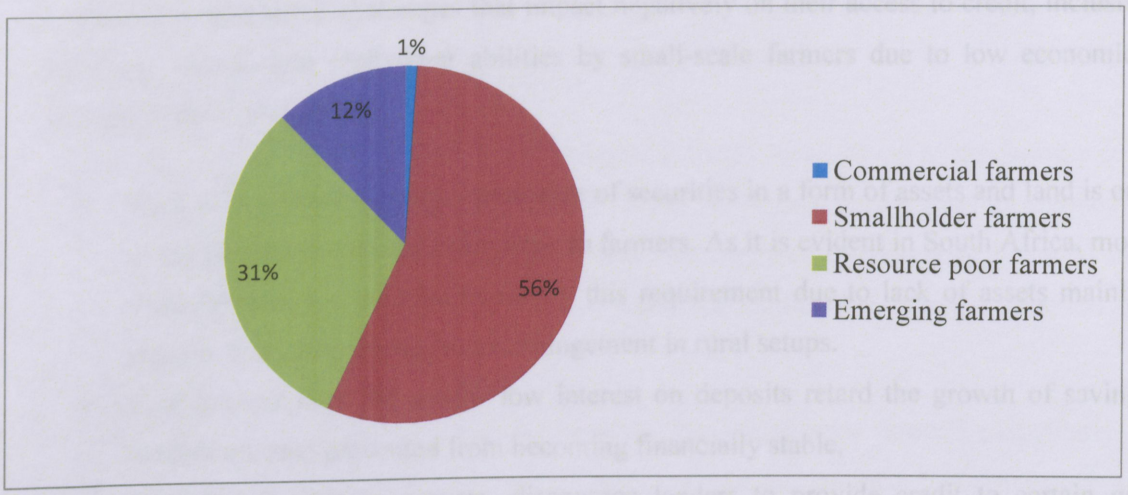


Figure 1.1: Proportion of the farming sector in South Africa
Source: Limpopo Department of Agriculture (LDA_a) (2008)

In Limpopo Province smallholder farmers are scattered in rural areas of the former homelands under various tribal authorities which were sparsely cultivated in the pre-democratic era. This was confirmed by Coetzee (1995) who observed that most of the land in tribal land lied fallow after support programmes funded by homeland governments fell away. The result has been less subsistence cultivation, increased reliance on welfare grants and unprecedented migration to urban areas.

Despite the above challenges and observation that small-scale farmers are regarded as farmers operating in "traditional agriculture", using the same "old aged" technologies, they are generally efficient in their resource use (Muhumuza, 2002). Conversion from traditional farming practices to commercial enterprises will be highly dependent on the extent to which subsistent farmers grab the notion of viable economic opportunities that are perceived as being rewarding to farmers. The small-scale farmers in traditional agriculture will significantly be capable of making economic rational decisions if the technical and economic constraints they are faced with are removed. These constraints include adoption of new technologies, access to price incentives, supporting infrastructure and finance or credit which forms the basis of the study (Tripp and Longley, 2006).

Over the years, the new democratic government in South Africa has been pivotal in creating an enabling environment for assisting the smallholder farming sector, notably programmes such as MAFISA and Agri-BEE. Another positive strategy towards addressing the plight of smallholder farmers was extending access of services rendered by the Land Bank and the Development Bank of Southern Africa to this sector (Coetzee, 1995).

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However as Klein *et al*., (1999) and Spio (2002) have shown, the smallholder farming sector experience a number of challenges that impact negatively on their access to credit, inclusive of the following: insufficient repayment abilities by small-scale farmers due to low economic returns realized in their productions.

- Lack of collateral security – provision of securities in a form of assets and land is one of the major conditions of credit provision to farmers. As it is evident in South Africa, most small-scale farmers are not able to satisfy this requirement due to lack of assets mainly due to poverty and unfavorable tenure arrangement in rural setups.
- Low interest rates for credit- low interest on deposits retard the growth of savings while lenders are also prevented from becoming financially stable,
- High loan transactions costs -discourage lenders to provide credit to certain groups of farmers, notably small-scale counterparts,
- The cost of borrowing- including the risk of failing to obtain credit or obtaining it too late. In most cases the cost related to credit borrowing is larger than the normal interest repayment, and
- Delays for loan acquisitions from public agencies - this is due to the complicated and time consuming operating procedures of government as a credit provider (late approvals).

According to Manganhele (2010), provision of credit services to the farmers and micro-agribusinesses will eventually assist them to move away from a low investment trap. It will also provide them with opportunities to eventually increase their productivity and actually generation of own capital investments. Other advantages of access to efficient credit or financial services are:

- Sustainability of the farming sector, through greater market integration and access,
- An increase in the productivity of available resources and thus improved efficiency in their allocation,
- Increased flow of savings and investment within the farming sector and thus making remarkable contributions to faster economic growth, and
- Improved income distribution by availing resources to poor farmers.

The potential for a sustainable agricultural sector in the Capricorn District of Limpopo Province, South Africa, deeply lies on the supply and demand for financial services by smallholder farmers which will increase the overall pace of investment and development. As Zeller (2001) has also

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reflected, this will be the case only if barriers and constraints limiting access to financial services by small-scale farming population are reduced.

1.3 Statement of the Research Problem

The past apartheid policies associated with socio-economic development of the farming community created structural imbalances in society, particularly its impact on the disempowerment of rural communities. During that era financial institutions concentrated on allocating financial services to the white commercial farming sector and sidelining the smallholder, emerging and resource poor farming sector (Mohamed, 2003).

The era of the new democracy brought hope to the smallholder farmers particularly with the establishment of credit programmes which were seen as the solution for sustainable impact on agricultural production challenges as well as for low productivity and poverty in rural areas. These developments were also meant to encourage smallholder farmers not only to adopt new technologies but also to be important players in accessing requisite credit to improve their productivities.

Despite government intervention in overcoming the challenges of access to credit, smallholder farmers in the Capricorn District Municipality (CDM) are still struggling to access credit from formal and informal credit markets because most of the interventions are supply-led and have requirements that cannot be met by the smallholder farmers. Therefore the study will investigate on the factors influencing the access to credit by the smallholder farmers in the CDM, and evaluate the impact made by the government programmes introduced currently in terms of credit allocation to the farmers and probably come up with recommendations on better strategies for accessing financial markets by the smallholder farming sector.

1.4 Justification

Over the years credit programmes directed at smallholder farmers resulted in distortion of financial markets and thus reduced the products and services that the smallholder, emerging agribusinesses and resource poor could obtain. The problem of limited financial services continue to exist despite the fact that initiatives such as emphasis on project appraisal, relaxing collateral requirements and a conducive interest rates environment have been initiated.

It is evident that the rural poor (including smallholder farmers) have poor access to credit.Another view by Rahman (1999) has attempted to explain the existence of informal finance as simply

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residual finance, satisfying only the excess demand by those excluded from formal finance. According to this view, informal sector finance develops in response to the formal sector failures. These structural and institutional barriers only perpetuate monopoly power to the predominantly white commercial farming sector. This study would therefore want to investigate how this situation could be reversed in favour of the smallholder farming sector in the Capricorn District.

1.5 Objectives of the Study

1.5.1 Aim of the Study

The general aim of this study is to assess smallholder farmers' access and use of credit in the Capricorn District Municipality of the Limpopo Province.

1.5.2 Specific Objectives of the Study are to:

- Identify the socio-economic factors that influence accessibility of credit by smallholder farmers in the Capricorn District Municipality (age, gender, level of education, experience in farming, farm income, size of arable land, non-farm income, number of visits by agricultural extension officer and membership of farmers' association);
- Determine the access (and purpose) and the use of credit by smallholder farmers;
- Investigate the impact of credit on farm production and related activities; and
- Assess the impact of government interventions on advancing credit to the smallholder farmers.

1.6 Research Questions

- What are the socio-economic factors influencing accessibility of credit by smallholder farmers in Capricorn District Municipality?
- What is the purpose and use of credit by smallholder farmers?
- What impact does access to credit have on the farm production of smallholder farmers?
- What impact do government interventions have on advancing credit to the smallholder farmers to address their credit needs?

1.7 Hypotheses

The research is based on the following hypotheses:

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- Access to credit by smallholder farmers is limited due to their socio-economic characteristics.
- Use of credit has a positive impact on smallholder farmers' agricultural production.
- The formal and informal credit lending institutions have terms and conditions which hinder the access of credit by smallholder farmers.
- Government interventions improved access to credit by smallholder farmers

1.8 Conceptual framework for the Study

Table 1.1: Conceptual framework of the study

Objective	Research question	Research hypotheses	Data to be collected	How data was analyzed (model for each objective)
4.1. Determine the socio- economic factors that influence accessibility of credit by smallholder farmers	What are the socio-economic factors influencing accessibility of credit by smallholder farmers?	Access to credit by smallholder farmers is limited due to their socio-economic characteristics	-Demographic information -Farming activities and status -Production statistics -Farm business organization	Inferential statistics Logistic regression model
4.2. Determine access, purpose and the use of credit by smallholder farmers	What is the purpose and use of credit by smallholder farmers?	Smallholder farmers use credit for agricultural production purposes	-How credit was acquired -Where was it acquired from -How was it utilized -What is the level of satisfaction in terms of credit acquired	Descriptive statistics
4.3. Investigate the impact of credit on farm production and related activities	What impact does access to credit have on the farm of smallholder farmers?	Use of credit has a positive impact on smallholder farmers' agricultural production	-Farm experience - Extension services - Farm employees - Farm income - Value of farm assets	Descriptive statistics
4.4. Assess the impact of government interventions on advancing credit to the smallholder farmers	What impact do government interventions have on advancing credit to the smallholder farmers to address their credit needs	Government interventions improves access to credit by small-scale farmers	- How many smallholder farmers acquired credit through government initiatives -How many smallholder were granted credit by the financial markets through assistance from government initiatives -How can the financial markets evolve in order to improve accessibility of credit by smallholder farmers	Descriptive statistics

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1.9 Definition of key words

1.9.1 Smallholder farmer

The term "smallholder" is often associated with small-scale and subsistence-level family farming in resource-poor conditions operating with few purchased inputs and limited technology. Commonly, the "smallholder" label implies that one is talking about subsistence farmers, as mentioned, with low competitiveness and market orientation (Kirsten and Van Zyl, 1998). In South Africa "small-scale" is often equated with backward, non-productive, non-commercial, subsistence agriculture that we find in parts of the former homeland areas (Kirsten and Van Zyl, 1998).

In order to gain a better understanding and a clearer definition of smallholder farmers in a South African context, Kirsten and Van Zyl (1998) work on this topic serves as a good starting point. According to these scholars a smallholder farmer is one whose scale of operation is too small to attract provision of services he/she needs to be able to significantly increase his/her productivity. According to Ministries of Agriculture and Land Affairs (MALA) (1998), smallholder farmers comprise the largest group of the rural population, who are still poor, but;

- Actively trying to earn a significant part of their livelihood from farming activities; whose cultivating system is predominantly traditional (using a long-handled or short-handled African hoe); and
- Do not actively strive to produce a saleable surplus from their farming activities.

On the basis of the above, it can be concluded that small holder farmers are by far the most challenging potential client segment for the providers of financial services. Furthermore, these farmers can be seen as:

- Inexperienced in commercial farming and commercial production methods (thus inexperienced in farming with the aim to supply "formal" markets such as supermarkets on regular basis)
- Resource poor in terms of infrastructure and equipment, transport, arable land, production capital and other factors- a situation that prevents a farmer from expanding or increasing production and productivity.

According to the National Department of Agriculture (NDA, 2006), a smallholder farmer is defined as a beneficiary of one of the government's land reform programmes, or a farmer who is mainly

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dependent on the state and semi-state organizations for support and finance or as a farmer who consumes and sells some portion of the harvest. There are numerous terms used to identify smallholder farmers in South African literature due to historical, political and socioeconomic conditions. The terms "smallholder farmers", "small-scale farmers", "resource poor farmers", "emerging farmers", "subsistence farmers" or "small growers" are commonly used to refer to these farmers as opposed to "commercial farmers" or "large-scale farmers" (Kirsten and Van Zyl, 1998). Therefore the characteristics of the smallholder farmers indicated above are the possible characteristics of the smallholder farmers in the study area.

1.9.2 Commercial farmers

On the other hand, farmers producing on a large-scale are generally perceived to be commercial farmers. They are characterised by the use of modern, advanced and efficient technology for production of crops for sale and profit, although the farmers and their families may consume a small amount of what they produce. Profits are largely reinvested to improve the farm. Large-scale commercial farming implies a well-organized agribusiness with all the management structures in place (Manganhele, 2010).

1.9.3 Access to credit

Access to credit may be defined in many ways. According Fenwick and Lyne (1998), access to credit occurs when there is no non-price or credit rationing. Credit rationing can be defined as a restriction of credit availability: the restriction or refusal of access to credit, even when the applicant is willing to pay more than existing comparable borrowers, he/she cannot obtain the credit required.

In the above case, access to credit is defined to include availability of finance (when needed/desired, convenience, continuity and flexibility are guaranteed) and willingness to pay the price of a loan. Therefore, access to credit can be defined as a situation in which a borrower is able to obtain some amount of capital, regardless of his/her willingness to pay higher price for credit (interest rate at which a loan is granted) from the particular source of capital, though the borrower may choose not to borrow.

1.10 Limitations of the Study

The study was based at Capricorn District of the Limpopo Province and due to different contexts of the municipalities the findings cannot be generalized for the whole province or the entire country.

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The other major limitation was that the accuracy of collected data depends on the information provided by respondents. Any error in answering the set questions will affect the results. It is worth indicating that there were difficulties in obtaining accurate financial data from the respondents due to lack of record keeping systems.

1.11 Organization of the Study

This dissertation is organized into chapters which are devoted to address different objectives of the study. Chapter 1 primarily sets out the background of the study and clarifies the meanings of some prominent terms and concepts. Also, it covers the objectives and research questions which the study sought to answer. In Chapter 2, literature on access to credit by small-scale farmers is reviewed. This lays a solid foundation for the study and discusses fundamental concepts such as access to credit legislation and how the small-scale farmers are affected by credit inaccessibility. Chapter 3 is devoted to the research methodology which was used to carry out the study. The methodology encompasses research design, sampling techniques and data analysis procedures. Chapter 4 is the empirical and descriptive results as well as the discussions, followed by chapter 5 which presents the summary of the study, recommendations based on the findings and conclusion. References and appendix are included after chapter 5.

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CHAPTER 2
LITERATURE REVIEW

2.1. Introduction

Many studies have been carried out resulting in considerable volumes of literature relating to insufficient access to credit by smallholder farmers. For example, several studies tried to analyse the factors that determine the access to credit by smallholder farmers focussing on various government interventions that were introduced to enhance access to credit. This chapter will provide the characteristics of the smallholder farmers in order to determine correlations between the characteristics they portray and their access to credit. Literature on government interventions that have been introduced and loopholes in terms of implementing such programmes will also be covered. The conceptual framework of factors influencing access to creditis also covered. Some aspects and concepts related to smallholder farmers' access to credit are more generalised, hence more site specific studies need to be conducted in order to draw conclusions and interpretations that are targeted to specific groups.

This chapter also presents a review of literature in line with the study objectives. Firstly, it will cover an overview of access to credit by smallholder farmers in developing countries and South Africa. Secondly, it will look into the government interventions which were introduced together with the legislative framework that creates an enabling environment for the smallholder farmers. The chapter will also look into the biographic characteristics and constraints faced by smallholder farmers, the legislative framework, government initiatives to enhance access to credit, the determinants of access to credit, the impact of farming credit and the characteristics of financial institutions. Information that the study sought to cover, namely the lack of empirically generated information on access to credit by smallholder farmers in the Capricorn District Municipality of Limpopo Province in South Africa, is considered. A summary of the key results of the review marks the end of Chapter 2.

2.2. Overview of Access to Credit in other Developing Countries and South Africa

Credit is an important instrument for improving the welfare of the poor directly through consumption smoothening that reduces their vulnerability to short-term income. It also enhances productive capacity of the poor through financing investment in their human and physical capital (Okurut *et al*., 2004).

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Access to credit is therefore regarded as one of the elements in raising agricultural productivity (Development Bank of Southern Africa (DBSA), 2005). Generally, developing countries established parastatal institution with the aim of channelling credit to small-scale farmers (Machethe, 2004). The failure of seasonal credit provision has been identified as a constraint on growth in smallholder agriculture in much of Africa. Subsistence producers are unable to access finance from commercial and interlocking lenders, while informal and micro finance arrangements are not suited to financing seasonal crop inputs (Dorward *et al.*, 1998).

Many empirical studies held in Africa also emphasis on the insufficient access of credit by smallholder farmers, for example, Mohamed (2003) found that very few smallholder farmers and rural micro entrepreneurs have been integrated into formal markets and many do not use the credit or if they do, they continue to borrow from informal market lenders. Therefore, access to credit by smallholder farmers in many African countries is rather disappointing. The study by Gonzalez-Vega (1994), cited by Mohamed, (2003) also reports that only a fraction of farmers in developing countries have received formal credit and usually in small quantities. Statistics estimate that only 15 percent of the farmers in Asia and Latin America and just 5 percent in Africa are financed through formal credit sources.

In Tanzania, credit provided by formal financial sources meets only a small portion of the total credit demand of the agricultural sector this was confirmed by a study conducted by Krain (1998) cited by Mohamed (2003). For example, formal sources in Zanzibar accounted for only 9.9 percent of the total credit available to the agricultural sector. The remaining 90.1 percent was from informal financial sources. Furthermore, a study by Nguthi (2007) conducted in Kenya found that, only 16 percent of the smallholder farmers accessed credit and the majority of households had no access to credit due to lack of collateral to secure their loans which could be sourced from banks. Therefore, in many developing countries, millions of low income entrepreneurs still do not have access to formal and semi- formal financial services that would allow them to increase their productivity and alleviate their poverty conditions.

According to Zeller (2001), South Africa has a dual agricultural economy, with both well-developed commercial farming and subsistence farming in the remote rural areas. Majority of this subsistence farmers are not part of the mainstream agriculture and practice subsistence agriculture in the overcrowded semi-arid areas in the former homelands. Subsistence farming is characterised

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by low production, poor access to land, poor access to inputs, infrastructure, information and most importantly poor access to credit for production requisites.

During the homeland era and immediately after democracy was achieved in South Africa black emerging farmers were served by the Provincial Development Finance Corporations (PDFCs) such as Ithala Development Finance Corporation in KwaZulu Natal province, Agriwane, the Agricultural Development banks of Ciskei and Transkei, Agribank of the North West Province, Gazankulu Development Finance Corporation, Lebowa Development Finance Corporation and Uvimba Finance Corporation in the Eastern Cape. However, the evaluations of the PDFCs' show that their outreach to the relevant targeted clients (smallholder farmers) was poor and their costs were extremely high (Catling and Saaiman, 1996).

Community-based financial organizations (CBFOs) were also popular in rural areas and user ownedand operated groups that provide mainly saving and lending services that also offered other financial services such as insurance. These independent organizations were based in local communities, under local governance and management (Murray and Rosenberg, 2006). CBFOs range in size. They can take the form of informal and unregistered groups of five to seven people, usually women, who save small amounts of money that they then lend to each other and possibly to other members of the community. The CBFOs also include larger, slightly more formal groups of up to 40 people who have written by-laws, and they include small financial cooperatives. CBFOs flourish among people who have poor access to banks and nonbank financial institutions such as microfinance institutions (MFIs). Although MFIs formed over the past four decades have made significant inroads into availing financial services to the unbanked poor, they have not, for the most part been able to reach the poorest people, especially those who live in remote rural areas. The poorest are able to save and borrow only very small amounts of money, making it too costly for banks and MFIs to serve them (Ritchie, 2007).

Ritchie (2007) shows that in many developing countries such as Uganda, locally organized CBFOs, such as rotating savings and credit associations (ROSCAs), have served as financial intermediaries for their communities for generations. ROSCA members save a predetermined amount of money regularly. In each period, one member of the ROSCA receives the funds collected. ROSCAs thus allow people to accumulate, through small regular savings, a large lump sum that is available for investments, such as creation or expansion of small businesses, children's education, and home improvement. The main drawback of ROSCAs is that the money may not be available when needed

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because only one member collects the funds at a time. Coetzee (2007) added that the traditional sources of credit for the small and micro-enterprises in the rural areas include ROSCAs, relatives and friends, village banks, private money lenders and/or local business people.

According to Nair and Fissha (2010), in other African developing countries such as Ghana, rural farmers had previously no access to institutional credit for farm and non-farm activities, and in many rural communities, secure, safe, and convenient savings and payment facilities hardly existed. In response to this situation, the government of Ghana took several measures to increase access to credit in rural areas, including facilitating the establishment of rural and community banks (RCBs). As a network, RCBs are the largest providers of formal financial services in Ghana's rural areas. Between 1989 and 1994 the government of Ghana, with the support of the World Bank, also implemented the Rural Finance Project, aimed at providing targeted support to the RCBs. The project contributed to an improvement in RCB performance. Nevertheless, several RCBs remained successful although the service delivery performance of the RCB network has been strong; its financial performance has been mixed. The profitability and net worth of the network have grown, but the financial performance of some members has been poor, and a small number of RCBs are insolvent.

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In many developing countries the parastatals were established in order to synchronise and channel the credit to the farmers. Despite several such interventions the challenge of inaccessibility of credit by small-scale farmers still persists. Similarly, in South Africa, the Land and Agricultural Bank of South Africa (Land Bank) and the Agricultural Credit Board were established to serve commercial farmers with selected small-scale farmers served by parastatals in the former homelands. The collapse of such parastatals left small-scale farmers without access to credit services, while the Land Bank's mandate was broadened to accommodate those previously excluded from its services, the bank continued to concentrate on lending to established commercial farmers (Catling and Saaiman, 1996).

2.3 Legislative framework and Government Interventions to improve access to credit in South Africa

Effective and widespread financial services are essential for agricultural development in any country. At present in South Africa, such financial services are inaccessible to large numbers of smallholder and resource-poor farmers. These farmers are therefore dependent on family loans and other informal means of saving and borrowing, none of which is able to provide the level and

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reliability of finance required for seasonal requirements or longer-term farm investment loans (Klein *et al.*, 1999).

According to Manganhele (2010), the role of the government in promoting the availability of financial services is twofold:

- To seek ways of addressing the difficulties faced by small scale and resource-poor farmers in obtaining access to formal financial markets. This includes the difficulties faced by lenders in providing such services in areas of relatively low individual capital demand and high transaction costs.
- To ensure that measures which assist poorer farmers to gain access to credit and other financial services do not inhibit the development of commercial, competitive financial services in the rural areas.

The challenge with the previous government interventions was that they were supply- led and used target and credit quotas that pushed financial institutions through the frontiers at a faster rate than they would have taken. These resulted in bad loans because the approach used did not address the challenges that made the lenders reluctant to advance loans voluntarily (Klein *et al.*, 1999). Therefore, government introduced a number of interventions and policies which are as follows:

2.3.1 Agricultural Credit Board, Land Bank and Micro credit schemes

In the past, according to the Organisation for Economic Cooperation and Development (OECD) (2006) the South African Government established the Agricultural Credit Board (ACB) before 1994 to cater for the resources and debt needs of the weaker commercial farmers and provided credit below the market rates. It was funded by the agricultural credit fund which was replenished annually from the Department of Agriculture's budget. The accompanying Act provided for a system of assistance to persons carrying on or undertaking to carry on farming operations, and for control in respect of assistance rendered. In line with the recommendations of the Strauss Commission, the ACB was closed in 1997.

The South African Land and Agricultural Bank (Land Bank) was initially involved in lending to agriculture with its main clients being white owned cooperatives, commodity organisations, marketing boards and private farmers. The bank is an established institution (since 1912) with a long, and in terms of its past mandate, successful track record of lending to commercial farmers (Land Bank., 1998).

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After the liquidation of ACB, the Strauss Commission also proposed that the Land Bank be the leading implementing institution with respect to agricultural finance (OECD, 2006). The Land Bank is somewhat akin to institutions recently established by the Department of Trade and Industry (DTI) and the Department of Housing to serve clients in their respective sectors, i.e. with regard to small, micro and medium-scale enterprises (SMMEs) and housing. Each Department has established a wholesale financial institution charged with the design of appropriate programmes and instruments to improve access to finance for SMMEs and low cost housing, respectively (Land bank, 1999).

The new role of the Land Bank was introduced and it is governed by the Land and Agribusiness Development Act of 2002 (15 of 2001) (OECD, 2006). This act formed the basis for continued existence of the Land Bank but with a renewed focus on providing financial services to promote and facilitate "equitable" ownership of land, in particular to lend money to the increase in ownership of agricultural land by previously disadvantaged individuals (PDIs) (OECD, 2006). As part of its targeting of small-scale farmers, the bank came up with a strategy to provide a range of financial products at special interest rates for these individuals. For example, smallholder farmers who want to buy farm land for the first time apply for a special loan product and borrow up to 80% of the market value of the land, at a special interest rate of 10% for two years (OECD, 2006). The Land Bank also provided incentives such as discounts on existing and new loans to the clients categorized as previously disadvantaged individuals (PDIs). Despite its successful strategy, the bank has not been particularly able to provide financial services to the increasing number of smallholder farmers who established their businesses during the land reform era (OECD, 2006).

In an attempt to reduce the costs of default to the Land Bank in South Africa, the Land and Agricultural Development Bank Act 15 was passed in June 2002. The Act allowed the Land Bank to claim all the income of any farmer who falls into arrears with it (arguably disadvantaging commercial banks and other credit agencies when a borrower defaults). Under the Act, commercial farmers would need to get written consent from the Land Bank before they disposed produce it had financed. Farmers may also not transfer property encumbered with a loan for farm improvements without a certificate from the Land Bank. However, the new Act also requires the Land Bank (like all other creditors) to seek judgements from a court of law and sell assets or rights in accordance with section 33 of the Act 15 of 2002 (Land Bank, 2003).

The success of these and other policy initiatives, depend on the reasons for defaults on loans. These may include the fact that some borrowers are unable to repay loans, or never intended to repay their loans (as often happens when loans are provided by government agencies or developmental

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organisations) or because the techniques used to encourage repayment are defective (Adams and Vogel 1986). Adams and Vogel (1986) further argues that experiences in Costa Rica suggest that the techniques lenders used to encourage payment play a crucial role meaning there must be substantial costs for the borrower in case of default (appropriation of collateral) and significant benefits for repayment (possibility of bigger loans in the future, possibly at lower interest rates).

The other intervention introduced by government is the micro credit schemes (implemented either by state agencies, commercial banks or development agencies) that extend small, collateral free loans to poor members of rural societies in an attempt to promote self employment and income generation (Rahman, 1999). According to Rahman (1999), during the 1990s micro-finance programmes increased numerically as a result of perceived successes (mostly in Asia and Latin America) in providing the rural poor with access to credit. By the year 1997, 8 million poor people in developing countries were being served by micro credit programmes (Rahman, 1999). The micro financing industry also appears to be playing a stronger role "in the social and economic empowerment of the poor and disadvantaged" recommendations to improve rural financial services.

In South Africa, micro financiers have "played an enormous role in making millions of people part of the growing South Africa" by lending loans to the so called "unbankable" citizens. Hence, the South African Land and Agricultural Bank has developed a micro credit scheme, primarily to provide credit to impoverished women (Dolny, 2001). The Land Bank micro credit programme, named "Step up", mainly provides small loans to individuals who require credit for small-scale operations such as vegetable gardens, and can be regarded as successful. Clients are awarded a maximum amount of R250, but qualify for a bigger loan on repayment (Dolny, 2001). In 1998, there were 32 000 Step-up clients and 70% were women (Land Bank, 1998), and the repayment rate in 1999 was 87%. By the year 2003, the Step up" programme had made more than R300 million available to approximately 130 000 borrowers "who were previously regarded as unbankable" (Land bank, 2003).

Rahman's 42nd study on the "successes" of the micro credit programme of the Grameen Bank in Bangladesh, indicates that micro credit schemes can results in an increase in the debt liability of individual households (i.e. impoverishing households) and increase tension within households and consequently, increase violence against women (Rahman, 1999). Rahman (1999) also provides the experiences of a female farmer, Dilu (like many others), who obtained a loan from the Grameen Bank with a purpose of increasing agricultural production. However, she could not generate enough profit to pay her instalments due to low yields and consequently, she borrowed money from

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moneylenders to do so. Dilu was rewarded for repayment by the bank with additional larger loans, which, in turn, were used to pay back the moneylenders. As a result, the household was indebted without any increase in the overall household income (Rahman, 1999).

Challenges Dilu faced increased when she failed to obtain access to additional loans from the Grameen Bank and was forced to seek wage-labour in Malaysia to continue to repay the debts incurred. Evidence from Bangladesh and elsewhere were also cited by Rahman (1999), were the interest rates of micro-credit schemes were significantly higher (approximately 8% in Bangladesh) than commercial market rates. That study also indicated that individual members of households are sometimes forced into low paying wage labour or forced to obtain loans from other credit intermediaries (e.g. moneylenders) in order to pay back loans from micro-credit schemes (Rahman, 1999). This shortfall can be explained by the criteria for success employed in assessing micro credit schemes. Generally, micro-credit schemes are considered successful if repayment rates are high. Repayment rates, however, do not reflect whether credit was used to meet household consumption needs or for productive purposes and does not take account of the manner in which funds for repayment are obtained.

In South Africa, the Micro Finance Regulatory Council has (as its name implies) made several attempts to regulate the micro lending industry (this includes investigations of micro lenders not registered with the Council). In 2001, the Micro Finance Regulatory Council established the National Loans Register and, in June 2002 introduced a rule to prohibit "reckless lending" which means lending that exceed borrowers capacity to repay, and to restraint increasing "over indebtedness" (Micro Finance Regulatory Council, 2004). In terms of the National Loans Register, micro lenders are obliged to submit all loans to the National Loans Register, thereby building-up a database of micro loans. By the year 2002, 732 lenders were "fully engaged" in the National Loans Register, whereas 1 640 micro lenders were registered with the Council. Many of the most successful micro credit programmes have been built on extensive donor finance, raising questions around future sustainability. In other words, can problems of intense poverty be solved by temporary capital injections or do solutions require a fundamental transformation of the social, economic and political power (Micro finance regulatory council, 2004)?

2.3.2 Agricultural debt management Act and MAFISA

The Agricultural Debt Management Act (45 of 2001) replaces the Agricultural Credit Act (28 of 1966) (OECD, 2006). The new act deals with collection, management and disbursement of

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agricultural debt (primarily loans) granted by the former agricultural credit board (ACB). After liquidation of ACB, the outstanding debt of farmers was around R1.1 billion which declined to R680 million in 2005 with R1.1 million accumulated in the account (OECD, 2006).

The legislation in 2005 enabled the government to reinvest the monies collected in the agricultural sector (OECD, 2006). The Department of Trade and Industry presented a new Micro Finance Apex Fund (SAMAF) which provides seed capital, wholesale finance, and institutional development support to micro credit programs in the second economy. It is from these funds that the Micro Agricultural Finance Scheme of South Africa (MAFISA) was established with R150 million in 2005 to provide micro credit to smallholder farmers (National Department of Agriculture (NDA), 2006). MAFISA was an established state owned scheme to provide micro and retail agricultural financial services on a large, accessible, cost effective and sustainable basis in the rural areas. It provided capital to support agricultural activities in the communal areas as well as other small scale farmers. MAFISA was therefore not only established to address the needs of smallholder farmers in terms of access to credit but also to overcome shortfalls realised in the previous legislation such as the ACB (OECD, 2006).

2.3.3 Other government initiatives

This section is to present a brief description of some of the supporting programmes and policies that have been established in the LDA to assist smallholder farmers.

i. Mechanisation Revolving Credit Access Scheme (MERECAS)

The LDA has established the MERECAS policy, which aims to assist smallholder farmers with the acquisition of mechanisation. According to Limpopo Department of Agriculture (LDA_b) (2008) Limpopo has over 39 000 hectares of irrigated land and over 600 000 hectares of dry land and less than 40% of this land is being optimally farmed. Therefore a tractor survey in the Limpopo Province revealed that only around 400 tractors are within reach of the smallholder farmers but most have dilapidated mechanical conditions. Hence, the implementations of MERECAS programme to assist the poorly resourced farmers with mechanisation.

The MERECAS policy is a subsidy which is provided to the previously disadvantaged farmers as to enable them to purchase tractors and the implements such as planters and ploughs. Through this policy, the LDA subsidises farmers with 50% of the purchasing price of the mechanisation. In the 2008/2009 financial year, 110 farmers benefited from a budget of R18 million. Out of this 110 of

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farmers benefited, 61% were commercial farmers who managed to make own contribute of 50% cash, whilst the remaining 39% were able to able to access finance from ABSA bank by virtue of collateral. Although the main objective of the programme was to assist the previously disadvantaged smallholder farmers, this objective has not been met, since the majority of farmers who benefited from the programme are commercial farmers.

The majority of poor farmers in communal lands are excluded from the programme because they do not have collateral, even though they qualify for the 50% grant from the programme but they do not qualify for the other 50% from the financier ABSA bank. International experience has shown that if the government intervenes directly to assist the poor through subsidised credit, more often such credit fails to reach the targeted beneficiaries. In Tanzania during the year 1985, a pilot project was introduced whereby private individuals as well as villagers and cooperatives, were allowed to own tractors on credit basis. But owners were required to make a down-payment on each tractor purchased, equal to half the value of tractor. This resulted in tractor ownership being limited to a wealthy minority (Ishuza, 1991; cited by Baloyi, 2008).

ii. Land Redistribution for Agricultural Development (LRAD)

The land access programmes are all part of the Land Redistribution for Agricultural Development (LRAD) programme. LRAD was designed to help the previously disadvantaged smallholder farmers to acquire land and/or agricultural implements specifically for agricultural purposes (Limpopo Department Agriculture (LDA_b), 2008). The programme was initiated in the year 2000 because most of the previously disadvantaged individuals do not have sufficient money to purchase land for agricultural purposes. Therefore the LRAD was then established in order to supplement what the farmers already have for purchasing land.

Even though LRAD is in a form of a grant, the farmers are still expected to make own contributions either in kind or cash (Limpopo Department of Agriculture (LDA_b), 2008). For example, there is a number of ways in which own contributions can be made,

- Cash contribution an applicant can contribute from a minimum of R5 000, which will qualify for a matching grant of R20 000 up to a maximum of R400 000 which will in turn qualify for a matching grant amount of R100 000.

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- Contribution in kind there are a number of ways you can contribute in kind, viz. property, machinery, equipment and livestock. These will be equated to their current cash value and the total amount then used as own contribution.
- Own labour any number of labour units will be equated to a maximum of R5 000 own contribution.

According to Lahiff *et al.*, (2008), in the Limpopo Province by the year 2005, 138 LRAD projects were approved. These totals included projects implemented by Land Bank through the DLA funds. The DLA indicated that between the years 2003 and 2004, more applications of a project mix type including more projects that intended to undertake crop production were approved. It was further indicated that most of the projects involved individuals or families gaining land whereby many of these families are reported to be reasonably wealthy, with income from businesses, jobs, pensions which contributed to reasonable levels of production on the transferred lands. Therefore it was concluded that more poor resourced farmers were not catered for because they did not meet the grant requirements due to their socioeconomic factors.

Machethe (2004) also added that access to land for production purposes is an essential requirement for the poor to enjoy the benefits of agricultural growth. The access to land was supposed to be promoted by the initiative such as LRAD but the objective of promoting smallholder agricultural development through land acquisition have not being met. Therefore, only smallholder farmers who have properties and collateral benefited from this initiative.

2.4 A review of literature in line with the study objectives

2.4.1 Characteristics and constraints facing smallholder farmers

Most smallholder farmers are located in the rural areas, particularly in the former homelands where both physical and institutional infrastructure limits their expansion. These farmers are characterised by lack of access to proper infrastructure such as roads that limits their ability to transport inputs, produce and also access to information. Delgado (1996) suggests that if infrastructure is typically poor, markets for agricultural inputs and outputs are often missing and unreliable for smallholder farmers. This means that the acquisition of agricultural resources becomes difficult and the supply of market services also becomes limited. Lack of assets, information and access to services hinders smallholder participation in potentially lucrative markets. On the other hand, it should be accepted that there are risks attached to market participation which means that the markets provide both opportunities and pressures for smallholders. Van Zyl and Binswanger (1999) on the other hand

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presents a rather gloomy picture of smallholder agriculture with respect to the former homelands of South Africa, arguing that: "the poor natural resource base and the continuous build-up of demographic pressure since the beginning of this century, through racially segmented land, commodity, input and financial markets have made the homelands 'functionally urban' or 'rural dormitories".

Delgado (1996) points out that the smallholder farmers are characterised by dependence on family members for most of the labour since their land sizes are relatively small and also lack of modern technology. This results in the farmers having limited capacity of marketing, storage and processing chains as they are vulnerable to supply. Delgado (1996) strongly argues that the tribal areas present no real opportunities for production of crops or animals for sale. Cash cropping demands land, and tribal lands are insufficient. Nor given the shortage of resources, are there significant possibilities for rural investment. Modern farming techniques are geared to production of cash returns, a proportion of which can be reinvested to expand or improve the farmer's assets. With acute shortage of land, the conditions for modern farm management are subverted.

Characteristics of the smallholder farmers compared to their counterparts are summarised below on Table 2.1. The smallholder farmers are relatively located in remote areas with land size holdings of less than 3 ha. According to Delgado (1995), the arable land per head, is a village specific variable is significantly and positively associated with the decision to keep livestock. This indicates that availability of land has a positive contribution towards the production of smallholder farmers.

Table 2.1: Summarized characteristics of smallholder farmers compared to their counterparts

Characteristics	Smallholder farmers	Commercial farmers
Location	Remote areas	Near towns or main roads
Size of land	Relatively <3Ha	>100 Ha
Infrastructure (irrigation, roads, etc.)	Poor	Good
Technology uptake	Low	High
Access to capital/credit	Little access	Moderate access
Farm income	Fair	Good (diversification)
Access to markets	Inadequate	Moderate access
Household characteristics		
Dependency ratio	High dependency ratio	Low dependency ratio
	Poor education	
Level of education		Relatively high education
Risk management capacity	Low	High

Source: Delgado, (1996)

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Delgado (1996) further added that the increase in production appears to be positively correlated with an increase in the total area planted and not necessary with an increase per unit area but smallholder farmers are characterised by smallholdings therefore it will be difficult to produce more and contribute to food security.

To elaborate further on the above table, it is evident that there are numerous constraints to smallholder agriculture and these include the following: absence of equipment to relieve labor shortages, inadequate supply of complementary inputs, insufficient human capital and inappropriate transportation infrastructure among others. In South Africa, smallholder farmers are confronted by limited access to the above inputs as well as production and marketing information (Development Bank of Southern Africa (DBSA), 2005). Hence, the mentioned constraints have influence on access to credit by the farmers.

2.4.2 Challenges regarding Access and Use of borrowed money by Smallholder farmers

Lack of access to a comprehensive set of financial options represents a potential constraint to the entrepreneurship and ability to execute socially and privately profitable investment projects. Although an increasing number of private and public agencies are involved in stimulating the efficiency of financial intermediaries targeting the poor clientele, their effectiveness in improving the poor's access to financial services, especially credit, is below expectations (Germidis *et al*., 1991). As a result the majority of small-scale farmers are left out of the rural financial system. These participants are geographically scattered, financial transactions are small and rural incomes tend to be unstable. They require small amounts of loans which are costly to administer while farming activities are risky investments because of their susceptibility to weather and external shocks. Therefore the smallholder farmers have experienced poor repayment performance (Germidis *et al*., 1991).

Furthermore, lending to smallholder farmers implies that monitoring repayment capacity and willingness to repay the loan is much more difficult. Also, uneven distribution of agricultural lending operations over the years increased the fixed costs personnel. Therefore earnings from lending activities may not be sufficient to cover these costs. The paradox is that, during periods of high seasonal demand, liquidity requirements raise the price of loanable funds while during times of low demand, excess liquidity needs to be invested in low or non-earning assets. This increases the opportunity costs of these funds which causes lenders to face high costs (Germidis *et al*., 1991).

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Hussien (2007) added that lending credit to the smallholder farmers is costly for the formal credit lenders due to the distance between them and the clients in rural areas. Consequently, the nature of the costs involved in lending to the smallholder farmers is complex and tend to be high. By implication, smallholder farmers' decision making when requesting loans from formal banks, will depend more on the proportion of the borrowing costs to the household's income, while financial institutions' willingness to lend to smallholder farmers will depend largely on the magnitude of the costs on the institutional side. The making of decision by the role players will be reflected in their unwillingness to lend and unwillingness to borrow, rather than by the real demand for agricultural credit.

In addition, lending to smallholder farmers is not only costly but also risky. Furthermore, agricultural lending institutions face many challenging risks in attempting to service smallholder farmers, particularly in rural areas. According to Klein *et al.*, (1999), there are four major types of risks involved in lending to agriculture, i.e.

- Credit or loan default risks - occur when borrowers are unable or unwilling to repay the principal loan and to service the interest rate charges;
- Liquidity risks – occur when the bank is unable to meet the cash requirements. Mismatching the term of loan assets and liability expose banks to high liquidity risks;
- Interest rate risks – if interest rate changes, a decline in the value of the loan follows; and
- Foreign exchange risks – these are determined by the exposure of the banks to changes in exchange rates, which affect international borrowings denominated in foreign currency.

The risks in agriculture impact negatively on both borrowing farmers and operating lending institutions. Although risks and uncertainties are not only persistent in agricultural production, they are much more serious than in most non farming activities. Given that production losses are impossible to predict, this leads to serious consequences for the income generation, and for the loan repayment capacity of smallholder borrowers. The type and severity of risks faced by farmers in general vary with the type of farming system, physical, economic conditions and prevailing policies (Klein *et al.*, 1999).

The seasonality of farm household income also poses more risk on lending to smallholder farmers. On the other hand, surpluses supply an increased savings capacity and an increase in demand for credit before planting. As a result, lenders face specific challenges when many or all their borrowers are affected by external factors simultaneously. For example, smallholder farmers are affected by

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production and yield risks, market and price risks and moral hazard risks stemming from a distorted credit culture and changes of risk in domestic and international policies.

Other risks that are experienced in agriculture include the following:

- Production and yield risks – These are risks that affect all the categories of farmers, but they severely impact specifically on ambitious farmers, who embark on farming activities that may generate a high potential income at the price of concentrated risks, such as those engaged in high input monoculture. Subsequent loan defaults may adversely affect the creditworthiness of farmer borrowers and their ability to secure future loans.
- Market and price risks – the relatively long period between the decision to plant a crop or to start a livestock enterprise and realization of the farming plant's output means the market prices are uncertain at the moment when a loan is granted.
- Moral hazard risks – the past unsuccessful government directed credit programmes raised the potentially serious problems of poor repayment discipline. In the case of a natural disaster such as flood or drought, borrowers who have witnessed the crisis and termination of lending institutions were discouraged from repaying their loans. The lack of repayment discipline led to agricultural lenders exposing themselves to the effect of a distorted credit culture.
- Risks of loan collateral limitations - inadequate loan collateral poses specific problems to rural lenders. Since land is fixed and not easily destroyed, it is most widely accepted as asset for use as collateral. However, smallholder farmers' work on land with limited value, or those who have it, may not only possess usufruct rights. This makes them less likely to obtain access to credit from formal institutions. Their movable assets, such as livestock and equipment are also regarded as higher risk form of security by lenders.

According to Hedden *et al.*, (2001) the poor loan appraisal systems in which different credit schemes or programmes have different loan conditions and appraisal procedures of which some are inadequate, thus allowing uneconomic enterprises to be financed. Also some people managed to secure loans and used them for other unproductive purposes other than the loan agreements leading to failure by borrowers to raise sufficient funds to meet repayment obligations (Hedden *et al.*, 2001 and Fenwick and Lyne, 1998).

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- Weak capacity: Many borrowers have weak management capacity and lack technical skills in production, marketing and financial control all of which lead to difficulties in servicing their loans.
- Marketing problems: Borrowers face severe marketing problems for their products particularly during peak production seasons and lack processing skills and facilities. The perishable products, such as agricultural and fish products, and poor transportation systems all contribute to low product prices with negative consequences to loan repayment performances.
- Enterprise failures due to technical reasons and natural disasters: Technical reasons such as breakdown of machines, wrong breeds of animals, poor quality seeds, and crop failures due to drought, floods or outbreak of pests and diseases, death of livestock or sinking of fishing boats contribute towards failure to repay loans.
- Poor loan follow-up systems: Most credit schemes or programmes have poor loan follow-up systems, have no regular monitoring visits to borrowers to provide advice and collection of loan repayments. Borrowers are left to decide when to visit project offices for making payments. This allows some borrowers to skip repayment schedules and others to completely default.
- Lack of collateral/security: Most of the loans offered by the credit schemes or programmes were provided without collateral or security. The explanation is that farmers and micro entrepreneurs are poor and have no tangible assets for collateral. Majority of farmers cultivate on non-secured lands that cannot be offered as collateral. Lack of security to loans does not encourage accountability on borrowers since they have nothing to lose by not fulfilling their loan contractual agreements (Zeller, 2001).

2.4.3 Factors affecting demand for credit and empirical studies on determinants of access to credit

The factors affecting the demand for credit by smallholder farmers from credit markets are investigated. Such factors can be categorized into two: the borrowers' (household) characteristics and the loan terms and conditions imposed by the lenders (Khashuliza and Kydd, 1996). The household's characteristics include the level of farm income, age, the level of education, farming experience and experience in credit use, whereas the attributes of the financial institutions include duration of payment, terms of payment, lending procedures and required collateral.

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Bigsten *et al.*, (2003) revealed that the type of financial institutions and its policy will often determine the access. Where credit duration, term of payment, required security and the provisions of supplementary services do not fit the needs of the target group, the potential borrowers will not apply for the credit even where it exists and when they do they will be denied. In addition, Fleisig (1995), stated that in developing countries asymmetric information, high risk, lack of collateral, lender-borrower distance, small and frequent credit transactions of rural households make real costs of borrowing vary among different credit sources.

As stated by Hussien (2007), the probability of choosing formal credit sector was positively affected by the level of education, age, gender, farm size, farming experience, experience in credit use and household labor. Hussien (2007) further explained that education, credit information and extension visits are more likely to increase the information base and decision making abilities of the farm households including the abilities to compare pros and cons of choosing appropriate credit and production technology. The low level of education implies that a farmer cannot read, sign and understand the whole concept of formal credit and even the legal consequences associated with issuing and recovering credit. Therefore the educated are likely to have higher income and/or savings, have more assets and be more likely to engage in business or economic activities hence it is expected that demand for credit increases with the level of education (Mpuga, 2010).

Mpuga (2010) further indicated that there are two major factors which restrict women's access to credit more than men. These are related to women's lack of control over economic resources and the nature of their economic activity. With this background including the existing gender differences, Hussien (2007) indicates those male headed households are presumed to undertake income-earning activities and have mobility and are able to participate in various meetings and have more exposure to information than their female counterparts who mostly concentrates on household chores and farm activities. It was therefore hypothesized that male headed households have more access to use credit.

To add on that, a study in Egypt by Mohieldin and Write (2000), employing the probit model analysis of the formal credit sector shows the impact of the explanatory variables on the outcome of whether a person has a loan. Both the requirements of the individual (demand side) and lending institution (supply side) determined whether a loan is in existence. The results of the study indicated that educational level, ownership of land; total assets and sizes of households were significant factors.

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A study by Atieno (2001) indicates that the level of income, distance to credit sources, farmers' experience in credit use and assets owned were significant variables that explain the participation in formal credit markets. Hussien (2007) indicated that farm households are more likely to prefer informal sector to formal sector with respect to flexibility in rescheduling loan repayments and in times of unexpected income shockwaves. This was supported by Padmanabhan (1996), comparing the informal credit sector from formal stated of proximity, comfortable atmosphere, quick credit, all time access, repayment flexibility and lower transaction costs are the advantage of the informal sector and made them almost indispensable, particularly to smallholder farmers.

According to Rahman (1999), the Grammen Bank experience shows that most of the conditions imposed by the formal credit institutions like collateral requirements should actually not stand in the way of the smallholder farmers and vulnerable from acquiring credit. The vulnerable can use the loans and repay if effective disbursement procedures, supervision and repayment have been established to suit their needs and profiles.

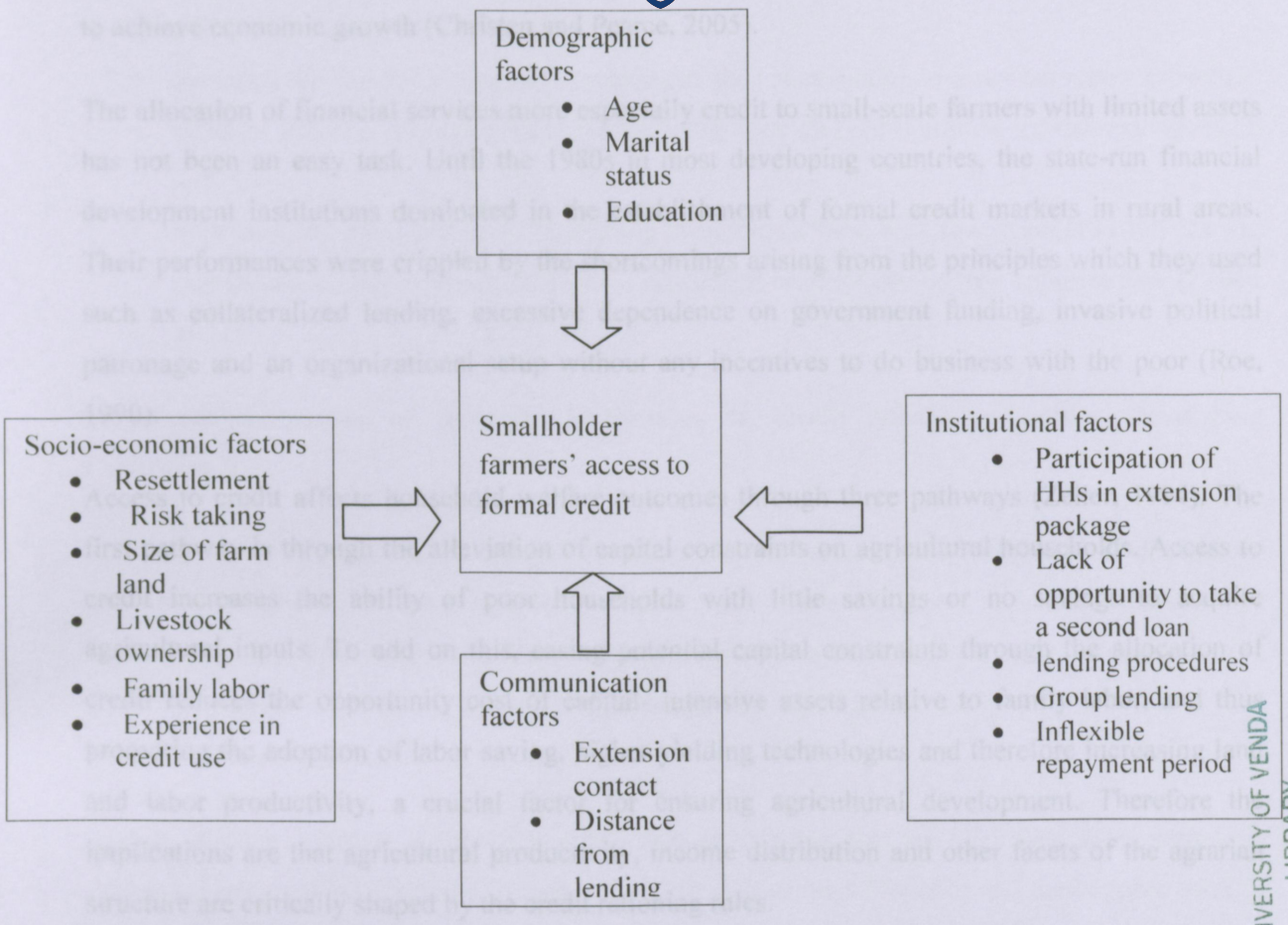
On the other hand, Getaneh (2005), stated that group lending approach effectively ration some groups of farm household. That is co-borrowers tend to self select themselves into a homogenous members that effectively discriminates against some others to reduce risk of carrying a burden repayment in case of defaults of co-borrowers.

Physical distance of the farm households from formal lending institutions is one the factors that influence access to credit. According to Hussien (2007), farm households are discouraged to borrow form credit sector if it is located further. This is because both temporal and monetary costs of transaction, especially transport cost, increase with lender-borrower distance which raises the overall borrowing costs at otherwise relatively lower interest rate in the sector.

Therefore, based on the above explanations, the most important variables expected to influence smallholder farmers' access to formal credit in the study area are summarized as follows:

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Figure 2.1: Conceptual framework of factors influencing access to credit

Source: Zeller, 2001.

In conclusion, the demand for agricultural credit is increasing parallel to meeting the requirements of increasing agricultural productivity and improving the livelihoods of smallholder farmers irrespective of the constraints hindering the smallholder farmers to access agricultural credit.

2.4.3 The impact of farming credit on production

Over the past four decades rural financial markets have been the centre of policy intervention. Provision of affordable financial markets to the rural population has been an important component of the development strategy during this period (Christen and Pearce, 2005). Direct interventions in rural financial markets to stimulate the economic growth and reduce poverty, through a blend of targeted credit programmes, interest subsidies, and other government policies, became widespread in the 1950s, when Keynesian economics inspired many governments to develop fiscal policies at the macroeconomic level. Over the years various

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financial approaches and interventions have been used by government in developing countries to achieve economic growth (Christen and Pearce, 2005).

The allocation of financial services more especially credit to small-scale farmers with limited assets has not been an easy task. Until the 1980s in most developing countries, the state-run financial development institutions dominated in the establishment of formal credit markets in rural areas. Their performances were crippled by the shortcomings arising from the principles which they used such as collateralized lending, excessive dependence on government funding, invasive political patronage and an organizational setup without any incentives to do business with the poor (Roe, 1990).

Access to credit affects household welfare outcomes through three pathways (Zeller, 1994). The first pathway is through the alleviation of capital constraints on agricultural households. Access to credit increases the ability of poor households with little savings or no savings to acquire agricultural inputs. To add on this, easing potential capital constraints through the allocation of credit reduces the opportunity cost of capital- intensive assets relative to family labor, and thus promoting the adoption of labor saving, higher yielding technologies and therefore increasing land and labor productivity, a crucial factor for ensuring agricultural development. Therefore the implications are that agricultural productivity, income distribution and other facets of the agrarian structure are critically shaped by the credit rationing rules.

The second path is by increasing the household's risk bearing ability and by altering its risks coping strategies. Access to credit and other financial services enables households to adopt more effective and efficient precautionary savings strategies, thereby stimulating such household's capacity to invest in more risky but more profitable technology and enterprises.

The third pathway is that credit enables households to smooth consumption and maintenance of the productivity capacity. All these three functions or factors help increase agricultural productivity, the rate of technology adoption, food security, nutrition, health and overall welfare of the households (Zeller, 1994). Furthermore, provision of credit helps the farmers to avoid being caught in a traditional Schuiltzian low return investment trap (Spio and Groenwald, 1998). It helps smallholder farmers to offset the risk of adopting new technologies and to purchase improved inputs; thereby increasing their productivity and generating their own capital for investment. Other advantages of providing efficient financial services are that it:

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- Increases productivity of available resources, that is, it improves efficiency in resource allocation;
- Increases the flow of savings and investment, thus contributing to faster economic growth;
- Favours stability, through greater market integration and opportunities for risk management; and
- Improves income distribution by making available to those with few resources of their own, purchasing power with which to take advantage of their productive opportunities (Zeller, 2001).

2.4.4 Characteristics of financial institutions in South Africa and other Developing Countries

The major roles of financial markets are to transfer capital from savers to borrowers, select projects, monitor investments, enforce contracts, transfer, and share risks and to record transactions. Therefore in the developing countries, financial markets are characterized by fragmentations and imperfect market conditions. Ghate (1992) categorizes the market into two forms: formal and informal financial markets.

Formal financial markets are those financial market activities that are controlled by government, which are largely urban-oriented in terms of distribution of bank branches and the concentration of deposits and lending activities. Informal financial markets are defined as activities of various financial intermediaries ranging from farmers, money lenders, friends, relatives, shopkeepers, merchants, traders, and Rotating Savings and Credit Associations (ROSCAs). The informal financial intermediaries are therefore falling between these two continuums and could include credit unions, village banks, relatives and friends, private money lenders and various forms of credit schemes run by government or non-governmental organisations. The formal and informal financial systems co-exist and operate side by side with one another (Ghate, 1992). The reality of operations of the two forms of market, however, is more complex and the dividing line is not so clear-cut (Roe, 1990). Zeller (1994) observes that each segment of the financial market provides credit services that differ from each other with respect to target group, loan duration, amount of loan, its use, interest rates and transaction costs.

Formal institutions are more inclined to provide its services to the public sector, upper-income households, large-scale enterprises and non-agricultural activities, while the informal financial institutions tend to match their products and services to the characteristics and demand of the

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predominantly private, low-income, small-scale population of most developing countries (Germidis, 1991). The coexistence of informal finance serving the latter market can be seen as "healthy and dynamic, permitting more people to participate in financial markets" (Germidis, 1991).

Literature has viewed the informal sector as the consequence of policy distortions and emphasized the negative consequences of financial dualism for allocation efficiency, equity and economic development (Roe 1990). However, recent developments attest to informal financial institutions having a comparative advantage in some market segments due to its ability to enhance efficiency in resource allocation by mobilizing household savings and financing small business activities that are beyond the reach of the formal system (Ghate, 1992; Gallardo *et al*., 2005).

Advocates of credit as a poverty alleviation measure (Coetzee, 1995;Van Rooyen, 1996; and Zeller 2001) contend that limited availability of credit services has undermined rural micro enterprise activities due to lack of capital for investment and has prevented farmers to adopt improved farming practices because of their inability to purchase the necessary inputs required in the production. Low productivity in agriculture, livestock and fishing is generally attributed to the use of poor technology resulting from limited access to credit. Moreover, it is perceived that inadequate credit facilities has to a large extent discouraged the entry of youth to the farming sector, and leave majority of them unemployed because of lack of investment capital and incentive. However, to ensure that appropriate strategies are designed for improving access to credit, it is important to understand why smallholder farmers often lack access to credit for farming purposes, particularly from formal and informal systems (Zeller, 2001).

An empirical study by Mohamed (2003) found that very few smallholder farmers and rural micro-entrepreneurs have been integrated into formal financial institutions and many do not use credit or if they do, they continue to borrow from informal market lenders. The study by Gonzalez-Vega (1994) cited by Mohamed (2003), reports that only a small fraction of the farmers in developing countries has received formal credit. In Asia and Latin America the statistics estimates that only 15 percent of the farmers are financed through formal credit markets whilst the estimate for Africa is 5 percent (Mohamed, 2003).

Generally, developing countries established parastatal institutions with the aim of channelling credit to smallholder farmers (Machethe, 2004). Similarly, in South Africa, the Land and Agricultural Bank of South Africa (Land Bank) and the Agricultural Credit Board were established to serve

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commercial farmers with small-scale farmers served by parastatals in the former homelands. Therefore the parastatals collapsed and left small-scale farmers without access to credit services. While the Land Bank's mandate was broadened to accommodate those previously excluded from its services, the bank continues to side line small-scale farmers with respect to accessing credit (DBSA, 2005).

The realisation of insufficient progress made in improving access to credit by small-scale farmers prompted the South African government to establish the Micro Agricultural Finance Institutions of South Africa (MAFISA) (DBSA, 2005). The scheme is supposed to address credit needs of small-scale farmers while the Land Bank concentrates on lending to established commercial farmers (AGRITV, 2006). Unfortunately the full rollout of MAFISA faced major challenges. In particular the disbursement of MAFISA loans started late, coupled with suspension by the Land Bank and expiry of the pilot agreements (DBSA, 2005).

According to Coetzee (1995), what emerges from the South African and international accounts, is the impression that targeted programmes are fraught with problems and do not have a particularly high success rate. Firstly, these programmes are problematic because it is difficult to provide a precise definition of the target group. Other difficulties relate to reaching the target groups, sketchy data and expensive target programmes. Secondly, and related to the targeting of specific activities, is the issue of fungibility or financial substitution. Essentially, fungibility is a characteristic of all loans and involves the fact that households who access credit often do not utilise the funds for the purposes envisaged by the lenders i.e. the household may use the money for consumption rather than for productive purposes (Manganhele, 2010). Consequently, it is difficult for lenders to control credit utilisation, particularly in agriculture where borrowers are widely dispersed. It is, therefore, almost impossible for credit programmes to target specific activities. Similarly, loan portfolio requirements can easily be evaded by, for example, making a multiple number of smaller loans available to one borrower. Rediscount facilities and loan and crop guarantees are often very expensive methods and may be detrimental to lending institutions who may neglect savings mobilisation in a context where governments and/or development agencies provide funds (Manganhele, 2010).

Another vital issue is that when credit was made available to the rural poor, repayment has been minimal and default the norm. This was the case in Costa Rica, Indonesia, Zimbabwe, Kenya and the Philippines. In South Africa, banks were recovering only about 60% of the money they lend to farmers (as opposed to 100% ten years earlier) (Dolny, 2001). There are two possible explanations

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for default. Firstly, banks usually lend to higher risk borrowers and, secondly, because farming has become less profitable. The South African Department of Agriculture and Land Affairs found that there was generally a "lukewarm" commitment to repaying government loans. This is confirmed by experiences in the Philippines where the Agricultural Credit and Cooperative Financing Administration relied heavily on government funds that borrowers felt little obligation to repay (Dolny, 2001). Also in Taiwan, "default disease" was avoided because credit policies placed emphasis on deposit mobilisation that allowed credit institutions to decrease their reliance on government funds and create more effective incentives for repayment (Adams *et al*, 1993).

Evidence from Indonesia suggests that land reform beneficiaries involved in commercial cash crop production and/or those with access to other sources of income have a better payback record. In cases where beneficiaries lack alternative financial resources, there must be a substantial grant component to provide for the missing equity. Molino (1997) argues that it is not reasonable to expect repayment from the non-bankable and bankable poor unless differentiated quotas designed around the ability of creditors to repay debt are designed. Examples include paying twice/four times per year instead of on a monthly basis.

It is evident from the above that inappropriate or ill-conceived credit policies can have negative consequences ranging from reduced income (impoverishment) and environmental destruction, to dispossession and overcrowding. According to Dolny (2001) a study conducted in the Solane Community Trust in Mpumalanga for example, consisted of 200 beneficiary households who acquired portion one of the farm Uitsig in the Barberton district in February 1997. The community planned to utilise their property for commercial agricultural production and to provide employment and incomes for the beneficiary households. It obtained a loan of just over R1 million from a commercial bank which was meant to be utilised for sugarcane production on 80 hectares 25 hectares of citrus and for the construction of an irrigation system on these units. The first commercial harvest was expected in 2002 however in early 2001 tragedy struck. A flood virtually destroyed the irrigation system. Moreover, loan repayments were continued but fears existed that the community could lose their land. Loan repayments have left the community with very little in terms of profit and/or income (Dolny, 2001).

Therefore, in many developing countries, millions of low-income entrepreneurs still do not have access to formal credit sources that will allow them to increase their productivity and alleviate their poverty conditions. Literature also shows that even if the smallholder farmers access credit from formal sources, they often receive small fractions of the loans and end up opting to lend from

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informal sources. Furthermore, the lack of access to broader financial options presents a potential constraint on the entrepreneurships and on the ability to undertake socially and privately profitable investment projects (Coetzee, 2007).

2.5 Conclusions

From the literature reviewed it is evident that the majority of emerging farmers in South Africa are involved in subsistence and small scale farming mainly due to poor resource endowment and are affected by numerous constraints related to the socioeconomic environment such as cash flow constraints and lack of appropriate technology, commercial production experience, access to efficient equipment and better yielding plan varieties as compared to their counterparts (commercial farmers). These constraints play an important role in terms of determining the accessibility of smallholder farmers to credit. Credit will have a positive impact on the smallholder farmers' future growth and will be critical in graduating them from subsistence farming to commercial farmers.

The literature also shows that the South African government came up with several interventions in order to improve the accessibility of smallholder farmers to credit. Despite these interventions the smallholder farmers' credit needs are still not catered for if so are in small quantities. Past interventions have not only been pervasive but the success rate has also been mixed. Therefore for the initiated credit programmes and/or financial institutions to efficiently serve the smallholder farmers, there is a need for diversification of products and services offered as this will lead to an increase in outreach, financial stability and growth of the financial institutions. Hence, it is also an imperative to improve credit risk management in order to prevent agricultural lenders' and agricultural cooperatives' insolvency.

What is clear from the review is that an efficient allocation of resources can be achieved through a sound financial structure, which must embody prudential regulation, supervision and control: appropriate institutions and institutional philosophy; financial instruments are consistent with savers and borrowers' preferences and needs.

Therefore from the literature reviewed, it is evident that the commercial farmers are preferred by the formal credit markets due to their favourable socio economic characteristics. Such as collateral possession, creditworthiness due clean repayment record, being disciplined in terms of loan repayment and ability to produce on a larger scale to generate more farm income as compared to their smallholder farmers counterparts. Unless the socioeconomic constraints hindering the smallholder farmers' access to credit are addressed properly, the efforts of government to enhance

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access to credit though various initiatives are [illegible]. The socioeconomic factors that determine the ability of farmers to access and use credit properly need to be identified in order to facilitate appropriate policy interventions.

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CHAPTER 3
DESCRIPTION OF STUDY AREA AND RESEARCH METHODOLOGY

3.1 Introduction

This study was carried out in order to generate empirical evidence relating to access and use of credit by smallholder farmers in the Capricorn District Municipality in the Limpopo Province of South Africa. It involves two sources of data, which are the secondary data collected from existing literature and the primary data which was collected in a form of interviewing the respondents sampled in the study area with the use of a structured questionnaire. This chapter covers the description of the study area, research design, data collection methods, sampling procedure, data analysis techniques and ethical clearance.

3.2 Study Area

The Capricorn District Municipality (CDM) is situated in the center of the economic development of the Limpopo Province in South Africa. The province covers an area of 12, 46 million hectares and these accounts for 10, 2 % of the total area of the Republic of South Africa. It is endowed with abundant agricultural resources and it is one of the country's prime agricultural regions noted for the production of the following commodities: vegetables with 41 percent share, followed by field crops at 32 percent and livestock at 27 percent (NDA, 2009). Smallholder farmers in the Capricorn District constitute 82% whilst 18% are commercial farmers (NDA, 2006).

Most of the above mentioned commodities are largely produced by white commercial farmers, with the majority of black small-scale farmers still producing on a small-scale, including those who have accessed large farms through the land reform programmes. The majority of smallholder farmers in the rural areas produce maize under dry land conditions as well as vegetables such as beetroot, cabbage, tomatoes and spinach on subsistence level. Potatoes are mainly produced in Molemole and Blouberg municipalities by black and white commercial farmers (Baloyi, 2010).

Around 2002 Limpopo province was the fastest growing province in the country, with its Gross Geographic Product (GGD) at approximately 6% of the South Africa's Gross Domestic Product (Spio, 2002). The economy of the Province is anchored on its natural resources base with agriculture, tourism and mining as the main sectors of the growth of the economy (Limpopo Growth and Development Strategy, 2005). The agricultural sector in the Capricorn District Municipality accounts to 2.8% of the total district economy and contributes R690 million per annum (Limpopo

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Growth and Development Strategy, 2005). Agricultural sector contributed approximately 2% to the economy of the Capricorn District Municipality in 2007 (Statistics South Africa (STATSSA), 2002).

Figure 3.1 below shows the map of the Limpopo province which clearly shows the boundaries of the districts and how are they bordered to each other. The Capricorn District is at the center and is bordered by Vhembe district to the north east, Sekhukhune to the south, Waterberg to the west and Mopani to the east.



Figure 3.1: Map showing District Municipalities in the Limpopo Province
Source: Capricorn District Municipality (2000)

The Capricorn District Municipality is divided into five municipalities namely; Aganang, Polokwane, Molemole, Lepelle-Nkumpi and Blouberg Municipality. Figure 3.2 below shows the municipalities of the Capricorn District Municipality and how they are bounded to each other.

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Figure 3.2: Map of Capricorn District Municipality.
Source: Capricorn District Municipality (2000)

3.3 Research Design and sampling procedure

The study was both qualitative and quantitative in nature. A mixed representation was adopted for this study. The first phase of the study was to collect secondary data from the secondary sources in order to review existing literature on the subject matter. The second phase of the study was the collection of the primary data using a questionnaire to interview (face to face interviews) the respondents from the Capricorn District Municipality. This was based on information obtained from the Limpopo Department of Agriculture and from various programmes initiated by the CDM to enhance access to credit but the smallholder farmers still have lack of access to credit.

Purposive sampling was used to select the district. The sampling technique involved using one's judgment to choose, for a particular purpose, exactly who would be included in the sample and offers researchers a degree of control rather than being at the mercy of any selection bias inherent in pre-existing groups (such as clinic populations). With purposive sampling, researchers deliberately seek to include "outliers" conventionally discounted in quantitative approaches and provide justification to make generalizations from the sample that is being studied (Kuzel, 1992). A disadvantage of this sampling method was that it did not contribute to generalization (Joan, 2009). This was expected as the study was conducted in the Capricorn District Municipality and the findings might not be the same in other District Municipalities.

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Furthermore, the smallholder farmers were clustered into groups according to their municipalities using the stratified sampling method. There were 2500 farmers operating on small-scale farming (840 who accessed credit and 1660 who did not have access to credit) (Limpopo Department of Agriculture, 2010). A 10% representative sample, stratification by Municipality and status with respect to access to credit was randomly selected. The total sample size of the smallholder farmers was 250 (84 farmers who accessed credit and 166 farmers who did not have access to credit).

Table 3.1 Sample size of the smallholder farmers in the Capricorn District Municipality

Municipality	No of farmers		Sample size	
	Received credit	Credit not received	Received credit	Credit not received
Aganang municipality	170	300	17	30
Blouberg municipality	150	310	15	31
Lepelle Nkumpi municipality	250	350	25	35
Molemole municipality	390	340	9	34
Polokwane municipality	180	360	18	36
Total	840	1660	84	166
Percentage	34%	66%	34%	66%

Source: Limpopo Department of Agriculture, 2010

Three enumerators were appointed to assist with the data collection. Before the collection of data, a pilot study was conducted in order to check the practicality of the questionnaire and also to train the enumerators. Quality was assured by the enumerators through possession of enough questionnaires so that if mistakes occur when filling the questionnaire they can discard it and use a new one.

3.4 Data Collections

Data collection was acquired through primary and secondary sources.

3.4.1 Secondary data

Secondary data is the data that exists and was collected and obtained from official and unofficial sources from the Department of Agriculture documents, books, previous studies, Journals and strategic plans. The other sources include secondary data from electronic media and print media.

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3.4.2 Primary data

The primary data is data the researchers collect themselves and/or with the help of enumerators and this data was collected through administering questionnaires to farmers (either self-completion or with the assistance of the enumerators). Collected data was in line with research objectives as reflected below:

3.4.2.1 Socio-economic factors that influence accessibility and use of credit

Questionnaires were administered to 250 smallholder farmers which make up 10% of the total number (N) of smallholder farmers in the Capricorn District. These were proportionally allocated to those that had access to credit (34% of the total = 84) and those that did not have access to credit (66% of the total = 166) and clustered as such to the various local municipalities (see Table 3.1). The selected respondents are critical in providing information such as demographic data, farming activities and status information, production statistics, farm business organization, access to extension services and access and use of credit and impact of credit which can be used to assess the socio-economic factors affecting accessibility to credit. The researcher conducted face to face interviews wherein the respondents were asked questions which assisted in generating information on their view and opinions about the factors influencing access and use of credit. During the pretesting of the questionnaire relevant questions to ask the respondents were identified and formed part of the tool for collecting data.

The data was analyzed into descriptive statistics generated through the SPSS computer program. Descriptive statistics are used to describe the basic features of the data in a program. They provide simple summaries of simple graphics analysis of data (Upton and Cook, 2006).

The descriptive and inferential statistics was used to analyze data in order to reach conclusions that extend beyond the immediate data alone and also used to make judgments of the probability that an observed difference between groups is a dependable one or one that might have happened by chance in this study, thus, the use of inferential statistics to make inferences from the data to more general conditions (Upton and Cook, 2006).

A binary logistic regression model was applied and is useful for this kind of a situation (field of social sciences) where prediction of the presence or absence of an outcome based on values of a set of predictor variables is needed. According to Wooldridge (2006), the logistic regression coefficient can be used to estimate odds ratios for each of the independent variables in the model. The logistic

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regression model (logit model) is applicable to a broader range of research situations than discriminant analysis. The term "logit" refers to the natural logarithm of the odds (log odds) which indicates the probability of falling into one of two categories on some variable of interest (Wooldridge, 2006).

According to Harrell (2001), binary logit has only two categories in the response variable- event A and non-event A. Harrell (2001) also asserts that the model shows how a set of predictor (explanatory) variable X is related to a dichotomous response variable Y (ln (Pi/1 – Pi). The dichotomous response variable Y= 0 or 1 with Y=1 denoting the occurrence of the event of interest while Y=0 denotes otherwise. Dummy variable also known as indicators and bound variables, characterize dichotomous response.

As indicated above, the model for this study is a binary choice model requiring the estimation of the probability that the smallholder farmers had access to credit from formal and informal financial institutions in the year 2010. Since only two options are available, namely "access to credit" or "no access to credit" a binary model is set up which defines Y=1 for situation where the farmer accessed credit from both formal and informal credit sources and Y=0 for situations where the farmer did not access credit from both formal and informal credit sources. Assuming that x is a vector of explanatory variables and p is the probability that Y=1, two probabilistic relationships are stated by Wooldridge (2006) can be considered as follows:

$$p(Y=1) = \frac{e^{\beta x}}{1+e^{\beta x}} \quad \ldots\ldots (1)$$

$$p(Y=0) = 1 - \frac{e^{\beta x}}{1+e^{\beta x}} = \frac{1}{1+e^{\beta x}} \quad \ldots\ldots (2)$$

Since equation (2) is the lower response level, that is, the probability that farmers did not access credit from formal and informal credit source, this will be the probability to be modeled by the logistic procedure by convention. Both equations present the outcome of the logit transformation of the odds ratios which can alternatively be represented as:

$$logit[\theta(x)] = \log[\frac{\theta(x)}{1-\theta(x)} = \propto + \beta_1 x_1 + \beta_2 x_2 + \cdots \beta_k x_k \quad \ldots\ldots (3)$$

and thus, allowing its estimation as a linear model for which the following definitions apply:

θ = logit transformation of the odds ratio

$\propto$ = the intercept term of the model

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β = the regression coefficient or slope of the individual predictor (or explanatory) variables modeled

x_1 = the explanatory or predictor variables

In line with Hosmer and Lemeshow (1989) the right- hand term in equation (3) above is the natural logarithm of the modeled variables. A goodness-of-fit test following Hosmer- Lemeshow was conducted by examining the Pearson Chi-Square outcomes calculated from the table of observed and expected frequencies as follows:

$$X^2_{HL} = \sum_{i=1}^{g} \frac{(O_{i-} N_i \pi_i)^2}{N_i \pi_i(1-\pi_i)} \quad \ldots\ldots (4)$$

Where:

N_i = the total frequency of the items in the i^{th} group

O_i = the total frequency of obtaining particular event outcome in the i^{th} group

π_i= the average estimate of the probability that a particular event outcome in the i^{th} group will be realized.

The foregoing operations were feasible within SPSS package. In relation to equation (3) the analysis generated the odd ratios using the maximum likelihood procedure. The goodness-of- fit test examined the displayed results for the Pearson, Deviance and Hosmer- Lemeshow methods all of which gave high enough *p*-values to dispel doubts about the model fitting the data. It was therefore not necessary to consider alternative estimation procedures.

Therefore the logistic regression in this study can be specified as:

$$Y_{i=} \propto + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 + \beta_4 x_4 + \beta_5 x_5 + \beta_6 x_6 + \beta_7 x_7 + \beta_8 x_{8+} \beta_9 x_{9+} \ldots \beta_k x_k \ldots. (5)$$

The explanatory variables considered included distance to the credit source, information, total value of farm assets and total farm annual turnover (income), while the response variable was defined as access to credit by smallholder farmers (Table 3.2). The key variables considered for model are described in Table 3.2.

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Table 3.2: Definitions and measurements of key variables modeled

Items	Abbreviation	Descriptions	Value
Y_i	SHHACESS	Smallholder farmers' access to credit	Coded 1 if accessed credit, and 0 otherwise
X_1	TOINCOME	Farm income in Rand per annum	Rand value of annual turnover coded1 if R50000 and above, 0 belowR50000
X_2	TOSIZEL	Total size of the arable land in hectares	Actual size of land in ha.
X_3	AGE	Farmer's age in years	Actual age in years
X_4	FARMEXP	Farming experience in years	Years of experience in farming
X_5	EDLVL	Literacy level	A dummy variable=1 if the farmer can read and write, and 0 otherwise
X_6	MARISTATUS	Marital status of the farmer	A dummy variable = 1 if the head of the household is married, and 0 otherwise
X_7	TOASSET	Total value of the farm capital assets	Rand value of total farm capital assets coded1 if R50000 and above, 0 below R50000
X_8	FAMILABR	Family labor	A dummy variable= 1 if the household size is 2 and above, 0 otherwise
X_9	EXPCREDU	Experience in credit use from the formal sources	Years of experience in credit use from formal sources
X_{10}	MEMBFAA	Membership of farmers' association (categorical: 1 = member, 2 = non member non member	A dummy variable= 1 if a farmer is a member, and 0 otherwise
X_{11}	OFFINC	If a farmers has off-farm income (categorical: 1 = has off-farm income, 2 = has no off-farm income	A dummy variable=1 if a farmer earns off-farm income, 0 otherwise
X_{12}	DISTACS	Distance from the credit source	Actual distance in kilometers coded 1 if its 15km and above, and 0 below 15km
X_{13}	COLLATGF	Farmers' perception of group lending	A dummy variable =1 if a farmer perceive group formation was a constraint, and 0 otherwise
X_{14}	SHORTPE	Farmers' perception of loan repayment period	A dummy variable =1 for those who perceive it as a constraint, and 0 otherwise
X_{15}	LEPROC	Farmers' perception of lending procedures	A dummy variable=1 if a farmer perceive it as constraint, and 0 otherwise
X_{16}	RITAKE	Attitude towards Risk	A dummy variable= 1 if they respond as they don't fear risk to take loan, and 0 otherwise
X_{17}	EXECON	Extension visits per month	Actual time per visit in hours coded1 if its 1 hour and above, and 0 if below 1 hour
X_{18}	CREDITNEED	Need for credit	A dummy variable= 1 if they respond as they had a need for credit, and 0 otherwise

Source: Computed from the literature review

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3.4.2.2 Definition of variables and Working hypothesis

3.4.2.2.1. Dependent variable

The dependent variable for the logistic regression model is a dichotomous nature representing smallholder farmers' access to credit (formal and/or informal). This is to distinguish or discriminate between those users or non-users of formal and informal credit in the study area. Y- Household uses credit from formal and informal sources during the year (SHHACESS): this is the dependent variable of "1" for users "0" for non-users of credit.

3.4.2.2.2 Explanatory variables of the study

Review of literatures on the factors influencing smallholder farmers' access to credit was used to establish working hypotheses of this study. Among a number of factors, which have been related to smallholder farmers' access to formal credit, in this study the following demographic, socio-economic, informational and institutional factors were hypothesized to explain the dependent variable.

1. **Age of the household head (AGE):** It is a continuous variable, defined as the farm household heads age at the time of the interview measured in years. Those farmers having a higher age due to life experiences will have much better association with informal and formal credit sources. Following the life-cycle hypothesis, the young and energetic individuals with an ambition to earn higher incomes will be more active in saving and dissaving in order to accumulate wealth. Therefore demand for credit is expected to vary positively with age. Therefore Zeller (1994) found age to positively affect the decision to demand credit. It is hypothesized that farmers with higher age may have more access to use credit.
2. **Marital status of the respondent (MARISTATUS):** this is a dummy variable that assumes a value of "1" if the head of the household is married and "0" otherwise. It is assumed that married farmers are in a stable state of affairs and are likely to have more access to formal credit.
3. **Literacy level (EDLVL):** it is categorized in to illiterate and able read and write or literate, it is a dummy variable. Farmers who can read and write are expected to have more exposure to the external environment and accumulate knowledge. They have the ability to analyze costs and benefits. The more educated the household head the more credit he will use for consumption purposes. Therefore, it was expected that those farmers who can read and write have better credit requirement that leads to access to use of credit.
4. **Extension contact (EXECON):** this variable refers to the number of contacts with extension agents that the respondents made in the month. Farmers who have a frequent contact with extension

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agents are expected to have more information that will influence farm household's demand for credit from formal sources. Therefore, it is hypothesized that this variable positively influences farmer's access to credit.

5. **Total value of farm capital assets (TOASSET):** assets are considered to act as collateral when one requires credit. Therefore, inadequate farm assets such as technical farm inputs, farm machinery and equipment entail a lack of access to credit and vice versa. Farmers who have a larger farm asset base are most likely to access credit from formal sources.

6. **Total size of land (TOSIZEL):** this refers to the total size of the arable land that the respondents possess. Land can serve as collateral. Therefore, farmers who possess larger sizes of land will be in a better position to access credit from formal source than those with smaller portions of land. And also the larger the cultivated land the more labor required that demands additional capital that might be sourced through the use of credit. Therefore the main hypothesis was the farmer who cultivates a larger size of land can utilize more capital and will demand credit and may have more access to credit from formal sources.

7. **Farming experience in years (FARMEXP):** this variable measures the number of years that the farmer has been engaged in farming. It can be hypothesized that the lesser the number of years the farmer is involved in farming, the higher the probability of being technically constraint and thus lead to inadequate access to credit.

8. **Family labor (FAMILABR):** this refers to the total number of family members of the household who have the potential to work on the farm. The larger the number of the family labor, the more the labor force available for production purpose. The more the labor force available, lower is the demand for hired labor, this results in no or low cost for hired labor. Therefore, family labor was hypothesized to have negative impact on access to credit.

9. **Experience in credit use from the formal sources (EXPCREDU):** this refers to the number of years the household head uses credit from formal sources. A farmer having more experience in formal credit use will have higher tendency towards using formal credit sources and vice versa. Therefore, this variable is assumed to have positive influence on the dependent variable.

10. **Membership of farmers' association (MEMBFAA):** this is a dummy variable which takes a value of "1" for membership and "0" otherwise. It is presumed that farmers who are affiliated to farmers association are most likely to access credit as some of the credit products are made available to the associations and lend to the members. Therefore, it was hypothesized that farmers who are members of the farmers' association have more access to credit.

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11. **Distance to the credit source (DISTCS):** this variable measures the distance between the farmer and the lending institution. Farmers near the lending institutions have a location advantage and can contact the lender with ease and have more access to information than those who live in more distant locations. Hence, location advantage was expected to increase access to use credit from the formal institutions.

12. **Farmers' perception of group lending (COLLATGF):** it is presumed that the formation of groups can create an advantage for the farmers to access credit. Smallholder farmers are encouraged to form groups (that can serve as collateral) to take credit from the formal institutions. But farmers perceived that group lending is difficult to access credit from these sources. This is a dummy variable which takes a value "1" for those who perceived group formation was a constraint and "0" otherwise. Therefore, it was expected that farmers who are unable to form a group or deprived a membership by the group were not able to access credit.

13. **Total annual turnover (TOINCOME):** total annual turnover is the determining factor of the repayment ability and credit risk of the farmer. The higher the value the more the farmer will access credit from formal institutions.

14. **Off-farm income (OFFINC):** this variable indicates whether or not a farmer is receiving off-farm income. Off-farm income can assist in decreasing on farm technical constraints since the farm has alternative capital inputs. Mashatola and Darroch (2003) support the fact that farmers who lack off-farm income are likely to be affected by finance related technical constraints than those who have. Thus, it can be hypothesized that there is a positive correlation between off-farm income and access to credit.

15. **Farmers' perception on loan repayment (SHOREPIN):** this variable represents the borrower's perception of how the loan repayment period discourages farmers from participating in credit market. This is a dummy variable which takes a value "1" for those who perceive it as a constraint and "0" otherwise. Formal credit lenders have rules and regulations in terms of the time limits allocated for loan repayment. If a farmer cannot repay within the stipulated timeframe, the lenders have the rights to take the farmer to court or sell their property. Due to this reasons farmers fear taking loans from formal credit sources.

16. **Farmers' perception of lending procedures (LEPROC):** this variable represents the borrower's perception of difficulty of the lending procedure. It is a dummy variable which takes a value of "1" for those who perceive as constraint and "0" otherwise. Lending from formal sources, farmers are expected to pass through various processes, which is time-taking, burdensome and sometimes difficult to understand. They prefer to take credit from informal sources for the sake of

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ease even if it charges higher interest rates. This is manifested in the form of complicated application procedures and restrictions. Therefore, it was expected that, this variable negatively affects smallholder farmer's access to credit from formal credit sources.

17. Attitudes towards Risk (RITAKE): the other factor which influences the smallholder farmer's access to credit is their attitude towards risk. Many smallholder farmers, as can be expected, are very risk-adverse that even when credit is available, they do not like to venture into such activities. This is due to risks of repaying loans that come from the loss of crops due to seasonal changes and pest damage. This variable will be measured based on the farmer's positive or negative perception. This is a dummy variable which takes "1" if they respond as they do not fear risk to take loans and "0" otherwise. Therefore, it was expected that farmers who are risk adverse will not demand credit and it negatively affects access to use credit from formal credit institutions.

18. Need for credit (CREDITNEED): the other variable which influences the smallholder farmer's access to credit is their need for credit. This is a dummy variable which takes "1" if they respond as they had a need for credit and "0" otherwise. Therefore, it was expected that farmers who are in need of credit are more likely to access credit from formal and formal credit institutions.

3.4.2.3 Purpose and use of credit

The structured questionnaires were administered to the smallholder farmers identified above in order for the researcher to get information about the main purpose and use of credit by the farmers. Face to face interviews were conducted. In particular respondents were required to indicate whether or not they received credit, the source of credit (formal or informal), how was it utilized and level of satisfaction with the amount received. The data was analyzed using descriptive and qualitative statistics on the SPSS 19.0 windows.

3.4.2.4 Impact of credit on the agricultural production

The structured questionnaires were administered to the smallholder farmers in order for the researcher to get information about the impact noticeable of the access and use of credit to the farmers. Face to face interviews were conducted. Information on production statistics, farm infrastructure and implements was acquired in order to verify the impact of the accessed credit. This information assisted in terms of determining if the use of credit has impact on the farmers' production activities. The resultant information was both qualitative and quantitative in nature therefore descriptive statistics were used for analyzing the data.

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3.4.2.5 Impact of government interventions in advancing credit to smallholder farmers

The researcher used the structured questionnaires to interview the smallholder farmers to generate information regarding the efficiency and effectiveness of the government programmes that are in place to enhance lending of credit to the smallholder farmers. Information on the number of smallholder farmers granted credit by formal or informal markets through the government programmes was also collected. From the respondents' point of view, information on how the financial markets can evolve in order to service more smallholder farmers and also how can government programmes improve outreach to the smallholder farmers? From the information derived from the respondents, it was clear as to which financial market is most accessible by smallholder farmers and which government programmes addresses their credit needs. The data was analyzed using descriptive and qualitative statistics. Qualitative information is the data derived from observations, interviews and verbal responses. The researcher recorded accurately the views and perceptions of the respondents. The researcher also sorted the information, organized and interpreted the meaning, patterns and themes from the respondents.

Analysis of qualitative data involves reading through the interviews and other data, developing codes, coding the data and creating connections between distinct pieces of data. Data from the questionnaire was coded so as to allow the researcher to be able to draw connections between the various discrete data. The data was organized into categories, themes, patterns and relationships. The data generated was analyzed in a descriptive manner with SPSS 19.0 windows.

3.5 Ethical considerations

The Limpopo Department of Agriculture was approached to request permission to carry out the study as well as to get a database of the smallholder farmers in the Capricorn District Municipality. The Senior Manager responsible for smallholder farmers in the Capricorn District Municipality provided the written consent to carry out the study after the researcher had submitted a detailed proposal that spells out the whole research, including the fact that the results of this study would be used to prepare a dissertation for Masters in Agricultural Economics degree. The same detailed document was made available to the research participants. All interviewees were informed of their right to withdraw their participation in the study at any stage. Details regarding the entire study were fully disclosed to all participants to enable them to make informed decisions on whether they wanted to participate or not. This helped to secure informed consent. According to Family Health International (FHI) (2001), informed consent is a mechanism for ensuring that people understand

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what it means to participate in a particular study to enable them to decide in a conscious, deliberate way whether they want to participate. An assurance was made that when the results of the study are reported on, names of the participants would not be disclosed. Nor would the results be used for any other purpose besides the dissertation and publication in journals or other academic avenues of sharing research results. Only when accorded the platform by the research participants, the researcher facilitated the data collection exercise.

The researcher assured the participants that feedback on the findings of the research would be given. Further assurance was that written reports will be made available to the farmers associations and Limpopo Department of Agriculture. This would enable the Local farmers associations and the Limpopo Department of Agriculture to have an improved understanding of status of access to credit in the Capricorn District Municipality. Lastly, the smallholder farmers were informed that they were free to decide on what to do with the recommendations of the study.

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DATA ANALYSIS AND DISCUSSION

4.1 Introduction

This chapter presents and discusses the results of the analysis that has been conducted to address specific objectives of the research. The chapter is divided into three major sections. The first section presents the results on the biographic characteristics of the smallholder farmers, access and use of credit by the smallholder farmers, impact of credit on agricultural production of the smallholder farmers as well as the impact of government intervention on advancing credit to the smallholder farmers. The second section presents the results of logistic regression analysis where various factors impacting on access to credit by smallholder farmers will be discussed. Discussion of the empirical results will be presented in the third section.

4.2 Descriptive analyses of the Results

4.2.1. Demographic and production information of smallholder farmers in the Capricorn District of the Limpopo province

The demographic characteristics in this study are important in determining the extent at which they influence farmers' responses in the study. Table 4.1 shows the results in relation to age and gender of the respondents and their gender. The table shows that a high proportion (75.2%) of the surveyed farmers was males whilst only 24.8% were females.

The sampled farmers were placed in six distinct age categories (in years) as shown in Table 4.1. The results show that most of the male (28.4%) and female (12%) respondents were in the age category 50-59 years and more engaged in farming than their counterparts in other age groups. It can be concluded that more male household heads were engaged in farming than the female household heads.

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Table 4.1: Distribution of survey respondents by gender and age (n=250)

Age group	Gender		Total
	Male	Female	
20-29	16 (6.4)	6 (2.4)	22 (8.8)
30-39	32 (12.8)	9 (3.6)	41 (16.4)
40-49	47 (18.8)	7 (2.8)	54 (21.6)
50-59	71 (28.4)	30 (12)	101 (40.4)
60+	22 (8.8)	10 (0.4)	32 (12.4)
Total	188 (75.2)	62 (24.8)	250 (100)

Source: Computed from field survey, 2011
Note: Figures in parentheses show percentages

The sampled farmers were also assessed on their marital status, classified into four categories namely: single, married, widowed and divorced. Figure 4.1 shows respondents' distribution based on marital status of the household head.

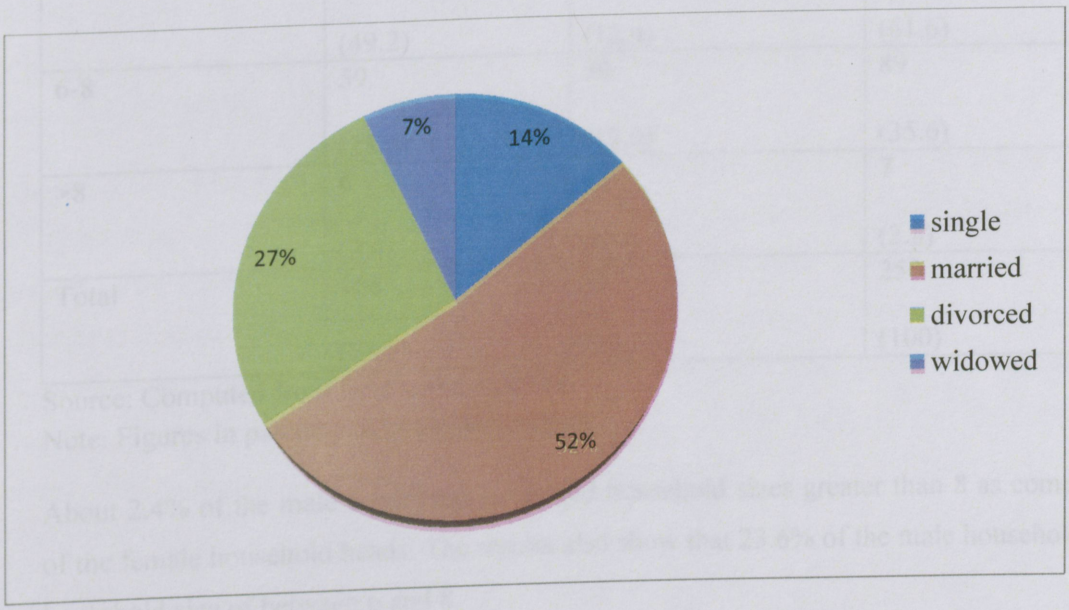


Figure 4.1: Distribution of marital status of the household head

Source: Field survey, 2011

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The results indicated that most household heads (52.0 %) were married, while 14.0%, 27.0% and 7.0% were single, divorced and widowed respectively. In an African set-up, males and females play a complementary role with regards to their livelihoods. For example, while the wife is expected to perform day to day house chores such as cooking for the family, the husband might be more engaged in income generating activities such as farming. In the absence of a spouse, one can encounter a situation whereby he /she has to perform all these. In this regard, the extent to which he/she can be expected to undertake farming activities would differ from married spouses, other factors being constant. The implication of this scenario is that a household comprising husband and wife is better off than a single headed household in terms of focusing on farming activities.

Table 4.2 shows the distribution of farmers by gender and household size. About 49.2% and 12.4% of the male and female household heads had a household size of between 1 and 5 members, respectively.

Table 4.2: Distribution of farmer households by gender and households size

Household size (No)	Gender		Total
	Male	Female	
1-5	123 (49.2)	31 (12.4)	154 (61.6)
6-8	59 (23.6)	30 (12.0)	89 (35.6)
>8	6 (2.4)	1 (0.4)	7 (2.8)
Total	188 (75.2)	62 (24.8)	250 (100)

Source: Computed from field survey, 2011
Note: Figures in parenthesis show percentages

About 2.4% of the male household heads had household sizes greater than 8 as compared to 0.4% of the female household heads. The results also show that 23.6% of the male household heads had a household size of between 6 and 8.

Figure 4.2 represents the gender distribution of household heads by the level of education attained. The result shows that 1.6% of the male household heads were illiterate as compared to 0.8% of their

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female counterparts. Only 1.2% of the male household heads were able to read and write. It is also shown that 12.4% of the male household heads went up to primary and junior secondary compared to their female counterparts (2.8%). It also shown that most (60%) of the male household heads had acquired secondary and post-secondary school qualification as compared to their female counterparts (21.2%).

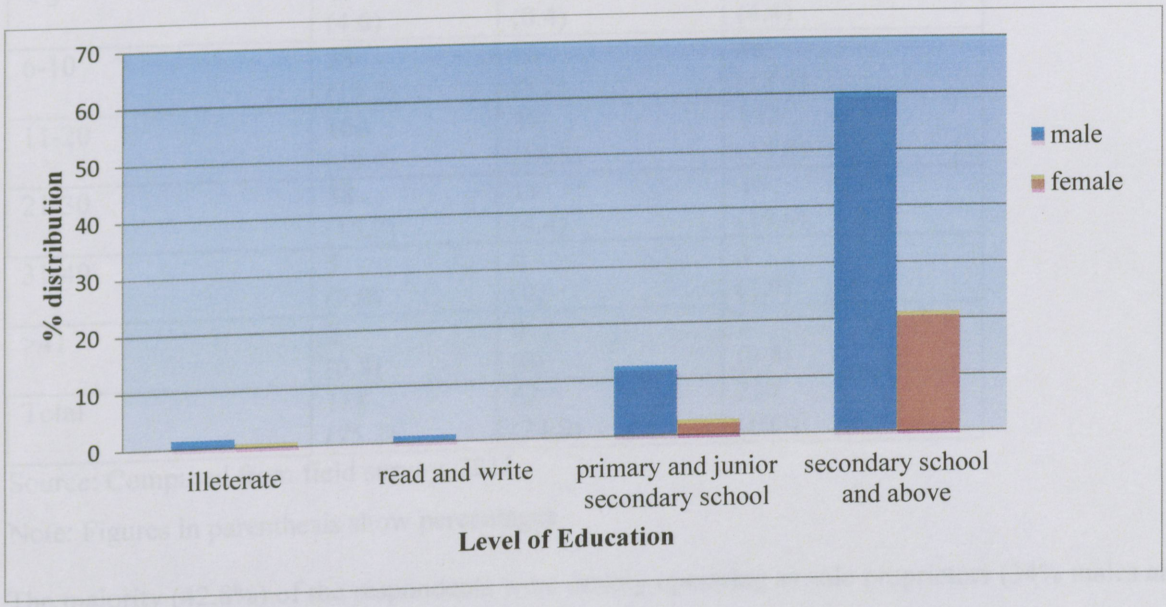


Figure 4.2: Distribution of the respondents by their educational levels and gender
Source: Field survey, 2011

Table 4.3 shows the distribution of land allocations by gender. The results show that most (40.0 %) of the male household heads had total land sizes ranging between 11 and 20 ha as compared to their female counterparts (14.8%). The results also indicate that about 2.0% and 0.8% of the male household heads possessed land sizes of between 31 and 40 ha, and greater than 41 ha respectively. A proportion of 0.4%, 5.2% and 4.4% of the female household heads possessed land sizes of less than 5 ha, between 6 and 8 ha and 21 to 30, respectively. This indicated that the surveyed male respondents possessed larger portions of land than females.

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Table 4.3: Distribution of respondents by gender and the total size of land they possess

Total size of land (ha)	Gender		Total
	Male	Female	
< 5	10 (4.0)	1 (0.4)	11 (4.4)
6-10	33 (13.2)	13 (5.2)	46 (18.4)
11-20	100 (40.0)	37 (14.8)	137 (54.8)
21-30	38 (15.2)	11 (4.4)	49 (19.6)
31-40	5 (2.0)	0 (0)	5 (2.0)
>41	2 (0.8)	0 (0)	2 (0.8)
Total	188 (75.2)	62 (24.8)	250 (100)

Source: Computed from field survey, 2011

Note: Figures in parenthesis show percentages

The majority (42.8%) of the respondents were mainly operating as sole proprietors (34% males and 8.8% females). About 31.2% of the respondents were operating as close corporations (21.6% males and 9.6% females) followed by 22.8% of respondents operating as cooperatives (17.2% males and 5.6% females). A few of the respondents were operating within partnerships (0.4% females) and other forms of legal entity (2.8% with 2.4% males and 0.4% females), respectively.

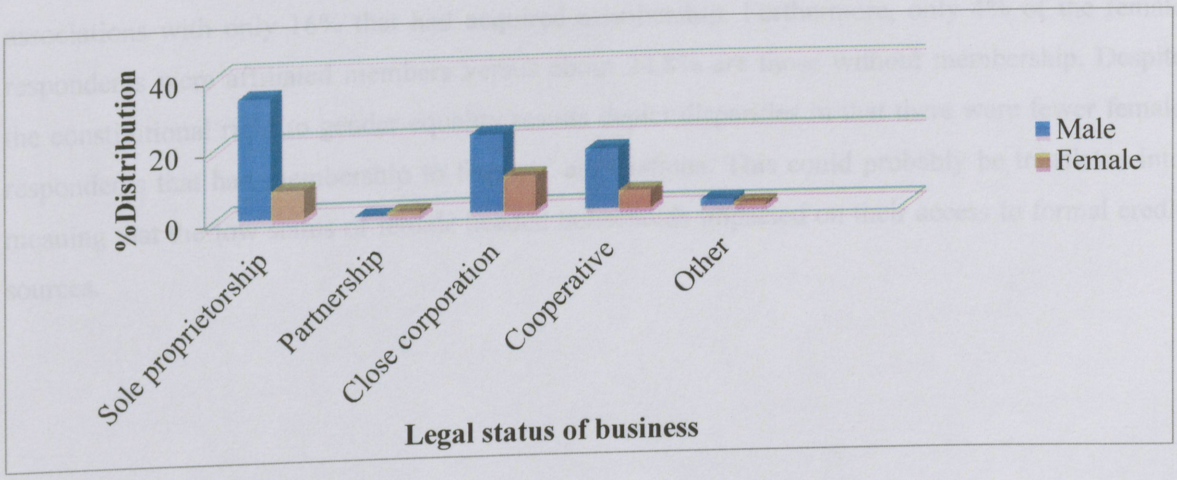


Figure 4.3: Distribution of respondents by gender and legal status of their business entities
Source: Field survey, 2011

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About 38% of respondents (26% males and 12% females) practised horticultural production, with the remainder farming on grains (22% - 16% males and 6% females), mixed cropping (16%- 14% males and 2% females) and livestock (8%- 6% males and 2% females). The production of fruits, poultry and other farming systems were minimal.

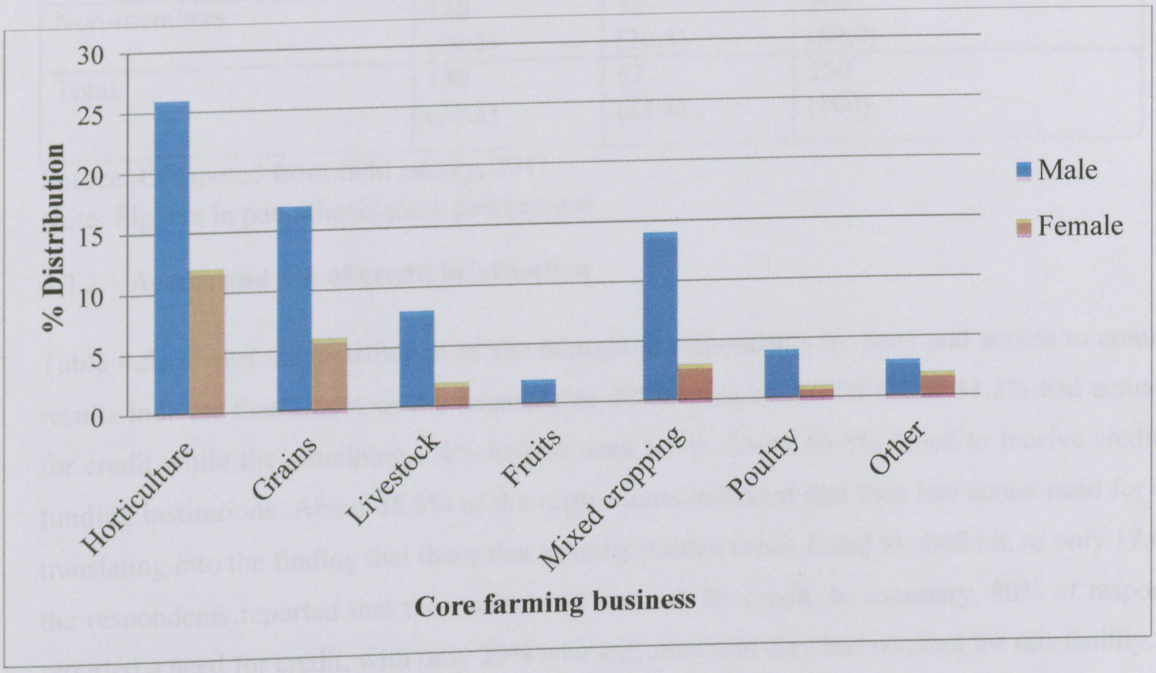


Figure 4.4: Distribution of the respondents by gender and core farming.
Source: Computed from field survey, 2011

Gender distribution of the respondents by affiliation to farmers' associations is shown in Table 4.4. The result shows that about 59.2% of the male respondents were not affiliated to farmers' associations with only 16% that had acquired membership. Furthermore, only 4% of the female respondents were affiliated members versus about 24.8% are those without membership. Despite the constitutional right to gender equality results depict disparities in that there were fewer female respondents that had membership to farmers' associations. This could probably be translated into meaning that the low status of female headed households impacted on their access to formal credit sources.

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Table 4.4: Gender distribution of respondents by membership to a farmers' association.

Membership to the farmers' organisation	Gender		Total
	Male	Female	
Members	40 (16.0)	10 (4.0)	50 (20.0)
Non-members	148 (59.2)	52 (20.8)	200 (80.0)
Total	188 (75.2)	62 (24.8)	250 (100)

Source: Computed from field survey, 2011
Note: Figures in parenthesis show percentages

4.2.2. Access and use of credit information

Table 4.5a shows the distribution of the household respondents by need and access to credit. The results indicate that 33.6% of the respondents did receive credit. Of these, 31.2% had actual need for credit while the remaining 2.4% had no need for it. About 66.4% failed to receive credit from funding institutions. About 48.8% of the respondents indicated that they had actual need for credit, translating into the finding that those that actually needed credit failed to obtain it, as only 17.6 % of the respondents reported that they actual had no need for credit. In summary, 80% of respondents reported a need for credit, with only 20% who indicated that they had no need for this facility.

Table 4.5a: Distribution of respondents by need and access to credit.

Need for credit	Access to credit		Total
	Yes	No	
Yes	78 (31.2)	122 (48.8)	200 (80.0)
No	6 (2.4)	44 (17.6)	50 (20.0)
Total	84 (33.6)	166 (66.4)	250 (100)

Source: Computed from field survey, 2011
Note: Figures in parentheses show percentages

The distribution of the respondents by access to credit per age category is reflected on Table 4.5b. The results show that most respondents were in the age group of 50 to 59 years of age as shown in Table 4.1. Few of these (10.8%) did receive credit, followed by those within the age groups 30-39

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years (8%) and 40-49 years (5.6%), respectively. Most (29.6%) respondents who did not have access to credit are in the age group 50-59 years of age. Furthermore, gender distribution of respondents and access to credit is indicated in Table 4.5c below.

Table 4.5b: Age distribution of respondents by access to credit

Age group (years)	Access to credit		Total
	Yes	No	
20-29	12 (4.8)	10 (4.0)	22 (8.8)
30-39	20 (8.0)	21 (8.4)	41 (16.4)
40-49	14 (5.6)	40 (16.0)	54 (21.6)
50-59	27 (10.8)	74 (29.6)	101 (40.4)
60+	11 (4.4)	21 (8.4)	32 (12.8)
Total	84 (33.6)	166 (66.4)	250 (100)

Source: Computed from field survey, 2011
Note: Figures in parenthesis show percentages

Table 4.5c: Gender distribution of respondents by access to credit

Access to credit	Gender		Total
	Male	Female	
Had access	62 (24.8)	22 (8.8)	84 (33.6)
Had no access	126 (50.4)	40 (16.0)	166 (66.4)
Total	188 (75.2)	62 (24.8)	250 (100)

Source: Computed from field survey, 2011
Note: Figures in parenthesis show percentages

Table 4.5c shows the gender distribution of respondents by access to credit. The results show that 33.6% of the respondents had access to credit; of these 24.8% were male respondents as compared

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to an astounding 8.8% of their female counterparts. A massive 50.4% of the male respondents had no access to credit compared to 16.0% of their female counterparts.

The distribution of households by type of market that was serviced by a given financial institution is presented in Table 4.6 below. The types of markets were the formal and the informal market. According to the results, 38.1% and 25% of the surveyed households accessed credit from commercial banks and land bank financial institution, respectively. Furthermore, 10.7%, 8.3%, 8.3% and 9.5% of the households who accessed credit from the informal credit market utilised credit from the following sources: family members, other farmers, local business people and private money lenders, respectively. According to the respondents who are informal credit users, family members are regarded as the reliable and efficient credit source.

Table 4.6: Distribution of respondents by type of market and sources of credit (n=84)

	Type of market serviced		Total
	Formal	Informal	
Commercial bank	31 (38.1)	0 (0)	31 (38.1)
Land bank	21 (25.0)	0 (0)	21 (25.0)
Family members and relatives	0 (0)	9 (10.7)	9 (10.7)
Other farmers	0 (0)	7 (8.3)	7 (8.3)
Local business people	0 (0)	7 (8.3)	7 (8.3)
Private money lenders	0 (0)	8 (9.5)	8 (9.5)
Total	53 (63.1)	31 (36.9)	84 (100)

Source: Computed from field survey, 2011
Note: Figures in parenthesis show percentages

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The distribution of household respondents by credit market and loan utilisation is presented in Figure 4.5. The results show that only 3.6% and 6.0% of formal credit were used for land acquisition and infrastructure, respectively. An equal proportion (20.2%) of both formal and informal credit was utilized for production inputs. About 33.3% of the credit (29.8% formal credit and 3.6% informal credit) was used for the acquisition of mechanisation. It is also shown that 16.7% of the credit (3.6% formal and 13.1% informal credit) were utilised for capital.

None of the credit acquired from informal sources, were utilised for land acquisition and infrastructure development. The reasons could be that land acquisition and infrastructural development require large capital. It is therefore less likely for a farmer to get large credit that will service the mentioned items through informal credit types.

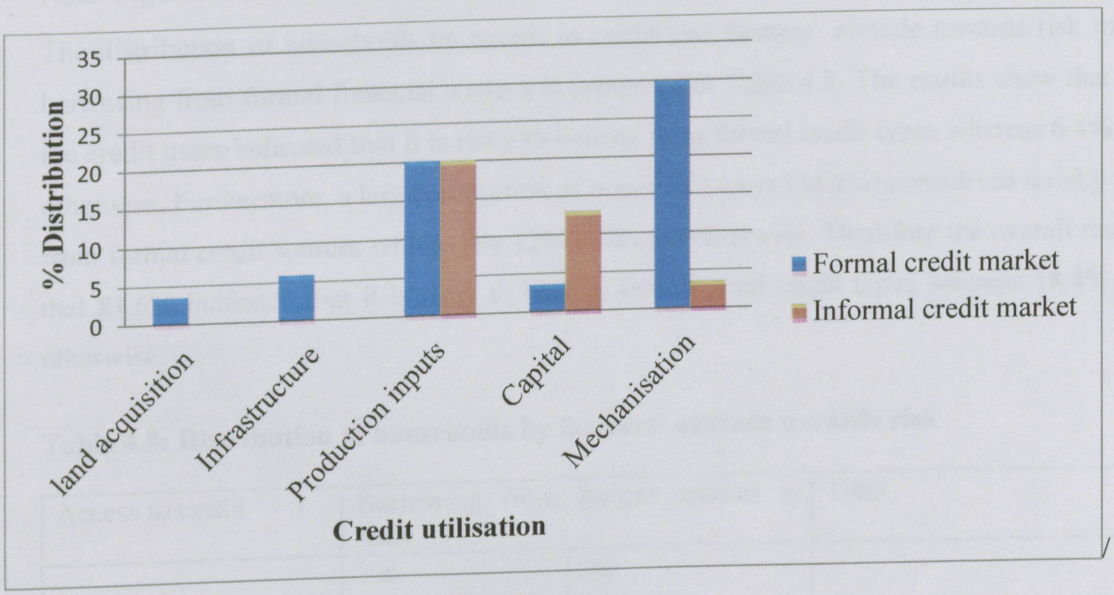


Figure 4.5: Distribution of respondents by credit markets and credit utilisation

Source: Field survey, 2011

Table 4.7 indicates the distribution of respondents by the level of satisfaction of the respondents on the acquired credit. The results show that 38.1% of the respondents who acquired credit from formal sources were slightly satisfied whereas 25% being satisfied. With respect to informal credit users, only 7.1% were satisfied whilst 29.8% were slightly satisfied.

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Table 4.7: Distribution of respondents by type of market and level of satisfaction with credit received (n=84)

Type of market	Level of satisfaction		Total
	Slightly satisfied	Satisfied	
Formal market	32 (38.1)	21 (25.0)	53 (63.1)
Informal market	25 (29.8)	6 (7.1)	31 (36.9)
Total	57 (67.9)	27 (32.1)	84 (100)

Source : Computed from field survey, 2011
Note: Figures in parenthesis show percentages

The distribution of households by access to credit and farmers' attitude towards risk in terms of borrowing from formal financial sources is presented in Table 4.8. The results show that 27.2% of the credit users indicated that it is risky to borrow from formal credit types whereas 6.4% indicated otherwise. Furthermore, a large proportion of non-credit users (54.4%) considered it risky to borrow from formal credit sources whilst only 12% indicated otherwise. Therefore the overall results show that 81.6% indicated that it is risky to borrow from formal credit types whereas 18.4% indicated otherwise.

Table 4.8: Distribution of households by farmers' attitude towards risk

Access to credit	Borrowing from formal sources is risky		Total
	Yes	No	
Credit users	68 (27.2)	16 (6.4)	84 (33.6)
Non-credit users	136 (54.4)	30 (12.0)	166 (66.4)
Total	204 (81.6)	46 (18.4)	250 (100)

Source: Computed from field survey, 2011
Note: Figures in parenthesis show percentages

Respondents were also surveyed on their credit use experience. The results from Figure 4.6 show that most (41%) of the respondents who accessed credit from formal sources had less than 5 years' experience in credit use whereas 22% had an experience of between 6 to 10 years. Furthermore, a

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large proportion (24%) of respondents who accessed credit from informal sources had experience in credit use of between less than 5 years as compared to 12% who had 6 to 10 years' experience. It is also shown that 1% of the informal credit users had no experience in credit use.

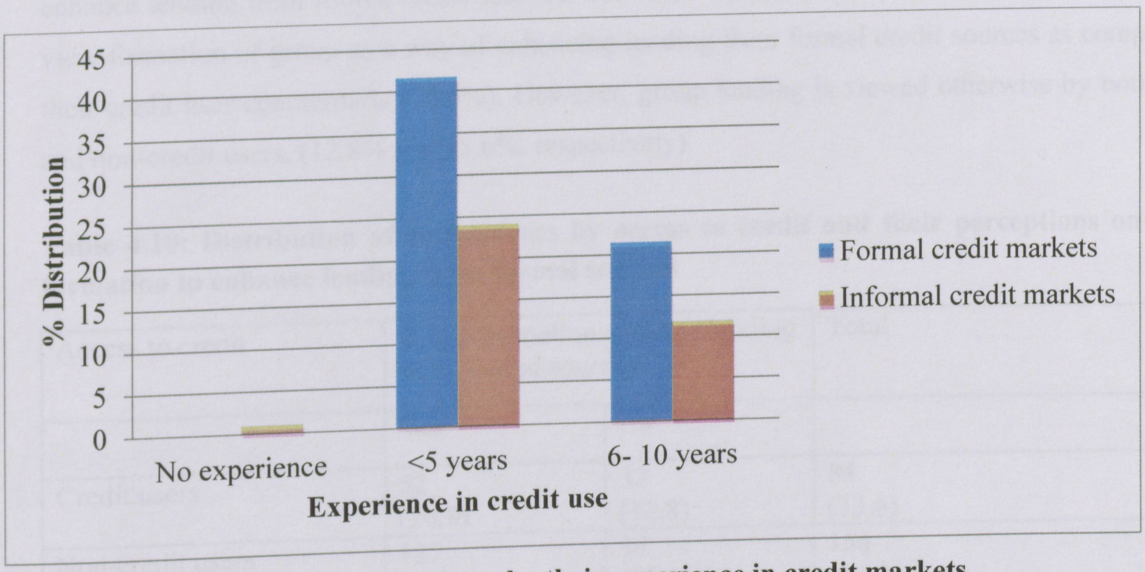


Figure 4.6: Distribution of respondents by their experience in credit markets.
Source: Field survey, 2011

Table 4.9: Distribution of respondents by access to credit and distance from the formal financial institutions.

Physical distance from lending institutions	Access to credit		Total
	Credit users	Non- credit users	
<15 Km	19 (7.6)	28 (11.2)	47 (18.8)
16- 30 Km	24 (9.6)	60 (24.0)	84 (33.6)
31-50 Km	26 (10.4)	63 (25.2)	89 (35.6)
>51 Km	15 (6.0)	15 (6.0)	30 (12.0)
Total	84 (33.6)	166 (66.4)	250 (100)

Source: Field survey, 2011
Note: Figures in parenthesis show percentages

The results show that about 7.6% of the respondents who had access to credit were less than 15km from the formal credit sources as compared to only 11.2% of the credit users. It is further indicated that about 24% and 25.2% of the non-credit users were living between 16 and 30 Km as well as 31 and 50 Km away from the formal lending institutions, respectively as compared to their credit user

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counterparts (9.6% and 10.4%, respectively). The results also show that 6% of both the credit users and non-credit users were more than 51 Km from the formal lending institutions.

Table 4.10 presents the distribution of the respondents by their perception on group lending to enhance lending from formal credit sources. The result indicates that 50.8% of the non-credit users view formation of group as a way of enhancing lending from formal credit sources as compared to their credit user counterparts (20.8%). However, group lending is viewed otherwise by both credit and non-credit users, (12.8% and 15.6%, respectively).

Table 4.10: Distribution of respondents by access to credit and their perceptions on group formation to enhance lending from formal sources

Access to credit	Group formation enhance lending from formal sources		Total
	Yes	No	
Credit users	52 (20.8)	32 (12.8)	84 (33.6)
Non-credit users	127 (50.8)	39 (15.6)	166 (66.4)
Total	179 (71.6)	71 (28.4)	250 (100)

Source: Computed from field survey, 2011
Note: Figures in parenthesis show percentages

Figure 4.7 indicates the distribution of households by their perception on repayment period as a constraint. The results indicate that most (56%) of the respondents who had access to credit indicated that loan repayment period from formal credit market is not a constraint whilst approximately 14% said otherwise. Even though the majority of those who had no access (approximately 19.6%) said it was not constraint but only 10.4% said it was a constraint, the overall opinion of the respondents was that the loan repayment period is a constraint (70% vs. 30% respectively).

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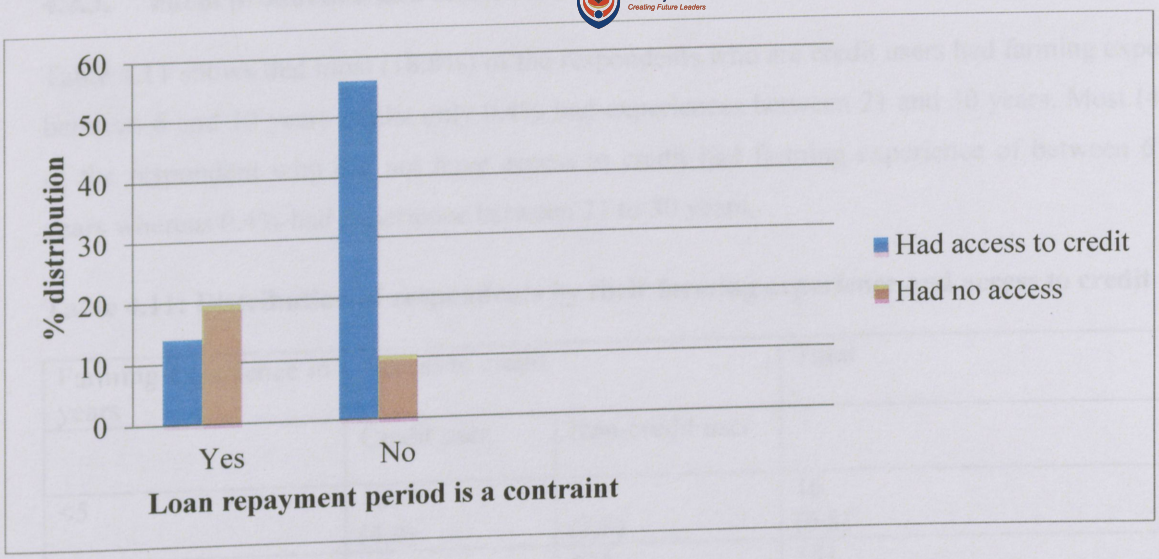


Figure 4.7: Distribution of respondents on their perception on repayment periods at formal credit market as constraint
Source: Computed form field survey, 2011

Figure 4.8 indicates the distribution of households by farmers' opinions on lending complications. The results in Figure 4.8 show that most (above 60.0%) respondents who are non-credit users indicated that lending procedures from formal sources were complicated whilst approximately 5% said otherwise. Even though some of the formal credit users (approximately 19%) said it was not complicated, the overall opinion of the respondents was that the lending procedures were complicated (77% vs. 23 % respectively).

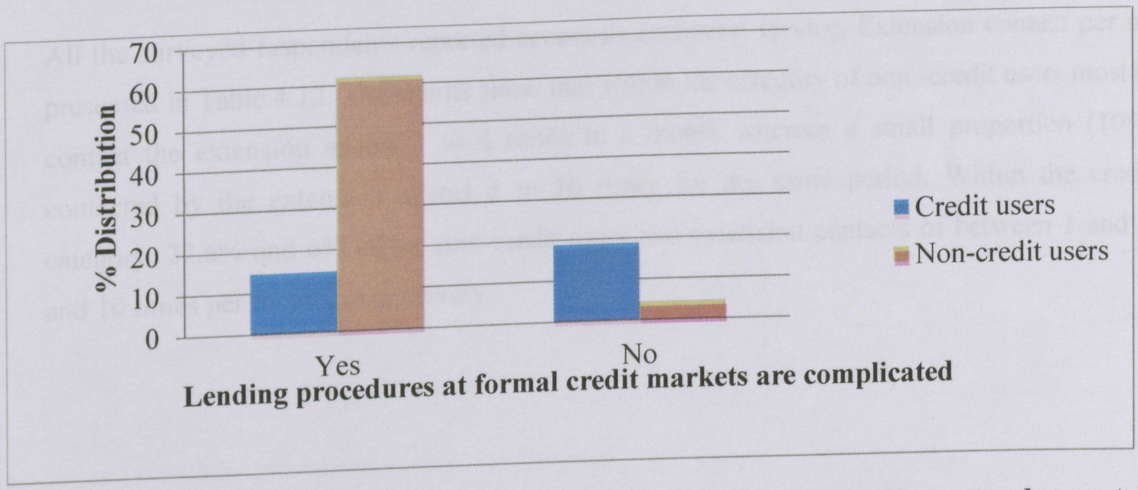


Figure 4.8: Distribution of respondents on their perception on lending procedures at formal credit market
Source: Computed from field survey, 2011

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4.2.3. Farm production and related activities

Table 4.11 shows that most (18.8%) of the respondents who are credit users had farming experience between 6 and 10 years whilst only 0.4% had experiences between 21 and 30 years. Most (41.6%) of the respondent who did not have access to credit had farming experience of between 6 to 10 years whereas 0.4% had experience between 21 to 30 years.

Table 4.11: Distribution of respondents by their farming experience and access to credit

Farming experience in years	Access to credit		Total
	Credit user	Non-credit user	
<5	10 (4.0)	7 (2.8)	16 (6.8)
6-10	47 (18.8)	104 (41.6)	151 (60.4)
11-20	22 (8.8)	50 (20.0)	72 (28.8)
21-30	1 (0.4)	2 (0.8)	3 (1.2)
31-40	1 (0.4)	0 (0)	1 (0.4)
>40	3 (1)	3 (1.2)	6 (2.4)
Total	84 (33.6)	166 (66.4)	250 (100)

Source: Computed from field survey, 2011
Note: figures in parentheses show percentages

All the surveyed respondents reported access to extension service. Extension contact per month is presented in Table 4.12. The results show that within the category of non -credit users most (56.4%) contact the extension agents 1 to 4 times in a month whereas a small proportion (10%) were contacted by the extension agents 5 to 10 times for the same period. Within the credit users category, 27.6% and 6% of the non-credit users had extension contacts of between 1 and 4 and 5 and 10 times per month, respectively.

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Table 4.12: Distribution of respondents per access to credit and extension contact per month

Extension contact per month	Access to credit		Total
	Credit users	Non-credit users	
1-4 times	69 (27.6)	141 (56.4)	210 (84.0)
5-10 times	15 (6)	25 (10)	40 (16.0)
Total	84 (100)	166 (100)	250 (100)

Source: Field survey, 2011
Note: Figures in parentheses shows percentage

The distribution of surveyed farmers on the number of permanent employees that can be employed by the respondents is presented on Table 4.13. About 19.6% of the respondents who had access to credit employs on average 5 to 10 permanent employees, followed by 12% who employs on average 2 to 4 permanent employees. This also depends on the type of the farming activity. For the respondents who had no access to credit, 30.8% permanently employs 5 to 10 employees on average followed by 30% who employs 2 to 4 permanent employees.

Table 4.13: Distribution of respondents by access to credit and the number of permanent employees employed.

Permanent employees	Access to credit		Total
	Had access	Had no access	
1	1 (0.4)	1 (0.4)	2 (0.8)
2-4	30 (12.0)	75 (30.0)	105 (42.0)
5-10	49 (19.6)	77 (30.8)	126 (50.4)
11-25	4 (1.6)	12 (4.8)	16 (6.4)
26-50	0 (0)	1 (0.4)	1 (0.4)
Total	84 (33.6)	166 (66.4)	250 (100)

Source: Field survey, 2011
Note: Figures in parentheses shows percentage

Table 4.14 presents the distribution of respondents by access to credit and temporary employees that can be employed per season. The results show that about 30% of the respondents who had

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access to credit employs seasonal employees between 5 and 10 as compared to 64.4% of those who had no access to credit. Furthermore, 2.4% of the respondents who had access to credit employs 1 to 4 seasonal employees compared to respondents who had no access to credit (1.2%).

Table 4.14: Distribution of the respondents by access to credit and the number of seasonal employees that can be employed seasonally.

Temporary employees	Access to credit		Total
	Had access	Had no access	
1-4	6 (2.4)	3 (1.2)	9 (3.6)
5-10	75 (30.0)	161 (64.4)	236 (94.4)
11-25	3 (1.2)	2 (0.8)	5 (2.0)
Total	84 (33.6)	166 (66.4)	250 (100)

Source: Field survey, 2011
Note: Figures in parentheses shows percentage

Table 4.15: Distribution of respondents by Gross Farm income and access to credit

Gross farm income	Access to credit		Total
	Had access	Had no access	
< R150,000	5 (2.0)	8 (3.2)	13 (5.2)
R151,000-R500,000	76 (30.4)	156 (62.4)	232 (92.8)
R500,001 –R1M	3 (1.2)	2 (0.8)	5 (2.0)
Total	84 (33.6)	166 (66.4)	250 (100)

Source: Field survey, 2011
Note: Figures in parentheses shows percentage

Table 4.15 shows the categories of gross farm income per categories of credit users and non-credit user. The results show that 30.4% of the respondents who had access to credit generated on average a gross farm income of between R151, 000 and R500, 000 per annum as compared to the massive 62.4% for those who had no access. Only 2% of the respondents who had access on average earned a gross farm income ranging between R51, 000 and R150, 000 per annum. Almost an equal

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proportion of those who had access and had n[illegible] credit earned an annual income in excess of R500, 000.

Table 4.16: Distribution of respondents by the total asset value and access to credit.

Total value of farm assets	Access to credit		Total
	Credit users	Non-credit users	
Negligible assets	0 (0)	3 (1.2)	3 (1.2)
<R150,000	26 (10.4)	159 (63.6)	185 (74.0)
R150,001 –R250,000	44 (17.6)	3 (1.2)	47 (18.8)
R250,001 – R500,000	14 (5.6)	1 (0.4)	15 (6.0)
Total	84 (33.6)	166 (66.4)	250 (100)

Source: Field survey, 2011
Note: Figures in parentheses shows percentage

Table 4.16 shows the total value of farm assets per categories of credit users and non-credit user. Therefore, 17.6% of the credit users had on average total asset valued between R150, 001 and R250, 000 compared to 1.2% of the non-credit users. A proportion of 10.4% of the credit users had assets valued between R1 to R150, 000 compared to a massive 63.6% of the non-credit users. Only 1.2% of the non-credit users had negligible assets. A small proportion of the credit users (5.6%) and non-credit users (0.4%) had on average total assets valued between R250, 001 and R500, 000, respectively.

Table 4.17 shows the distribution of respondents by availability of off- farm income and access to credit. The results show that 14.8% of the respondents who had access to credit receive off-farm income whereas 18.8% rely only on the farm income. It is also indicated that 35.6% of the respondents who had no access to credit receive off- farm income whereas 30.8% do not receive the off-farm income.

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Table 4.17: Distribution of the respondents by availability of off-farm income and access to credit.

Off- farm income	Access to credit		Total
	Had access	Had no access	
Yes	37 (14.8)	89 (35.6)	126 (50.4)
No	47 (18.8)	77 (30.8)	124 (49.6)
Total	84 (33.6)	166 (66.4)	250 (100)

Source: Field survey, 2011
Note: Figures in the parentheses show percentages

4.2.4. Impact of government interventions on advancing credit

Table 4.18: Distribution of respondents by access to credit through government programmes (n=84)

Government programme	Accessed credit through government programme		Total
	Yes	No	
None	0 (0)	53 (63.1)	53 (63.1)
MERECAS	23 (27.4)	0 (0)	23 (27.4)
LRAD	3 (3.6)	0 (0)	3 (3.6)
MAFISA	5 (6.0)	0 (0)	5 (6.0)
Total	31 (36.9)	53 (63.1)	84 (100)

Source: Field survey, 2011.
Note: Figures in parenthesis show percentages

The results show that only 36.9% of the respondents received credit through government programmes whereas the remaining 63.1% did not. Of those that accessed funding through government programmes, 27.4% received credit through the Mechanisation revolving credit access scheme programme (governmental programme that assists farmers to purchase mechanisation on a 50% support base) whilst 3.6% accessed credit through the LRAD programme grant programme (a

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programme that assists farmers to acquire land in the Land Reform policy through Land Bank loans).

The opinions of the farmers in terms of the extent to which government programmes improved outreach to smallholder farmers, and thus an indication of increased beneficiaries is reflected in Table 4.19. The results show that 49.2% and 21.6% of non-credit and credit users respectively indicated that needs assessment should be conducted for the programmes to address the needs of the smallholder farmers. It is also indicated that about 16.8% and 11.6% respectively of the non-credit users and credit users identified consultative summits as critical for enhancing outreach.

Table 4.19: Distribution of respondents by the farmers' opinions on how government programmes can improve outreach to smallholder farmers.

How can government programme improve outreach to small-scale farmers	Accessed to credit		Total
	Credit users	Non- credit users	
Information days	1 (0.4)	1 (0.4)	2 (0.8)
Consultative summits	29 (11.6)	42 (16.8)	71 (28.4)
Conduct needs assessment	54 (21.6)	123 (49.2)	177 (70.8)
Total	84 (33.6)	166 (66.4)	250 (100)

Source: Field survey, 2011.
Note: Figures in parenthesis show percentages

The distribution of respondents' perception of measures that can be recommended to government programmes to improve the access to credit is presented in Table 4.20. The results show that most respondents who had no access and those who had access recommend the provision of government subsidy as the best strategy to improve access to credit (32.4 % and 18.4% respectively). A substantial proportion (30.4%) of both non-credit (21.2%) and credit (9.2%) users recommended secure reliable produce markets as another strategy to improve access to credit.

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Table 4.20: Distribution of the respondents by their perceptions on the measures that can be recommended to government to improve smallholder farmers' access to credit.

Measures that can be recommended to government to improve the access to credit	Access to credit		Total
	Credit users	Non-credit users	
Provide government subsidy on credit allocated	46 (18.4)	81 (32.4)	127 (50.8)
Allocate larger units of production land	4 (1.6)	5 (2.0)	9 (3.6)
Subsidize production inputs	11 (4.4)	27 (10.8)	38 (15.2)
Secure reliable markets for the produce	23 (9.2)	53 (21.2)	76 (30.4)
Total	84 (33.6)	166 (66.4)	250 (100)

Source: Field survey, 2011.
Note: Figures in parenthesis show percentages

Table 4.21 shows the respondents' opinions on their key development needs that can improve their access to credit. Most respondents identified marketing (44.8%) and subsidised financial support (43.2%) as their key developmental needs. These were respectively subdivided into 28.8% and 16.0%, and 32.8% and 10.4% respectively for non-credit and credit users. Other strategies such as infrastructure, (9.2%), technical (1.6%) and networking (1.2%) were considered as least important. This is due to reasons that access to reliable market ensures sale of farm produce and thus increase the annual turnover of the farm and this will lead the farmers to have a better chance to access credit from formal sources.

Table 4.21: Distribution of respondents by the farmers' opinions on their key development needs in order to improve access to formal credit.

Access to credit	Key development needs of the respondents					Total
	Subsidised financial support	Technical support	Marketing support	Networking with other business owners	Infrastructure	
Credit users	26 (10.4)	1 (0.4)	40 (16.0)	3 (1.2)	14 (5.6)	84 (33.6)
Non-credit users	82 (32.8)	3 (1.2)	72 (28.8)	0 (0)	9 (3.6)	166 (66.4)
Total	108 (43.2)	4 (1.6)	112 (44.8)	3 (1.2)	23 (9.2)	250 (100)

Source: Field survey, 2011
Note: Figures in parenthesis show percentages

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4.3 Empirical Results

To study factors affecting smallholder farmer's access to formal credit, data gathered from 250 farmers were subjected to logistic regression analysis. The statistical software used for analyzing the data was SPSS 19.0 windows. Prior to running logistic regression model, the independent variables were checked for the existence of multicollinearity problem.

4.3.1 Multicollinearity diagnosis

Multicollinearity problem arises when at least one of the independent variables is a linear combination of the others. The existence of multicollinearity might cause the estimated regression coefficients to have the wrong signs and smaller t-ratios that might lead to wrong conclusions.

There are two measures that are often suggested to test the presence of multicollinearity. These are: Variance Inflation Factor (VIF) and tolerance for association among the continuous explanatory variables as well as contingency coefficients for dummy variables (Gujarati, 2003). The technique of variance inflation factor (VIF) was employed to detect the problem of multicollinearity among continuous variables. According to Gujarati (2003), VIF can be defined as:

$$VIF\ (X_i) = \frac{1}{1 - R_i^2}$$

Where, R_i^2 is the square of multiple correlation coefficients that results when one explanatory variable (X_i) is regressed against all other explanatory variables.

The larger the value of $VIF\ (X_i)$ the more "troublesome" or collinear the variable X_i is. As a thumb rule, if the VIF of a variable exceeds 10, there is multicollinearity problem.

The tolerance values close to 1 mean there is little multicollinearity, whereas a value close to 0 suggests that multicollinearity may be a threat. Therefore, the VIF and tolerance values displayed below (Table 4.22) have shown that all the independent variables have no serious multicollinearity problem hence the tolerance values for these variables are close to 1 and the VIFs are less than 10.

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Table 4.22: Variance inflation factor and tolerance for independent variables

Variable	Collinearity Statistics	
	Tolerance	VIF
CREDITNEED	0.929	1.076
RITAKE	0.932	1.073
DISTACS	0.892	1.122
SHOREPIN	0.774	1.293
LEPROC	0.710	1.409
EXECON	0.925	1.081
TOINCOME	0.924	1.082
TOASSET	0.770	1.298

Source: Computed from field survey, 2011

Similarly, contingency coefficients were computed to check the existence of multicollinearity problem among independent variables. The contingency coefficient is computed as:

$$C = \sqrt{\frac{X^2}{1 + X^2}}$$

Where,

C= coefficient of contingency, X^2 = Chi-square random variable and N= total sample size.

Table 4.23: Contingency coefficients of independent variables

	1	2	3	4	5	6	7	8
1	1							
2	0.21	1						
3	0.095	0.85	1					
4	-0.153*	-0.153*	-0.231**	1				
5	-0.109	-0.90	-0.078	0.364**	1			
6	-0.136*	-0.151*	0.068	0.0711	0.174**	1		
7	0.98	0.096	0.165**	0.111	0.030	-0.29	1	
8	-0.165**	0.041	0.002	0.232**	0.444**	0.360	-0.16	1

Source: Computed from the field survey data, 2011
** and * represent level of significance at 5% and 10% respectively

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Description- 1=CREDITNEED, 2=RITAKE, 3=DISTCS, 4=SHORPE, 5=LEPROC, 6=EXECON, 7=TOINCOME and 8=TOASSET

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The decision rule for the contingency coefficients is that when its value approaches 1, there is a problem of association between the independent variables. Based on the tolerance values, the VIF and contingency coefficient results, the data were found to have no serious problem of multicollinearity and therefore the independent variables were retained in the model.

4.3.2 Model output

In the preceding section, variables characterizing the farm households and their differences amongst those who had access to credit and those who had no access to credit groups were identified. However in the logistic regression analysis, we emphasize on considering the combined effect of variables between farm household who had access and those that had no access to credit in the study area. Therefore the emphasis is on analyzing the variables simultaneously in order to be able to incorporate important information about their relationship.

Eighteen variables were hypothesized to explain factors affecting smallholder farmers' access to formal credit. Out of these only eight of the variables were found to be significant, while the remaining ten were less significant in explaining the variations in the dependent variable.

Table 4.24: Maximum likelihood estimates of the logit model and the effects of explanatory variables on the probability of access to formal credit

Explanatory variables	Estimated coefficients	Standard error	Wald statistics	Significance level	Exponential coefficient
Constant	18.2536	4.893	13.916	0.000	84559199.79
CREDITNEED	1.668	0.836	3.981**	0.046	5.299
RITAKE	-1.201	0.682	3.100*	0.078	0.301
DISTACS	-1.623	0.879	3.410*	0.065	0.197
SHORTPE	-2.269	0.577	15.478***	0.000	0.103
LEPROC	-2.552	0.642	15.785***	0.000	0.078
TOASSET	-4.751	0.778	37.331***	0.000	0.009
EXECON	1.527	0.726	4.422**	0.035	4.603
TOINCOME	-1.944	1.203	2.613	0.106	0.143

Source: Field survey, 2011

***, ** and * represent level of significant at 1%, 5% and 10% respectively

R^2=0.77

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The maximum likelihood estimates of the logistic regression model show that repayment period and time (SHORTPE), lending procedure (LEPROC), physical distance from lending institution (DISTACS), need for credit (CREDITNEED), extension contact (EXECON), total value of farm assets (TOASSET) and attitude towards risk (RITAKE) were important factors influencing smallholder farmers access to credit in the study area. Total gross income (TOINCOME) was less significant but important factor in terms of affecting access to formal credit as it can assist the creditors to assess the affordability of the lender (Table 4.24).

The exponential coefficients in Table 4.24, shows the value of the regression coefficient by which the odds of the event change when the independent variable increase by 1 unit. If the value is greater than 1, the probability of having access to credit increases and if the value is less than 1 the probability of having access to credit decreases.

Repayment period (SHORTPE) was found to be one of the factors that significantly explained access to credit by smallholder farmers and is significant at 1% level. The exponential coefficient corresponding to the variable SHORTPE shows that access to credit by smallholder farmers in the study area decreases by 0.103 when the loan repayment period increases by 1 unit.

Lending procedure (LEPROC) was found to be another factor which is significant at 1% level and influenced the access to credit by smallholder farmers. The exponential coefficient corresponding to the variable LEPROC shows that access to credit by smallholder farmers in the study area decreases by 0.078 when the lending procedures become more complicated and prolonged by 1 unit.

Total value of farm assets (TOASSET) was another factor which is significant at 1% level in explaining the access to credit by smallholder farmers in the study area. The exponential coefficient corresponding to the variable TOASSET shows that access to credit by smallholder farmers decreases by 0.009 when the total asset value increases by 1 unit.

Extension contact (EXECON) was another factor which is significant at 5% level and influenced access to credit by smallholder farmers in the study area. The exponential coefficient corresponding to the variable EXECON shows that access to credit by smallholder farmers increases by 4.603 for farmers who have more contact with extension services.

Physical distance between the lender and borrower (DISTCS) was another factor which significantly influences access to credit in the study area and it is significant at 10%. The

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exponential coefficient corresponding to the variable DISTCS shows that access to credit by smallholder farmers decreases by 0.197 when the lender-borrower distance increases by 1 unit.

Need for credit (CREDITNEED) was another factor which significantly influences the access to credit in the study area at 5% level. The exponential coefficient corresponding to the variable CREDITNEED shows that access to credit by smallholder farmers increases by 5.299 when the need for credit by a smallholder farmer increases by 1 unit.

Attitude towards risk (RITAKE) was another factor which is significant at 10% and influences the access to credit by smallholder farmers. The exponential coefficient corresponding to the variable RITAKE shows that when the attitude towards risk by smallholder farmers increases by 1 unit, access to credit decreases by 0.301.

4.4 Discussions of the results

4.4.1 Biographic characteristics of smallholder farmers in the Capricorn district of the Limpopo province

In terms of the demographic characteristics of the smallholder farmers in the study area, the sample farmers were placed in six distinct age categories, as follows, less than or equal to 19, 20 to 29, 30-39, 40-49, 50-60 and above 60. The results showed that most of the male (28.4%) and female (12%) respondents were in the age category 50-59 years and are more engaged in farming than their counterparts in other age groups. These results are consistence with the findings of Zeller (1994) that following the life-cycle hypothesis, the young and energetic individuals with an ambition to earn higher incomes will be more active in saving and dissaving in order to accumulate wealth. Therefore demand for credit is expected to vary negatively with age meaning the older the farmer the less likely they will demand and access to credit.

The results in relation to gender indicated that 24.8 % and 75.2 % of the surveyed farmers were female and male household heads, respectively. The implication is that most male headed households are more engaged in farming activities than their female counterparts. These results are congruent with the findings of Hussien (2007) which indicated that the male headed households are presumed to undertake income earning activities and have mobility and are able to participate in various meetings and have more exposure to information than their female counterparts who mostly concentrates on household chores and farm work.

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Hassim (2006) added that despite the gains that have been made with respect to gender equality, critics have expressed concern that the redistribution of resources and power has not shifted the structural forces with respect to oppression of women. It was further indicated that this shows that there is still a need to emphasize women empowerment programmes. Therefore it can be concluded that more male household heads are engaged in farming than the female household heads.

The results in Figure 4.1 indicated that most household head respondents (52 %) are married, while 14%, 27% and 7% are single, divorced and widowed respectively are single, widowed and divorced. The implication of this scenario is that a household comprising of husband and wife is better off than a single headed household in terms of focusing on farming activities and are more likely to access credit from formal sources. In an African set-up, males and females play a complementary role with regards to their livelihood. For example, while wife is expected to perform day to day house chores such as cooking for the family, the husband might be more engaged in income generating activities such as farming. In the absence of a spouse, one can encounter a situation whereby he/she has to perform duties on behalf of the other. In this regard, the extent to which he/she can be expected to undertake farming activities would be expected to differ from married spouses, other factors being constant. The implication of this scenario is that a household comprising husband and wife is better off than a single headed household in terms of focusing on farming activities.

These results are congruent with the findings of Mpuga (2010) that indicated that the married and widowed are more likely to apply for the loans and their applications are more likely to be approved compared to the unmarried. The reason being the married are in a stable environment and the widowed are vulnerable to poverty and lack other means of support.

In relation to the level of education, education is one of the critical factors that can enable a farmer to easily understand basic farm management, financial management, terms and conditions of credits offered. Therefore, the results indicated that 60% of the male household heads surveyed had acquired secondary and post- secondary school qualifications as compared to their female counterparts (21.2%). It was also indicated that 12.4% male household heads went up to primary and junior secondary school as compared to their female counterparts (2.8%). These results are consistence with the findings of Mpuga (2010) were it is indicated that the educated farmers are likely to have higher income and/or savings, have more assets and be more likely to engage in business or economic activities hence it is expected that demand for credit increases with the level

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of education. Mpuga (2010) added that the higher level of education the more successful the farmer was. A sound education background can reinforce natural talent it can provide theoretical foundation for informed decisions. Entrepreneurial success requires formalized skills in marketing, purchasing, supply chain management and finance. Therefore education is likely to improve managerial skills/ ability to better formulate and execute farm plans and acquire better information to improve marketing ability and further improve access to formal credit.

The results show that the most (40%) of the male household heads had total size of land between 11 and 20 hectares as compared to their female counterparts with a proportion of 14.8%. The results also indicated that a proportion of 2% and 0.8% of the male household heads possessed total land of between 31and 40 hectares as well as greater than 41 hectares, respectively. This shows that the surveyed male respondents possessed larger portions of land that the surveyed female respondents. The household with a very small size of arable land are generally dependent on communal land for agricultural purposes. According to Machethe (2004), access to land for production is an essential requirement for the poor to enjoy the benefits of agricultural growth. The access to land through initiatives such as Land Reform is aimed at promoting the smallholder agricultural development. Delgado (1995) strongly argued that the tribal areas present no real opportunities for production of crops or animals for sale. Cash cropping demands land, and tribal lands are insufficient. Nor given the shortage of resources, are there significant possibilities for rural investment. Modern farming techniques are geared to production of cash returns, a proportion of which can be reinvested to expand or improve the farmer's assets. With acute shortage of land, the conditions for modern farm management are subverted.

The results are also congruent with the findings of Cross and Hornby (2002) that female farmers are presented with insufficient opportunities in terms of access to land than their male counterparts due to gender inequalities that still exist. They further indicated that the Promoting Women's Access to Land (PWAL) programme was initiated in collaboration with the DLA and National Land Committee (NLC) and various NGOs with the aim of promoting women's land rights. Given the above scenario most of the women engaged in agricultural activities are still without land rights.

The result shows that 59.2% of the male respondents were not affiliated to farmers association with only 16% that had acquired membership. Furthermore, only 4% of the female respondents were affiliated members versus about 24.8% that are without membership. Despite the constitutional right to gender equality results depict disparities in that there were fewer female respondents that had membership to farmers' associations. This could probably be translated into meaning that the

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low status of female headed households affected on their access to formal credit sources. Membership in the farmers' organisations often enables farmers to have greater access to agricultural production and credit. According to a study conducted by Baloyi (2010) the findings were that the National African Farmers union represents the interests of the previously disadvantaged in South Africa. NAFU lobbies for access to critical resources such as credit, extension services and other supporting services. It plays a role in capacity building and strengthening of its membership, and it has, as part of its mission to empower young people and women in agriculture. But it is evident from the results of the study that despite these goals and objectives of NAFU, it still does not enjoy a good membership from the small-scale farmers in the Capricorn District.

4.4.2 Access and use of credit and socio-economic factors influencing credit

The results indicated that 33.6% of the respondents did receive credit. Of these, 31.2% had actual need for credit while the remaining 2.4% had no need for it. About 66.4% failed to receive credit from funding institutions. About 48.8% of these responded that they had actual need for credit, translating into the finding that those that actually needed credit failed to obtain it as only 17.6% of the respondents reported that they actually had no need for credit. In summary, 80% of respondents reported a need for credit, with only 20% who indicated that they had no need for this facility. Furthermore, out of 33.6% of respondents who had access to credit, 24.8% were male respondents and the remaining 8.8% were female respondents. This shows that more male respondents had access to credit than their female counterparts. The results also show that 10.8% of the respondents in the age category 50 to 59 years of age did receive credit, followed by those within the age category 30 to 39 years (8%) and 40 to 49 years (5.6%), respectively.

According to Zeller (1994), when taking credit is perceived as a decision making process, it starts with the decision of the individual to apply for credit. In fact, the demand for loans depends on the self-financing potential, access to credit facilities and risk taking ability of borrowers. The fact that the majority of farmers have no access to credit is corroborated by the findings in South Africa that despite the existence of agricultural credit institutions in South Africa, a significant number of farmers have no access to credit (Machethe, 2004). Therefore a need for credit is expected to vary positively with age. Hence, Zeller (1994) found age to positively affect the decision to demand credit. It is hypothesized that farmers with higher age may have more access to use formal credit.

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Hassim (2006) reported that women in South Africa are generally allocated some portion of credit whereas a good portion of it was destined to their male counterparts. This is also corroborated by the findings of Yehuala (2008) in a study conducted in Ethiopia that the total respondents of 76.2% accessed credit in the surveyed year whereby of these 84.8% were male and 15.2% were female respondents. Therefore it is evident that women are still one of the disadvantaged groups from economic point of view. Getaneh (2005) added that this partly has to do with the fact that women are still highly handicapped with lack of business skills, much more than their male counterparts. On the other hand, Getaneh (2005) indicated that a basic premise is that economic participation is a foundation for other dimensions of empowerment.

The types of credit markets are the formal and the informal market. According to the results, 38.1% and 25% of the surveyed households accessed credit from commercial banks and land bank financial institutions, respectively. Furthermore, 10.7%, 8.3%, 8.3% and 9.5% of the households who accessed credit form informal market utilised credit from the following sources: family members, other farmers, local business people and private money lenders, respectively. According to the respondents who are informal credit users, family members were regarded as the reliable and efficient credit source.

This results are congruent with the findings of a study by Krain (1998) cited by Mohamed (2003) in Tanzania where the results indicated that credit povided by formal financial sources meets only a small portion of the total credit demand of the agricultural sector. For example, formal sources in Zanzibar accounted for only 9.9 percent of the total credit available to the agricultural sector. The remaining 90.1 percent was from informal financial sources. In Kenya, a study by Nguthi (2007) found that, only 16 percent of the smallholder farmers' accessed credit and the majority of households had no access to credit due to lack of collateral to secure their loans which could be sourced from banks. Therefore, in many developing countries, millions of low income entrepreneurs still do not have access to formal and semi-formal financial services that would allow them to increase their productivity and alleviate their poverty conditions.

These results also corroborate with findings of Hussien (2007) indicated that farm households are more likely to prefer informal sector to formal sector with respect to flexibility in rescheduling loan repayments and in times of unexpected income shockwaves. This was supported by Padmanabhan (1996), comparing the informal credit sector from formal stated of proximity, comfortable atmosphere, quick credit, all time access, repayment flexibility and lower transaction costs are the advantage of the informal sector and made them almost indispensable, particularly to smallholder

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farmers. Hence, commercial banks and other formal credit sources are out of reach of smallholder farmers.

The results show that 33.3% of the formal credit users utilized it for acquisition of mechanisation whereas about 3.6% of informal credit was used for the same purpose. It is also shown that there is an equal proportion (20.2%) of both formal and informal credit was used for production inputs. None of the credit acquired from informal sources, were utilised for land acquisition and infrastructural development. The reason being land acquisition and infrastructural development require large capital. It is therefore less likely for a farmer to get large credit that will service the mentioned items through informal credit. These findings are consistence with results of Mpuga (2010) which stated that in Uganda the rural credit assessed from micro-lending institutions and commercial banks is mostly used for agricultural purposes. Whereas the credit sourced from the family and friends (mostly informal sources) can be used for household consumption purposes.

The results show that 38.1% of the responderts who acquired credit from formal sources were slightly satisfied whereas 25% being satisfied. With respect to informal credit users, only 7.1% were satisfied whilst 29.8% were slightly satisfied. This is due to the credit defaults that may exist. Recent developments attest to informal financial institutions having a comparative advantage in some market segments due to its ability to enhance efficiency in resource allocation by mobilizing household savings and financing small business activities that are beyond the reach of the formal system (Ghate, 1992 and Gallardo *et al*., 2005). An empirical study by Mohamed (2003) found that very few smallholder farmers and rural micro-entrepreneurs have been integrated into formal financial institutions and many do not use credit or if they do, they continue to borrow from informal market lenders due to the low levels of satisfaction. The study by Gonzalez-Vega conducted (1994) cited by Mohamed (2003), reports that only a small fraction of the farmers in developing countries has received formal credit. In Asia and Latin America the statistics estimates that only 15 percent of the farmers are financed through formal credit markets whilst the estimate for Africa is 5 percent (Mohamed, 2003).

Respondents were also surveyed on the credit use experience. The results indicated that most (41%) of the respondents who accessed credit from formal credit types had less than 5 years' experience in credit use whereas 22% had an experience of between 6 to 10 years. Furthermore, a large proportion (24%) of respondents who accessed credit from informal types had experience in credit use of between less than 5 years as compared to 12% who had 6 to 10 years' experience. Only 1% of the informal credit users had no experience in credit use. A farmer having more experience in formal

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credit use have higher tendency towards using formal credit sources and vice versa. Therefore, this variable is assumed to have positive influence on access to credit. A study by Atieno (2001) confirms that experience in credit use has a positive influence on access to formal credit. Whereby the past credit participation of the farmer, enables a farmer to have more tendencies towards the use of formal credit.

The results indicated that 50.8% of the non-credit users view formation of group as a way of enhancing lending from formal credit sources as compared to their credit user counterparts (20.8%). Group lending is however viewed otherwise by the credit and non-credit users, (12.8% and 15.6%, respectively). Group lending is presumed to enhance access to formal credit by farmers because collateral can be made available through group assets. These results were consistent with the findings Zeller (2001) indicating that farmers and rural entrepreneurs in Tanzania particularly women, were much at a disadvantage as far as their ability in offering collateral is concerned. Poor farmers lack title deeds for the pieces of land they own and as a result they do not qualify for formal loans with which they can expand their business and improve their incomes. Therefore he concluded that insecurity in land tenure in Tanzania reduces the innovativeness and willingness of the poor smallholders to invest and as consequence has limited their chances to receive financial support from formal credit markets.

4.4.3 Farm production and related activities

Off-farm income is asserted as another factor that influences the decision of a farmer to take credit or not. It is regarded as a supplement to the farm income. The results show that 14.8% of the respondents who had to credit receive off-farm income whereas 18.8% rely on farm income. It is also indicated that 35.6% of respondents who had no access to credit receive off-farm income whereas (30.8%) do not receive the off-farm income. The probability of success in farming should directly be related to access to other sources of income. According to Mohammed (2003) those farmers who have access to other sources of credit made better use of all existing factors of production while those who have limited alternative income under-utilized some of their factors of production due to inadequate operating capital.

4.4.4 Impact of government interventions on advancing credit

There are numerous government initiatives which were implemented with the objective of enhancing access to credit by smallholder farmers. The results show that only 36.9% of the respondents received credit through government programmes whereas the remaining 63.1% did not. Of those that accessed funding through government programmes, 27.4% received through

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Mechanisation revolving credit access scheme (governmental programme that assists farmers to purchase mechanization on a 50% support base) whilst 3.6% accessed credit through the LRAD programme (a programme that assists farmers to acquire land in the Land Reform policy through Land Bank loans)

From the results it is clear that there are governmental programmes (for example MERECAS, MAFISA, LRAD, just to mention a few) that are designed to address the challenges faced by the smallholder farmers in terms of access to credit but are such programmes are as well not accessible to the farmers, hence a small proportion of the farmers who benefitted from the programmes. These results are consistent with the findings of Ishuza (1991) cited by Baloyi (2010) of the pilot study conducted in Tanzania, whereby private individuals, villagers and co-operatives were allowed to own tractors on a credit basis. Owners were required to make a down- payment on each tractor purchased, equal to half the value of the tractor. This resulted in tractor ownership being limited to a relatively wealthy minority. Therefore it is a well- known fact, needing no further debate, that poorly resourced farmers do not have resources that they will contribute in order to supplement the government subsidy. International experience has shown that if the government intervenes directly to assist the poor through subsidized credit, more often than not such credit fails to reach intended beneficiaries.

This is supported by the findings of LDA (2008) that from the programme MERECAS which initially was intended to assist smallholder farmers (resource poor) farmers to acquire mechanisation for agricultural purposes but from the scheme in 2008 and 2009 financial year 61% of the 110 beneficiaries were commercial farmers because they have more advantage than their smallholder farmers' counterparts. This raises a concern to say where lays the shortfalls of the programmes, is it within programme implementation plan or outreach to the farmers?

In terms of the improvement of outreach by government programmes to smallholder farmers, farmers opinions were captured and the results show 49.2% and 21.6% of the respondents who are non-credit users and credit users respectively, indicated that needs assessment should be conducted for the programmes to be designed to complement and address the needs of the smallholder farmers. It is also indicated that about 16.8% and 11.6% respectively of the non-credit users and credit users identified consultative summits as critical for enhancing outreach.

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These results are consistent with the findings of Manganhele (2010) stating that various funding programmes in Mozambique have been developed through government but the current reality of these development funds is that, generally, they failed to meet their objectives of providing financial resources to the smallholder farmers due to insufficient knowledge of what are the needs of the farmers. It was further stated that some of the development funds programmes are politically motivated and in the process the fundamental objectives are faded out and thus leaving the smallholder farmers without relevant support in terms of access to credit. Therefore, it is clear that before the policy makers draft policies there is a need for thorough needs assessment to be conducted in order to implement programmes that will address the needs of smallholder farmers. The needs assessments will also assist to get profiles of the smallholder farmers in terms of how their resource structure is and their capacity of contributing to the programmes.

The respondents further indicated that there are key development needs of which they believe that if they can be addressed they can be able to access more credit. The results show that most respondents identified marketing (44.8%) and subsidized financial support (43.2%) as their key development. These were respectively subdivided into 28.8% and 16%, 32.8% and 10.4% respectively for non-credit and credit users. Other strategies such as infrastructure (9.2%), technical (1.6%) and networking (1.2%) were considered as least important. This is due to reasons that access to reliable market ensures sale of farm produce and thus increase the annual turnover of the farm and this will lead the farmers to have a better chance to access credit from formal sources.

These results are supported by the findings of Machethe (2004) where it was indicated that despite government's initiatives of improving the quality and quantity of infrastructure in the rural areas poor infrastructure still persists (initiatives such as community based public works programme, consolidated municipal infrastructure programme and poverty relief and infrastructure investment programme). Smallholder farmers are faced with poor network and conditions of roads which negatively impact on the strategies and practices for agricultural purpose. This leads to inaccessible markets for inputs and outputs and making it difficult to acquire agricultural resources and supply produce to the market. Therefore access to proper infrastructure will concurrently solve the access to inputs and outputs markets and access to formal credit.

4.5. Discussion of the Logistic regression model output

The logistic regression model for this study shows that out of eighteen variables which were hypothesized to have influence on access to credit, only seven were significant. The maximum

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likelihood estimates of the logistic regression model show that repayment period, attitude towards risk, lending procedure, lender-borrower distance, value of the total farm assets, extension contact and need for credit are the variables which were important in influencing smallholder farmers access to credit in the study area. Total gross income was less significant but important factor in terms of affecting access to formal credit.

Repayment period (SHORTPE) was another factor that significantly explains access to credit by smallholder farmers. The exponential coefficient corresponding to the variable SHORTPE shows that access to credit by smallholder farmers in the study area decreases by 0.103 when the loan repayment period increases by 1 unit.

The findings in this study show that 56% of the respondents who had access to credit and 10.4% those who had no access did not perceive repayment period as a constraint, respectively. Khashuliza (1996) indicated that the factors influencing access to credit can either be borrower characteristics and/or loan terms and conditions imposed by lenders.

Therefore a study by Yehuala (2008) in Ethiopia confirms that repayment period is another factor influencing access to credit. The empirical study thereof indicated that 64.5% of female and 53.5% of male headed households' respondent that the inflexible repayment period was a constraint. For instance for an agricultural production loan from formal sources, farmers are given a one year term to repay the loan so farmers perceived this to be too restrictive considering the production risks associated to agricultural production. The findings also pointed out that the longer repayment period allocated is perceived by farmers as a constraint as well, in terms of the interests that will be charged.

Lending procedure (LEPROC) was another factor found to be significantly influential on access to credit by smallholder farmers in the study area. The exponential coefficient corresponding to the variable LEPROC shows that access to credit by smallholder farmers in the study area decreases by 0.078 when the lending procedures become more complicated and prolonged by 1 unit. The results with respect to farmers' opinions on lending criteria shows that 60% of the respondents who are non-credit users perceive the lending procedures from formal sources as a constraint due to their complicated nature whilst approximately 5% said otherwise. Even though the majority of the formal credit users (approximately 19%) said it was not complicated, the overall opinion of the respondents was that the lending procedures are complicated with a proportion of 77% whereas 23% of the respondents maintained that it was not complicated. Therefore, if farmers are of the opinion that the

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lending procedures is a constraint on access of credit from formal sources the farmers will be discouraged to take up credit from the formal sources.

The results are consistent with the findings of Kashuliza (1996) lending from formal sources; farmers are expected to pass through various processes, which is time-taking, burdensome and sometimes difficult to understand. They prefer to take credit from informal sources for the sake of ease even if it charges higher interest rates. This is manifested in the form of complicated application procedures and restrictions. Therefore, it was expected that, this variable negatively affects smallholder farmer's access to credit from formal credit sources.

Hussien (2007) added that lending credit to the smallholder farmers is costly for the formal credit lenders due to the distance between them and the clients in rural areas. Consequently, the nature of the costs involved in lending to the smallholder farmers is complex and tend to be high. By implication, smallholder farmers' decision- making when requesting loans from formal banks, will depend more on the proportion of the borrowing costs to the household's income, while financial institutions' willingness to lend to smallholder farmers will depend largely on the magnitude of the costs on the institutional side. The making of decision by the role players will be reflected in their unwillingness to lend and unwillingness to borrow, rather than by the real demand for agricultural credit.

Total value of farm assets (TOASSET) was another factor found to be significant in explaining the access to credit by smallholder farmers in the study area. The exponential coefficient corresponding to the variable TOASSET shows that access to credit by smallholder farmers decreases by 0.009 when the total asset value increases by 1 unit. The empirical results of this study shows that 17.6% of the respondents who had access to formal credit had on average total assets valued between R150, 001 and R250, 000 with a proportion of 10.4% that had assets valued less than R150, 000. Furthermore, 63.6% of the respondents who had no access to formal credit had on average total assets valued less than R150, 000 per annum with a proportion of 1.2% who had negligible assets.

These findings implies that in the study area the more a farmer accumulates assets the lesser the chances of accessing credit. This is also shown in the contingency coefficient table whereby there is a negative correlation (-0.165) between a need for credit and total assets value, this implies that the more a farmer accumulates assets the lesser the need for credit and this lead to no access to credit.

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The results are contradictory with a study conducted by Atieno (2001) which indicates that among other factors value of farm assets owned is a significant variable that explain the participation of smallholder farmers in formal credit markets. When a farmer has more capital assets of greater values the more likely he/she will have collateral hence have access to formal credit. A study by Fleisig (1995) also indicated that when a farmer has more experience in farming and is able to adopt modern technologies the farmer is more likely to improve production and will eventually accumulate more assets and hence access formal credit, this is also inconsistent with the findings in this study.

Physical distance between the lender and borrower (DISTCS) was another factor which significantly influences access to credit by smallholder farmers in the study area. The exponential coefficient corresponding to the variable DISTCS shows that access to formal credit by smallholder farmers decreases by 0.197 when the lender-borrower distance increases by 1 unit. This implies that farmers who are further away from the formal lending institutions are less likely to access credit from such institutions. Hence the results in the study confirms the above scenario, were about 7.6% of the respondents who had access to credit were less than 15km from the formal credit sources as compared to only 11.2% of the credit users. It is further indicated that about 24% and 25.2% of the non-credit users were living between 16 and 30 Km as well as 31 and 50 Km away from the formal lending institutions, respectively as compared to their credit user counterparts (9.6% and 10.4%, respectively). The results also show that 6% of both the credit users and non-credit users were more than 51 Km from the formal lending institutions. These results are consistence with the findings of Hussien (2007) that farm households are discouraged to borrow from credit sector if it is located farther. This is because both temporal and monetary costs of transaction, especially transport cost, increase with lender-borrower distance which raises the overall borrowing costs at otherwise relatively lower interest rate in the sector. Therefore the distance travelled to the lender by borrowers is another determining factor of access to formal credit.

Need for credit (CREDITNEED) was another factor found to be significantly influential to access to credit by the smallholder farmers in the study area. The exponential coefficient corresponding to the variable CREDITNEED shows that access to credit by smallholder farmers increases by 5.299 when a need for credit by smallholder farmer increases by 1 unit. From the findings of this study, 33.6 % of the respondents did access credit but of these, 31.2% had actual need for credit while the remaining 2.4% had no need for it. About 66.4% failed to access credit whereas a staggering 48.8% of these respondents had actual need for credit.

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The fact that the majority of farmers have no access to credit even though they had actual need is corroborated by the findings in South Africa by Machethe (2004) that despite the existence of agricultural credit institutions in South Africa, a significant number of farmers have no access to credit due to the socio-economic factors that determines access to formal credit (Machethe, 2004). It was indicated that a farmer can have a need for credit but that alone does not determine access to credit. Therefore a need for credit is expected to vary positively with age and farm assets. Hence, Zeller (1994) found age to positively affect the decision to have a need for credit. It is hypothesized that farmers with higher age may have more access to use credit.

Attitude towards risk (RITAKE) was another factor which was found to be significant in affecting the access to credit by smallholder farmers in the study area. The exponential coefficient corresponding to the variable RITAKE shows that when the attitude towards risk by smallholder farmers increases by 1 unit, access to credit decreases by 0.301. This implies that the more a farmer perceives risk as a constraint the less likely the farmer will access formal credit. From the study the empirical results shows that 27.2% of the credit users indicated that it is risky to borrow from formal credit sources whereas 6.4% indicated otherwise. Furthermore, a large proportion of non-credit users (54.4%) indicated that it is risky to borrow from formal credit sources whilst only 12% indicated otherwise.

Due to the nature of agricultural practices, the risks impact negatively on both borrowing farmers and operating lending institutions. Although risks and uncertainties are not only persistent in agricultural production, they are much more serious than in most non- farming activities. Given that production losses are impossible to predict, this leads to serious consequences for the income generation, and for the loan repayment capacity of smallholder borrowers. The type and severity of risks faced by farmers in general vary with the type of farming system, physical, economic conditions and prevailing policies (Klein *et al*., 1999). The findings in the study are congruent with findings of Klein *et al* (1999).

Extension contact (EXECON) was another factor that was found to be significantly influential on access to credit by smallholder farmers in the study area. The exponential coefficient corresponding to the variable EXECON shows that access to credit by smallholder farmers increases by 4.603 when extension contact increases by 1 unit. The findings of this study show that all the respondents in the study area have access to extension services. Of these, 27.6% of the respondents who had access to credit contact extension agents 1 to 4 times in a month whereas a small proportion (6%)

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were contacted by the extension agents 5 to 10 times at the same period. About 56.4% and 10% of the respondents who had no access to credit had extension contacts of 1 to 4 and 5 to 10 times per month, respectively. Many scholars recognize the significance of extension and other support services in achieving enhanced smallholder agriculture production and productivity (Machethe, 2004). The results showed that all the surveyed respondents reported access to this essential service.

It is evident from many empirical studies that extension services play an important in the agricultural sector. The findings of this study are consistent with that of Amani (2004), whereby it was indicated that extension services play a crucial role of empowering farmers with farming techniques, knowledge and management skills. Amani (2004) further asserted that extension services assist farmers with information regarding agricultural interventions such as farm production technologies facilitating farm management, marketing and processing equipment. Machethe (2004) further indicated that growth in smallholder farming is indescribable without support services.

It was indicated that there is no doubt about the importance of extension services hence it has been clearly demonstrated by Zimbabwean cotton and maize smallholder producers who doubled their production in the 1980s. This achievement has been attributed to extension complemented by finance and marketing services. Therefore extension services play an important role of informing and advising the smallholder farmers in terms of the formal credit markets and their requirements in order for the farmers to make informed decisions.

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CHAPTER 5
SUMMARY, RECOMMENDATIONS AND CONCLUSION

5.1. Introduction

The study was carried out in order to get a clearer understanding of the dynamics around access to credit by smallholder farmers in the Capricorn District Municipality. The findings of the study will assist in informing the policy makers and development practitioners of the challenges faced by the smallholder farmers in the Capricorn District Municipality. This chapter reviews the key findings of the study, draws some policy recommendations from the empirical results and also puts forward recommendations for further research. The chapter is presented in four sub-sections. The key findings of the study are summarized in section 5.2 while section 5.3 presents the recommendations. Section 5.4 presents the conclusion and recommendations for future studies.

5.2. Summary

South Africa is one of the countries, where the smallholder farming dominates the overall agricultural sector. Even though there is a lot of support for the smallholder farmers to participate into the main stream of the economy, challenges still arises which hinders the transit to take place. The smallholder farmers in this country still have insufficient access to financial services.

Therefore, the present study was focused on the factors that affect smallholder farmers' access to formal credit. Purposive, quota and stratified sampling techniques were employed to select the respondents in the Capricorn District Municipality. A total of 250 (84 accessed and 166 did not access credit) respondents were selected using the stratified sampling technique.

It was evident from the results of the study that more (75.2%) male headed respondents were engaged in farming activities than 24.8% of their female counterparts. This was the case because in the past it was presumed that females were not supposed to be engaged in income-earning activities as their responsibilities were restricted to the household level.

The survey results also found out that 59.2% of the male respondents were not affiliated to farmers' associations whereas only 16% had acquired membership. Furthermore, only 4% of the female respondents were affiliated members versus about 24.8% that without membership. This shows that the respondents perceived the farmers' associations to have no impact on their operations hence such associations benefit less in terms of the membership of the farmers. It is also evident that due to the existing gender difference fewer female respondents were affiliated members.

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The survey results also found out that 33.6% of the respondents had access to credit. Out of these, 31.2% actually had a need for the credit whereas the remaining 2.4% had no need for it. Furthermore, it was indicated that out of 66.4% of the respondents who had no access to credit, a confounding 48.8% reported the need for credit whereas only 17.6% had no need. This shows that the need for credit does not automatically grant access to credit hence other factors were examined to determine their impact on access to credit. The survey results show that out of 33.6% of the respondents who accessed credit 24.8% were the male household heads whereas the remaining 8.8% were the female headed households. This situation prevails within an environment where women empowering programmes were implemented to promote gender equality.

From the survey results, 38.1% and 25% of the surveyed households accessed credit from commercial banks and land bank financial institutions, respectively. Furthermore, households who accessed credit from the informal credit market utilised credit from the following sources: family members (10.7%), other farmers (8.3%), local business people (8.3%) and private money lenders (9.5%), respectively. The results indicated that family members were regarded as reliable informal credit sources.

It was apparent in the survey results that only 36.9% of respondents received credit through government programmes. Of those that accessed credit through government programmes, most (27.4%) was sources from Mechanisation Revolving Credit Access Scheme (MERECAS) whilst 3.6% accessed through the Land Redistribution for Agricultural Development (LRAD). These are the grants initiated to enhance access to credit by the farmers by supporting acquisition of land and mechanisation. This shows that even though programmes aimed at enhancing access to credit by smallholder farmers are implemented, smallholder farmers were not even aware of their existence or if they were, they could not meet the set requirements and criteria to benefit from such programmes.

Group formation is perceived to enhance access to credit in the surveyed results. It was therefore considered as another factor that affects access to credit. The results indicated that 51% of the respondents who had no access to credit respondent the formation of groups as a way of enhancing lending from formal credit sources as compared to their credit user counterparts (20.8%). Generally the respondents perceived group formation as an important measure for enhancing provision of formal credit to the farmer.

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The survey results indicated that 84 (33.6%) of the sampled farm households accessed credit, whereas the remaining 166 (66.4%) could not. The logistic regression analysis results indicated that among eighteen variables, which were included in the model, only seven were statistically significant while the remaining eleven variables were less powerful in explaining the variation.

The analysis showed that the probability of the smallholder farmers in the study area to access formal credit was negatively and significantly affected by total value of assets, lending procedures, repayment period, lender-borrower distance and attitude towards risk. Whilst extension contact and need for credit positively and significantly affected access to formal credit.Need for credit was regarded as one of the variables that significantly influenced access to credit by smallholder farmers in the study area. Credit need just creates an enabling environment from which a farmer makes sound decisions in terms of credit requirements. Therefore, holding other things constant, the more a farmer needs formal credit the better the chances of acquiring credit.

From the model output, extension contact was viewed as another variable that affects access to credit positively. The findings in the study show that 27.6% of the respondents who had access to credit contacted extension agents 1 to 4 times in a month whereas a small proportion (6%) were contacted by the extension agents 5 to 10 times at the same period. About 56.4% and 10% of the respondents who had no access to credit had extension contacts of 1 to 4 and 5 to 10 times per month, respectively. Therefore the implication is that extension services play a crucial role in empowering farmers with farming techniques, knowledge and management skills and hence enable them to make informed decisions. Therefore the more a farmer is in contact with the extension services the more he/she acquired information.

The reviewed literature identified total value of farm assets as one of the variables which positively and significantly influence access to credit (i.e. the more a farmer possesses valuable farm assets the more likely he/she will access formal credit). This finding contrasts the negative results from the logistic analysis of this study. This implies that in the study area the more the ownership of valued assets the lesser the chances of a farmer accessing credit. This may be due to a decrease in a need for credit which may be perpetuated by the availability of accumulated assets. The implication is that the more a farmer accumulates assets, the lesser he/she will need formal credit. The results show that 27.2% of the credit users indicated that it is risky to borrow from formal credit sources whereas 6.4% indicated otherwise. Respective figures for non-credit users were 54.4%and 12%.

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The survey results also found that lending procedures and policies also contribute considerably to the lack of access to credit among formal credit institutions. About 60.0% of the respondents who were non-credit users responded that the lending procedures from formal sources were complicated whilst approximately 5% said otherwise. Even though the majority of the formal credit users (approximately 19%) said it was not complicated, the overall opinion of the respondents was that the lending procedures were complicated (77% vs. 23 %). The implication is that the more complicated the lending procedures the less likelihood for farmers to access formal credit. If farmers view the lending procedures as constraints on access to credit they will be discouraged to take up credit from the formal sources.

Another variable which negatively and significantly influenced access to credit by smallholder farmers in the study area was the physical distance between the lender and borrower. The survey results indicated that about 7.6% of the respondents who had access to credit were less than 15km from the formal credit sources as compared to only 11.2% of the credit users. The results also show that 6% of both the credit users and non-credit users were more than 51 Km from the formal lending institutions. Therefore, the implication of this is that the farmers who are further away from the formal lending institutions are more likely to access credit from the informal sources.

The analysis shows that the probability of accessing formal credit was negatively and significantly affected by repayment period and terms of loan. The findings in this study show that 56% of the respondents who had access to credit and 10.4% of those who had no access did not perceive repayment period as a constraint, respectively. The farmers were more discouraged to lend from institutions that are restrictive in terms of loan repayment period and terms of payments. This is because of the risky nature of the agricultural practices and seasonal nature of the farm income that the farmer receives. Hence, repayment periods have to be flexible to enable the farmers to reschedule the loan repayment.

5.3. Recommendations

Having thoroughly synthesized the findings in this study, it is recommended that the following medium term measures be introduced to assist government and other stakeholders concerned with agricultural development at local, district and national levels:

- The study results showed the engagement of more male farmers into productive activities. There should be policies in place which will create an enabling environment for the female

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farmers to access production resources and improve productions, such as imposition of preferential treatment.

- Membership to a farmers' association was viewed to be another element that could assist smallholder farmers to acquire information, acquire reliable markets through collective production and other services such as agricultural credit. But membership to such association is minimal in the study area due to lack of information. Therefore, there should be a concise and brief strategic plan documents which outlines the specific services of farmers' associations and benefits of being affiliated to such associations. Furthermore workshops and awareness sessions should be conducted.
- The study results show that policies aimed at creating an enabling environment for the smallholder farmers to access credit are in place, but the findings indicates that the target groups of such programmes end up not benefitting due to the set requirements and criteria. Need assessment sessions which will assist policy makers to have an understanding of the dynamics around smallholder farming need to be arranged.
- It was also evident from the results that informal credit markets exist within the farming community but without proper guidelines. Therefore it is recommended that policies to graduate informal money lenders to be in line with acceptable interest rates, loan sizes and terms of loans be in place. This will assist the farmers in making sound decisions in terms of which credit market to use looking at the terms and conditions of both the formal and informal credit markets.
- Smallholder farmers should be exposed to the advantages brought about by the land reform programmes particularly acquiring land through the land redistribution programme. Such a move should be supplemented with effective training intervention.
- Risks in terms of borrower and /or lending institutions also pose constraints to the farmers' access to credit. It is well known that agriculture is dominated by risks in terms of production and markets. The training process should incorporate aspects of risk averting and avoidance strategies.

Recommendations for further studies

- The study was based at the Capricorn District Municipality, therefore there is a need for similar studies to focus on other District Municipalities to draw a concise and comparative conclusions on the status of access to credit in the Limpopo province

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- From the descriptive analysis of this study the participation of young people in agriculture is low. This needs further investigation.
- It was also realized in the results that participation of farmers in farmers' organisations is relatively low. There is a need to investigate why smallholder farmers are not participating in these organisations.

5.4. Conclusion

- The main objective of this study was to assess smallholder farmers' access and use of credit in the Capricorn District Municipality of the Limpopo Province. The results indicated that out of the surveyed farmers only 33.6% accessed credit. This poses a serious challenge since the study area is dominated by smallholder farming.
- The other objective was to determine the socio-economic factors that influence access to credit by smallholder farmers. In the survey results eighteen factors were hypothesized to influence access to credit. The logistic regression model depicted only seven variables that significantly explained the variation in access to credit in the study area. Lender-borrower distance, farmers' attitude towards risks, lending procedures, repayment periods, total farm assets value, extension contact and a need for credit were found to be significantly influential.
- From the study it was realized that most of the farmers who access credit through formal institutions received it through assistance of government initiatives such as MERECAS and LRAD. Credit was utilized for acquisition of mechanization equipment, land and production inputs. Informal credit markets were more accessible to farmers in remote areas especially from family members. Most of the informal sources was used for production inputs.
- Another objective was to determine the impact of credit on agricultural production by smallholder farmers. The results showed that farmers who had access to credit actually employed more permanent and seasonal labour.
- About 36.9% of the respondents were assisted through government initiatives to access the formal credit markets. Government initiatives impacted on advancing credit to the smallholder farmers despite challenges experienced by targeted client.

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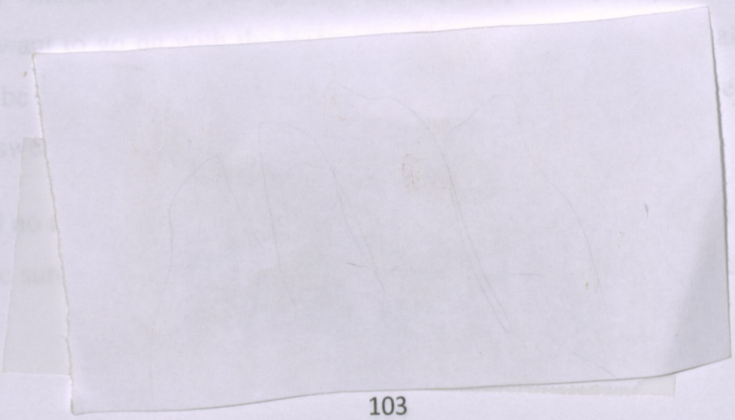
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APPENDIX

SOCIO- ECONOMIC ASSESSMENT OF ACCESS AND USE OF CREDIT AMONGST SMALLHOLDER FARMERS: A CASE STUDY OF THE CAPRICORN DISTRICT OF THE LIMPOPO PROVINCE.

Research questionnaire for farmers in Capricorn District Municipality

Good (morning/afternoon/evening), my name is _____. I am from the University of Venda and I am conducting a research on access to credit by smallholder farmers. I am here to gather information for a study that I am doing to fulfill the requirements of a Master's Degree in Agricultural Economics within the Department of Agricultural Economics and Agribusiness, School of Agriculture, Rural Development and Forestry.

This study tries to investigate access and use of credit amongst smallholder farmers and impact of credit on the farming activities of the farmers. The results of the study will provide insight into why the smallholder farmers are still without access to credit even though numerous interventions are in place and whether enough is being done by government and relevant institutions to assist the smallholder farmers to access credit and help in making recommendations on strategies for improvement. It also seeks to uncover the factors hindering smallholder farmers from accessing credit. There are a total of 2500 smallholder farmers in Capricorn District of the Limpopo Province. We have randomly chosen you as one of several smallholder farmers to participate in this study, and therefore humbly request your participation.

Please understand that you are not being forced to take part in this study and that the choice whether to participate or not is yours alone. However, we would really appreciate it if you do share your thoughts with us. If you choose not to take part in answering these questions, you will not be affected in any way whatsoever. If you agree to participate, you may stop me at any time and tell me that you don't want to go on with the interview. If you do this, there will also be no penalties and you will NOT be prejudiced in ANY way. When it comes to answering questions there are no right and wrong answers.

The study will hold no risks for you. Although you will not directly benefit from this study, we will do our best to make sure that all smallholder farmers benefit from this study as they will impact on

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government policy. All information that you give to us will be kept confidential and you will not be identified by name or address in any of the reports that we plan to write. You are not obliged to give us your name, and in no way will your name be revealed to anyone.

If you would like some more information about this study please feel free to contact the University at Tel 015 – 962 8260

FOR OFFICIAL USE	
ENUMERATOR NAME	
DATE OF INTERVIEW	
NAME OF VILLAGE/ TOWN	
NAME OF WARD	
NAME OF MUNICIPALITY	
QUESTIONNAIRE NO.	

SECTION A: DEMOGRAPHIC INFORMATION

Mark the applicable block with a cross (X). Complete the applicable information.

A1	**In which age group do you fall?**	≤ 19	20 - 29	30 - 39	40 - 49	50 - 59	60+
		(01)	(02)	(03)	(04)	(05)	(06)

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A2	What is your marital status?	Single	Married	Divorced	Widowed	Living together
		(01)	(02)	(03)	(04)	(05)

A3	What gender are you?	Male	Female
		(01)	(02)

A4	Indicate the number of dependents that you have.	
	<5	(01)
	6-8	(02)
	>8	(03)

A5	What is your level of education?	
	Illiterate	(01)
	Read and write	(02)
	Primary and junior secondary school	(03)
	Secondary school and above	(04)

A6	What is the total size of land (ha)	<5	6 - 10	11 -20	21 - 30	31-40	40+
		(01)	(02)	(03)	(04)	(05)	(06)

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A7	Indicate the legal status of your business (form of business ownership).		
	Sole proprietorship		(01)
	Partnership		(02)
	Close corporation		(03)
	Private company		(04)
	Cooperative		(05)
	Business Trust		(06)
	Not registered		(07)
	Other: **(Please specify)**		(08)

A8	What is your core farming business?		
	Horticulture		(01)
	Grains		(02)
	Livestock		(03)
	Fruits		(04)
	Mixed cropping		(05)
	Poultry		(06)
	Other (Please state what it is)		(07)

A9	What is your primary position on the farm?	
	Owner	(01)
	Manager	(02)
	Farm worker	(03)
	Other (Please state what it is)	(04)

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A10	Are you a member of a farmers' association?	Yes	No
		(01)	(02)

SECTION B: ACCESS AND USE OF CREDIT INFORMATION

Mark the applicable block with a cross (X). Complete the applicable information.

B1	Did you demand credit in the past year (2010)?		
	Yes		(01)
	No		(02)

B2	Have you accessed credit?		
	Yes		(01)
	No		(02)

B3	Indicate from which credit market have you accessed credit?		
	None		(01)
	Formal market(e.g. Banks)		(02)
	Informal market (e.g. family members, local business people)		(03)

B4	Indicate the credit source (s).		
	Commercial banks		(01)
	Land Bank		(02)
	Family members		(03)
	Other farmers		(04)
	Local business people		(05)
	Private money lenders		(06)

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Cooperatives		(07)
NGOs		(08)
Other (please specify)		(09)
None		(10)

B5	Indicate what the credit was utilized for?		
	Land acquisition		(01)
	Infrastructure		(02)
	Production inputs		(03)
	Capital		(04)
	Mechanisation		(05)
	Credit not acquired		(06)
	Others (please state what it is)		(07)

B6	What is the level of satisfaction with the acquired credit?				
	Not satisfied	Slightly not satisfied	Moderately satisfied	Slightly satisfied	satisfied
	(01)	(02)	(03)	(04)	(05)

B7	Some factors influence the access to credit from formal sources?		
	No influence at all		(01)
	Slight influence		(02)
	Moderate influence		(03)
	Influential		(04)
	Very influential		(05)

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B8	Some factors influence the access to credit from informal sources?		
	No influence at all		(01)
	Slight influence		(02)
	Moderate influence		(03)
	Influential		(04)
	Very influential		(05)

B9	Borrowing from the formal financial sources is risky?		
	Yes		(01)
	No		(02)

B10	Borrowing from the informal financial sources is risky?		
	Yes		(01)
	No		(02)

B11	Experience in credit use (years)		
	No experience		(0)
	< 5		(01)
	6-10		(02)
	11-20		(03)
	21-30		(04)
	31-40		(05)
	>41		(06)

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B12	Physical distance between a lender and borrower (km)		
	<15		(01)
	16-30		(02)
	31-50		(03)
	>50		(04)

B13	Does group formation enhance access to formal credit?		
	Yes		(01)
	No		(02)

B14	Does loan repayment period discourage farmers to access credit from formal loan sources?		
	Yes		(01)
	No		(02)

B15	Lending procedures from formal sources are complicated?		
	Yes		(01)
	No		(02)

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SECTION C: FARMING EXPERIENCE, EXTENSION SERVICES, FARM ICOME AND ASSETS STRUCTURETURAL PRODUCTION

Mark the applicable block with a cross (X). Complete the applicable information.

C1	What is the your farming experience (years)	<5	6 - 10	11 -20	21 - 30	31-40	>40
		(01)	(02)	(03)	(04)	(05)	(06)

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C2	Do you have access to extension services?	Yes	No
		(01)	(02)

C3	How often does the extension officer visit per month?			
	0	1-4	5-10	11-25
	(01)	(02)	(03)	(04)

C4	How many permanent employees are employed by your business?					
	1	2-4	5-10	11-25	26-50	51-100
	(01)	(02)	(03)	(04)	(05)	(06)

C5	How many temporary employees are employed per season by your business?					
	0	1-4	5-10	11-25	26-50	51-100
	(01)	(02)	(03)	(04)	(05)	(06)

C6	Indicate the gross farm income that your business generates per annum (R).		
	≤ R 50 000		(01)
	R 51 001 – R150 000		(02)
	R 151 001 – R 500 000		(03)
	R 500 001 – R1 million		(04)
	≥R 1 million		(05)

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C7	Indicate the total value of your capital assets.		
	Negligible assets		(01)
	<R150 000		(02)
	R150 001 – R250 000		(03)
	R250 001 – R500 000		(04)
	R500 001 – R1 million		(05)
	≥R 1 million		(06)

C8	Do you receive off-farm income?		
	Yes		(01)
	No		(02)

SECTION D: IMPACT OF GOVERNMENT INTERVENTIONS ON ADVANCING CREDIT

Mark the applicable block with a cross (X). Complete the applicable information.

D1	Have you accessed credit through government programmes?	Yes	No
		(01)	(02)

D2	What government programme assisted you to get credit?		
	NONE		(01)
	MERECAS		(02)
	LRAD		(03)
	MAFISA		(04)
	IDC		(05)

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NEF		(06)
Others (please specify what it is)		(07)

D3	How can government programmes improve outreach to smallholder farmers?	
	Information days	(01)
	Consultative summits	(02)
	Conduct needs assessments	(03)
	Others (please specify what it is)	(04)

D4	Indicate which measures can be recommended to government to improve the access to credit by smallholder farmers?	
	Government subsidy on credit allocated	(01)
	Allocate larger units of production land	(02)
	Subsidize production inputs	(03)
	Secure reliable markets for the produce	(04)
	Other (please specify)	(05)

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D5	**Indicate your key developmental needs to enhance your Agri-business operations and access to formal credit. (Choose one or more.)**		
	Financial support (loans and advice/training to service the loan)		(01)
	Training/knowledge/skills/ technical support		(02)
	Tools, equipment, machinery		(03)
	Business advice, information, counseling		(04)
	Marketing support		(05)
	Networking with other business owners		(06)
	Infrastructure (roads, telephone, electricity)		(07)
	Computer/ Internet services		(08)
	Other: **(Please specify)**		(09)

Thank you for completing this questionnaire

Would you like to have an executive summary of the findings?

Yes	No

THANK YOU FOR YOUR TIME.

Contact details:

_____

_____

_____

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