A COMPARISON OF SOCIOECONOMIC CHARACTERISTICS THAT DETERMINE THE FARM INCOME OF EMERGING LIVESTOCK AND HORTICULTURAL FARMERS IN SOUTH AFRICA

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DECLARATION

I declare that the dissertation hereby submitted to the University of Limpopo for the degree of Master of Science in Agricultural Economics has not previously been submitted by me for the degree at this or any other university, that it is my own work in design and execution, and all material contained therein, has been duly acknowledged.

Signed----------

Date ----------

DEDICATION

I DEDICATE THIS WORK TO THE FOLLOWING PEOPLE
MY GRAND PARENTS, PARENTS and My Younger Brother Thabang.

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Modise Joshua Moloi
Limpopo
South Africa

ABSTRACT

A large number of emerging farmers in South Africa is involved in subsistence agriculture as a result of poor resource endowment or due to other constraints. Relatively few agricultural products from emerging farmers reach the formal agricultural market. Livestock production is common among emerging farmers and a large proportion of the national livestock is in the hands of the rural poor. Horticultural crops are generally perishable and require immediate disposal, thus implying that the farmers who produce horticultural crops do so with intention to sell their products. Most studies tend to group farmers regardless of their line of production. Only few studies have attempted to investigate the socioeconomic characteristics of farmers, differentiating the commodities that they produce.

The objective of this study is to identify and compare the socioeconomic characteristics that determine the farm income of the emerging livestock farmers and horticultural farmers in South Africa. Such an analysis would allow more targeted policy responses for different groups of emerging farmers. The data used in this study consisted of 202 livestock farmers and 126 horticultural farmers selected through quota sample covering all nine provinces in South Africa. The data were collected by the Development Bank of Southern Africa in 2005.

Descriptive Analysis and Discriminant Analysis are applied to determine the factors that matter the most in determining incomes of livestock and horticultural farmers. Farm

income is used as the dependent variable, and fourteen independent variables were identified.

The factors that matter the most in determining livestock farmers' income are, namely access to finance, farm size, age of the household head, membership to farmer organizations and government support. The factors that matter most in determining horticultural farmer's income are namely farm size, age of the household head, land type (land ownership), and extension services. The results of this study showed that access to land and age of the household head matter the most to both livestock and horticultural farmers. The study found that poor access to land is one of the major constraints facing emerging farmers in South Africa. Land is also one of the factors that may determine the amount of credit the emerging farmers can obtain and, if farmers produce on communal land, it becomes harder to obtain credit.

Memberships to farmer's organisations, government support and access to finance are characteristics that matter the most to livestock and do not seem to matter that much to horticultural farmers. Farmer organisations often lobby for collective provision of appropriate and needed services for their membership. The services that are often lobbied for are services such as extension, marketing and provision of training to empower women and young people so as to enable them to participate fully in farming activities.

The results of this study show that there are differences in socio-economic characteristics that matter the most in determining farm income for livestock and horticulture farmers.

Horticulture farmers should be given much support to improve access to get enough land and training while in livestock farming assistance focus should be on access to finance and support services.

TABLE OF CONTENTS **PAGE**

LIST OF TABLES

LIST OF FIGURES

CHAPTER 1
INTRODUCTION

1.1 Background of the Study

A majority of emerging farmers in South Africa are involved in subsistence and small scale farming mainly due to poor resource endowment and numerous constraints related to the socioeconomic environment. Low farm income of emerging farmers in South Africa is a major concern for the agricultural industry. The South African government has, in recent years, been spending a significant amount of its budget on supporting the development of emerging farmers. However, several constraints still prevent the emerging farmers from reaching their full potential. These constraints (i.e., socioeconomic factors, resource endowment, amongst others) make it very difficult if not impossible for the emerging farmers to participate successfully in commercial agricultural markets despite some of them having had improved access to land (DBSA, 2005). Most small farmers operate in a restricted environment of limited mobility and often-limited access to market. (Groenwald, 1993).

The slow rate of access to land and low agricultural production, further entrap emerging farmers in the cycle of poverty and cause them to be unable to exploit the various opportunities created by the enabling environment that the government has been instituting. In spite of pro-poor policies, South Africa still remains one of the countries that have high income inequality in the world (Triegaardt, 2006). Regardless of many constraints faced by emerging farmers, the emerging agricultural sector has a vital role to play in poverty reduction, employment creation and income generation. This is a view shared by a number of researchers (DBSA, 2005, Chauke and Oni, 2004, Makhura, 2001,

Ngqangweni & Delgado, 2003). Agriculture, in general, has an important role to play in advancing rural development and poverty alleviation. In order for the emerging farmers to exit the poverty cycle and experience sustainable economic growth through increased employment, a suitable income generation agricultural environment need to be created in poor rural areas (Fairlamb & Nieudwoudt, 1990). South Africa cannot afford to lose the agricultural potential of the land under the control of emerging farmers and, therefore, this sector has to be encouraged and properly assisted to stay in production and make its contribution to the welfare of the country as a whole (Van Renen, 1997). It is through commercialisation of emerging farmers and alleviation of socioeconomic constraints that previously disadvantaged farmers can be part of the economic base of rural economies.

This study focused on the identification and comparison of socioeconomic factors that affect the farm income of emerging livestock farmers and horticultural farmers. Livestock and horticulture account for a large percentage of the farming activities of the emerging farmers in South Africa. However, this does not conclusively suggest that emerging farmers are not involved in other farming activities.

1.2 Concept of Emerging Farmers

The terms referring to emerging farmers are numerous in South African literature due to historical, political and socioeconomic conditions. In literature, one finds different definitions such as resource poor, previously disadvantaged farmers, subsistence farmers, emerging farmers, developing farmers, small-scale farmers and black farmers. At times, this might be very confusing. The concept of small-scale agriculture in South Africa is

laden with subjectivity and has been associated with non-productive and non-commercially viable agriculture (MALA, 1998).

Bates and Sokhela (2003) refer to the black farmers who produce sugarcane in commercial areas as small-scale farmers. These farmers have been the most marginalised in terms of their access to resources as compared to other racial groups. Chauke and Oni (2004) refer to the emerging farmers as black farmers or the previously disadvantaged. According to Lipton and Lipton (1993) and Lipton *et al.*, (1996), the concept of smallholder farmers is attributed to the past policy of racial oppression. The National Department of Agriculture (NDA, 2006) defines the emerging farmer as a farmer who is a beneficiary of one of the government's land reform programmes, or a farmer who is mainly dependent on the state and semi-state organization for support and finance or as a farmer who consumes and sells some portion of the harvest." However, this study has defined emerging farmers as those previously disadvantaged farmers that are beginning to participate in the market and have intentions to produce and sell more.

1.3 Problem Statement

In South Africa, like in other developing countries, smallholder farmers find it difficult to participate in the markets because of a range of constraints and barriers reducing incentives to participation (Makhura, 2001). It is generally accepted that farmers in traditional agriculture are poor but efficient (Ngqangweni, 2000). In this view, it is held that farmers remain poor because they have to contend with lack of technical and economic opportunities to which they could otherwise respond (Makhura, 2001). The emerging farmers face problems related to the insecure and fragmented land rights, non-

viable and small farm units, lack of infrastructure support, etc (Van Rooyen & Mene, 1996).

Poverty, inequality and unemployment have been identified as the three most serious constraints to economic development in South Africa. Further institutional uncertainty creates an environment that discourages the emerging farmers from investing in new and productive inputs or practices because of the absence of secure expectations over possible gains. Guzman and Santos (2001) developed a conceptual model that shows that socioeconomic factors directly affect enterprises and economic development. Shane (1994) suggests that socioeconomic and institutional factors have a direct influence on the entrepreneur.

Most of the previous studies that have been done on the emerging farm sector have tended to lump the farmers as one; that is regardless of the type of enterprises that the farmers are involved in. Recommendations from such studies would have tendency to generalise policy responses with less potential to achieve targeted impact. It is against that background that this study aims to identify the socioeconomic factors that affect the farm income of the emerging livestock farmers and horticultural farmers. The majority of the previously disadvantaged farmers are not part of the mainstream agriculture and mostly practice subsistence agriculture, which is characterized by low production. The challenge is to reduce the constraints faced by emerging farmers for their productivity, and moving from subsistence farming to commercial market participation.

1.4 Need for the Study

South Africa is faced with a high level of unemployment and poverty rates, more especially among the previously disadvantaged individuals. Increased participation of the emerging farmers in the market economy will hopefully lead to the generation of income and employment, thus helping to attain the government's goal to halve poverty by 2014. The emerging farming agricultural sector has a critical contribution to make to achieve the government's goal by 2014, but without a proper understanding of what constraints need to be addressed, this may not be achieved.

According to Ngqangweni (2000), rural employment and income are generated when the emerging farmers produce for the market or become market orientated. The emerging farmers can contribute positively to economic growth; rural development and agricultural development; increase in rural income; food security and rural employment. To a large extent, the process of agricultural transformation in South Africa involves moving farmers from subsistence production to producing for the market.

Appropriate policy interventions and agricultural development strategies require that policy makers have a good understanding of the socio-economic characteristics of the clientele base that they are targeting. Understanding of the socio-economic characteristics of emerging farmers that are involved in various farming enterprises will enable more specific and tailor made policy responses that will produce more positive results. The results of this study could be used as input for policy and strategy formulation to alleviate constraints limiting market participation of emerging farmers. This study will make possible to promote a productive and sustainable small farmer sector in South Africa

1.5 General Objective

The general objective of this study is to identify and compare the socioeconomic characteristics that determine farm income of emerging livestock and horticultural farmers in South Africa.

1.5.1 Specific Objectives

1. To describe the socio-economic characteristics of emerging livestock and horticultural farmers in South Africa.
2. To identify the factors that determines the farm income of emerging livestock and horticultural farmers.
3. To recommend strategies for enhancing farm incomes of emerging livestock farmers and horticultural in South Africa.

1.7 Hypotheses of the Study

a. The farm income of emerging livestock horticultural farmers is determined by different socioeconomic factors.
b. Emerging livestock and horticultural farmers require different policy strategies in order to overcome constraints they face.

1.8 Organization of the Study

Chapter one has given the background on the subject and justification of the study. An outline of the problem statement, research hypothesis, research questions and research objectives guiding this study is presented. In Chapter two, a review of literature on the

subject is conducted. This involves reviewing such studies and their results. Chapter three develops a conceptual framework for analysing data in the study and a description of the research method used in carrying out the study. Chapter four presents the descriptive analysis of the variables, while the results of the Discriminant Analysis are presented in Chapter five. Chapter six draws up the conclusion from the results and makes policy recommendations, together with recommendations for future research.

CHAPTER 2
LITERATURE REVIEW

2.1 Introduction

This chapter presents an overview of literature on the contribution of emerging farmers to the agricultural economy of South Africa, and it also highlights the environment in which emerging farmers in South Africa operate, which has an influence on farm income. However, there are a number of specific factors, for example, access to necessary agricultural production resources and basic support services tend to affect the farm income generation. In addition, the demographic characteristics also do have either a negative or a positive impact on the farm income of emerging farmers.

2.2 Agriculture and Emerging farm Sector in South Africa

Agriculture remains the backbone of the South African economy. Not only does it contribute to the Gross Domestic Product (GDP), but it is an important earner of foreign exchange, provides employment, has some of the strongest forward and backward linkages in the economy, as well as strong employment multipliers and, it provides food security (MALA, 1998). Its contribution to GDP, over the last decade ranged between 3 and 5%, but this does not reflect the true contribution in terms of the other issues mentioned. The agricultural sector employs 11% of the labour force with many dependants (NDA, 2003). According to DBSA (2000), agriculture is a cornerstone of rural economies.

Smallholder agriculture creates a demand for non-farm sector goods. Linkages with non-farming sectors get stronger when farming generates more income. The expansion of

rural incomes through agricultural production creates a demand for inputs, consumer goods and services. Due to an increased productivity, resources can be transferred from the agricultural sector to the rest of the economy without constraining growth in the agricultural sector (Makhura, 2001).

The instability or the failure of agricultural sector affects its considerable backward linkages and consequently causes those industries relying heavily on agriculture as a market to be relatively unstable. Emerging farmers can contribute positively to rural development, increased rural income and the overall economy. According to Van Rooyen (1997), agriculture has the potential to contribute significantly to economic development and transformation through stimulation of income and employment. An increase in levels of non-farm activities in the economy provides job opportunities for the rural poor (Kirsten *et al.*, 1998). The emergence of small-scale farms is supported because of intensive utilisation of labour and capital, therefore, fulfilling employment and equity goals (Ellis, 1988), things that large farms do not meet.

According to Delgado (1999), the small-scale emerging farm sector in South Africa is important in terms of providing employment, human welfare and political stability. Mathonzi (2000), states that households that are commercialising their products and have hired labour, tend to receive increased income. Furthermore, the increased household income generated by commercialisation was associated with an improvement in nutritional status for children in the household. This directly implies that commercialisation of emerging farmers can contribute to food security. Low income or poverty results in the food insecurity and the rural poor are the ones who are mostly

affected by food insecurity. The main purpose of commercialisation is that, the emerging farmers should be able to generate income to reduce poverty and hunger in South Africa. In addition, motivation for commercialization is to generate income in order to acquire other goods. This is even more applicable in South Africa where basic and municipal services are being provided on a cost recovery basis (Makhura *et al.*, 1996).

Emerging farmers should be given appropriate assistance by relevant institutions. Assistance needed by farmers relates to adequate extension services; access to credit; women and youth empowerment; transference of skills related to farm management and marketing and production skills.

In other countries, particularly from Africa, studies show that small-scale agriculture has been the primary motor of development in rural areas that have achieved higher returns from land and capital over time rather than large-scale agricultural productions (Delgado, 1997). According to Ngqangweni (2000 & 2001), small to medium scale farmers are at least as privately and socially efficient as their large scale counterparts. In this regard, it can be argued that the smallholder agriculture in certain commodities would, at least, not waste resources, save country foreign exchange and could promote local economic activity. The study conducted by Machete (2005) in rural areas of Limpopo Province has strongly shown that the farming income is the greatest contributor to household income of richer and poor households. Agricultural incomes are generated when farmers sell high value commodities and livestock. High value commodities include horticulture and livestock (Moraka & Mokoena, 2003).

2.3 Land and Emerging Farmers

An implicit assumption in most Land Reform Programs in developing countries is that small farm sizes that characterize traditional agriculture contribute to low farm income and inadequate return for labour (Rakodi, 1999). The lack of secure tenure, whether with legal tittles or customary rules, limits the use options and the crops to be grown on the land, and this is the situation among emerging farmers. It is for a reason such as this that Land Redistribution for Agricultural Development (LRAD) is generally geared towards empowering black farmers to invest in vibrant agriculture in terms of productivity, efficiency and income generation (Department of Agriculture, 2001). The Department of Agriculture has committed itself not only to ensuring that black farmers acquire speedy access to land, but also for the acquired land to be used productively, through the provision of support services and training programmes both at the provincial level and municipal level of government. Because of inequalities in access to land and insecure tenure, increasing the volume of the land available to the rural poor for improving their tenure rights is often advocated as an essential component of poverty reduction programme.

Subsistence farmers' means of coping with reduction in per capita income, land availability and increasing demand for food have been to bring additional land into cultivation and to reduce fallowing in some cases. According to Makhura (2001), insufficient land constitutes one of the most constraining resources to rural households in South Africa. While acknowledging that some of the households in the sample had access to land for crop production, (Makhura, 2001) concluded that the major problem was the

small sizes of their plots. The households with a very small size of arable land are generally dependent on communal land for agricultural purposes.

According to Machete (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. According to Ngqangweni and Delgado (2003), arable land per head, a village specific variable is significantly and positively associated with the decision to keep livestock. This shows that the availability of land has a positive contribution towards the productivity of emerging farmers. According to Bates (1996), the increase in production appears to be positively correlated with an increase in the total area planted and not necessarily with an increase in productivity per unit area.

A study conducted by Bates and Sokhela (1996) shows that an increase of land access from 13% to 20% resulted in the increase of total production to 14%. However, this does not isolate the support services provided to the farmers. This implies that access to land without support services, however, does not increase productivity. According to Bates (2002), one of the problems facing emerging farmers is that the land for production is very small. Effective participation into commercial agriculture by emerging farmers cannot only be attained through massive transfers of land but will also require the implementation of strategies (i.e., support services) that could render the acquired land to be more productive and have high income.

2.4 Access to Support Services

Smallholder agricultural growth cannot be achieved without farmer support services (Machete, 2004 & Development Bank of Southern Africa, 2005). International experience has shown that, with adequate access to farmer support services, smallholder agriculture can significantly contribute to an increase in agricultural growth. The main aim of the farmer support programme was the promotion of structural change that is away from subsistence agricultural production towards commercialisation of agriculture through, the provision of support services to emerging farmers in South Africa (DBSA, 1988).

According to Rukuni and Eicher (1994), smallholder farmers in Zimbabwe doubled their maize and cotton production in the 1980s when extension, marketing services and finance were provided to them. Similar results were achieved in South East Asia after some households that were engaged in informal activities moved to agriculture production (Machete, 2004). This was achieved after the provision of the support services. D'haese and Mdula (1998) found that one of the factors that lead to low productivity among the emerging farmers is poor infrastructure or lack of access to support services.

According to DBSA (2005), unless the Farmer Support Programme of appropriate scale and scope is put in place, smallholder farmers will have a little chance of escaping poverty and the role of agriculture in creating livelihoods will remain limited. Studies by Van Rooyen *et al.,* 1987 and Kirsten *et al,* 1993 relate the impact of the Farmer Support Programme (FSP) to improvement of farm income and farming structure. Emerging farmers need more than access to land to be in a position to farm efficiently. In this

regard, access to support services is very fundamental. Lack of support services put the emerging farmers at a disadvantaged position to compete in the market, even if there are growth opportunities available in the market.

2.5 Access to Credit

Access to agricultural credit is an important element in empowerment process and (Kirsten *et al*, 1998, Hedden-Dunkhorst *et al.*, 2001). Moser (1996) referred to credit as one of the accelerators of agricultural development. Access to credit can help farmers to obtain or afford the factors of production. However, there are different factors that affect access to credit by emerging farmers. A number of researchers found different factors that contribute to that. The principles adopted by the formal credit providers make it not easy for emerging farmers to obtain credit (Kirsten *et al.*, 2000; Moyo, 2002; and Spio & Groenwald, 1998).

In a study by Lyne (1996), emerging farmers have been found to have limited access to factors of production, credit and information. Furthermore, the study by D'haese and Mdula (1998) in the then Northern Province, now Limpopo Province, found that lack of access to credit was the main constraint to the emerging farmers to generate more income. According to them, access to credit seems to be the main factor contributing to the various problems the emerging farmers are faced with. In the developing regions of former the KwaZulu Natal, Lebowa, Venda and Kangwane, it was found that high transaction costs, low wealth and poor debt servicing capacity impeded use of formal credit (Coetzee, 1995 and Fenwick & Lyne, 1995).

In a study by Ngqangweni and Delgado (2003), which aimed at looking at the reasons for farmers to keep livestock, access to credit services was significantly and positively associated with the decision to keep livestock in the Eastern Cape Province. Their study found that households without access to credit institutions are likely not to make decisions to keep livestock. And when the decision has been made, those who have access to credit institutions are likely to keep more livestock than those without access to credit.

Access to credit has long been regarded as one of the key elements in improving agricultural productivity. One of the problems that small scale farmers are faced with is a high interest rate (Machete, 2004). The establishment of parastatal institutions, with a mandate to channel credit to emerging farmers, is one of the approaches used by governments in developing countries to promote smallholder agricultural development. Some of the parastatals that were established in the former homelands of South Africa have collapsed as a result of transformation of agriculture in the country, thus leaving the emerging farmers without access to credit services. Land Bank was expected to fill the vacuum created by the demise of homelands parastatals (Machete, 2004). However, the Land Bank is not able to reach all small farmers with loans since the majority of the emerging farmers still do not have access to credit (Machete, 2004 and Hedden-Dunkhorst *et al.*, 2001).

Provision of credit could increase the productivity of farmers given that they could buy inputs recommended for their farming practices. In South Africa, lack of access to credit to purchase inputs restricts small-scale irrigation farmers' production significantly by

limiting the farmer's ability to cultivate (Hedden-Dunkhorst *et al.*, 2001). Lack of access to credit and ties between farmers and traders led to low productivity in the Southern Tanzanian cashew industry (Hedden-Dunkhorst *et al.*, 2001).

Smallholder farmers in Zimbabwe were reluctant to use institutional credit from formal sources. This might have been related to the unfriendly conditions to the services provided by the formal credit institutions (Moyo, 2002). In a study made by Mathonzi (2000), Sepitsi farmers could not get credit from the Agricultural Rural Development Corporation, because the Agricultural Rural Development Corporation argued that their plots are too small. On the other hand the majority of Sepitsi farmers (70.7%) did not want to use credit, mainly because they feared the consequences of defaulting on the debt repayment, considering the fact that they do not have reliable markets.

In one way or the other, the existence or non-existence of both formal and informal credit institutions in rural areas have an impact on productivity of agriculture and can not be ignored. The challenge of credit institutions is that smallholder farmers may default in repaying loans. That means credit access is an issue for both the credit institutions and emerging farmers. A study conducted by Hedden-Dunkhorst *et al.,* (2001) shows that credit positively and significantly influences the farm net income. However access to credit is not a sufficient condition for the emerging farmers though very necessary. Credit without other factors of production cannot be utilized efficiently and, again, if credit is not utilized for its intended purpose, it cannot make a difference to the emerging farmers.

One of the goals of the South African government is to create higher income opportunities for the previously disadvantaged communities. The country's agricultural policy vision is to create higher income levels and resources for poor African farmers. This simply means creating highly efficient and economically viable market directed farming sector.

2.6 Education, Age, Household Size and Gender of Household's Heads.

Guzman and Santos (2001) show that the socioeconomic and institutional factors in an entrepreneur's environment directly affect the success and economic development of the enterprise. As a result, the farmer's income often varies due to socioeconomic factors such as education level, age of household head, household size and household size. In addition to this, Wye (2003) refers to relevant training, socioeconomic conditions, and level of organisation and availability of extension services as determinants of smallholder farmers's market access. In most instances, these factors have a direct positive or negative impact on the level of farm income. The low level of education and lack of farmer support have a negative impact on the emerging farmers in this dispensation of free market system.

Education plays a major role in the agricultural industry wherein competition is high between the previously disadvantaged and previously advantaged farmers in the commercial markets. The high level of education amongst the farmers may assist them to understand and interpret market information correctly; have ability to network and communicate their business ideas; to have better general farm management principles and marketing skills; and develop financial intelligence. Several studies have found a direct

relationship between the level of education and successful performance in farming (Montshwe *et al.,* 2005; Bizimana *et al.,* 2004; Mintzberg, 1989, and Mohammed & Ortmann, 2005). According to Montshwe *et al.,* (2005), the training received by small scale farmers was found to have improved the possibility of the farmers to sell livestock which in turn created income for them.

The age of the head of the household is considered a crucial factor, since it determines whether the household benefits from the experience of an older person, or has to base its decisions on the risk-taking attitude of a younger farmer (Makhura, 2001). Another attribute of importance relates to the level of education attained by the heads of the households who normally are the decision-makers. In most instances, due to the past dispensation most of the older household's heads did not have access to education whereas the younger ones had. As a result, most of the younger household's heads are most likely to migrate to urban areas in search for urban employment (Ngqangweni & Delgado, 2003). According to Magxinga *et al.*, (2005*),* as a farmer's age increases, it becomes more difficult to respond to opportunities, including accessing the local market. Age can, to a large extent, also affect the response to modern innovations in farming practices. In a study that investigated the decisions to keep livestock in Limpopo by Ngqangweni and Delgado (2003), it was found that the older households are the ones that are likely to invest in livestock, although it seems unsustainable if agriculture is to be important livelihood source. However, in a study that included all the farm enterprises by Makhura, in 2001, the older farmers were found to be more likely to participate in horticultural market, but tended to sell significantly less as compared to younger farmers (Makhura, 2001).

In the same study Makhura (2001), found that the household size negatively affected the chance of participating in the markets for horticulture and livestock. In addition to that, household size had a negative impact on the value of sales. In a study investigating the effects of market orientation on income and food security of small scale farmers by Mathonzi (2000), the size of the household size was found to have a negative impact on farm income. A large household size which is actively involved in farming is useful to provide farm labour, but if the household size is big and most members are just dependants it brings a negative impact on farm income.

The South African government is currently promoting and advocating the participation and involvement of women in all economic spheres, including agriculture. Land is an important resource in agriculture and the disparities in land ownership have a greater impact on income generation. Argawal (1994 & 1997) argued forcefully that women's ownership of land leads to improvements in women's welfare, productivity, equality, and empowerment. Lack of women's ownership of land feeds into the system whereby women are not regarded as real farmers. This, in turn, limits their access to credit, extension services and access to other inputs (Deere & Doss, 2006). A study by Deere *et al.,* (2005) explored whether or not female land rights led to higher rural household income in Paraguay and Peru. In Peru, they found that lack of female land rights were negatively associated with farm income. The study by Deere *et al., 2005* has shown that there is an existing relationship among land ownership, gender and farm income. In a study by Makhura (2001), female households were positively related with livestock sales and female farmers generally participate in livestock markets more than male farmers do.

2.7 Importance of Livestock and Horticulture in South Africa

Livestock in South Africa, as in other developing countries, could be one of the important sources of livelihoods for the poor (Ngqangweni & Delgado, 2003). Livestock contributes to the livelihoods of at least 70 percent of the world's poor (Livestock Development, 1999). For households affected by poverty, livestock products remain one of the few growing markets within the agricultural sector (Delgado *et al*, 1999). Livestock has a great role as a means to earn high income. A large proportion of national livestock is in the hands of the rural poor. It is therefore not a coincidence that the Integrated Sustainable Rural Development Strategy of government identifies livestock farming as the agricultural enterprise with the most likelihood of improving household food security and addressing poverty alleviation.

According to Tregurtha and Vink (2002), the horticultural sector has a strong output growth. The growth in exports of horticultural products has been very impressive. Top twenty food and agricultural products exported from South Africa are horticultural products. There is a need to support the emerging farmers in horticulture so as to improve market access in South Africa.

2.8 Implications on the Literature Review

From the reviewed literature, it is clear that there is a great contribution that emerging farmers can make to address some of the critical challenges of South Africa today. Furthermore, they can contribute significantly to achieve the government's goal to halve the unemployment by 2014. Specifically, emerging farmers can contribute to poverty reduction, food security, income generation, rural development and employment creation.

From the reviewed literature, lack of access to support services, credit and land are critical constraints for the emerging farmers to attain their full potential. Unless means and ways are developed and enhanced to address these constraints, the emerging sector is likely to collapse, regardless of the massive redistribution of land.

Unless socioeconomic constraints are properly addressed as mentioned in Chapter one the efforts of the government to involve the emerging sector in the commercial markets are in vain. The socioeconomic factors that determine the ability of the farmers to use credit properly, market their products effectively, interpret market information easily and manage their farms properly, need to be identified in order to facilitate appropriate policy interventions.

CHAPTER 3
RESEARCH METHODOLOGY

3.1 Introduction

This chapter describes the method used to collect data and the research methods used to analyze variables that were considered to differentiate the characteristics that matter most to emerging livestock and horticulture farmers. The study area and methods of data collection, purpose of Descriptive Analysis and Discriminant Analysis are presented subsequently. A brief definition of the variables used and their hypothesised signs are presented in this chapter.

3.2 Study Area and Methods used in Data Collection

The data were collected from all nine provinces in South Africa (viz., Limpopo, Gauteng, Free State, Eastern Cape, North West, Northern Cape, Western Cape, Mpumalanga and KwaZulu Natal) by interviewing household's heads using a structured questionnaire. This questionnaire covered a number of variables or factors amongst others, socioeconomic, demographic, institutional and production factors. Data were collected by the Development Bank of Southern Africa (DBSA) and the Marketing Survey and Statistical Analysis (MSSA) in 2005 *The data used in this study consisted of 202 livestock farmers and 126 horticultural farmers selected through quota sample covering all nine provinces in South Africa. The data were collected by the Development Bank of Southern Africa in 2005 using a structured questionnaire.*

Descriptive analysis was used to describe the characteristics of livestock and horticulture farmers the Discriminant Analysis was used to identify the factors that impact the most to livestock and horticulture farmers.

3.2.1 Purpose of Descriptive Analysis

The purpose of this analysis is to give an overview of the characteristics of the sample used. It reports the means, standard deviations and the frequencies of the sample. On variables such as labour and household size, basic means and standard deviation are used to describe the variables and the other variables indicated in Table 3.1 are described using the frequencies.

3.2.2 Discriminant Analysis

Discriminant analysis is a statistical technique designed to investigate the difference between two or more groups of cases with respect to several underlying variables. This technique is more appropriate than commonly used measures (i.e. correlations and regressions) when the variables being predicted are categorical. It aims to explain and to predict the group membership of things on the basis of measurements on explanatory variables. It provides a more rigorous test than one based on univariate comparison of means, and results in a unit of analysis, predicted category membership, that is more useful in evaluating institutional interventions.

This analysis concerns the estimation of coefficients (a, i=1,2…n) in the Discriminant functions for an appropriate set of variables and is a useful predictive tool. The technique is most appropriate in estimating the relationship between a single non metric dependent

variable and a set of metric independent variables (Hair *et al.*, 1992). According to Manley (1986), the goal of this analysis is to classify cases into one or several mutually exclusive groups based on their values for a set of predictor variables.

Linear combination of independent variables is formed and serves as the basis for grouping cases. In order to distinguish between these groups, the researcher must assemble a set of explanatory or discriminating variables on which the two groups are expected to differ. On selecting the variable the mathematical objective is to weight and linearly combine the variables so that the groups are forced to be as statistically distinct from one another as possible (Klecka, 1980; and Norusis, 1994).

In general the linear discriminant function can be written as

$D_i = b_o + b_1x_1 + b_2x_2 + \ldots + b_nx_n + U$ ……(1)

Where;

D_i is the i^{th} respondent's discriminant score on the function.

$x_1 \ldots, x_n$ Value of discriminant variable X_i

$b_1 \ldots, b_n$ standardized estimated discriminant coefficient for the variable X_i

U: stochastic error term

The estimated model provides the relative importance and direction of influence of explanatory variables on the basis of magnitude and sign. The relative contribution of each discriminating variable to the discriminating function is determined by the magnitude of its coefficient. The coefficient reflects the relative importance of the independent variable to the dependent variable. The coefficients with relatively large value contribute most to the discrimination between the two groups (Klecka, 1980 and

Norusis, 1994). The sign of the coefficient indicates whether the variable is positively or negatively related to the dependent variable.

Discriminant analysis provides a discriminant function that includes only those variables that should be used in predicting the performance. The main advantage of the linear discriminant function is that its measure of predictive ability is in terms of the percent of cases that are correctly classified. According to Hair *et al* (1992) the technique is most appropriate in estimating the relationship between a single non-metric (categorical) dependent variable and a set of metric independent variables. Therefore the discriminant analysis is an appropriate technique for use in this study to identify characteristics that matters the most between these two groups of farmers. After establishing the explanation of group membership the next step in the discriminant analysis involves the evaluation of the classification performance of the function. Group and individual scores are calculated from the unstandardised functions.

The group scores are determined from group average values on explanatory variables whilst individual scores are obtained from observations on individual explanatory variables. The classification procedure then compares the individual as a member of the nearest group. Classification provides a predicted group membership, which can be compared to the actual membership. Those variables with significance of more than 10% are automatically taken out of the list of the variables to be included in the analysis.

Upon the discrimination of the discriminant function, it is necessary to assess its discriminating power. There are number of statistics available for this estimation with the

most important being Eingenvalue, Wilk's lambda, Chi-square, canonical correlation, F-statistic. Eingenvalue is a direct measure of the function's discriminating power; the larger the value the better the discriminating power of the function.

The specific discriminant model is given as follows

$$\mathbf{Di=b_1Age+b_2Gender+b_3Hhsize+b_4FarmSize+b_5Ext+b_6Fin+b_7Education+b_8Nafum+b_9FarmStruc+b_{10}Lab+b_{11}+GovSup+b_{12}LandT+b_{13}DevP+b_{14}Infras}\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots(2)$$

Table 3.1 Definition of Variables Used

Discriminant Variable	Description	Unit	Hypothesised sign
Farm Income	Dependent Variable	Rand	
DEMOGRAPHIC ACTIVITIES			
Household Size	People in the household	Number	-
Age of Household head	Household head age	Years	-
Education level	Above grade 12=1; 0 otherwise	Dummy	+
Gender	Gender of Household head: Male=1 0 Female	Dummy	-
AGRICULTURAL PRODUCTION ACTIVITIES			
Labour	People formally employed in the farm	Number	+
Farm on my own (Farm Structure)	Farm on his/her own or not Own 1; not =0	Dummy	-
Land Type	Own or not own land Own=1; not own 0	Dummy	+
Farm Size	Size	Hectares	+
SUPPORT SERVICES AND INFRASTRUCTURE			
Finance	Access to finance. Access=1; No access=0	Dummy	+
Development Programme			+
Extension Services	Access to extension services Access=1; 0 otherwise	Dummy	+
NAFU Membership	Member of NAFU Yes or No	Dummy	+
Infrastructure	Access to infrastructure Access=1; 0 otherwise	Dummy	+
Government Support	Government support 1 =Yes 0= No	Dummy	+

3.3 Conclusion

The aim of this chapter was to explain the methods used in data collection and the research methodology used in this study. The main research technique used is the discriminant analysis. Based on the fact that the aim of this study is to compare socioeconomic factors that influence the farm income of livestock and horticulture the most, the discriminant analyses are run separately for each enterprise and then a comparison is made.

CHAPTER 4
RESULTS OF DESCRIPTIVE ANALYSIS

4.1 Introduction

The aim of this chapter is to present the results of the descriptive analysis. Descriptive analysis employs the use of the means, frequencies and Standard Deviation for the key variables. As explained in Chapter three, the study uses data collected from a sample of 202 livestock and 126 horticulture farmers in South Africa by both the Marketing Surveys and Statistical Analysis (MSSA) and Development Bank of Southern Africa. The data collected covered information on demographic characteristics, agricultural production characteristics, and infrastructure and support services required by the emerging farmers.

4.2 Primary farming activity

The specific farming activity that the farmer is involved in has a direct impact on the farm income. Farmers in this sub-sample were classified into two broad groups namely horticulture and livestock farmers. The total sample size for this study was 328 emerging farmers which consisted of 202 livestock and 126 horticulture farmers. This indicates that most emerging farmers are involved in livestock farming. Figure 4.1 below shows the distribution of the farmers in these two groups.

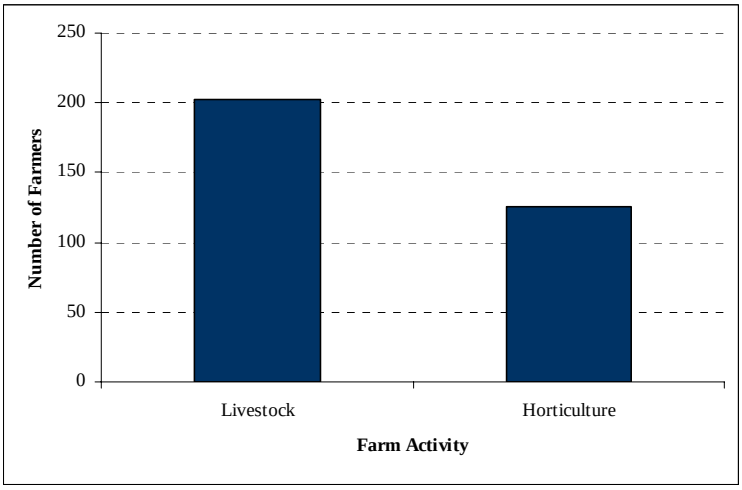

Figure 4.1 Farming Activities

Tables 4.1 and 4.2 have indicated that most horticultural farmers are involved in vegetable production, which is 82.5 percent, while only 17.5 percent is involved in fruit production. In livestock farming 71.3 percent of farmers are involved in beef production while only 28.7 percent is involved in mutton, goat and wool production. These results gave a clear indication that, in livestock farming, most producers are beef farmers whereas in horticulture a large number of emerging producers are vegetable farmers.

Table 4.1 Primary Farming Activities in Horticulture

Primary farming activities	Frequency	Percentage
Vegetables	104	82.5
Fruit (Deciduous, subtropical, citrus, vineyard)	22	17.5
Total	126	100

Table 4.2 Primary Farming Activity in Livestock

Primary farming activity	Frequency	Percentage
Stock farming (beef)	144	71.3
Stock farming (mutton, -goat, wool)	58	28.7
Total	202	100

4.3 Provincial distribution of farmers

There is a difference in the agro-ecological conditions of each province and this has a direct influence on the farming activities in each province. Provinces such as Eastern Cape (EC), Free State (FS) and Kwa Zulu Natal (KZN) and Northern Cape (NC) are expected to be more suitable for livestock production. According to NDA (2006) the provinces that had a significant livestock production are Eastern Cape, Kwa-Zulu Natal, North West (NW), Free State and Mpumalanga (MP). Then, the rest of the other provinces produced a significant production in horticulture.

Western Cape Province has a high percentage of horticultural farmers (29.4 %) and the lowest being the Free State Province at 0.8% in horticulture. A large proportion of the livestock farmers were found in the North West, Northern Cape and Eastern Cape Provinces. These results affirm the fact that Eastern Cape, Northern Cape, North West, Free State and Kwa-Zulu Natal are more suitable for livestock farming whereas Western Cape (WC), Limpopo (LIM), Mpumalanga (MP) and Gauteng Provinces (GP) are more suitable for horticulture farming.

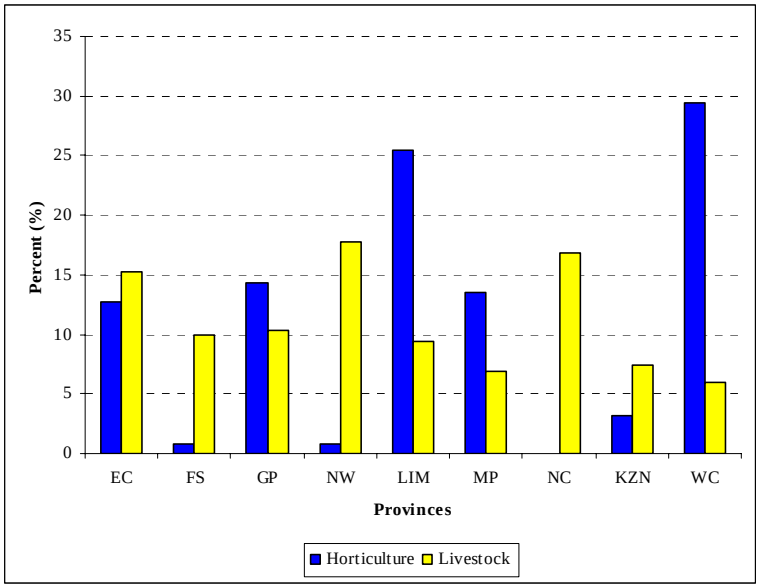

Figure 4.2 Provincial Distribution of Farming Activities

4.4 Demographic Characteristics

4.4.1 Gender

In most instances, the household head is responsible for the coordination of all household activities and the means to generate income. In most instances, women have been regarded as an inferior class until the post apartheid era when women empowerment receives the major attention in South Africa. As a result, the gender of the household has an indirect influence on the farm income. In the past, men from rural areas would go out to seek employment in urban areas while women would be left with the responsibility to take care of household activities including farming.

In this study, 67.5 percent of horticultural farmers are male and 81.7 percent of livestock farmers are male, which means generally that there are more males than female in the emerging agricultural sector. The findings by Ngqangweni and Delgado (2003) in a study investigating the decisions on keeping livestock, only 17 % of females were found to be

keeping livestock. In most African social context, access to resources by women, especially land, is limited as is their access to information and new technologies (Kisaka-Lwayo *et al.*, 2005). However, in the past most households in rural areas were being led by females whilst most males were migrant labourers who were resident in the cities working in the mines or other industries. Recently, the trend seems to be changing due to the increasing unemployment rate and probably that others are now retiring and are getting involved in agriculture. According to Hassim (2006), 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 the oppression of women. This shows that there is still the need to emphasise women empowerment programmes. Most emerging farmers, especially males, are more involved in livestock production due to factors such as livestock is perceived as a store of wealth and the liquidable asset. Whereas the horticulture more especially vegetables are used as cash crops and its products are highly perishable as a result they require immediate disposal to the market. In addition, horticulture farming is labour intensive hence more women participation is expected.

Table 4.3 Gender of Livestock and Horticulture Farmers

	Livestock		Horticulture	
Gender	Frequency	Percentage	Frequency	Percentage
Male	165	81.7	85	67.5
Female	37	18.3	41	32.5
Total	202	100	126	100

4.4.2 Age of the Household Heads.

Age of the household head is one of the important factors in the agricultural sector, since it may give indication about things such as the experience and the interest of a farmer. The young people involved in farming are still having aspirations to create wealth from

the farm, whereas the farmers may be involved in farming just for survival or for social status.

The age of the household head was grouped into five categories as indicated in Figure 4.2. In general the large number of farmers is found in the age group between ages 54 and 64 years olds and the second lowest are between 25 and 34 years. This clearly shows that there is a disparity between the young and the old farmers involved in farming. Most old people are involved in livestock farming rather than horticultural farming. It is only between 16 and 24 years of age where the number of horticultural farmers is higher than the livestock farmers.

One of the reasons that account for this age pattern might be that farming is mostly considered as an alternative job for people who are retiring from their lucrative jobs. As a result, the educated, young and active people migrate to the urban areas to seek better employment and do not consider farming as a potential business. However, there is still lack of an entrepreneurship culture currently amongst many black young people; as a result it may take some time before young people consider farming as a viable business. The existing culture is to finish tertiary education and seek employment. The other reason may be that, in most rural areas, livestock is regarded as a store of wealth and often kept for social reasons and status, and mostly, old farmers who want to keep livestock for social reasons.

Due to the fact that most people consider farming as an alternative job when they are retiring, this may mean that they are not going to invest much in this business due to the

fact that they are not driven much by business passion to generate more income. Furthermore, the old farmers, more especially those with low levels of education cannot easily respond to opportunities and improved ways of production better as the young people would do. As a result, the agricultural productivity would be low due to the fact that old farmers may not easily adopt new ways of production that would enhance productivity. As a result the farm income will remain low.

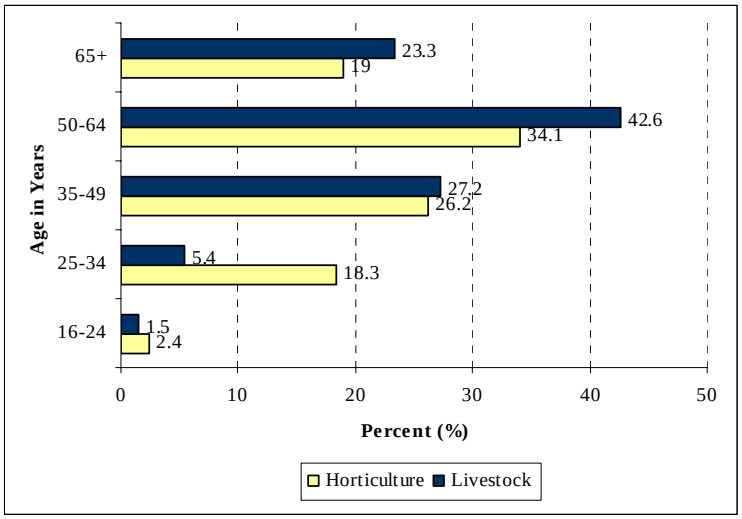

Figure 4.3 Age of Household Heads

4.4.3 Household Size

Generally large households' sizes have more mouths to feed and, as a result, they may commit less money to purchase inputs, which, in turn negatively affects farm income. On the other hand, large household sizes may have an advantage to be the farm labour. So in that case, this may have a positive impact on the farm income. In this sample, the average household size consists of 5 people, while the minimum household size is 1 in both enterprises and the maximum is 15 and 17 in horticulture and livestock, respectively (Table 4.4). There are no significant differences in the household sizes of livestock and

horticulture farmers. However given the nature of horticultural farming which, is labour intensive the active household members in farming can easily be used as the farm labour.

Table 4.4 Household Size

Household size	Mean	Std Deviation	Min	Max
Livestock	5.88	3.07	1	17
Horticulture	5.46	2.604	1	15

4.4.4 Level of Education

Education is one of the fundamental factors that can enable a farmer to easily understand basic farm management, financial management, agricultural marketing principles, and the ability to create business networks. In other words, education level has the ability to improve the competitiveness of the farmer in order to generate farm income. A higher level of education is associated with more knowledge and more access to information. In most instances, farmers with secondary education can easily understand the dynamics of farming for business purposes and can be easily trained, unlike the ones with primary education only, unless otherwise. In addition to this, most emerging livestock and horticultural farmers did not have access to secondary education and the majority only had primary education.

This variable had four categories of farmer's education level, namely, the ones who had no schooling at all, the ones who had primary, secondary and tertiary education. In general the proportion of the farmers who had the primary education is higher that that of any other categories in both livestock and horticultural farmers (Fig 4.4). However, the proportion of the horticultural farmers who had primary education is higher than in livestock farmers. The lowest proportion is the one of the farmers who had secondary

education in both livestock and horticulture farmers. The proportion of livestock farmers who had secondary and tertiary education is slightly higher than the one of horticultural farmers. In looking at these results, livestock farmers might be better off in terms of the level of education as compared to horticulture farmers. In a typical rural area, the male household heads are the ones to have better education level than females, in this study most males are involved in livestock farming than females. This may explain the fact why livestock farmers are having better education than horticultural farmers since there are more males involved in livestock than in horticultural farming.

Low levels of education, more especially amongst horticultural farmers, is a hindrance to respond to new business opportunities or improved methods of doing farm business and production and, as a result, this negatively affects the farm income. Furthermore, this may render them less competitive in the current free market system wherein they have to compete on equal footing with their established counterparts.

Regardless of the number of efforts that the government is investing in emerging farmers, unless the imbalances of education or training are addressed, the farm income of most emerging farmers is likely not going to change for an extended period. The trend will be that, most of them will be out of business despite the availability of policies such as AGRIBEE. There is a need to invest in human capital, which is one of the basic prime movers of agricultural development.

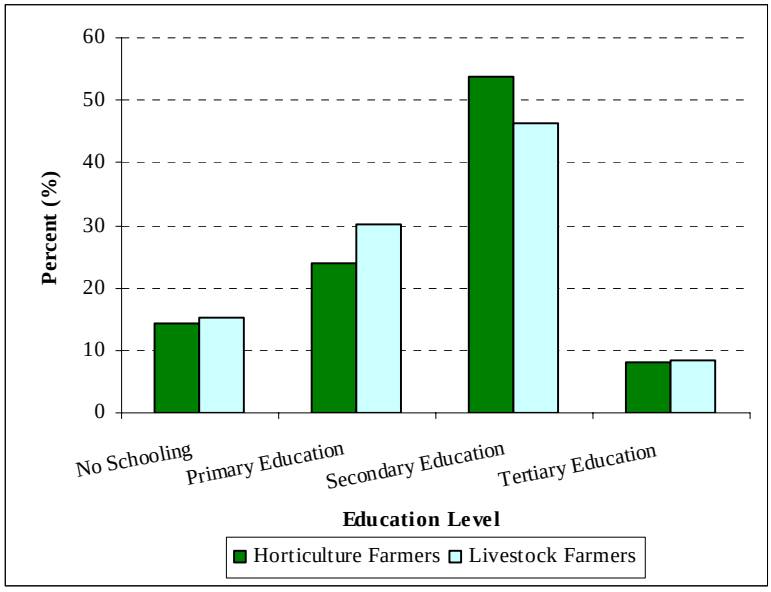

Figure 4.4 Level of Education among Emerging Farmers

4.5 Agricultural production resources

4.5.1 Labour

The size of the farm enterprise is directly related with employment of labour. If the farm size is big and the household labour is not able to handle the farming activities, the employment of labour is necessary for income generation. However, in cases where the size of the enterprise is small but labour can be costly and will reduce the farm income. This variable indicates the number of people that are employed in the farm and are not part of the household.

The minimum number that is employed is 1 and 0, for horticulture and livestock respectively. The average number of people employed by emerging horticultural farmers is four, which is twice higher than the average number of people employed in livestock. That means, some of the livestock farmers could progress without having to employ

anyone, whereas the horticultural farmers had to employ at least one person. The difference is accounted for by the labour intensity of the enterprise and the household size. This shows that horticulture has a high potential for job creation than livestock, and there is a significant difference between these enterprises with regard to labour.

Table 4.5 Labour

Labour	Mean	Std Deviation	Min	Max
Livestock	1.83	2.608	0	25
Horticulture	4.02	4.216	1	29

4.5.2 Farm Size

Farm size has a direct impact on the farm income; the larger farm is expected to generate more income and reduce the cost of production. Most emerging farmers are still having small land sizes.

As can be seen from Table 4.6 below, in this sample most of the emerging farmers are using farms smaller than 4 hectares. In horticulture, the majority (62.7%) is using farm size between 4 hectares and 10 hectares. In this sample, there is only 0.8 percent of farmers using land hectares 150+. This indicates that the emerging farmers in South Africa are still having small farm sizes for farming operations. The farm sizes for livestock are much smaller than would be ideal for a commercial enterprise, and this may have negative implications on sustainability and the farm income of livestock farmers. The increase of livestock farm income depends on the ability to expand livestock production, which mainly depends on the availability of grazing land. Hence, livestock

farmers need more land as compared to the horticultural farmers, given the fact that some horticultural crops, such as vegetable can be produced under tunnels.

Table 4.6 Farm Size

Farm size	Livestock percentage	Horticulture percentage	Livestock frequency	Horticulture frequency
< 4 ha	44.6	62.7	90	79
4-10 ha	9.4	14.3	19	18
11-70 ha	12.9	11.9	26	15
71-150 ha	11.9	5.6	24	7
150+ha	14.9	0.8	30	1
Total	93.6	95.2	189	120
Missing	6.4	4.8	13	6
Total	100	100	202	126

4.5.3 Type of Land Ownership

In smallholder agriculture, insufficient security of land tenure and free rider problems associated with communal land ownership, are widely considered to be obstacles to agricultural development (Machete & Ortmann, 2003). The land type that is mostly used by emerging horticulture and livestock farmers are own and state owned land.

Table 4.7 Land Type

	Livestock		Horticulture	
Land Type	Frequency	Percentage	Frequency	Percentage
Own land	110	54.5	49	38.9
Rental land	22	10.9	12	9.5
Communal Land	22	10.9	11	8.7
State Land	35	17.3	37	29.4
Others	13	6.4	17	13.5
Total	202	100	126	100

4.5.4 Farm Structure

The farm structure indicates whether a farmer operates in a close corporation, partnership, farmer's cooperatives, farm on their own or others means. The farm structure determines the bargaining power of the farmers, given the many constraints that emerging

farmers are having. In this sample most of the livestock farmers are neither part of a close corporation, partnerships nor farmer cooperatives. The farmers that are involved in cooperatives and partnerships are expected to generate more income as compared to the ones that farm on their own unless the individual farmers have enough capital, skills and labour that is necessary for their farming activity. According to Kirsten and Vink (2002), small scale farmers lack organisation, bargaining power and the knowledge to make effective use of their membership in the marketing trusts that were formed after the marketing boards were abolished.

The large number of horticultural farmers is farming on their own while only 2.2 percent fell under the category of others. Although there are huge benefits in farming as a farmer cooperative, close corporation and partnership, low levels of education, different objectives and goals of keeping livestock among livestock farmers may have contributed to most of them not to consider operating in partnership, close corporation and farmer cooperatives.

Table 4.8 Farm Structure

	Livestock		Horticulture	
Farm structure	Frequency	Percentage	Frequency	Percentage
Farm on my own	41	20.3	74	58.7
Close cooperation	4	2.0	7	5.6
Partnership	19	9.4	28	22.2
Farmer Cooperative	17	8.4	14	11.1
Others	121	59.9	3	2.2
Total	202	100	126	100

4.6 Support Services and Infrastructure

4.6.1 NAFU Membership

Membership in Farmer Organisations often enables farmers to have greater access to agricultural production and marketing information, as well as increasing a farmer's bargaining power. The National African Farmers Union represents the interest of the previously disadvantaged in South Africa. It lobbies for access to critical resources such as land, extension, and other support services. It also 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.

Despite these goals and objectives that the NAFU pursues, it still does not enjoy a good membership from the emerging farmers in South Africa, based on the findings of this study. The participation of livestock and horticulture is 5 percent and 10 percent respectively as indicated in Figure 4.5.

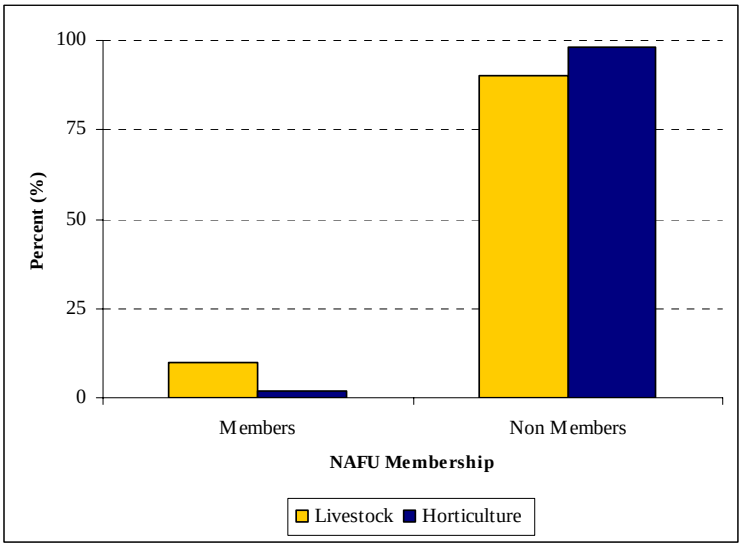

Figure 4.5 NAFU Membership

4.6.2 Access to Finance

Access to finance is very important for the success of the emerging farmers, given their previously disadvantaged backgrounds. Finance either from the government, the private sector or own, has a crucial role to play in the development of this sector.

Table 4.9 Access to Finance

	Livestock		Horticulture	
Finance	Frequency	Percentage	Frequency	Percentage
No Access	98	48.5	37	29.4
Access	104	51.5	89	70.6
Total	202	100	126	100

4.6.3 Extension Services

The provision of extension services remains one of the major interventions that are crucial in the agricultural sector for rural development, food security, poverty alleviation and income generation of the emerging farmers. The role of the extension and advisory services can never be undermined, more especially their contribution to the emerging agricultural sector, given the current challenges in the industry and their experience levels. Extension services can positively contribute to the transformation of the emerging farmers. Only 9.4 and 3.4 percent of horticulture and livestock, respectively, had access to extension services. This indicates that most of the emerging farmers still do not have access to extension and advisory services.

Table 4.10 Extension Services

	Livestock		Horticulture	
Extension services	Frequency	Percentage	Frequency	Percentage
Access	9	4.5	4	3.2
No access	193	95.5	122	96.8
Total	202	100	126	100

4.6.4 Infrastructure

Access to basic infrastructure such as road makes accessibility of markets easier for the emerging farmers. More often than not, many emerging farmers are located very far from the potential markets and the centre of business activities. Farmers who do not have access to infrastructure experience high transaction costs. In addition, to this the ability of farmers to access necessary services depend on, the transport systems and their location away from relevant service providers.

According to Matungul *et al.*, (2001), high transaction cost results from weak physical and institutional infrastructure. According to Ngqangweni and Hendricks (2003), agricultural led growth requires new technology and improved infrastructure to reduce unit production and transaction costs, to improve prices, to broaden access to land and credit markets and to convert non-tradable into tradable.

Table 4.11 below shows that most emerging farmers still do not have access to infrastructure. The key point from this is that there is a low government investment in rural infrastructure and this has a negative impact on the farm income by increasing the cost of making business.

Table 4.11 Infrastructure

	Livestock		Horticulture	
Infrastructure	Frequency	Percentage	Frequency	Percentage
Poor infrastructure	178	88.1	89	70.6
Otherwise	24	11.9	37	29.4
Total	202	100	126	100

4.7 Summary

The Descriptive Analysis in this chapter has shown the differences in provincial distribution, demographic, production characteristics and support services that affected the livestock and horticultural farm income. These results affirmed that Western Cape, Limpopo, Mpumalanga and Gauteng are more suitable for livestock production, whereas Eastern Cape, Northern Cape, North West, Free State and Kwa-Zulu Natal are more suitable for livestock production.

Livestock farmers have shown to have better education level than horticultural farmers. Most farmers are males in both enterprises and, in addition to that, there is a low participation of young people in farming. The household sizes did not show any significant differences; the mean household size was slightly the same.

In regard to the production characteristics, the horticultural farmers have a mean size that is twice the mean size of livestock farmers. Based on the farm size and land type the livestock farmers are having better access to land as compared to horticultural farmers. However, most of the horticultural farmers are farming on their own and are better involved in co-operatives and partnerships than the livestock farmers.

Lastly, with regard to support services, the percentage of livestock farmers participating in National African Farmers Union is twice higher than the horticulture farmers. There is a very slight difference in access to extension services. The finding is that both enterprises had a low access of extension services.

The Descriptive Analysis in this chapter shows the agricultural practices across the provinces based on the primary farming activity. In Western Cape, the primary farming activity is horticulture whereas in other provinces, like Northern Cape, North West and Eastern Cape, there is a very good contribution in livestock production, especially beef. It is necessary to understand the needs of each province if transformation has to be successful in South Africa.

CHAPTER 5
RESULTS OF DISCRIMINANT ANALYSIS

5.1 Introduction

As indicated in Chapter 3, discriminant analysis is a technique designed to characterize the relationship between a set of variables, often called the response, independent or predictor variables and a grouping variable called the dependent. To do so, discriminant creates a linear combination of the independent variables that best characterizes the differences among the groups. Therefore, this chapter presents the results of discriminant analysis on the socioeconomic characteristics that has an impact on the farm income of horticultural and livestock farmers. The analysis for socio-economic factors affecting the income of emerging farmers was conducted in two groups. The next section discusses the results obtained for the livestock farmers followed by a discussion for horticulture farmers. Lastly, we compare the results to see if the two types of farmers are being affected by the same factors.

5.2 Results of Empirical Analysis

5.2.1 Livestock Farmers

The sample size of the livestock farmers used is 202 and out of this sample 187 cases which accounts for 92.6 % of the sample were valid cases. This is a substantial amount of the cases and is a good representation of data. There are few cases missing, namely 14 on the discriminating variable, 1 on the grouping variable and 0 on both.

Wilk’s Lambda is a measure of the overall significance of the linear discriminant function. It tests the significance of each discriminant function and its null hypothesis

states that the means of all the groups of farm income on the discriminant function are equal. When a p-value is less than 0.05, we can reject the null hypothesis and conclude that the means are different and the function has a discriminatory ability. The first line labelled "1 through 3" on Table 5.2 is an overall test of whether or not the means of all three functions are equal in all categories of income. The first test is significant at one percent level and it means that there are significant differences on one or more of the discriminant functions. The second test shows that there are no significant differences ($p>0.05$) on "2 through 3" and on the third function by itself. Therefore only the first function has a discriminatory ability. The Eingen value, as indicated by Table 5.1, shows that function one accounts for 63.8% of the variance while function 2 accounts for 21.5%, and the third function accounts only for 14.6%. The first function is the only function that has the best ability to separate between the groups.

Table 5.1 Livestock Eingen Value

	Function 1	**Function 2**	**Function 3**
Eingen Value	0.410	0.138	0.094
% of Variance	63.8	21.5	14.6
Canonical Correlation	0.539	0.348	0.293

Table 5.2 Livestock Wilk's Lambda

Test of Function(s)	Wilk's' Lambda	Chi-square	df	Sig.
1 through 3	0.570	99.038	48	0.000
2 through 3	0.803	38.579	30	0.135
3	0.914	15.800	14	0.325

The Standardised Discriminant Function Coefficients in Table 5.3 indicate the relative importance of each independent variable in predicting the dependant variable which is farm income. Furthermore, they indicate the partial contribution of each variable to the

discriminant function. The farm size variable has the highest coefficient of 0.470, which indicates that it has the highest partial contribution to the discriminant function.

The Structure Matrix Coefficients explain how closely each variable and a discriminant function are related. In addition to that, they explain the effect of a variable on a function score. In other words we can say that the Structure Matrix Coefficients indicate the simple correlations between the variables and the discriminant functions. One advantage of the Structure Matrix Coefficients is that they are not affected by multicollinearity.

The characteristics that influence the farm income of livestock farmers are namely farm size, age of the household head, access to finance, NAFU membership, and government support. Access to finance refers to finance from the government institutions and finance from the private institutions such as cooperatives or any institution that may support emerging farmers with finance.

Table 5.3 Livestock Standardised Discriminant Coefficients Function

Discriminating Variable	Standardised Coefficients Estimates	F-Ratio
Farm Size	0.470	4.307
Household Size	0.067	0.137
Labour	0.362	8.423
Finance	0.301	1.869
Gender	0.205	1.270
Land Type	0.394	1.367
Education Level	0.389	2.655
Farm Structure	-0.312	1.778
Government Support	-0.156	3.159
Development Programme	0.137	0.442
Extension Services	-0.108	0.911
NAFU Membership	0.344	0.929
Age	-0.099	0.753
Infrastructure	-0.280	0.837
Percentage of cases correctly classified Eingen Value Percentage of Variance Canonical Correlation Wilk's Lambda Chi-Square (df =48)		= 92.6 % = 0.410 = 63.8 % = 0.539 = 0.57 = 99.038

Table 5.4 Livestock Structure Matrix Coefficients

Variables	Structure Matrix Coefficient
Farm Size	0.346*
Household Size	0.60
Labour	0.443
Finance	0.267*
Gender	0.164
Land Type	0.160
Education Level	0.270
Farm Structure	-0.58
Government Support	-0.309*
Development Programme	-0.81
Extension Services	-0.103
NAFU Membership	0.191*
Age	-1.71*
Infrastructure	-0.009

5.2.1.1 Farm Size

The coefficient of farm size was found to have a positive impact on the farm income of livestock farmers. Furthermore, this variable matters the most to livestock farmers. This implies that an increase in farm size is likely to lead to an increase in the farm income of livestock farmers.

In livestock farming, an increase in the grazing land will increase the incentive for owning more livestock. This is similar to the findings of Spio (2002), who found that the farm size affected the productivity of small farmers positively. In addition to this, farm size provides an incentive to better access credit needed for inputs or running the farm enterprise. In a study by Bester *et al* (1999), farm size had a positive impact on the usage of Farmer Support Programme (FSP).

In a study by Makhura (2001), farm size stimulated market participation of smallholder farmers. Farm size was found to be positively and significantly related to market participation. When a farmer has more farm size and all is used for production, the level of production will increase, hence the farm income. Spio (2002) showed that the farmer with an average land size and land size greater than two hectares had more income than farmers with farm sizes less than two hectares. In a study by Mathonzi (2000), the increase of one hectare was found to have a positive increase on the farm income. In a study by Mbowa and Nieudwoudt (1999), the average yield on farms in their study was lower on small-scale farmers, as compared to large-scale farmers. Economies of scale can be enjoyed by any farm expanding its scale of production. The benefits of economies of scale are bulk buying (i.e., bulk buying may lower costs of inputs), technical economies (mass production techniques or investing in machinery), financial benefits and the transport and communication links may improve due to reasonable volumes that farmers can produce. Thus, the main advantage of economies of scale is the possibility of higher farm income.

5.2.1.2 Age of the Household Head

The age of the household head was found to have a negative influence on farm income of livestock farmers and it is also one of the factors that matters the most to the livestock farmers. The negative sign implies that, as the age of the household head increases, the farm income is likely to decrease. In a study by Makhura (2001), similar results have been found. Older household heads are no longer much business minded and interested in generating more income. In this sample, most of the farmers are between the ages 50 and 64 and there is a small proportion of young people participating in agriculture (farming).

More often than not, at times when people retire from their lucrative jobs they join the farming sector. The problem is that agriculture (farming) has not been seen as an enterprise that has potential to create more income and wealth by young people.

5.2.1.3 Access to Finance

Access to finance is one of the factors that matters the most to the livestock farmers. This variable has a positive impact to the farm income of the emerging farmers. This means the more the farmer has access to finance the farm income is likely to increase.

5.2.1.4 NAFU Membership

National African Farmers Union membership had a positive impact to livestock farmers and is also one of the factors that matters the most to livestock farmer's income. From the Descriptive Analysis, it is shown that most horticulture and livestock farmers are not members of National African Farmers Union (NAFU). However, this study did not investigate the reasons that accounted for the low involvement of the emerging farmers in farmer support organizations, in particular NAFU.

5.2.1.5 Government Support

Government support is one of the variables that matters the most to livestock farmers and has a positive impact on the farm income of livestock farmers. This implies that an increased access to government support will lead to the increase of the farm income. The study conducted by Oford (2005) in the Western Cape, Kwa-Zulu Natal and Gauteng provinces suggests that the government needs to rethink its approach to deliver support services to small enterprises. Furthermore, this study suggests that the government need

to refrain from providing a direct support but should facilitate the private sector service provision. This shows that the government support is highly necessary for the farm income of the livestock farmers to increase.

5.2.2 Horticulture Farmers

The sample size of the horticultural farmers used is 126, and out of this sample, 118 cases that account for 93.7 % of the sample were valid cases. This is a substantial amount of the cases and is a good representation of data. As mentioned in the previous section, that Wilk's Lambda is a measure of the overall significance of the linear discriminant function. The first function is the only function that has the discriminatory ability and the other two functions do not have good discriminatory ability. As a result, the coefficients from the first function will be used for the analysis of factors that matter the most to horticultural farmers. In addition to that the eigenvalues as indicated in Table 5.6 provides information about how much of the variance in the dependant variable (income) is accounted for by each of the functions. In this case, 64.8% of the variance is explained by function 1, 24.4% by function 2 and 10.8% by function 3. Function 1 explains a larger percentage of the variance and, as a result, the standardised and structure matrix coefficients of function 1 will be used to identify the characteristics that matters the most to horticultural farmers.

Table 5.5 Horticulture Eingen Value

	Function 1	**Function 2**	**Function 3**
Eingen Value	0.793	0.298	0.132
% of Variance	64.8	24.4	10.8
Canonical Correlation	0.665	0.479	0.341

Table 5.6 Horticulture Wilk's Lambda

Test of Function(s)	Wilk's' Lambda	Chi-square	df	Sig.
1 through 3	0.380	103.639	48	0.000
2 through 3	0.681	41.182	30	0.084
3	0.883	13.255	14	0.507

Based on the standardised discriminant coefficients indicated in Table 5.7 farm size has the highest coefficient of 0.911, which indicates that it has the highest partial contribution to the discriminant function. This implies that as the farm size increases the horticultural farmer is likely to generate more income. Furthermore to see how closely a variable and a function are related we use the structure matrix values as we did with livestock farmers. From the Table 5.8 we see that the first and most important function has to do with farm size, age, education, land ownership and extension services (also indicated in the table by stars).

Table 5.7 Horticulture Standardised Discriminant Coefficients Function

Discriminating Variable	Standardised Coefficients Estimates	F-Ratio
Farm Size	0.911	15.836
Household Size	0.304	4.087
Labour	0.074	3.629
Finance	0.432	1.614
Gender	-0.214	1.312
Land Type	0.095	2.580
Education Level	0.276	3.053
Farm Structure	-0.153	1.382
Government Support	-0.095	0.270
Development Programme	0.113	0.359
Extension Services	-0.168	0.937
NAFU Membership	-0.214	2.066
Age	-0.320	2.942
Infrastructure	-0.193	0.624
Percentage of cases correctly classified Eingen Value Percentage of Variance Canonical Correlation Wilk's Lambda Chi-Square (df =48)		= 93.7 = 0.793 = 64.8 = 0.665 = 0.380 = 103.639

Table 5.8 Horticulture Structure Matrix Coefficients

Variables	Structure Matrix Coefficient
Farm Size	0.671*
Household Size	0.163
Labour	0.174
Finance	0.143
Gender	0.062
Land Type	0.263*
Education Level	0.306*
Farm Structure	-0.012*
Government Support	0.046
Development Programme	-0.078
Extension Services	-0.162*
NAFU Membership	-0.119
Age	-0.312*
Infrastructure	-0.118

5.2.2.1 Farm Size

The coefficient of farm size was found to have a positive impact on farm income of horticulture. This implies that an increase in farm size will likely lead to an increase in the farm of horticultural farmers. The findings of this study on horticultural affirms the results of the study conducted by Makhura (2001), where it was found that the age of household head, size of arable land and extension service contacts, increased the chances of households selling horticultural products.

A number of studies by different researchers have indicated that an increase in farm size has lead to an increase in farm income, which also affirms the authenticity of this finding (Makhura, 2001, Spio, 2002; Mathonzi, 2000; and Mbowa & Nieudwoudt 1999). Furthermore, in a study by Bester *et al* (1999), farm size had a positive impact on the usage of Farmer Support Programme (FSP). Economies of scale can be enjoyed by any farm expanding its scale of production. The benefits of economies of scale are bulk

buying (i.e., bulk buying may lower costs of inputs), technical economies (mass production techniques or investing in machinery), financial benefits and the transport and communication links may improve due to a reasonable volumes that farmers can produce. Thus, the main advantage of economies of scale is the possibility of higher farm income.

5.2.2.2 Age of Household Head

The age of the household head was found to have a negative impact on farm income and is one of the factors that matters the most to horticultural farmers. The negative sign of this coefficient implies that, as the age of the household head increases, the farm income is likely to decrease.

5.2.2.3 Land Type

The land type has a positive coefficient and it means that the land type has a positive influence on the farm income. Land type was found to be a factor that matter the most to horticultural farmers.

The positive impact of land type to horticulture implies that a farmer who owns the land will be able to generate more farm income compared to the farmer that use of rental, communal or state land. Spio (2002) and Mahabile *et al.,* (2004), found similar results. It is easier for the farmer to invest in his/her own land than in rented or communal land. Private farms whose tenure is secured have a stronger incentive to invest in fixed improvements as they have a much higher probability of internalising the benefits of their investments. In a study by Kisaka-Lwayo *et al.,* (2005), conducted at Botswana, farmers find it easier to finance improvements because there is a market for privately owned land.

Thus, farm ownership gives a farmer the freedom to produce on the land and is one of the factors that have an influence on access to credit and the amount of credit the farmer may receive (Spio, 2002).

5.2.2.4 Extension Services

This variable has a negative impact and this implies that no access to the extension services has a negative contribution to the farmer's income. In a study by Jeche (1999), the extension services had the similar results. The impact of extension services provided by extension officers might not relate best to the needs of emerging livestock farmers. Emerging farmers, especially those who are beneficiaries of the land reform programme, are faced with the challenge of being efficient in the land allocated to them. It is in this area where there is a necessity of the skilled provision of extension and advisory services.

5.3 Comparison of Livestock and Horticultural Farmers

The aim of this chapter was to present the results of the discriminant analysis of livestock and horticulture farmers. As a result, this section makes a comparison of the factors that matters the most to farm income of both enterprises based on the results presented in the previous sections. The factors that matters the most to livestock farm income are access to finance, age of the household head, NAFU membership and government support. The factors that matter the most to horticultural farmers' income are farm size, age of the household head, extension services and land type.

The factors that matter the most to livestock and horticultural farmers' income has shown that there is a difference in factors that influence the farm income of both enterprises.

NAFU membership and government support matters the most to livestock farmers whereas they do not matter the most to horticultural farmers. The factors that matter the most to horticulture and do not matter to livestock farmers are extension services and land type. However, farm size and the age of the household head had shown similar results to both enterprises. But the magnitude and the contribution of each farm size and age of household head are different on the function of horticultural and livestock farmers on the basis of their coefficient.

CHAPTER 6
SUMMARY OF KEY FINDINGS AND POLICY RECOMMENDATIONS

6.1 Introduction

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. This chapter is presented in five sections. The study is summarized in Section 6.2. Section 6.3 presents the key findings of the study and Section 6.4 presents the conclusions drawn from the key findings. Section 6.5 presents the policy recommendations. Section 6.6 makes recommendations for future studies.

6.2 Summary

Chapter one provided a brief background of the emerging farmers and discussed the problem statement, the need and the objectives of the study and then derived the hypotheses of the study. The general objective of the study was to identify and compare the socioeconomic characteristics that determine farm income of emerging livestock and horticultural farmers in South Africa. The first specific objective was to describe the socio-economic characteristics of livestock and horticultural farmers in South Africa. The second specific objective was to identify the factors that determine the farm income of the livestock and horticultural farmers. The last specific objective was to recommend strategies for enhancing farm incomes of horticulture and livestock farmers in South Africa. The research hypothesis of this study was namely that the socio-economic factors that determine the farm income of the livestock and horticultural farmers are different.

Chapter two reviewed the theoretical and empirical literature on emerging farmers in South Africa. The demographic factors such as education level age of household head, gender and household size and the agricultural production resources such access to land, labour, farm structure, access to credit and infrastructure have an impact on the farm income of merging farmers. The general hypothesis was that the factors that matters the most to farm income of merging livestock and horticultural farmers are different. This hypothesis was tested by comparing the factors that matters the most to each enterprise using the Discriminant Analysis in Chapter five.

Chapter three reviewed the methodologies used in the study for analysis. Descriptive statistics was used to differentiate the socioeconomic factors of the livestock and horticultural farmers, while the discriminant analysis was used as the main technique to determine the factors that maters the most to farm income of each enterprise. Then the results of the descriptive analysis were reported in Chapter four. Chapter five reported the findings of the discriminant analysis and the factors that matters the most to the farm income of each enterprise were identified.

6.3 Key Findings

The factors that matter the most to livestock farmers are farms size, membership to farmer organisation, access to finance and government support. On the other hand the factors that matter the most to horticultural farmers are farm size, land type, household head age and access to extension services.

The similarity between livestock farmers and horticultural farmers exists in farm size and the age of the household head. The magnitude of the coefficient gave us an indication to what extent the independent variables have an impact on the farm income. Although farm size matters to the farm income of both enterprises the extent to which it matter to horticultural farmers is higher than it is to livestock farmers. That means, an increase in farm size will lead to an increase in the farm income of emerging livestock and horticultural farmers in South Africa, but it will have a greater impact on the farm income horticulture farmers. As the age of the household increases, the farm income is likely to decrease given the fact that this variable was found to matter the most to farm income of both enterprises and it has negative influence. According to the Descriptive Analysis most, farmers are between age 54 and 64 years and there is a very small participation of young people in agriculture.

The NAFU membership matters the most in livestock farmers while it does not matter the most to horticulture farmers. However the participation of both emerging horticultural and livestock farmers in farmers support organisations is very low and there is a need encourage the involvement of farmers, given the advantage that comes with being a member of Farmer Organisation.

The results of this study showed that there is a difference in socioeconomic characteristics that matters the most in determining farm income for livestock and horticultural farmers. On that basis, this study accepts the hypothesis that is made in chapter one, that the factors that determines the farm income of livestock and horticultural farming are different.

6.4 Policy Recommendations

Based on the empirical results of this study policy recommendations relating to access to land, access to finance, extension services, government support and the role of Farmer Organizations will be made as for improving incomes of emerging farmers and their competitiveness in agricultural markets.

6.4.1 Access to Land

The Land Reform is one of the complex issues that is not only economical but is also political in the sense that the imbalances of the past need to be redressed. The current challenges of land reform relate to land size allocated and the pace of land reform process. Farm sizes and access to land in general play an important role in farm income; and successful participation of emerging farmers in commercial agricultural markets. The current slow pace of the land reform process, which may be attributed to factors such as lack of coordination between the two major government departments responsible for land reform, poses threats to the commercialisation of the emerging farmers in South Africa and the economy at large in the near future. This has a negative implication on the Land Reform Policy and the Strategic Plan for the South African agriculture, which aims to enhance equitable access to land and participation in agricultural opportunities within the total value chain, to deracialise land and enterprise ownership and to unlock the full potential in the sector.

This study recommends that the Departments of Agriculture and Land Affairs should work together closely in order to accelerate the pace of successful land reform. However, the emphasis on the quantity of land to be transferred is not more important than the

quality of transference. Lack of adequate coordination between these departments and their programmes is one of the hindrances to land access. By virtue of the government mandates Department of Land Affairs is responsible for transfers of land and the Department of Agriculture is responsible for implementation of the projects (post transfer). There is a need to develop a collective pre-transference and post transference strategy that will ensure that the elements of the Strategic Plan, programmes and resources are matched to create successful and sustainable emerging farm sector. Furthermore the Land Bank needs to be integrated in all strategies of Land Affairs and Agriculture the in the pre transfer and the post transfer of land.

6.4.2 Access to Finance and Human Capacity Building

The means to attract finances in the agribusiness, sector more especially for the emerging sector, lies on the genuine business ideas and business capacity of the farmers. It is very difficult if not impossible to separate finance and capacity development. The failure of emerging farming sector lies very strongly on lack of support services needed by the emerging farmers for their business capacity development. The solution to this problem does not need government intervention only but also needs the involvement of other role players, such as Land Bank, Development Bank of Southern Africa, Commercial banks, Department of Agriculture and any other relevant role players in the industry. This may mean that there is a need of a collective industry strategy to address the problem of emerging farmers in South Africa. There is no need for the government and the private sector to compete in providing services to the emerging farmers or businesses.

The Department of Agriculture should be intensively involved in assisting the emerging farmers to draw up the sound business plans and to establish the realistic farm business implementation strategies. If the department fails to do that they should facilitate the involvement of the private sector, not only on drawing business plans but in capacity building and general financial management. This can be achieved through targeted and intensive business training; experienced mentoring; and linking finance and training. The attention of the government should be on capacity building to assist emerging farmers to be able to manage their own businesses and that can make them sustainable.

The private sector does not have much time to invest in capacity building, unless the government is willing to subsidise them and the time taken away from their normal business. In cases where the government has a limited ability to deliver the business capacity development to the farmers, which is often the situation, the services should be outsourced to the authentic business development institutions. Furthermore the government needs to rethink and revise on how to increase investment in one of the important prime movers of agricultural development, which is human capacity development. Relating access to finance and capacity development is one of the good strategies that the government need to employ.

6.4.3 Extension Services

If insufficient attention is given to the provision of the support services to the emerging farmers, this will hamper success and growth of the emerging farm sector. This study proposes that the number of extension officers be increased in each district to enable necessary farmers support services. Furthermore, the extension officers should specialise

in certain fields within the agricultural industry, i.e., livestock extension officer, crop production extension officer, marketing extension officer etc.

The current system whereby the extension officers are expected to be jack of all trade and to serve a large number of farmers does not do justice to the agricultural industry, especially to the emerging farmers. There is a need to take a comprehensive approach to provide support services to the emerging farmers. Providing one-sided support service does not bring out the desired fruit. The support to emerging farmers must be provided collectively in relation to production facilities; technical skills; credit access; marketing and marketing information; leadership capacity building; infrastructure support and so on. Furthermore, the provision of agricultural marketing extension can enhance the formation of marketing structures, which will assist to cut down the transaction costs incurred by emerging farmers. Although there is a need to take caution that these support services should not make the farmers to be over-dependent on the government. The government should provide this support with the objective of empowering the farmers and making them independent entrepreneurs.

6.4.4 The Role of Farmer's Organizations

There is a great role that the farmer organisations can play in the development of the emerging agricultural sector. Farmer Organisations such as National African Farmers Union provide a wide range of services such as financial services, training, advisory services, skill development, and represent their member's interest in expressing demand for service. Furthermore, the Farmer Organisations can be a good vehicle that can easily enable the mentorship of the emerging farmers.

The farmer organisations and provincial Departments of Agriculture need to realise the fact that they need each other in order to better serve the emerging farmers. As a result, there is a need to develop a strategy to formulate a close relationship between the provincial Departments of Agriculture, extension officers in district level and the Farmer Associations.

The farmers in livestock or horticulture have different needs and challenges. In the light of that, there is a need to encourage the development of commodity groups that will be able to address the needs and challenges of the specific commodity group. However, these commodity groups may all affiliate with the bigger farmer associations for a better representation in demand for service or marketing bargains.

At present, the participation of the emerging farmers is very low and that may mean lack of awareness to the farmers. To deal with this challenge the existing farmers associations should invest in marketing their organisations on the basis the services that can benefit the farmers as a member. This should be done from the moral and business perspectives for the creation of successful and sustainable emerging farmers.

6.5 Conclusion

The results of this study suggest that for livestock farmers to increase their farm income access to finance by emerging livestock farmers must be provided. In addition to that there is a need to provide the necessary entrepreneurial skills on how to manage finances and the general farm management. The horticultural farmers need more land and access to objective and relevant extension services in order to increase their farm income. This relates to the nature of the enterprise that shows that the livestock farmers are having

different needs from the horticulture farmers. Therefore, this study concludes that the socioeconomic characteristics that affect the farm income of emerging livestock and horticultural farmers are different.

6.6 Recommendations for Further Research

- The main objective of this study was to identify and compare the socioeconomic factors that matter the most to emerging livestock and horticultural farmers. Based on the fact that this study was focused on all provinces, there is a need to the similar study focusing on each province.
- Based on the Descriptive Analyses of this study the participation of young people in agriculture as farmers is very low. There are reasons related to that which this study did not further investigate, but this could be one of the important issues to investigate.
- Despite the current government policies to empower emerging farmers, most of them are still not able to access finance.
- The participation of emerging farmers in Farmer Organisations, cooperatives, close corporations and other forms of organisations is very low. There is a need to research why are emerging farmers not participating in these organisations despite the advantage that can be provided by these organisations.
- Support services remain one of the factors that are important to the emerging farmers, based on their level of education, so the model that national and provincial Departments of Agriculture can use to provide an objective and structured support services must be investigated.

- Future studies could consider using the enterprise choice as the dependent variable rather than farm income as done in this study
- The impact of educational level of emerging farmers on farm income needs to be investigated.

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