Determinants of Commercialization on Recapitalised Farms in Gauteng Province

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DECLARATION

"I Mmagabayo Ruth Mogoje, hereby declare that the mini-dissertation submitted for Masters in Business Administration at North West University, Mafikeng campus, graduate school and government leadership, is my own work. This work has not been submitted to any other institution on higher education. I further declare that all sources cited or quoted are indicated and acknowledge by means of a comprehensive list of references."

Signature of student
Date:

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ABSTRACT

This study was conducted to assess the determinants of commercialisation of recapitalised farms in Gauteng Province. The specific objectives of the study are: to determine the monetary value of recapitalisation versus the current level of production on farms, when measured on a commercial scale; to determine the constraints that affect recapitalised farms in operating on a commercial scale; and to determine whether the recapitalisation of farms has improved the livelihoods of beneficiaries, the socio-economic status of farm workers, farm infrastructure, machinery, implements and farm cash flow. The purposive sampling instead random sampling was used in the current study, based on the accessibility and availability of the limited number of recapitalised rural development and land reform farms in Gauteng. A questionnaire was used as the data-gathering tool in the current study. A multiple regression model and correlation coefficient will be used to explore the relationship between government capital spending, farm operation, productivity, benefit of farm beneficiaries and farm profits. The results revealed that R28 382 452.00 was used for recapitalisation investment on 20 farms, with the total capacity of 6 606.85ha. Recapitalisation fund spending was largely implemented on crop farming, at 54%, followed by mixed farming (crop and animals) at 28%. The determinants of commercialisation on recapitalised farms in Gauteng were assessed through production improvement, and expenditure versus return variables for sustainable operations.

Key words: Determinants, farms, commercialisation, recapitalisation

CHAPTER 1

1 INTRODUCTION

The 1913 Native Land Act, which forced black Africans to move from large tracts of land to overcrowded areas, led to skewedness of the land ownership in South Africa. As a result, a large number of highly productive farms became to be owned by 60 000 white farmers (a minority group), which represented 10.9 percent of the population. The poverty-stricken majority of 13 million African people remained in the over-crowded in restricted areas (now referred to as the former homelands), where the rights to the land were generally unclear. These areas experienced high rates of infant mortality and illiteracy, low or no income opportunities, and extreme malnutrition (Lahiff & Li, 2012).

It is in this context that the 1996 Constitution was developed for a liberal democracy, which placed more emphasis on socio-economic rights and clear objectives to redress the injustices of the apartheid government. The constitutional clause on property articulates the rights of existing owners, and also grants particular rights of redress to victims of historical dispossessions of their land, thereby establishing the legal basis for land reform programmes in South Africa.

The land reform programme thus strives towards achieving both equity (i.e. access and ownership of land) and efficiency (by improving the land use), while contributing towards the development of rural economies. The 1997 White Paper elaborated on these objectives and favoured certain avenues for achieving them, and among the many purposes of land redistribution, the Paper highlighted the importance of providing the poor with access to land for residential and productive use in order to improve their income and quality of life (Department of Land Affairs, 1997).

The programme aims to assist the poor, labour tenants, farm workers, women, and emergent farmers. Redistributive land reform is largely based on willing buyer–willing seller arrangements. Government will assist in the purchase of land, but will in general not be the buyer or become the owner. Wiggins et al., (2011) reported the

processes of commercialisation as being uneven, with a focus placed on higher prices, improved market access, and agricultural innovations that may allow commercialisation in a particular zone, although the response to these stimuli will vary across individual farms.

Government, through the Department of Rural Development and Land Reform, has introduced capital investments for the farms that were acquired and redistributed to historically disadvantaged people. The purpose of capital investment was to improve farm infrastructure, machinery and implements, and to provide access to farm inputs needed to make farms productive in order to grow them from an emerging farming scale to a commercial scale.

Agricultural commercialisation refers to the process of increasing the proportion of agricultural production that is sold by farmers (Pradhan et al., 2010). Kibirige (2016) defines commercialisation as the development of infrastructure and introduction of cash crops that are the current major contributors to the national GDP of most developing countries (such as coffee exports from Uganda and tea exports from Kenya).

In many instances, economists tend to think of commercialisation as large-scale farming and consequently ignore the fact that small-scale farmers and poor farm households participate in the market, although they produce a little surplus or only sell to earn cash income that meets other family necessities. Different commodity farms participated in the current study. The commercialisation of the different farms was measured according to recapitalisation investment, skilled human resources, farm input, total capacity of farm, actual capacity used for production, farm revenue and farm profit. Okezie et al. (2012) explored the determinants of agricultural commercialisation, utilising an aggregated all-crop production function of the Cobb-Douglas with the following variables: constant, land, capital, labour, production materials, inputs, off-farm income and total farm income.

The advantage of agricultural commercialisation allows farms to produce for the household as well as providing a surplus that can be sold to the available market. The growing demands for particular farm products often give small-scale farmers an

opportunity to increase their agricultural production and participate in market share when they sell their product (Okezie et al., 2012). According to Martey et al. (2012), the commercialisation of agriculture refers to a greater market orientation of farm production, progressive substitution of non-traded inputs for purchased inputs, and the gradual decline of integrated farming systems and their replacement by specialised enterprises for crops, livestock and poultry and for aquaculture products, depending on the target market.

1.1 PROBLEM STATEMENT

The Recapitalisation and Development Programme (RADP) was introduced to achieve farm commercialisation, employment and poverty alleviation. Recapitalisation also covered different commodities and different groups of farms. The redistribution of land to designated beneficiaries did not achieve the intended goal of enhancing farming activities on many farms, and as a result, recapitalisation was introduced to remedy the situation and to enable the farms to become profitable and reach a higher commercialisation status.

The productivity of the recapitalisation on farms redistributed to historically disadvantage groups is unknown. Recapitalisation is undertaken through the disbursement of millions of Rand to redistributed farms, with the aim of improving farm productivity and enhancing a positive impact on the livelihoods of beneficiaries, by providing support services, machinery, implements, and working capital. Despite the investment of R28 382 452 in the recapitalisation of 20 farms with a total capacity of 6 606.85 ha, covering crops and livestock enterprises, many of the recapitalised farms have not reached the commercial status envisaged by the Department of Agriculture in Gauteng. This study has attempted to examine the factors that determine the outcomes of the commercialisation of recapitalised farms, from the perspectives of the personal characteristics of the owners, sustainable operations, productivity, and profitable enterprise.

1.2 RESEARCH QUESTIONS

a. What are the personal characteristics of the beneficiaries of recapitalised farms and what are their attitudes towards commercialisation?
b. What is the monetary value of recapitalisation versus the current level of production on farms when measured against a commercial scale?
c. What are the constraints that affect recapitalised farms in operating at a commercial scale?
d. Did the recapitalisation of the farms improve the livelihoods of beneficiaries and the socio-economic status of farm workers, and improve the farm infrastructure, machinery, implements and farm cash flow?

1.3 AIM AND OBJECTIVES

1.3.1 Aim

The aim of this study is to determine the factors that affect the commercialisation of farms redistributed to historically disadvantaged farmers in Gauteng province.

1.3.2 Objectives

The objectives of this study are:

a. To determine the characteristics of beneficiaries and their attitudes towards the commercialisation of recapitalised farms.
b. To determine the monetary value of recapitalisation against the current level of production on farms, when measured on a commercial scale.
c. To identify the constraints that affect recapitalised farms in operating at a commercial scale.
d. To determine whether the recapitalisation of farms has improved the livelihoods of beneficiaries, socio economic status of farm workers, farm infrastructure, machineries, implements and farm cash flow.

1.4 HYPOTHESES

The hypotheses to be examined in this study are that:

a. The characteristics and attitudes of the beneficiaries do not work towards the commercialisation of recapitalised farms.
b. The monetary value of recapitalisation does not match the current level of production on farms when measured against a commercial scale.
c. There are no constraints that affect recapitalised farms in operating at a commercial scale.
d. The recapitalisation of farms has improved the livelihoods of beneficiaries, the socio-economic status of farm workers, farm infrastructure, machinery, implements, and farm cash flow.

1.5 DEFINITIONS OF MAIN TERMS IN THE STUDY

Terms	
Determinants	refers to the factors that influence production towards a commercial scale.
Agricultural Commercialisation	As an agricultural transformation whereby farmers increase their agricultural production from level of subsistence production for consumption to high volume of marketed production and profit gains after sales (Okezie et al., 2012; Martey et al., 2012).
Recapitalisation	refers to the re-capital investment on farms in the current study. Capital investment refers to the money invested in a business venture with an expectation of income, and recovered through earnings generated by the business over several years (Business Dictionary, 2016). Boehlje and Ehmke (1986) define agricultural capital investment as involving decisions that involve the purchase of items such as land, machinery, buildings, or equipment, and are among the most important decisions undertaken by the

business manager.

1.6 OUTLINE OF THE DISSERTATION

The layout of this dissertation is as follows. Chapter 1 outlines the background of the current study. The problem statement, the aim, and the objectives of the study are well presented in Chapter 1 to indicate the intention and fundamental aim of the study. The null hypotheses were stated to lead the investigations which will result in rejection or acceptance, based on the outcome of the study. Chapter 2 presents an extensive literature review that is aligned to the objectives and the main themes of the study. Chapter 3 deals with the methodology employed in the current study. It describes the materials and methods used to gather data, together with the data analysis method that was employed to analyse the data. Chapter 4 presents the outcome the current study in the form of tables and figures. Textual elucidation is used in conjunction with the figures and tables to explain the outcomes that were revealed in the current study. Chapter 5 presents a discussion of the key results, with discussion of what other researchers has discovered in their studies similar to the current study.

1.7 SUMMARY OF CHAPTER 1

Chapter 1 has outlined the background of the current study, together with presenting the intention and hypotheses of the study. It further gives an outline of the entire dissertation by highlighting the key content of each chapter.

CHAPTER 2

2 LITERATURE REVIEW

2.1 LAND REDISTRIBUTION IN SOUTH AFRICA

After 1994, the new South African constitutional dispensation provided for land redistribution, tenure reform and restitution, with the purpose of readdressing land issue problems for historically disadvantaged people. The aim of land reform is to redress historical race-based deprivation. The post-apartheid era saw the country embark on a multifaceted programme of land reform, designed to redress the racial imbalance in landholding and secure the land rights of historically disadvantaged people (DRDLR, 2012).

South Africa's policies and implementation of land reform have, however, not generated the expected results and have ultimately fallen short of their delivery targets. The land transferred appears to have had a minimal impact on people's livelihoods, mostly because of inappropriate project design, a lack of necessary support services, and shortages of working capital, leading to widespread underutilisation of the redistributed land.

These occurrences led to the introduction of a post-settlement support programme, the Recapitalisation and Development Programme (RADP), which grants funds aimed at addressing the shortage of working capital, with the goal to achieve the efficient utilisation of rain. The redistributed farms were given to almost a quarter of a million black people between 1994 and March of 2017, who occupy more than 4 million hectares of land (Buthelezi, 2013).

Rural development and land reform is crucial in South Africa for successful economic and social improvement in future. International experiences over the past few years reveal that rural development is a strong option for achieving the aspiration of total overall economic growth, poverty reduction, and improving food security (World Bank, 2008).

The suggested land recovery approach in South Africa offers the affected white landowners an unconditional choice when it comes to making decisions on selling their land. The landowners can decide to whom they will sell the land, as well as their own deciding price. The outcome of the proposed land sales did not work effectively for land reform since the Department has failed to achieve its target of securing 30% of land redistribution within the set time frame. Most of landowners do not have knowledge of the land reform process required for the negotiation of prices, and they prefer to sell their land to other buyers. They lack confidence because they are politically opposed to issues of land redistribution (DRDLR, 2012).

2.2 TARGETED BENEFICIARIES FOR LAND REDISTRIBUTION

The beneficiaries of South Africa's land reform programme have been defined in very wide, and almost completely ethnic, terms. The historically, previously disadvantaged poor people, including labour tenants, farm workers, women and emerging farmers, were included in the White Paper of 1997 as being priority groups for receipt of socio-economic benefits (DRDLR, 2012). In 2001, when LRAD was introduced, there were serious shortages in data from the South African government that has led to many assumptions being made on the socio-economic profile of beneficiaries. Due to the lack of data, farm workers, youth and unemployed people were poorly represented on the list of those who were to benefit from land redistribution (Lahiff & Li, 2012). The lack of selection criteria for targeting land distribution beneficiaries has led to self-selection by those who were close to administration officers. Instead of undertaking selections based on their agricultural experience or qualifications, youth and farm worker knowledge, those who were in the low-income segment in the agricultural sector were the least targeted. Some of those who benefited were grouped into large numbers of more than 100 people and placed on one farm that was occupied by one farmer. Such large numbers of grouping led to poor productivity, with no income, which quickly led to no farm activity being undertaken. Masterson (2007) observes that the distribution of farm sizes across countries should motivate our inquiry into their importance when accounting for the large productivity gaps that are observed in agriculture between rich and poor countries.

2.3 RATE OF LAND REDISTRIBUTION IN SOUTH AFRICA

The willing buyer–willing seller approach has failed land redistribution in South Africa. This approach was seen as fair deal for land redistribution; however, the white landowners decided to collude and inflate land prices in such a way that the South African government could not afford them (World Bank, 2008). The poor policy design that was implemented is what caused the under-performance of land redistribution. The poor policy design has automatically led to the poor implementation of land redistribution. International research reveals that access to land is the fundamental resource that can empower a large community of any country by working on it with different industries. Poor redistribution is a huge dilemma that obstructs the intended socio-economic improvement of historically disadvantage people, which has resulted from the collusion of white famers in setting high prices for farms. The launch of Comprehensive Rural Development (CRDP) in 2009 (DRLR, 2014) endeavoured to address the wide range of issues across the agrarian economy.

2.4 IMPACT OF LAND REFORM ON LIVELIHOODS OF BENEFICIARIES

The impact of land and agrarian reforms on the local economy, and on livelihoods of the beneficiaries, has been decried as being one of the major limits of land reform in South Africa (Kariuki, 2009). The initiated policies, such as PLAS, continue to operate within the willing-buyer willing seller paradigm, to the distinct advantage of (largely white) landowners, and, to date, appear to have achieved little in terms of resolving the widely recognised problems at the heart of South Africa's land reform programme. Various challenges to the existing pattern of land holding continue to circulate within political debates, including restricting land ownership by foreigners, a land tax, and land nationalisation, but none of these appear likely to be implemented in the near future.

2.5 INVESTORS' DECISIONS TOWARDS CAPITAL INVESTMENT (RECAPITALISATION) OF FARMS

Farm wealth has been identified as the fundamental driver that investors consider for their decisions and valuation of capital investment in a farming enterprise (Bierlen &

Featherstone, 1998; Benjamin & Philmister 2002; Penson, Romain & Hughes, 1981). The higher the level of wealth is, the higher the chance will be for the farm enterprise to accumulate more debt. A high level of wealth in a farm enterprise often leads to high confidence in investors, since they can use the farm enterprise as collateral. Research has shown that over the 20th century, a farm's debt was higher than the farm's wealth. High debt was incurred by the initial capital investment. The costs of machinery, implements and farm inputs that were invested for achieving farm production or the functionality of a farm are those that inflate the farm debt. Farm debt was higher in periods of high farm wealth. In fact, farm debt correlated more strongly with farm wealth. In a regression controlling for profits, a 1.0 percent increase in farm wealth was associated with a 1.2 percent increases in farm debt. The strength of the relationship varied by type of farm debt: instead of being aligned to the real estate, the farm wealth had a stronger association with non-real-estate debt than with real estate debt (Henderson & Kauffman, 2013).

The Department of Rural Development and Land Reform has stated it has the resources it needs to return all farms that were given to black people back to full production within the next three years. It is now chasing a target to ensure that all 4 860 farms transferred under land restitution programmes are fully productive by 2015/16. The Department planned to invest R2.7 billion on recapitalising 552 farms, and acquiring 170 000ha of land. The Minister has added that since the land restitution process began in 1994, some of the farms had become dysfunctional, as there were no financial support structures to back the new landowners (Buthelezi, 2013).

The absence of infrastructure and shortage of machinery and equipment often limits the farmers from gaining access to high value markets. Deficiencies in infrastructure, such as irrigation and water resources, electricity/power sources, animal dip tanks, and road networks, often obstruct farmers in their attempts to increase their production capacity by requiring greater efforts to participate in lucrative markets. In situations where groups of farmers are successful in becoming market oriented in terms of their production, the physical isolation/remoteness, as well as the lack of telecommunication infrastructure, prevents them from responding to higher market prices. The organised groups end up forming a commodity association, such as

poultry association or potato association, to align their operating area with what happens in the industry in order to respond to higher market demands.

The farming sector in the United States of America has received huge capital investments. These huge capital investments have led to booming farm profits that have enabled US farmers to reinvest profits in real estate, build new infrastructure such as grain bins and machine sheds, and improve productivity through expanded pivot irrigation. Their farm machinery, implements and vehicles were also replaced or supplemented. The fast growth in US farms was experienced from the 1970s to 1996 (Bierlen & Featherstone, 1998). However, the decline in capital investment in the first few years of 1980s has led to limited debt accumulation by farm enterprises.

According to Boumtje, Barry and Elliger (2001), farmers who gain fewer profits might choose to tap into their wealth and equity to finance their farm spending, instead of utilising their current profits. The lenders such as banks are more willing to lend to farm enterprises that have high levels of equity which can be used as collateral for loans. The cornerstone of capital investment and debt is the process of building wealth (Henderson & Kauffman, 2013). Research reveals that 82% of US farm assets skew to real estate, which has lowered land prices and wealth levels. The trend is predicted to be a major factor that will trigger the next deleveraging cycles in US agriculture (Federal Reserve Board of Governors, 2012; Henderson & Kauffman, 2013). Economic profitability analysis and financial feasibility analysis were identified as two fundamental keys that can be used during the selection of investment that will improve the financial performance of a business (Boehlje & Ehmke, 1986). Sometimes, an investment may not show the element of financial feasibility, since its cash flow may be insufficient while it is still repaying its principal debt with accumulated interest.

2.6 COMMERCIALISATION OF AGRICULTURE

According to Doward and Kydd (2002), there is no definite definition of the commercialisation of agricultural production, although it can be described, based on the farmers' aims/goals and aspirations. However, Mahaliyanaarachchi and Bandara (2006) define the commercialisation of agricultural production as being production

that is aimed mainly for sale, and oriented towards profit maximisation, while satisfying the different needs and interests of the consumer. von Braun (1995) described the commercialisation of agriculture as a process production system that sells the surplus production to raise farm income, and improve the welfare, food security and nutritional status of the broader community. Smallholder commercialisation of agricultural production can be defined as representing small-scale farmers who are more integrated into available local, national and international markets (Doward & Kydd, 2002). The commercialisation of agriculture is classified into three groups. The first group comprises subsistence farmers who produce a marketable surplus of under 25% of the total production. The second group comprises the emerging farmers who produce a marketable surplus ranging between 25% and 50% of total production. The third group is made up of commercial farmers who produce a marketable surplus of more than 50% of the total production (FAO, 1986; Mahaliyanaarachchi & Bandara, 2006; Kibirige, 2016). The commercial-scale farmers set up business with the intention of marketing all produce.

The commercialisation of agricultural production has positive attributes in developing countries, during and after colonial periods. Commercialisation has also contributed to relatively efficient land markets, the construction of infrastructure such as roads from farms to exiting points for export, and the establishment of agro-industries. Furthermore, commercialisation has resulted in the identification and categorisation of specific crops for specific regions within countries and those with shared international boundaries. New crops (coffee, tea, cotton and jute, livestock, exotic cattle, goats and sheep) and new varieties of crops and livestock breeds have been introduced under commercialisation, and commercial agriculture has played a great role in employing a large number of mostly peasant farmers (Jedwab & Moradi, 2012).

According to Mahaliyanaarachchi and Bandara (2006), the commercialisation of agriculture is an inevitable reality throughout the whole world. The evidence shows that models for agricultural commercialisation have succeeded greatly in certain countries, but have failed dismally in some countries in Africa and in others parts of the world. Comprehensive support that is provided to smallholder farmers leads to great achievements of sustainable, commercial operations in farming.

Comprehensive support, from either government or the private sector, leads to this success by smallholders through assisting them to overcome multiple market challenges, institutional failures, and other constraints that otherwise prevent these farmers from participating in market opportunities within the entire agricultural value chain (Kristen et al., 2012).

Large-scale commercialised agriculture, using modern machinery and sophisticated technologies, has largely contributed to economic and industrial growth in developed countries. In developing countries, especially in sub-Saharan Africa, Asia and South America, commercial farming was mainly introduced by European colonial masters for purposes of feeding their industries in Europe. The commercialisation of agriculture led to the development of infrastructure and introduction of cash crops, which are still today major contributors to the national GDPs of most developing countries (Kibirige, 2016).

In South Africa, European settlers introduced large-scale commercial agricultural farming back in the year 1658 (Kodua-Agyekum, 2009; McAllister, 2010). The highest representative population of commercial farmers in South Africa comprise white people, as compared with black counterparts at less than 10%. Commercial agriculture contributes significantly to South African Gross Domestic Products. Researchers revealed that most rural farmers, especially in the Eastern Cape Province of South Africa, are still locked in low agricultural production, with little or no marketable surpluses, which are well below the threshold needed to lift them out of widespread, increasing poverty (McAllister, 2010; Zuma, 2011).

In South Africa, smallholder commercialisation of agriculture production was started as early as 2 500 years ago by Khoisan people who traded livestock with people from the north and with the Bantu group of people who had settled along the banks of the Limpopo River (Byrnes, 1996). The Bantu group were then practising subsistence food crop production, mainly for household consumption. The commercialisation of subsistence agriculture implies increased participation, or, rather, an improved ability to participate, in competitive markets. Thus, the South African government, through the Department of Rural Development and Land Reform, decided to implement a recapitalisation of investment in redistributed farms

as providing a strategic path for commercialising subsistence farmers (DRDLR, 2012). In the developing areas of South Africa, as in other developing countries, smallholder farmers find it difficult to participate in markets because of a range of constraints and barriers that reduce the incentives for participation. The commercialisation of smallholder agriculture in sub-Saharan Africa was initiated as a key strategy for sustainable growth and reduction of poverty (Kristen et al., 2012).

2.7 THE VALUE OF FARM CAPITAL INVESTMENT

Farmers in the USA have experienced huge profits because of agricultural exports and strong bio-fuels demands, which have underpinned the rise in farm profits. This has been experienced since 2006 and the profits were translated into capital investments, which were also aligned to exploiting the demand for bio-fuels fuel and the exports of agricultural products. Annual real net returns to farm operators topped $45 000 per farm in 2011 and 2012, their highest level since 1973. Rising profits have spurred capital investment. According to the most recent available data from the US Department of Agriculture (USDA), real capital expenditures per farm topped $12 000 per year in 2011, their highest level since the farm boom and bust cycle of the 1970s and 1980s (Gloy, 2012; Federal Reserve Board of Governors, 2012).

2.8 PRODUCTIVITY AND PROFITS VERSUS CAPITAL INVESTMENT

The regression analysis shows that farm capital investments have fluctuated with shifts in farm profits and wealth (Livingston Survey, 2012). Given the correlation between current farm capital expenditures and past net returns to farm operations, a five-year moving average of lagged net returns was used to measure farm profits. The five-year period was chosen because the five-year moving average maximised the explanatory power of the model. Real capital expenditures per farm operation were found to be significantly related to the real net returns to farm operators (Neeley, 2013). In South Africa, the values in December 2012 indicated that the farms that had been bailed out had generated a net income of R126 million. The generation of this income was the result of the introduction of the recapitalisation programme, under which the government has spent R2.14bn. The issues of

productivity and profits were not measured when the figures were reported (Buthelezi, 2013).

The productivity and the distribution of innate (raw) ability in farming are unlikely to differ between rich and poor countries, and in the context of our model, "ability" can be interpreted broadly as farm-level productivity. Under this broad interpretation, differences in the distribution of farmers' abilities between rich and poor countries can reflect differences in human capital and land quality. These features may be observed as differences in the mean and/or dispersion of productivity in poor, relative to rich, countries (Tasso & Diego, 2011). For instance, a lower mean in the distribution of farmers' productivity could result if farmers in poor countries have lower human capital relative to non-agriculture than those in rich countries have, or if the entire mass of a country is in the tropics/subtropics, thus entailing a productivity difference. Kirsten et al. (2012) reported that the Productivity Research Group focuses on research to develop and test new production systems that will enable smallholder producers to effectively and sustainability enter high-value markets.

Production conditions in developing countries seem to have certain characteristics in common: a bimodal production structure (large farms with large areas of unused land and small farms with excess labour); capitalist means of production are less prevalent than those in industrialised nations are; and in some areas, markets in the means of production are controlled by rich landowners (Masterson, 2007). Ahmad and Qureshi (1999) have revealed empirical evidence of the inverse relationship between farm size and total value of output per cultivated acre. The results of the study revealed that an inverse relationship between farm size and productivity had been established for the overall Punjab province, and for all regions except Gujranwala and Multan. The results further revealed that the inverse relationship between farms size and productivity is not found for all crops, and that rice and sugarcane depicted rather the opposite relationship. The authors further found that technical efficiency is positively associated with farm size, as the larger-scale farmers realise greater potential outputs from a given level of resource use and technology. The empirical evidence further revealed that farmers are technically efficient, but allocation inefficient and thus economically inefficient. However, the authors provided evidence to the contrary, that only large farm sizes are technically

efficient (Ahamad & Qureshi, 1999). Tasso and Diego (2011) indicated that the inability of the experiment to generate a low average farm size was related to its failure in generating a large share of employment in agriculture. Their results indicate that farms cannot reproduce the large share of employment in agriculture and average farm size.

The three measures of productivity or efficiency: land productivity, *LP* (total value of farm output divided by farm size), and the two technical efficiency (stochastic technical efficiency, *seff*, and nonparametric technical efficiency, *eff*) measures, the derivation of which was described in the previous section. The farm size and production driving forces were factored against the land productivity and revealed a progressive decrease in productivity of the farm, based on size (Masterson, 2007). The relationship between farm size and the stochastic technical efficiency measure show the similarities.

2.9 PROFIT OBTAINED IN THE FARM

Historically, declines in farm profits initially have not triggered a reduction in capital investments as farmers tapped their wealth to finance and smooth their capital investments over time. Regression analysis exploring the relationship between farm debt and the three-year moving average of farm profits shows that a 1.0 percent decline in farm profits has been associated with a 0.5 percent increase in farm debt. A reduction in farm profits had a stronger association with farm real estate debt than non-real-estate debt. About 1.0 percent reduction in farm profits was associated with a 0.7 percent increase in farm real estate debt, compared with a 0.3 percent increase in non-real-estate debt. Labour productivity leads to the improved socio-economic benefits of the entire household (Savadogo et al., 1998). However, the viability of farming enterprise that is profitable might well be under pressure due to adverse situations, such as scarce availability of land, high prices for land, high degrees of capital investment needed on production resources, and natural disasters like drought and other climatic events.

2.10 SUMMARY OF CHAPTER 2

Chapter 2 covers the literature review. The subheadings of literature review were aligned to the objectives of the study. The first subheading focused on the process and the pace of the land redistribution in South Africa from white to black ownership. The pace has been painfully slow, and appears to have actually slowed down, with major concerns being expressed at all levels about the quality of land involved and the prices of farms. While many of these problems can be traced back to specific policy design weaknesses, or poor implementation, the prolonged under-performance of the land reform programme.

The second subheading focused on the impact of land and agrarian reforms on the local economy, and livelihoods of the beneficiaries has been decried as one of the major limits of land reform in South Africa. The capital investment decisions in farming covered under subheading 3. The fundamental driver that investors consider for the decision and value of capital investment in farming enterprise was reviewed from previous researches. Agricultural commercialisation is covered under subheading 4. The description of agricultural commercialisation is reviewed extensively and it can be described as a process production system that sells the surplus to raise farm income, improve welfare, food security and the nutritional status of the broader community. The correlation between current farm capital expenditures and past net returns to farm operations, together with farm profit, were covered in the last part of this chapter.

CHAPTER 3

3 MATERIALS AND METHODS

3.1 AREA OF THE STUDY

This study was conducted in Gauteng province. Gauteng is the smallest province of the nine provinces in South Africa. Gauteng consists of three metropolitan municipalities and two district municipalities with ten local municipalities. The study was conducted on recapitalised farms within three metropolitan municipalities and within two district municipalities. Figure 3.1 below presents the layout of Gauteng municipalities, while Table 3.1 below shows the area of each municipality in square kilometres and the estimated population as at 2011.

Figure 3.1: Map of Gauteng municipalities (Maps of World, 2016)

Table 3.1: Gauteng municipality and estimated population as at 2011 (Maps of World, 2016).

S.N.	District and metropolitan municipalities	Code	City	Area (km^2)	Population (2011)
1	City of Johannesburg Metropolitan Municipality	JHB	Johannesburg	1,645	4,434,827
2	City of Tshwane Metropolitan Municipality	TSH	Pretoria	6,345	2,921,488
3	Ekurhuleni Metropolitan Municipality	EKU	Germiston	1,924	3,178,470
4	Sedibeng District Municipality	DC42	Vereeniging	4,177	916,484
5	West Rand District Municipality	DC48	Randfontein	4,087	820,995

3.2 NATURE OF DATA

A structured questionnaire was developed according to the set objectives of the study. A consent form was developed and attached to each questionnaire to inform the participating farmers about the intention of the study and the protection of their identities, and their right to accept or decline to participate in the study. The data was collected through face-to-face interviews with all participating farmers at their respective farms. The collected data was then organised and captured in SPSS, and then analysed.

The nature of the data and the problem for research normally dictate the research methodology. A qualitative research methodology was used in this research due to its verbal methodology, instead of analysing numerical data from the existing projects. According to Gibbs (2007), qualitative research is no longer just simply the opposite of quantitative research, but has developed an identity of its own. The nature of qualitative research involves approaching the world 'out there' and endeavouring to understand, describe and (sometimes) explain social phenomena from the 'inside' in a number of different ways. Three common ways include analysing the experiences of individuals or groups, analysing interactions and

communications in the making and analysing documents. The practicality of qualitative research involves two activities, firstly, developing an awareness of the kinds of data that can be examined and how they can be described and explained. Second, a number of practical activities that assist with the kinds of data and the large amounts of it that need to be examined (Gibbs, 2007).

3.3 SAMPLING METHOD

The current study aims a focus on the determinants of commercialisation of the farms that are recapitalised by the Department Rural Development and Land Reform (DRDLR) and distributed to beneficiaries in Gauteng province. A purposive sampling approach was used in the current study, based on the accessibility and availability of the limit number of farms recapitalised by DRDLR in Gauteng. Purposive sampling was used on the current study based on the objective of the research project. The current study targeted the emerging farmers who received recapitalisation assistance in Gauteng for improving their production output. A total population sampling method was used because there were limited numbers of farmers who received large amounts of money for recapitalisation uses. The purpose of the capital investment was to improve the production output of emerging farmers by investing money in purchasing of machinery, implements and inputs, according to farm commodity. The entire population of Gauteng's recapitalised farmers were selected, based on their common characteristics of having received farms and capital investment from the South African government through DRDLR.

3.4 DATA COLLECTION METHOD

3.4.1 Method for collecting primary data

There are several types of research methods that can be used to collect primary data. In qualitative research studies, interviews are often quite open-ended, perhaps revolving around one or a few central issues, but otherwise going in different directions for different participants. The current study used a questionnaire to collect primary data by interviewing the beneficiaries of DRDLR-recapitalised farms in Gauteng province. The primary data was collected by means of filling in the questionnaires on farm sites, through face-to-face interviews.

3.4.1.1 Interviews

The study used face-to-face interviews for data collection. A structured questionnaire was developed and used to collect data that was aligned to the objectives of the current study. The questionnaire was used as the main data-gathering tool in the current study. The collection of quantifiable and qualitative data through the structured questionnaire has allowed for the analysis of the gathered data in the alignment of the objectives of the current study. The questionnaire was brief and direct, seeking only essential information for current research study. The questionnaire was accompanied by a consent form that explained the purpose of the study, the research process, confidentiality, and the rights of potential respondent to participate or decline to participate. The last part of the form had a portion which respondent had to fill in with his or her particulars to give consent to participating in the study. The questionnaire was divided into 4 sections:

Section 1 - Elicited questions on the demography of respondent.

Section 2 - Sought information about the location of the farm according to the district or metropolitan municipality geographic areas in Gauteng province.

Section 3 - Consisted of sets of structured questions that were mainly aligned to the objectives of the study. This section asked about farm commodities, value of capital investment received, production scale before and after recapitalisation, skill per commodity, work force, and expenditure versus revenue.

Section 4 - Asked about dividend payouts to the beneficiaries of the recapitalised farm.

Face-to-face interviews were used in the current study since they have the distinct advantage of enabling the researcher to establish a relationship with potential participants and therefore gain their cooperation in responding to the questionnaire. Face-to-face interviews yield the highest response rates in survey research. According to Leedy and Ormrod (2001), personal interviews allow the researcher to

clarify unclear answers when is necessary and seek follow-up information to get accurate data.

3.5 DATA ANALYSIS

The data was collected with the questionnaire and captured in Microsoft Excel. The preliminary report of collected data was assembled according to individual farms. The data was coded in Excel and then exported to SPSS for statistical analysis. A multiple regression model will used to explore the relationship between government capital spending, farm operation, productivity, benefit of farm beneficiaries and farm profits. Multiple regressions was used to test significance among the variables at a confidence interval of 95%. Descriptive statistical analysis is used to determine how farm size has relationships with production variables by testing with regression analysis.

3.6 ETHICAL CLEARANCE

An ethics approval application was submitted to the MBA Programme Research Ethics Committee of the North-West University's Graduate School, after the approval of the application for ethical clearance was granted by that Committee, a supervisor was allocated before data collection started. A consent form was developed to inform farmers of their right to participate voluntarily in the study. Bio-security measures were applied for visits to livestock farmers whereby disinfection procedures were applied to car wheels, lab coats and shoes before entering every farm. The farmers were made aware that the information they shared will be treated confidentially.

CHAPTER 4

4 RESULTS AND DISCUSSION

4.1 DEMOGRAPHY OF PARTICIPANTS

4.1.1 Gender of participants

The demographic trend for gender surveyed in this study shows that 60% of the respondents were men, showing that more male respondents than female are active on recapitalised farms in Gauteng. Almost similar results were obtained in Ghana, where rice production was found to be dominated by men, at 67% while women followed at 33% (Addison et al., 2016). However, contradicting results were reported in Nigeria where the predominating gender in cassava production was women, at 61% (Anyaegbunam, 2012).

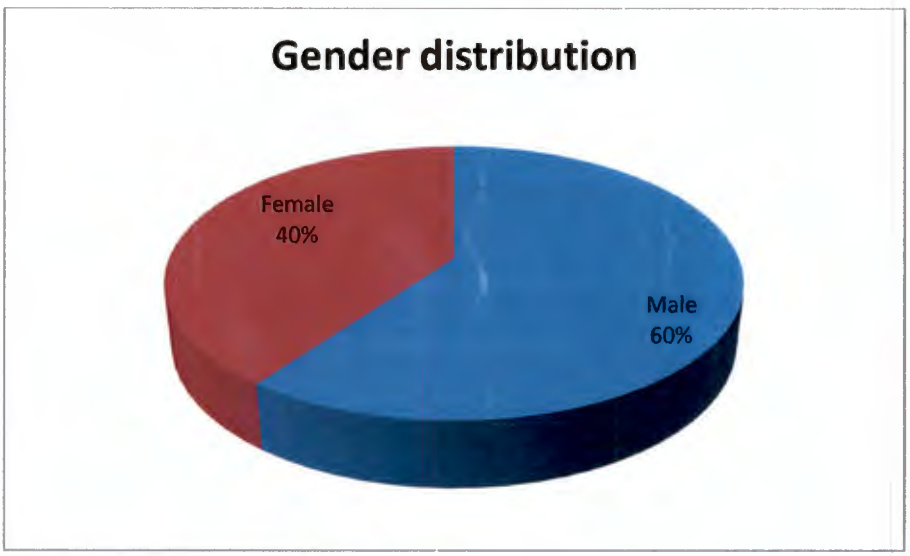

Figure 4.1 Gender of the respondent

4.1.2 Age of the participants

The reportable ages of the participants were distributed in questionnaire within ranges of 10 years, from 26 to 66. Figure 4.2 below show the distribution of ages in the range of 10 intervals. The results reveal that people aged 66 years and above were the least-represented group range (at 5%) active in farming and benefiting from the recapitalisation development programme. Martey et al. (2012) emphasise that

older farmers are more experienced 'heads' who are able to make better production decision. Their good understanding of market trends allows older farmers to seek better trading opportunities at lower cost for inputs and higher value for their farm produce products, as compared with younger farmers. The largest group (55%) were people in the 46 to 55 age range. These results emphasise the point that older farmers are more experienced and more technically adept in actively farming than the younger farmers are. They are the beneficiaries who show experience in the life and business of farming activities. People in this age group are determined to work attentively toward their achievements. Martey et al. (2012) also reveal that a person in this age group who is a household head could have a positive or negative effect when participating in the market since their life experiences enable them to measure the availability of resources in order to follow market trend. The second largest group comprises the age range 56 to 65 years (at 20%), while the youth (26 to 35 years) were the third largest group, at 15%. The middle age group of 36 to 45 years, at 5%, showed a lack of interest in farming activities. There is high chance that many people in this age range have migrated to cities to seek better opportunities in job markets in other industries. Other research reveals that younger 'heads' are more dynamic with regard to the adoption of innovations (Martey et al., 2012).

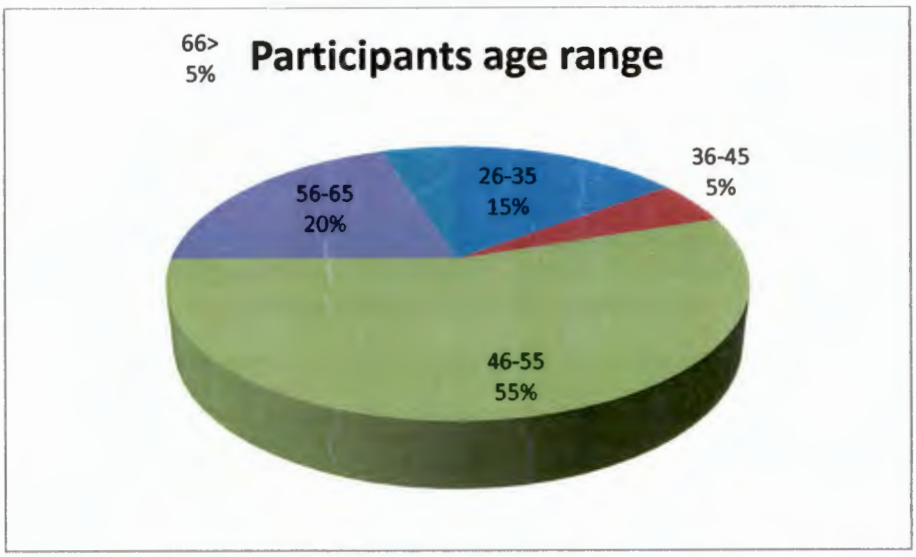

Figure 4.2: The distribution of ages in ranges of 10-year intervals

Figure 4.2 revealed the age range of 46 to 55 comprises the most active people in Gauteng in farming, as compared to those 66 and above. This is the active age

range of people who had ability to apply for recapitalisation due to their life experience and make in farming. Some of them, however, may be active in other businesses or be capable entrepreneurs.

The investment of recapitalisation for people who are aged 66 and above cannot benefit the government in achieving its millennium goal of food security since most people become less active at this age. The purpose of recapitalisation is to graduate emerging farmers to commercial farming and is also aligned to the transformation of redistributed farms. The large proportion of people in the 46 to 55 age range seems to be perfect age for farming. They people who had gone through many spheres of life and are determine to take the challenges of farming.

4.1.3 Marital status and age of participants

There is strong correlation (0.760) between age range and the marital status of the respondents. Figure 4.3 below shows the marital status of respondents. The figure shows that 70% of respondents are married, and most are in the largest age ranges of 46–55 and 56–65 years. Most people between the ages of 46 to 65 years are married and settled with their families, thus how 70% of marital status relates to the age ranges of the respondent. According to Bezu and Holden (2014), the average age of the household heads in rural areas of Ethiopia is 44 years, while 16% of them are younger than 30 years. The current results reveal that the youth are not active in agricultural industry, especially as farmers. Many factors, such as access to land and capital for machinery, equipment and farm inputs, can contribute to the status of the current results. Youth unemployment has become a major global concern, following the global economic crisis. The current global youth unemployment rate is estimated to be 12.6% and is expected to remain high for the next five years (ILO, 2013). According to Bezu and Holden (2014), the majority of young people in rural Ethiopia do not have their own farmland, despite their constitutional right to access land in the community in which they live. The 2012 National Level Land Use Survey showed that the youth (18–29 years of age, in that case) accounted for 21% of the rural landholders in Ethiopia. As farm sizes in our study areas are small, relative to the household sizes, it is a challenge to allocate parents' land among children. An estimate based on the current land holdings of parents in our sample shows that, if

parents were to allocate their land to all sons and daughters, each would receive, on average, 0.22 hectares (Bezu & Holden, 2014).

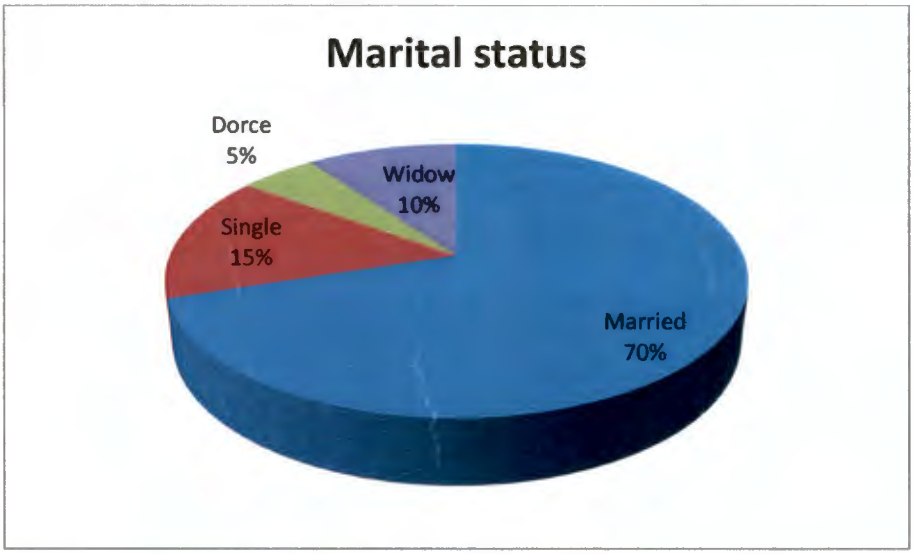

Figure 4.3: Marital status of participants

4.1.4 Educational level of participants

The educational level of participants is distributed in percentages. Figure 4.4 below shows the distribution of education in a range of 3 levels. The results reveal that people with tertiary education are highest in number, at 65%, followed by grade 8 to 12 (at 20%) while grade 1 to 7 was the lowest, at 15%. Education is expected to exert a positive effect on commercialisation. Further emphasis is made that education can enable an individual to make independent choices and to act on the basis of the decision, as well as increase the tendency to cooperate with other people and participate in the group activities. It is also possible that education could increase the chances of the household head earning non-farm income (Martey et al., 2012).

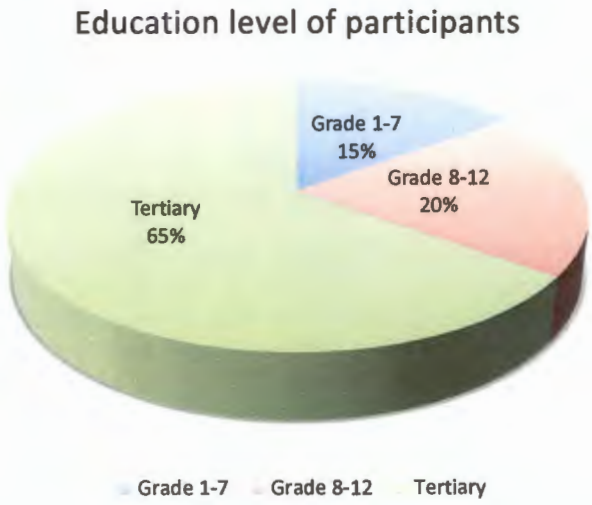

Figure 4.4: Educational level of participants

4.2 LOCATION AND DESCRIPTION OF RECAPITALISED FARMS

Gauteng consists of metropolitan and district municipalities. Metropolitan municipalities have high populations of urbanised residents than district municipalities do. Therefore, more farms are found in district municipalities than in metropolitan municipalities. The current study, in Figure 4.5 below, shows that most of the farms that were recapitalised (60%) were in the Lesedi District Municipality, as compared with Mogale City (5%) and the City of Tshwane (10%). There was a strong correlation between the local municipality and location of farm, at 0.808, with significance level of ($p<0.001$). The Tshwane Metropolitan Municipality and other metropolitan municipalities are managed more with business models than the district municipalities are, and they do not have the space for agricultural activities. This indicates why a district municipality like Lesedi receives a greater share of recapitalisation, and this is to enable people who live on the farms to engage in economic activities that are suitable to their living environment. Gauteng Agricultural Development Support was established to promote the competitiveness of 'first economy' agriculture, in particular that of agro-processing and bio-technology, although considerable attention is also given to the situation of 'second economy' agriculture. The focus on second economy agriculture includes giving support for land reform processes and 'emerging farmer support', linked to new and existing African, Coloured, and Indian farmers in the province, especially in district municipalities (Rogerson, 2011). Farming is one of the most common businesses

carried out in district municipalities and rural local municipalities in the country, and abroad. The location of a farm has shown a slight correlation with the capital value of investment, at 0.627 with significance level of $p<0.029$.

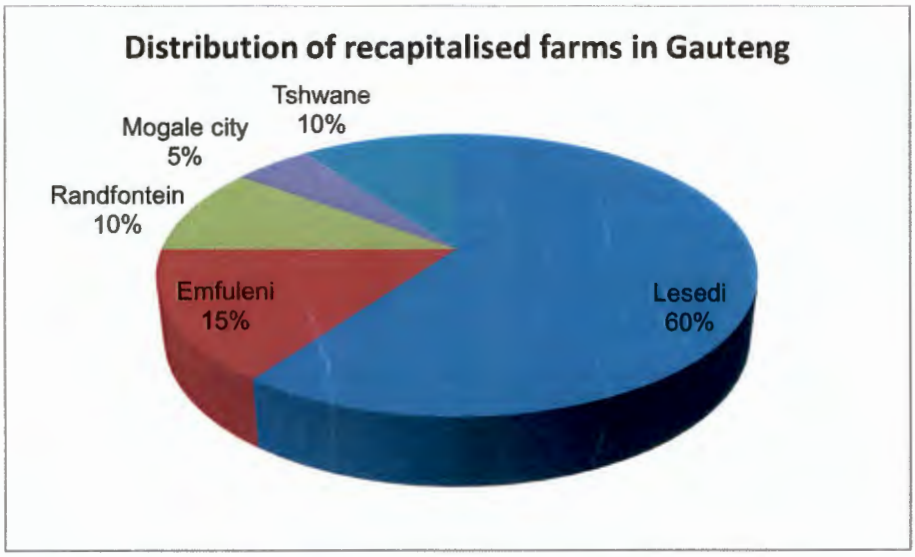

Figure 4.5: Illustration of the distribution of recapitalisation in municipalities

4.3 CAPITAL INVESTMENT ON POULTRY FARMS

Poultry farming is very extensive and the existing structures are very expensive. It is not clear how many poultry farms were acquired and redistributed to historically disadvantaged people, since this aspect was not investigated in the current study. The study shows that only one poultry farm was recapitalised in Gauteng with the value of R1.8 million. The capital value of investment was tested against the size of the farm, revealing a strong correlation relationship at 0.877, with a poor significance level. However, there was strong negative correlation at (-0.988) between the size of the farm and annual turnover received from poultry. The total new capital investment in egg production was $3.6 million. This was about $4.90 per bird capacity. The value of this statistic was limited to be large increase in poultry housing costs over a period of eight years (Ackerman, 1979). The current study did not reveal the actual cost of the infrastructure (house and equipment), stock and inputs.

The farmers in poultry production are divided between egg production and meat production. These production lines differ slightly in their management techniques and

require unique skills. There was strong correlation between the daily egg production and farmers trained in poultry skills at (0.831). According to Inyang and Eko (2015), an improvement in production and marketing techniques made by poultry farmers can help them benefit from the rapidly growing demand for poultry products as their respondents in their study showed high knowledge of poultry farming techniques. Furthermore, skills gained from receiving extension services and mentoring assistance also showed a strong correlation of 0.945 when associated with gains in the skills of poultry farmers received through training.

The purpose of recapitalisation is to increase the productivity on farms and graduate the emerging farmers towards achieving a commercial scale. The increase on daily egg production after recapitalisation has shown some correlation towards the annual turnover at (0.713). The level of annual turnover further correlates to the skills gained through training, at (0.983). The criterion for accepting or rejecting an investment is simple if the alternatives are mutually exclusive: accept an investment if it has a positive net present value or reject that investment if it has a negative net present value. This simple criterion is possible because when the benefit stream or the annual net cash flows for a particular investment are discounted with the cost of capital, the resulting figure represents the maximum amount that you could afford to pay for the investment and expect to just "break even," including opportunity costs on the money invested (Boehlje & Ehmke, 2005).

4.4 RECAPITALISED BEEF CATTLE FARMS

Beef farming is one of the most popular farming activities in the black community. Seven beef farmers participated in the study. However, only one of the seven has received recapitalisation assistance (R2.4 million), while others are still waiting for recapitalisation funding. Figure 4.7 below illustrates the number of recapitalised beef farms together with the overall value of recapitalisation. Boehlje and Ehmke (2005) reveal that sometimes an investment may not be financially feasible. The cash flows in a business enterprise like beef farming may be insufficient to make the required principal and interest payments. Business owners should complete both analyses before they make a final decision to accept or reject a business like beef farming. The invested capital in beef farming is distributed to infrastructure, stock and inputs.

Since the other farmers are still waiting for their recapitalisation funding, there is no farm that has used recapitalised funding for inputs. Most of the cattle farms that have used large portions of the funding for recapitalised farms are feedlot farms where large portions will be used for the feed.

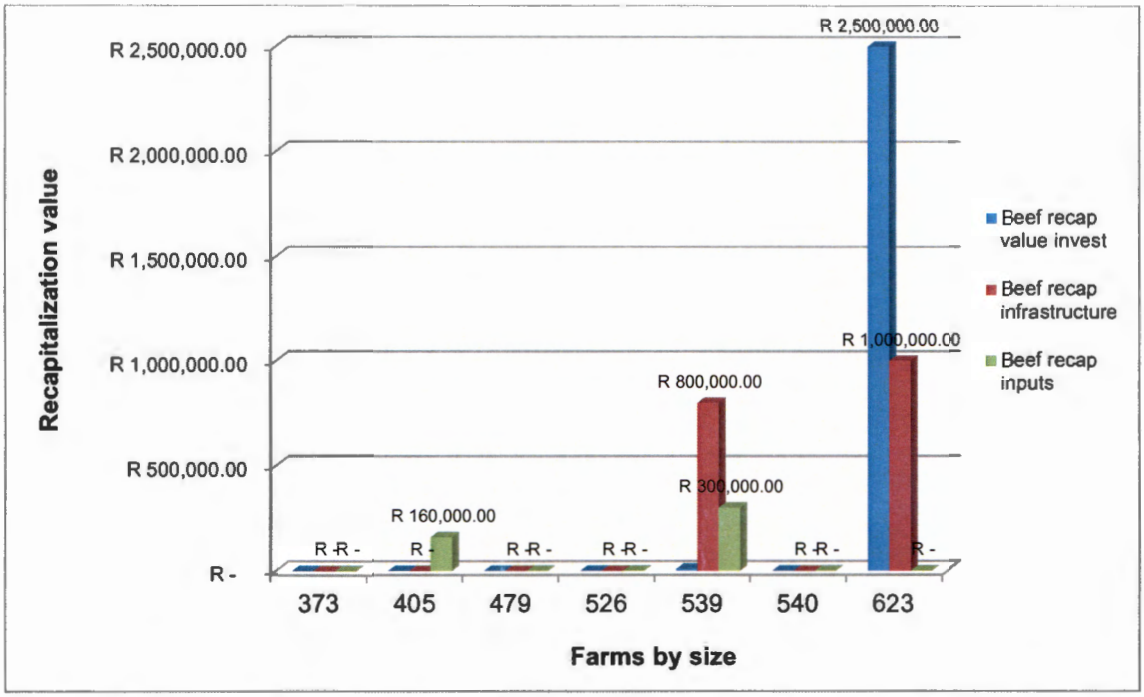

Figure 4.6: Illustration of recapitalise beef farms with overall values of recapitalisation

Beef cattle farmers produce different categories of cattle. The purpose of recapitalisation is to increase the productivity of those beef farms. The impact of recapitalisation was measured by checking how many cattle the farmer had before the recapitalisation against the increased number after recapitalisation. Figure 4.8 below illustrates the numbers of cattle before and after recapitalisation. Figure 4.6 above shows that only one farm has been recapitalised (with R2.4 million). However, the impact of recapitalisation has shown a significant increase, in that the number of cattle increased from 10 to 200. The result shows that the number of cattle has dropped from 200 to 140. This shows the positive impact of recapitalisation. However, the value of the money invested seems not to correlate to the numbers of cattle that were bought. The size of the farm could be one of the contributing factors, since it indicates the maximum carrying capacity. The sizes of the farms in Gauteng are very small, compared with the beef cattle farms in the other provinces. The

majority of farms have not been recapitalised, although some though the redistribution of the farm is recapitalisation. However, Ash et al. (2015) have shown that an increased herd carrying capacity (at an average increase of 17%) that was facilitated by higher levels of pasture production also contributed significantly to a large increase in gross margin and profit in Australia. Therefore, Gauteng province could adopt and implement a similar model, since the majority of farms are small in the province.

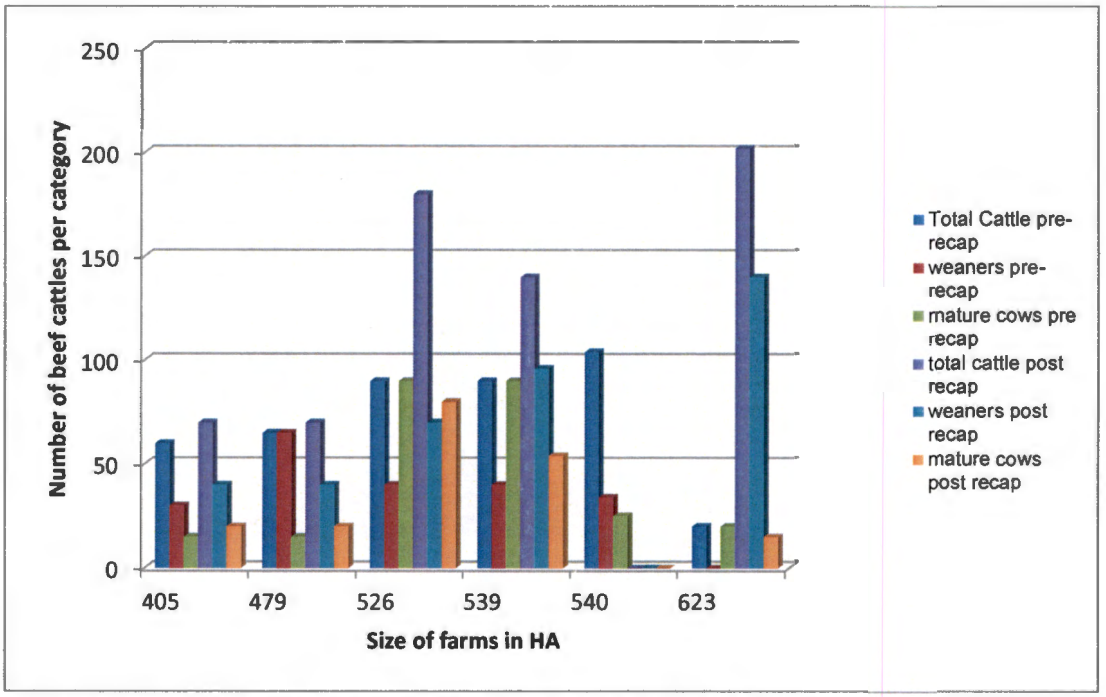

Figure 4.7: Illustrating cattle categories, pre- and post-recapitalisation.

The operational cost of beef farming is often higher in the fixed cost than in the variable cost. The current study did not investigate the split in the operational cost, but looked at the overall cost and the turnover. Figure 4.8 illustrates the operational costs and turnover of the beef farmers participating in this study. The farm measuring 479 ha indicated a high operational cost, without turnover. These results show that some farmers did not show consistency in their responses to questions since the answers did not correlate most of the time. In Figure 4.8, the farm measuring 623 ha shows an operational cost of R50 000.00, with a turnover of R661 000.00. The ratio of operational cost to turnover is 0.075. The current figure seems like emerging farmers over fixed like land cost and other cost like machinery cost because they are not supposed to repay them. The current results contradict

those relating to farm outcomes in Great Britain and France where the operating costs were higher than the sales revenues were (Benjamin & Phimister, 2002). The operating cost was £1 253 319.00, with sales revenue of £217 419.90, which was the average for all British farms, with the ratio of 5.76. The French operating cost was the equivalent of £526 923.6, with sales revenue of £123 483.80, which was the average for all France farms, with the ratio of 4.27 (Benjamin & Phimister, 2002). The ratio used to analyse profitability of invested capital on beef farming enterprises. However, the scenarios in the above countries indicate that a South African farmer spends R0.08 to generate a sale at a value of R1.00, while those in France spend £4.27 to generate sales at the value of £ 1.00, and those in Great Britain spend £5.76 to generate sale revenue at a value of £1.00. The results showed that it should be financially feasible to do business in South Africa with high profits; however, this is not the case due the lack of farming skill among participants. Boehlje and Ehmke (2005) noted that financial feasibility analysis determines whether or not the investment will generate sufficient cash income to make the principal and interest payments on borrowed funds used to purchase an asset. If you will be making the purchase with equity funds and a loan is not required, then a financial feasibility analysis is unnecessary. This means that for every R7.50 that a farm spends on operational costs, the farm will receive R100.00. The margin is estimated to be 92.5%, which is unusual return to be encountered in any type of business. An industry where a business that makes a 92.55% margin will not be sustainable because it soon will not have consumers since it will be difficult for them to purchase such products.

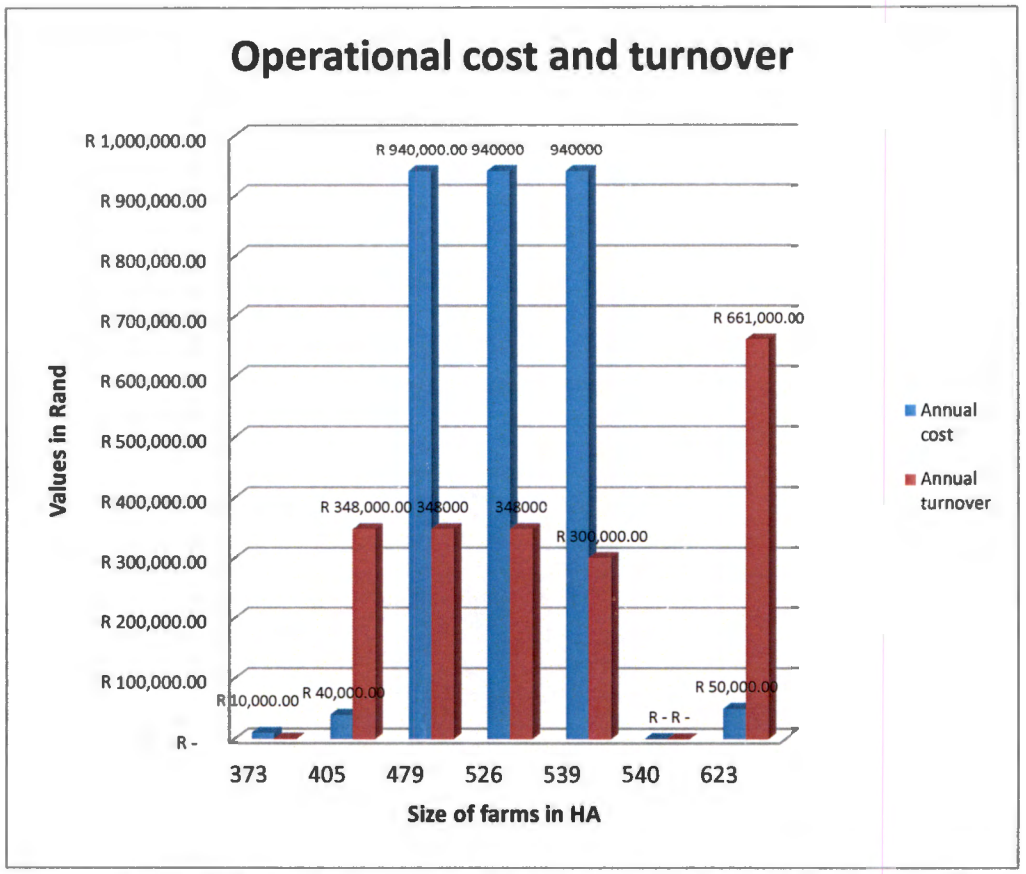

Figure 4.8: Illustration of the operational cost and turnover of the beef cattle farms

4.5 CAPITAL INVESTMENT ON CROP FARMS

The larger capital investment applied to crop farms in the current study resulted in an increase of planted hectares after recapitalisation on cash crop farms. Capital investment decisions that involve the purchase of items such as land, machinery, buildings, or equipment are among the most important decisions undertaken by the business manager. These decisions typically involve the commitment of large sums of money, and they will affect the business over a number of years. Furthermore, the funds to purchase a capital item must be paid immediately, whereas the income or benefits accrue over time (Boehlje & Ehmke, 2005). The larger capital investment made in crop farms in Gauteng has increased the planted hectares, which is the identifiable positive impact on the increase of the production. According to Boehlje & Ehmke (2005), the most important task of investment analysis is gathering the appropriate data that will help to reveal accurate results for future decision-making.

However, the size of planted arable land has shown a strong correlation with farmers who are skilled and experienced in crop farming, at the significance level of ($p<0.002$). Savadogo et al. (1998) confirm that the capital investment on farms has greatly improved the land and productivity.

Cash crops comprise one of the major farming businesses in South Africa, and throughout the world. Crops are planted for the consumption of both humans and animals. According to Sanchez et al. (2005), farmers more often decide to invest in improved land management and care for the environment if it is profitable compared with other investment options. The current study reveals that only six crop farms in the study area had been recapitalised. The crop farm sizes ranged from 128 ha to 740 ha, and are shown in Figure 4.10. There was a strong correlation between the crop farm size and size of arable land in hectares at (0.818), and it was highly significant at the value of ($p<0.007$) when tested at a sensitivity of 95%. There was also a slight correlation (0.619) between the crop farm size and planted hectares pre-recapitalisation, at significance level of ($p<0.042$). The size of the crop farm has further shown a correlation with the skills and experiences of crop farmers, at (0.709) with the significance level of ($p<0.014$). Figure 4.9 further shows the values of recapitalised fund per farm and its proportional distribution on machinery, implements and inputs. Amos et al. (2010) conducted a study on the efficiency of agricultural land use, its contribution to improvement in food crop production in the past, and its future sustainability. The study discovered that the more sustainable agricultural practices available for improving Ghana's future food security included mixed farming, intercropping, agroforestry systems, and managed fallows that involve the use of legumes for nitrogen fixation and the incorporation of animal and crop residues into the soil for improvement in soil organic matter content.

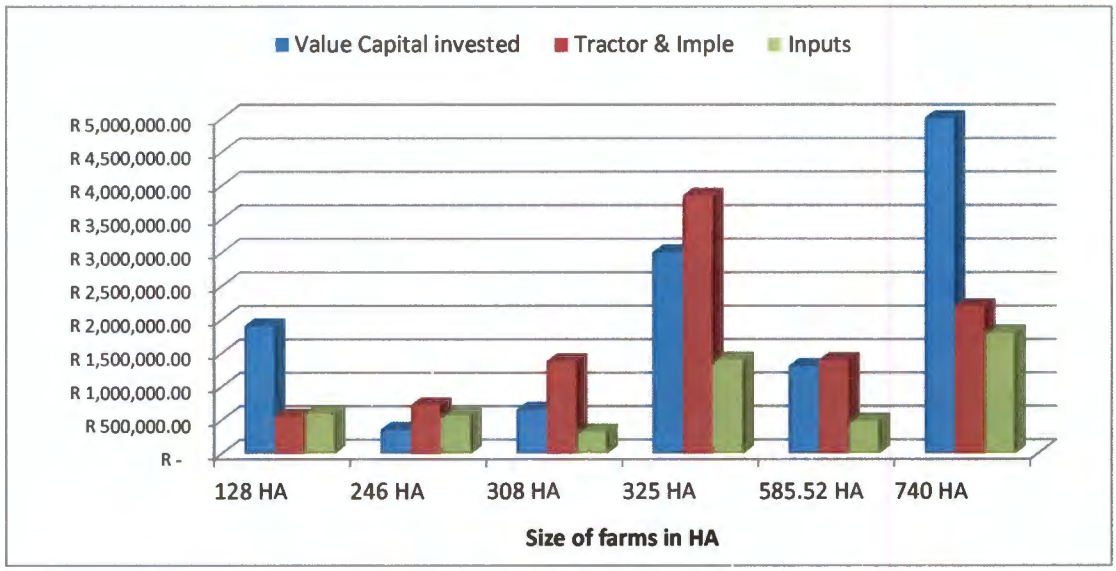

Figure 4.9: Illustration of the value of recapitalisation funds invested per farm and distributed on machinery and inputs.

Gauteng has the smallest sizes of farms, and this corresponds with the overall smaller size of the land in province and its high stocking density, as compared with other provinces that have large land areas. According to Martey et al. (2012), a larger farm size provides an opportunity to produce surplus production, which is critical in improving market participation. The crop farm sizes of the six crop farms that were recapitalised ranged from 128 ha to 740 ha. There were strong correlations between the crop farm size and size of arable land in hectares, at (0.818), and it was highly significant at the value of ($p<0.007$) when tested at the sensitivity of 95%. There was also a slight correlation (0.619) between the crop farm size and planted hectares pre-recapitalisation, at a significance level of ($p<0.042$). The production was increased to the level of commercialisation and that leads towards the purpose and goal of the recapitalisation mandate in South Africa. The farm sizes could be either smaller or larger than those which the farmers would otherwise plant and harvest, stimulating increased levels of commercialisation. Researchers reveal that farm size may have indirect, positive impacts on market participation by enabling farmers to generate production surpluses, overcome credit market in the presence of vehicle thus reducing post-harvest losses and stimulating higher levels of commercialisation (Olwande & Mathenge, 2010; Martey et al., 2012).

This study reveals the increase on planted hectors after recapitalisation (see Figure 4.11 below). The increase in planted hectares shows the positive impact in the increase of the production. However, the size of planted arable land shows a strong correlation with farmers who are skilled and experienced in crop farming, at the significance level of ($p<0.002$). If the production were to increase to the level of commercialisation, then the purpose of recapitalisation would be met. Similar results were obtained where a firm had received Venture Capital (VC) financing, and the Total Factor Production (TFP) of firms backed by high-reputation as an impact of VCs was significantly greater than the TFP of firms backed by low-reputation VCs. Again, this suggests that high-reputation VCs are better able to increase the post-financing efficiency of firms due to their better monitoring abilities (Chemmanur et al., 2011).

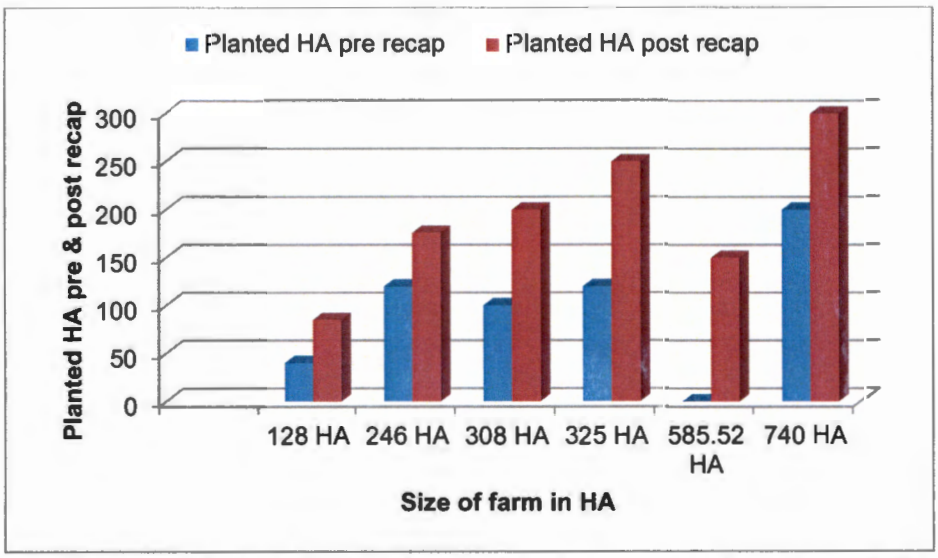

Figure 4.10: Illustrating the size of planted hectares, pre- and post-recapitalisation.

Gauteng has the smallest sizes of farms, which corresponds with the smaller overall size of the land in province, and it has high stocking densities (as compared with other provinces that have large land areas) with good productivity due to intensive farming systems. Table 4.1 below shows the percentage of increase in planted hectares after recapitalisation. Gauteng capitalised farms were monitored for budget expenditure not for production goals and operational efficiency. However, consistent results showed that firms with higher-reputation VCs providing greater monitoring services to the firms that they back, since these firms experience greater

improvements in their productivity subsequent to VC financing (Chemmanur et al., 2011).

Table 4.1: Showing the actual hectares of farms, before and after recapitalisation.

Farm size	Crop farm size	Size Arable land HA	Planted HA pre recap	Planted HA post recap	Total crop yield	Increase planted HA by Recap %
103.63	334		140	334	4	58.08
128	128	85	40	85	4.5	52.94
144	144	106	30	106	530	71.70
246	246	0	120	176484		99.93
308	308	200	100	200	3.5	50.00
325	325	250	120	250	4.5	52.00
405		405	100	150	4	33.33
479	497	214	214	214	2.5	0.00
526	526		210	645	6.5	67.44
540	500	150	25	150	4	83.33
585.52	340	150	0	150	3.5	100.00
740	740	740	200	300	4.5	33.33

An increase in the area planted is expected to increase the operational cost and the turnover according the increase in hectares planted. Figure 4.12 below shows the value of recapitalisation, annual costs and turnover of the crop farms. The annual costs corresponded to the invested values of recapitalisation which were split according to the demands of the farms for the performance of activities that were required for production. The farm that measures 128 hectares was recapitalised with an amount of R1 900 000 and the majority of the money would have been used for the infrastructure, machinery and implements. The operational cost was R384 500, with the return of R650 000. If the records and calculations of the farm are accurate, it means that the farm has achieved a mark-up of 65%, which is equivalent to R267 750. In the real business world, there is nowhere where a farm can make a

mark-up of 65%. The farm measuring 740 ha was recapitalised with an amount of R5 000 000, and the operational cost stands at R1 380 000. The estimated mark-up of this farm stands at 27.8%. This mark-up is a normal percentage that a range of businesses make in different kinds of businesses. The results (27.8%) fall within the close to the high range of the mark-up reported by von Braun (1994), where the shares in total income from earnings from crop sales by the participants range between 11 and 35 percent. Proper record keeping is very important for any type of business. The records must be aligned to the required standards for auditing and SARS. According to Asa and Rim (2011), the primary motive for keeping records is at least to provide ample evidence of, and information about, business activities. Thus, it is vitally important for Gauteng farmers to receive extensive training on the importance record keeping to help them to develop a checklist of all records for activities that happen on daily basis, weekly and monthly bases. According to Musah and Ibrahim (2014), a basic record-keeping system should be simple to use, easy to understand, reliable, and consistently designed to provide information on a timely basis. In conventional accounting terminology, these are generally referred to as the qualitative characteristics of financial statements.

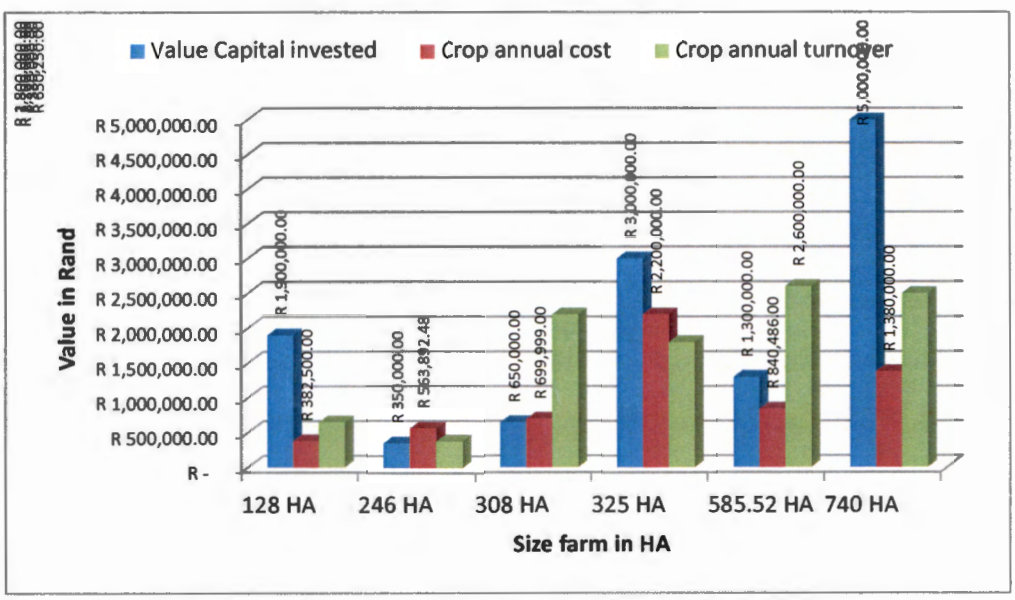

Figure 4.11: Illustrating capital investment, annual cost and turnover of crop farm.

The criteria as to how much should be invested in the form of recapitalisation distribution are not defined in the current programme. However, the current study

has looked at the ratio of invested rand versus the land in hectares. The maximum investment was R14 000 per hectare, while the lowest was less than R1 000. Figure 4.13 shows the ratio of rand to the size farm, in hectares. The decision to grant capital investments directed to machinery and equipment was intended to improve the financial performance of a crop farming business, involving two fundamental tasks: economic profitability analysis and financial feasibility analysis (Boehlje & Ehmke, 2005). In the current study, there was a large range of investments per hectare between the farms. The imbalance in capital investments per hectare on different farms will affect the productivity in long run, since the farms with low capital may face challenges in purchasing equipment. The lack of machinery and implements affects the productivity of crop farming very badly. The farmer cannot plan and implement his or her plan at a particular time, since the farmer is constrained by the availability of the farm.

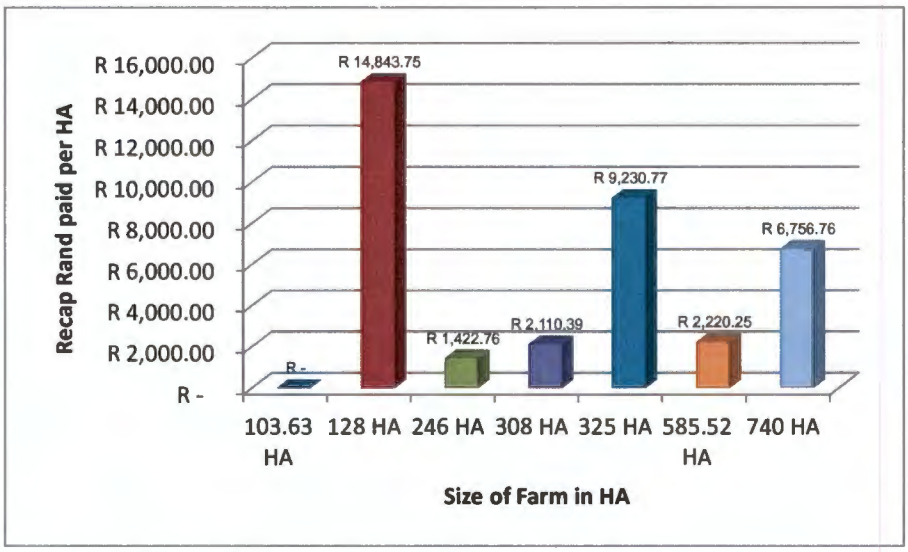

Figure 4.12: Illustrating the average rand paid per hectare.

It is fundamentally important to measure the rate of return against the Rand invested on farms to determine the impact of capital investment. Figure 4.14 below shows the ratio of Rand spent for capital investment against the return from the crop farms, in rand. The rates of return versus the values of capital investment differ from one farm to the other. This difference is normally influenced by conditions on the farm and the types of machinery and equipment purchased on the farm. There is a huge difference in the returns in some of the farms. For example, the farm measuring 128 hectares indicates that for every R1.00 spent on capital investment, there is a return

of R2.92, while the farm measuring 308 hectares shows that for every R1.00 spent on capital investment, there is return of R0.30. Scrutinising the outcomes of the two farms, farm measuring 128 hectares has a high return, compared to the farm of 308 hectares. Since the gathering of data did not critically look at the equity of the farm before recapitalisation, the assumption is that the farm of 128 hectares had better equity than the 308-hectare farm did. However, similar current productivity performance and farm size was achieved by (Woodhouse, 2012).

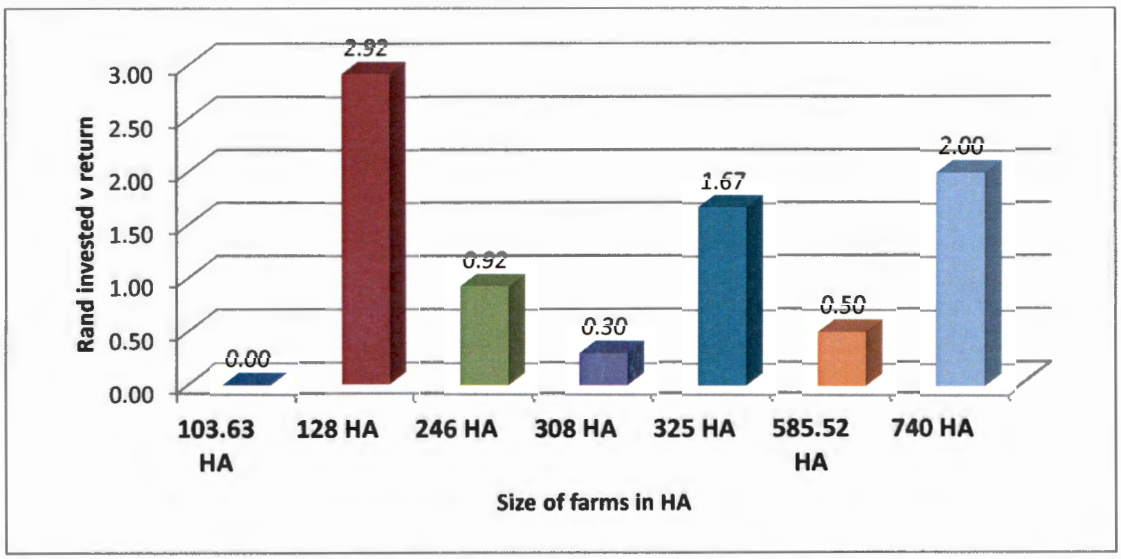

Figure 4.13: Illustrating the ratio of Rand spent for capital investment to Rand returned by crop farm, in hectares

Recapitalisation was designed to increase the productivity of the redistributed farms. Figure 4.15 shows the actual hectares planted before recapitalisation, the percentages of increased hectares, and the total hectares planted after recapitalisation. The production increases range from 40% to 70%. One of the farm (334 hectares) has increased its production to 100% of the farm's total capacity. Due to lack of records, one the farms did not have accurate figures of how many hectares were planted after recapitalisation. Mairura (2001) has reported a long history record keeping, dating back to 3600 BC. Record keeping is essential to any type of the business, including farming. Musah and Ibrahim (2014) have revealed that business performance has a positive correlation with record keeping, with a Pearson's correlation coefficient of 0.250 (25%). Records are created, received, kept and maintained by an organisation or individual in pursuance of a legal obligation or in

transacting business. Record management involves the application of systematic and scientific control to all recorded information that an organisation needs in order to conduct its business in a sustainable manner (Musah & Ibrahim, 2014).

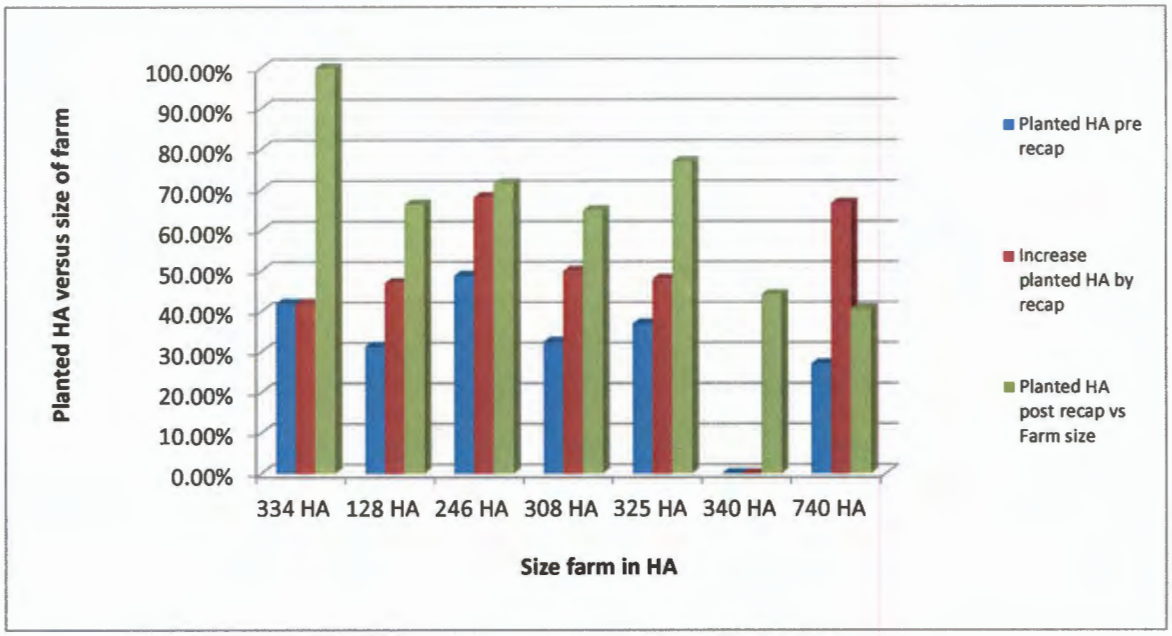

Figure 4.14: Showing the planted hectares, pre- and post-recapitalisation

Productivity is measured according to a ton yield per hectare. Figure 4.16 shows the various yields in tons attained by the planted hectares of the studied farms. The yield per hectare normally differs according to the rainfall pattern or the irrigation used. The planting spaces have an impact on the number tons harvested per hectare.

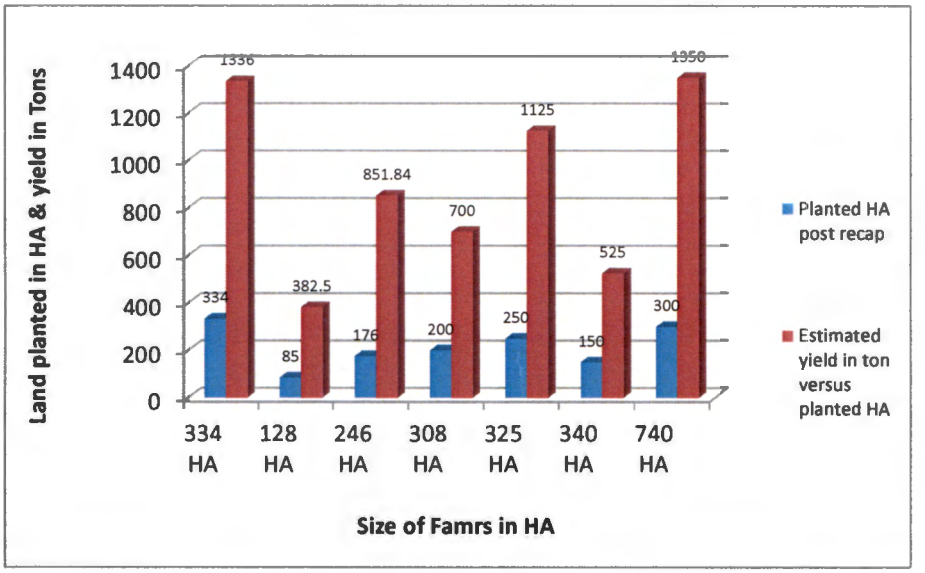

Figure 4.15: The production yield in tons from planted hectares on the various farms

Crop seed producers have done extensive research on the varieties of seeds that they sell in the market. Such research covers the performance of particular varieties on different types of soils, at the different levels of rain or irrigation system, with specific spacing between the plants and rows of plants. Water resource management is complicated due to global climate changes, and the economic and environmental issues that have emerged (Karimov et al., 2012). The current yields reported are by farmers who rely fully on rainfall, on dry land. Therefore, spacing between the rows stands at 1.8 m due to the low level of water that plants will get. In high rainfall areas, the spacing between the rows might be 0.9 m, while under irrigation, the spacing reduces to 0.6 m between the rows. An efficient irrigation system is generally beneficial at the field scale, while its regional impacts may not be, and may actually increase over-all water consumption (Medellin-Azuara, Howitt & Harou, 2012). The cost of planting crops at spacing under 0.9 m is normally low in fuel costs, although such plantings were high in price, if compared to plantings of 1.8 m spacing. Therefore, a farmer who plants at 0.9 m spacing would achieve an extra 50% yield, as compared with another one who plans at a 1.8 m row spacing.

The profitability of a crop is calculated according to yield per hectare, where the farmer calculates the cost to plant one hectare, against what he or she receives per hectare. It is important for all farmers to know the capacity of their arable land so as to enable them to estimate the production costs of that land and forecast the

revenue. Although hampered by a lack of accurate records, Figure 4.17 below shows the estimated revenue of each farm that was guarded from the farmers. Looking at Figure 4.17, the farm measuring 128 hectares harvested 382.5 tons from the 82 hectares that were planted. The revenue derived from the 82 hectares stands at R650 250.00. The calculation of the current scenario indicates that the yield was 4.665 tons per hectare, with an estimated revenue of R1 700.00 per ton. The revenue per hectare stands at R7 919.88, if the calculation is worked on the revenue against the planted hectares. However, the over-all return per hectare of the farm changes the return per hectare to a lower revenue, which may stand at R5 418.75, taking into consideration the 8 hectares being used for other activities, like housing on the farm and the pathways. If the farm can be planted to 120 hectares, the production is increased to 559.8 tons and brings an estimated revenue of R951 660.00. This will increase the productivity of the farm.

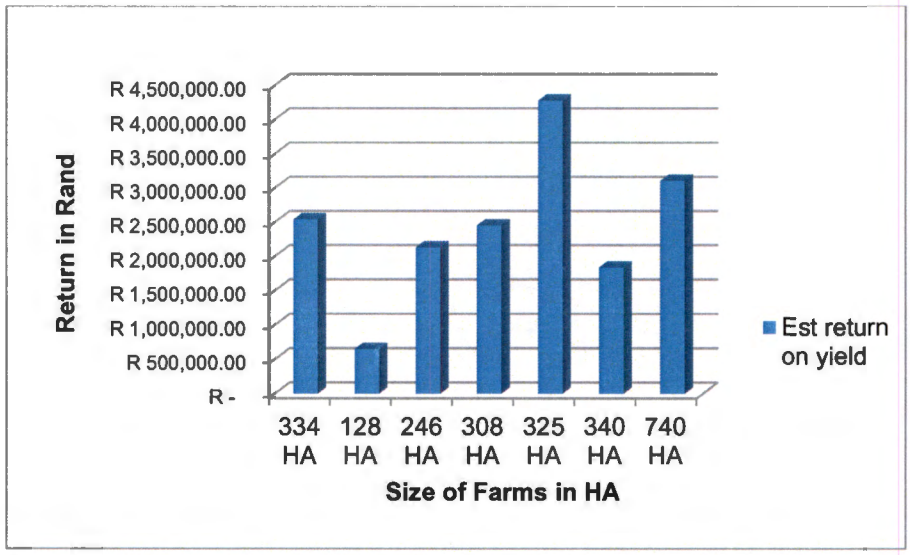

Figure 4.16: Estimated revenue of farms, based on planted hectares only.

The farm measuring 740 hectares, planted to 300 hectare, returned a yield of 1350 tons, as shown in Figure 4.15, with revenue of R3 105 000.00. Tons per hectare stand at 4.500 ton. The return per ton is estimated to be R2 300.00, while the return per hectare is estimated to be R10 350.00. When comparing the returns of the two farms (128 ha and 740 ha), the farm of 128 ha yielded a little bit more (4.665 ton – 4.500 ton), with difference of 0.165 ton (165 kg). However, the return per ton on the farm of 740 ha was greater, at a value of R2 300.00 per ton, although it yielded 3% less per hectare, when compared to the farm of 128 hectares, where the return was

R1 700.00 per hectare. Such differences as there are in the market are influenced by sales dates and the contract market. Sometimes, farmers will sign contracts before ploughing, which guarantee the marketing of their products before they are processed. Such contracts are signed due to the lack of access to markets and the financial services needed to purchase machinery, implements and farm inputs. According to FAO (2005), one of the principal causes of poverty among smallholder farmers is the lack of farm power (labour saving tools and equipment, and animal and mechanised power), and importantly, access to it. Farm power embraces all forms of power inputs in agriculture and the commercialisation of its products, ranging from human inputs, animal traction, and engine-driven technologies, together with associated tools and implements. If the farm measuring 740 hectares could increase its land planting from 300 hectares to 720 hectares, it would significantly increase its revenue from R3 105 000.00 to R7 452 000.00. The scenario of two farms that were critically analysed as to planted hectares, yield per hectare and return per hectare clearly shows that these farms are not being used to their fully capacity, although the recapitalisation investment is intend to increase productivity.

4.6 CAPITAL INVESTMENT ON INTEGRATED BEEF AND CROP PRODUCTION FARMS

The recapitalised farmers in South Africa are still relying on the historically organised markets that were established under the apartheid regime. Some farms are operating as integrated faming system where crop and beef farming activities are mixed together. This type of mixed farming is very common and helps farmers since crop residues complement cattle feed, while beef revenue maximises farm income. Most of the sustainable agricultural practices available to improve Ghana's future food security include mixed farming, intercropping, agroforestry systems, and managed fallows. It also involves the use of legumes for nitrogen fixation and the incorporation of animal and crop residues into the soil for improvement in soil organic matter content. Research shows that the recent advances in crop and livestock genetics often making it easier to achieve synergies by combining different enterprises. For example, crop-breeding research may result in new crop varieties where their stubble is more nutritious to particular new animal breeds, at different

production stages (Villano, Fleming & Fleming, 2010). These alternative land intensification systems, if promoted with consideration of the profitability, labour needs, food security, and farmers' need, would increase food production to meet the demands of the growing population without increasing the agricultural land area. For example, the crop farmers do not have their integrated system from the supplier to the consumers. The majority, if not all, of their farm produce is channelled to the organised markets of big cooperatives, like Afgri, Senwes and Obaro in Gauteng, while few farmers use the services of crop speculators. Thus, Kant (2016) has emphasised that making markets work for smallholder farmers will require actions from many different actors, both private and public, as well as international financial and donor organisations. Financial markets distance themselves from African agriculture because the risks of investment remain very high, relative to the returns, due to lack of equity held by African developing farmers. African governments should define their role clearly, implement those roles transparently and consistently, and reduce poverty. This approach can leverage even greater private investment their scarce resources in ways (Kant, 2016).

The integration of the production of beef and crops on one farm is common practice across the world. The return per hectare on extensive beef farming is low, compared with the return on intensive beef farming.

The farmer can decide to do integration of crops with extensive beef farming, or crops with intensive beef farming. Figure 4.18 shows the split of capital investment between beef and crops, annual costs of beef and crops, and revenue on beef and crops. However, the majority of these integrated farms does not show all these mentioned splits due to the lack of record keeping. The farmers do not understand how the money is distributed on the expenditure of beef and crop productions, annually. The farm measuring 144 hectares is the only farm that has shown six sets of records, clearly unlike the other five farms that only have skeleton records that cannot be interpreted. The current scenario is very bad because 83% of the integrated farms do not have accurate records. Record keeping is fundamentally important for any business. Records are created, received, kept and maintained by an organisation or individual in pursuance of a legal obligation or in transacting

business (Musa & Ibrahim, 2014). This means that the owners or managers of 83% of the integrated farms failed to understand the flow of the money.

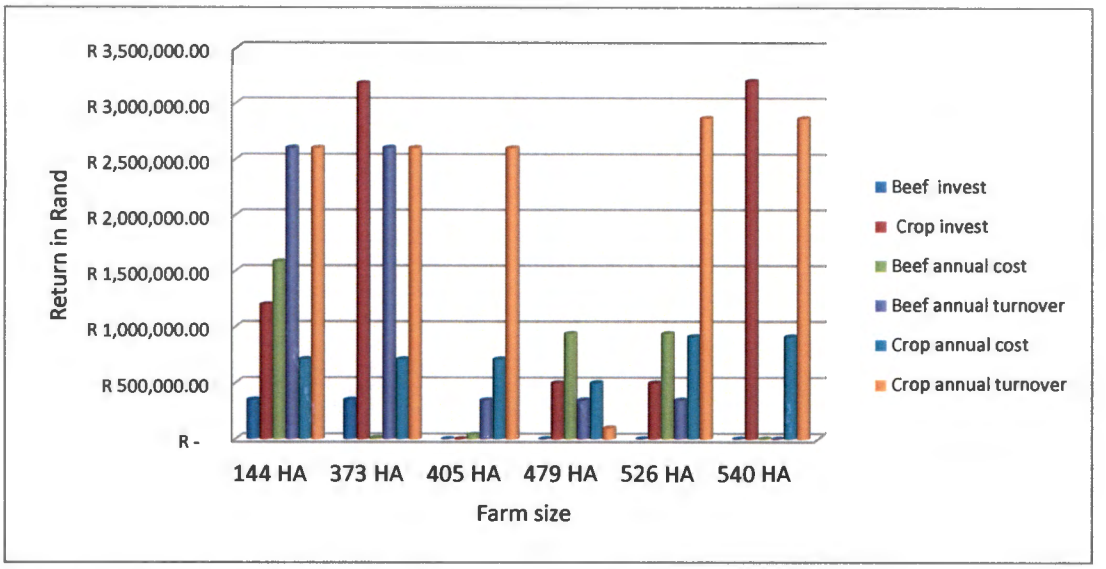

Figure 4.17: Integrated beef and crop production farms

The records showed that the farm measuring 144 hectares was capitalised with the overall value of R5 012 842. The capital investment was apportioned to beef infrastructure, such as kraals and fences, and to cattle purchases, tractors and implements, repairs, beef inputs and crop inputs. This farm has all the records for these items and they are clearly stated, unlike those for the other farms. Figure 4.19 shows the apportionment of the investment, annual costs, and returns between the two commodities produced ion the farm. However, there was confusion on the split of revenue, where the farmer reported R2 604 000.00 in both beef and crop production. Considering the total number of cattle, it would be impossible for the farmer to derive revenue of R2 604 000 from cattle, annually. The ultimate explanation for this result is mainly associated with poor record management by the farmer. According to Musah and Ibrahim (2014), record management involves the application of systematic and scientific controls to all recorded information that an organisation needs in order to conduct its business in a sustainable manner. Therefore, this figure is considered to be the overall revenue for the entire farm sales, because it is the same for beef and crops.

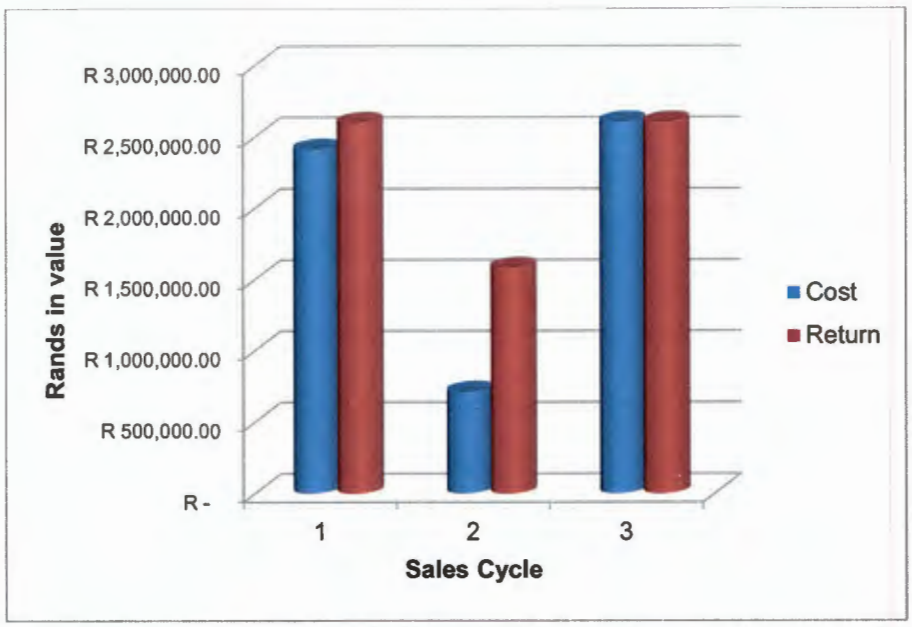

Figure 4.18: The split of capital investment, annual cost and revenue of 144 ha farm

Beef production entails different categories of beef animals that a farmer can decide to specialise in for production. Very often, such decision is influence or driven by the market; for example, a demand for weaners in the market would encourage a farmer to increase his or her extensive beef cattle stock in order to sell a larger number of beef weaners to a particular feedlot or on public auction. Similar thing happen with crop production, where a farmer may decide to change to a particular crop that is in high demand because she or he can then fetch a good price during harvest and the selling process. Capital investment made to improve pasture resulted in significant gains in both animal productivity and enterprise profitability in all three case study regions that have been examined in Australia (Ash et al., 2015). Figure 4.20 below shows the split between combined beef and crop types from six integrated farms. Feedlots and maize production had the largest portion among the other combinations. Normally, feedlot use much maize, and therefore this may be the reason why the feedlot–maize integrated farm was the largest, compare with its counterpart with half (17%) of its production percentage share. The result shows that all the farms produce maize, irrespective of which type of beef cattle husbandry is practiced. The second crop is soya, which was planted together with maize, and not alone. The combination of crops, like maize and soya, with the beef is not surprising

because soya is the second largest crop used in beef cattle diets. Beef cattle stud breeders produce superior hybrid bulls and heifers for commercial farmers.

Commercial farmers buy bulls from stud breeders to produce good performing weaners, with an average weight of 190 to 220 kg at the age of 6 to 8 months. Feedlots buy such weaners to fatten them for the final product, which is class A1 meat. The current setup of crop and beef combination makes for a very good supply chain of meat production that is practised elsewhere across the world. However, a long-term analysis of farm work and organisational structure has shown the complications of seasonal management in diversified crop–livestock farms, in which animal production tasks can conflict with cropping activity workloads, for example the sorting of finished lambs can be delayed in spring when this is in competition with spring crop seeding tasks and early harvesting of hay. All of these studies lead to the same conclusion, that sophisticated management, of which integrated crop–livestock management is one, can be difficult to implement when focused on increasing physical labour productivity alone (Lamaire, et al., 2014).

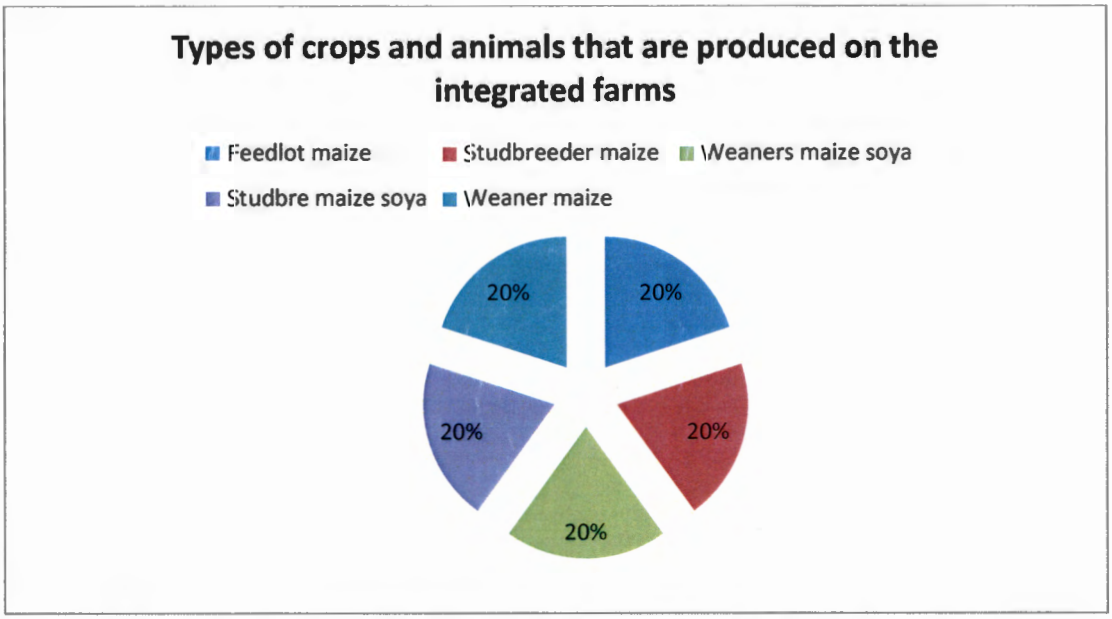

Figure 4.19: The split of combined beef and crop types on six integrated farms

The purpose of farming is to fulfil the requirements of food security, at local, national and international levels. Food is comprised of different commodities that human

being eats to lead a healthy life style. The recapitalised farms in Gauteng produce different food commodities that are intended to serve people in Gauteng and other parts of the country or continent. Figure 4.21 shows the spread of food commodities on the recapitalised farms. Animals alone contribute 35%, followed by cash crops at 30%, combination of animals and crops at 25%, vegetables at 5%, and animals and vegetables at 5%. Based on the required hectares for the production of animals, this clearly indicates that the largest (35%) percentages of farms are for extensive beef farming. This is because the required space for one head of cattle ranges from 8 to 15 ha, depending on the type and the quantity of the vegetation. According to Bell, Moore and Kirkegaard (2014), across a range of environments in Australia's mixed crop–livestock zone, grazing a crop when the final yield was below this critical level has economic benefits in 20–40% of years. In some years, profits could be increased by as much as $100/ha, but if averaged over all years, the returns could be increased by $10–25/ha from a tactical sacrificial grazing of wheat crops. The integration of livestock and crop farming should help for the mitigation of environmental impacts resulting from intensification. According to Lamaire et al. (2014), globally, the focus on animal production for feeding the human population is questioned for two reasons: (i) the inherent low efficiency of converting plant proteins into animal proteins, and (ii) the contribution of ruminants' CH4 emissions to the atmosphere. Concerning the first point, it is clear that domestic herbivores would not compete directly with humans for plant resources, as long as they are fed by grassland resources.

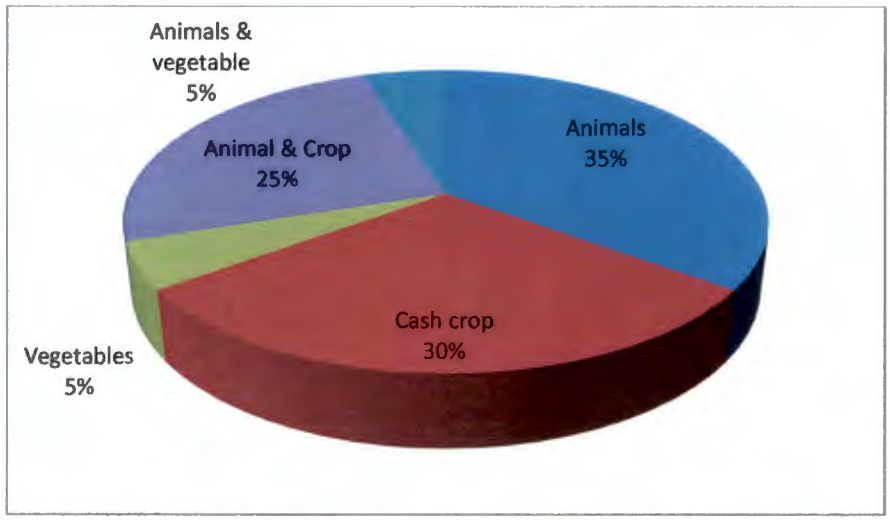

Figure 4.20: General split of commodities on recapitalised farms in Gauteng.

Crop production represents the second largest percentage (30%) in the distribution of farm produce commodities. The comparisons of the quantity of products that can be produced per ha between crops and beef have revealed huge differences. On 1 hectare, a crop can produce 4.5 tons with an estimated average return of R2 000.00 ((R1 700.00 + R2 300.00) / 2), as was shown in Figure 4.16 above. Examining the average revenue from cattle per hectare, extensive beef farming needs an average of 12 hectare per animal, giving an average revenue of R4 800.00 from 12 hectares. This means that the average revenue for one hectare of beef farming stands at R400.00 (R4 800.00 / 12 ha). If a crop farmer gets 25% profit from a hectare, it will work out to an overall amount of R500.00 profit gain per hectare and an estimated R750 000.00 from a 500-hectare farm. Comparing this to a beef farmer, 25% of R400 will amount to R100.00, and an overall profit gain of R50 000.00 from the farm of 500 ha. In Ethiopia, livestock inputs contribute10 151.6 million birr, animal health trading 22 308 889 million birr, although it was not clear how much of the revenue is derived from animals, and how much from their products (Metaferia et al., 2011). The input cost per hectare on a crop farm is high, although it also has a high return. The scenario shows that crop farming is better than extensive beef farming, if rainfall is good. Crop farmers can become R700 000.00 richer than beef farmers within a year, and R3 500 000.00 richer than beef farmers in 5 years.

4.7 FARM WORKERS ON RECAPITALISED FARMS

Farming contributes to food security in many ways. Farmers have to produce food that is accessible and affordable to the larger community. The production of the food will involve the employment of people at different levels according to their skills. Recapitalisation was expected to contribute significantly to the increase of production, which should have been complemented by increases in the numbers of employed people on those farms. Farming activities require employing permanent staff and seasonal staff. Permanent staff are the key people who should master the day-to-day activities on the farm and understand the yearly production plan. Permanent staff know when specific activities will be performed on the farm, such as the preparation of land after harvesting.

Figure 4.22 shows that the pre-recapitalisation numbers of employed permanent (65) and seasonal workers (191) increased significantly after recapitalisation, with permanent workers standing at 157 and seasonal workers at 314. Von Braun (1995) reported the impact of agricultural commercialisation on increased field labour demands in stimulating employment creation, particularly for commercial-scale farmers in the case of the exports of Guatemalan vegetables; employment expanded by 45 percent on the participants' farms. Employment expansion was also large in the Gambian case, at 56 percent, following the technological change in rice production. However, in the case of sugarcane production in the Philippines, little expansion of employment occurred, as there was an increase of only 10 percent. Figure 4.23 shows the actual number of increased workers and the overall increase percentage as results of recapitalisation.

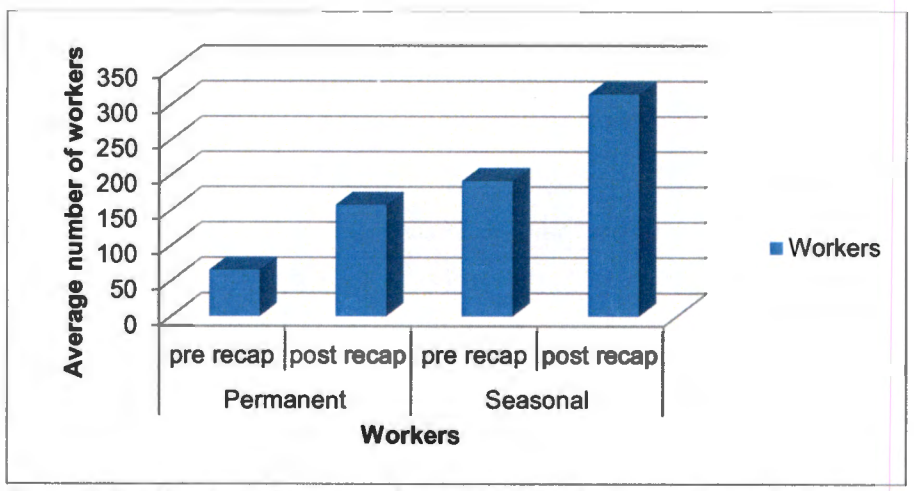

Figure 4.21: Number of employed permanent and seasonal workers, pre- and post-recapitalisation

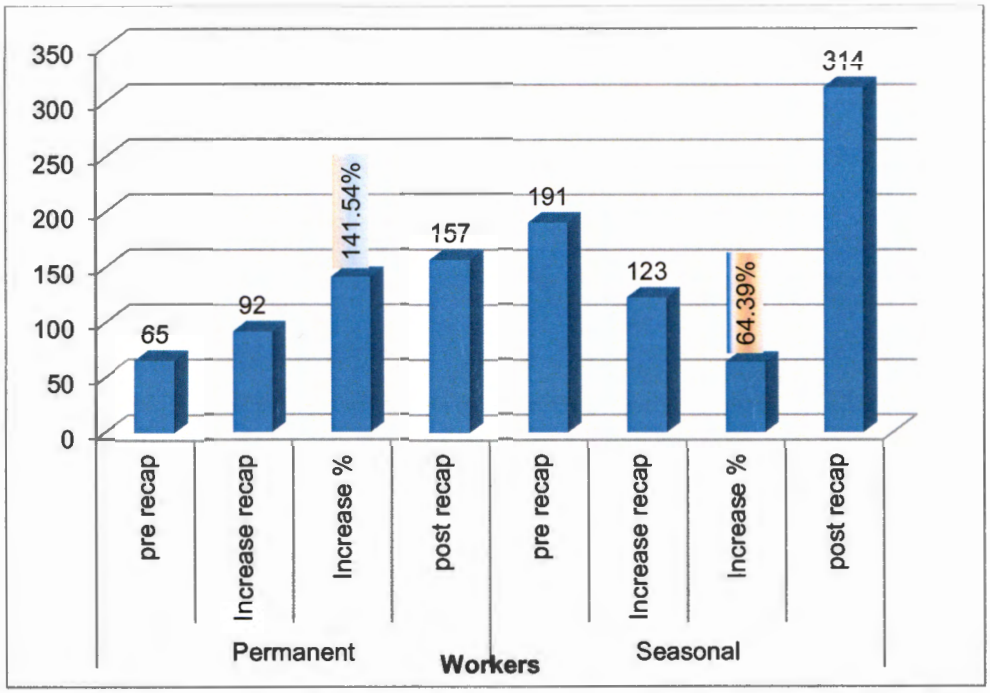

Figure 4.22: Illustrating the actual number of increased workers and the overall percentage, post-recapitalisation.

Recapitalisation contributes significantly to the employment of permanent and seasonal workers. Such increase is very good for the socio-economic activities which also result in food security for a larger number of household members that will benefit from that employment. Table 4.3 presents the analysis of the variance between permanent employees, before and after recapitalisation, with a significance level of ($p > 0.006$). Other variables did not show any variation when tested under ANOVA. Van Braun (1995) indicated that an assessment of the income and employment benefits of the commercialisation of agriculture is not complete if only the farm's household situation is evaluated. The increased income stream for hired labour is an indirect benefit that goes beyond the effects of directly participating farms. In almost all studies, there was a large expansion in the use of *hired labour,* which is indicative of a form of commercialisation of the labour market in the rural economy. In the Gambia, this increase in hired labour use is particularly significant, but it started from a very low base. In the Philippines and Guatemala, the share of hired labour in total labour was already quite high, and there was a large increase from 36 percent to 63 percent in the Philippines, and from 21 percent to 26 percent in Guatemala (von Braun, 1994). Increases in the use of hired labour in these

settings create employment for the rural poor, which include high shares of those usually affected by nutrition problems.

Table 4.2: Illustrating the results for seasonal and permanent employees, before and after recapitalisation

Analysis of variances between groups of workers pre & post recap						
Group of workers		Sum of Squares	df	Mean Square	F	Sig.
Permanent pre-recap	Between Groups	1.426	2	.713	.467	.638
	Within Groups	18.308	12	1.526		
	Total	19.733	1			
Seasonal pre-recap	Between Groups	32.769	2	16.385	.105	.901
	Within Groups	1879.231	12	156.603		
	Total	1912.000	14			
Permanent post-recap	Between Groups	31.169	2	15.585	8.050	.006
	Within Groups	23.231	12	1.936		
	Total	54.400	14			
Seasonal post-recap	Between Groups	145.241	2	72.621	.261	.774
	Within Groups	3337.692	12	278.141		
	Total	3482.933	14			

The recapitalisation of farmers has impacted positively on the beneficiaries of the farmers by increasing the production scale, which resulted in increases in the numbers of workers being employed. According to Kirsten et al. (2012), agricultural commercialisation refers to the process by which farmers increase their productivity by producing more output per unit of land (and labour), and so produce greater surpluses which can be sold in the market and thus increase their market participation, with a beneficial outcome of higher incomes and living standards. Much

writing on the subject has argued that more employment (and hence wider reduction in poverty) is generated by supporting the productivity growth of small farms. However, recent empirical work in Africa gives grounds to question this view (Woodhouse, 2012).

4.8 DIVIDEND PAYMENT TO BENEFICIARIES OF RECAPITALISED FARMS

Dividends are portions of the net profits which are often paid to the shareholders after all other things have been calculated. The majority (81%) of farmers indicated that they do get dividends from their farming businesses, while 13 percent indicated that they do not get dividends, although 6% did not understand the dividends. Figure 4.24 shows the distribution of the dividend payments to farmers or owners of the farms.

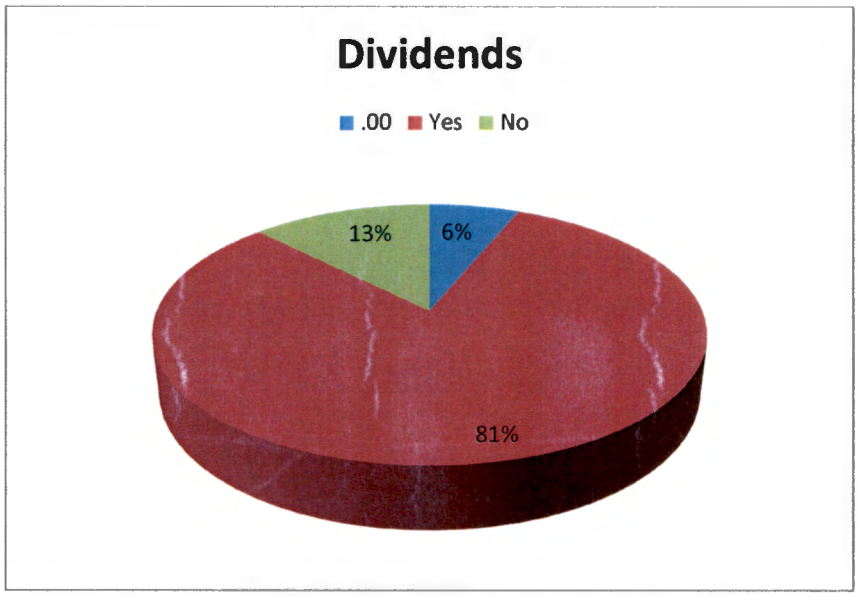

Figure 4.23: Illustrating the distribution of dividends payments.

4.9 CONSTRAINTS THAT AFFECT RECAPITALISED FARMS IN OPERATING AT COMMERCIAL SCALE

Poor records management was identified as being one of the major constraints that farmers obstruct themselves with in operating commercially. The lack of access to organised markets, especially for crops, limits competitive smallholder participation in the agricultural market. The lack of analysis skills that can be used to determine

which crops will be required, and when and at what quantity, results in most of the smallholders' products being wasted after harvesting or sold at very low prices. Because of the uncertainty about prices, many farmers would take any price offered by buyers when there is a chance to participate in sales. Farmers generally do not have the required information and means to locate better markets. Big cooperatives have established integrated supply chains and they effectively regulate the prices of commodities and oppress small-scale farmers. Only farmers with assets such as vehicles are able to move around in search of a better market. Kant (2016) has reported on farmers' perspectives, and on certain problems relating to their farming and livelihood systems, as well as problems associated with government policy and regulation system. Most responses indicated the following problems as of the most importance, ranked in order of frequency of response (highest to lowest): 1. Affected by Disaster (Flood, Drought)/Low Productivity; 2. Lack of Agricultural Land (Paddy Land); 3. Lack of Capital/Money/Funding; 4. Crops Destroyed (Diseases, Insects etc.); 5. Insufficient Food (especially paddy); and 6. Lack of Irrigation system.

Most historically disadvantaged black people in South Africa do not have the capital to start up in farming. Theoretically, asymmetric information in capital markets means that banks base their lending decisions on factors such as available collateral rather than projected profitability (Benjamin & Phimister, 2002). However, in Great Britain, farmers have greater access to financial capital compared to those in any country elsewhere, thus indicating how they manage grow to a commercial scale at an early stage (Kant, 2016). Financial markets will also stay away from African agriculture if the risks of investment remain very high, relative to the returns. On the other hand, if African governments define their roles clearly, implement these roles transparently and consistently, and invest their scarce resources in ways that make the greatest contribution to agricultural growth and poverty reduction then this approach is likely to leverage even greater private investment in support of smallholder agriculture. When the conditions are created for profitable and stable private investment, the private sector in other parts of the world has grown and responded, as seen in much of Asia, and there is little reason to believe Africa would be different.

4.10 DETERMINANTS OF COMMERCIALISATION ON RECAPITALISED FARMS

In South Africa, farming is classified according to the size of the farming activity. The current study has revealed three classifications, namely emerging, subsistence and commercial farming. Commercial farming has the largest share at 65%, followed by emerging farming at 25%, and subsistence farming at 10%, as presented in Figure 4.6. However, different a scenario was achieved when ranking commercialisation based on operational cost, productivity and profitability ranking. Table 4.3 shows that only one farm generates an income above one million Rand (5%), while four farms (2010%) have incomes in the range from R10 000 to R40 000.00. A large number of farmers (50%) had an income below R10 000, and 25% of them were running their farms at a loss. Benjamin and Phimister (2002) have reported great losses for British and French farmers.

The current results, supported by the findings of other researchers, show a classification of farmers as follows. Firstly, subsistence farmers produce marketable surpluses of under 25% of their total production. The second group comprises the emerging farmers, who produce a marketable surplus ranging between 25 and 50% of total production. The third group are the commercial farmers who produce marketable surpluses of more than 50% of their total production (FAO 1986; Mahaliyanaarachchi & Bandara, 2006; Kibirige, 2016). The purpose of recapitalisation is to develop and graduate redistributed farms to commercial farming. Although 65% of participants classified their farms as commercial, the productivity of their farms is very poor.

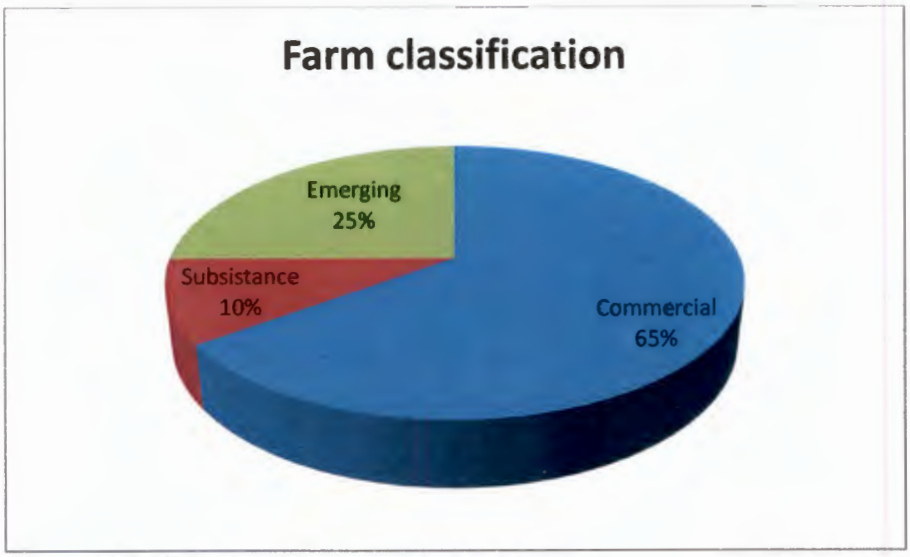

Figure 4.24: Classification of recapitalised farms.

Studies of farm capital investments have found that farm wealth is a fundamental driver of farm investment (Bierlen & Featherstone, 2002; Benjamin & Philmister, 1998; Penson, Romain & Hughes, 1981). Past research has shown that farm enterprises tend to smooth their investments over time (Boumtje, Barry & Ellinger, 2001). Thus, during less profitable times, instead of using current profits to finance their investments, farmers tap their wealth and equity to finance their capital spending. Lenders are more willing to lend to farm enterprises with high levels of equity that can be used as collateral for loans (Henderson & Kauffman, 2013). This is why the South African government has spent more than R2 billion on capital investment in recently redistributed farms: the commercial banks and private investors cannot spend money on farmers who do not have sufficient experience in commercial farming and good equity to put up as security for their investment.

The purpose of recapitalisation is to increase the productivity on farms and graduate the emerging farmers towards achieving a commercial scale. Agriculture and land (2014) reported that the substantial increase of agricultural production in recent years was strongly supported by the mechanisation and commercialisation of farms. A total amount of R28 382 451 in capital investment was spent on the farms that participated in the current study. However, this value represents just 1.33% of the total amount of R2.14 billon that was spent on recapitalised farms in South Africa (Buthelezi, 2013). Neeley (2013) also reported that a net income of R126 million was

generated from the farms that were recapitalised with the R2.14 billion. Huge capital investment on farms has been made in United States of America, where the maximum profits generated from farms led to the fast commercialisation pace from 1970 to 2006 (Bierlen & Featherstone, 2002). During the US capitalisation, farmers slashed their capital investment spending on farm structures, on land improvements, and on vehicles, machinery and equipment. The current study has revealed that a large proportion of 54% (R15 391 720) was spent on crop farms, followed by 28% (R8 431 730) spent on mixed farming of both beef and crop production farms. Large amounts of this capital investment were spent on tractors and implements. It is noted that established US commercial farmers do spend some portions of profits on structure and land improvements (Bierlen & Featherstone, 2002). The approach to making farm capital investments differs from one country to another, with the aims of achieving sustainable food security to feed the populations of their countries. Hutson (1987) reported on the adoption of mechanisation and the increased use of contractors, where the majority of farms that produced for commercial sales were mechanised, with very few of them (14%) sharing machinery on regular basis. To overcome the challenge of a shortage in machinery and capital, one farmer shared machines with two sons who were farming nearby, and another with a brother who farmed 10 miles away.

Table 4.3: The commercialisation levels, calculation and ranking of capitalised farms in Gauteng

	Commercialisation levels and calculation					
Farm size	**Total capital Value**	**Total annual Turnover**	**Capital investment vs land size ratio**	**Turnover vs land ratio**	**Commercial level Rank**	**Percent by recap**
2.2	**R 3 530 269.14**	**R19 000 000.00**	**R 1 604 667.79**	**R 8 636 363.64**	**1**	**100.00%**
2.5	R 2 600 000.00	R 83 805.00	R 1 040 000.00	R 33 522.00	4	84.20%
81	R 2 685 243.00	R -	R 33 151.15	R -	16	0.00%
103.63	R 3 191 721.00	R 8 413 333.00	R 30 799.20	R 81 186.27	2	94.70%
116	R -	R -	R -	R -	16	0.00%
128	R 2 706 644.40	R 1 300 250.00	R 21 145.66	R 10 158.20	5	78.90%
144	R 1 550 000.00	R 5 208 000.00	R 10 763.89	R 36 166.67	3	89.40%
246	R 350 000.00	R 380 000.00	R 1 422.76	R 1 544.72	11	47.30%
308	R 650 000.00	R 2 200 000.00	R 2 110.39	R 7 142.86	6	73.60%
325	R 3 000 000.00	R 1 800 000.00	R 9 230.77	R 5 538.46	7	68.40%
340	R -	R -	R -	R -	16	0.00%
373	R 3 181 730.00	R -	R 8 530.11	R -	16	0.00%
405	R -	R 348 000.00	R -	R 859.26	13	36.80%
479	R 500 000.00	R 100 000.00	R 1 043.84	R 208.77	15	26.30%
526	R -	R 2 870 000.00	R -	R 5 456.27	8	63.10%
539	R 9 000.00	R 300 000.00	R 16.70	R 556.59	14	31.50%
540	R 3 200 000.00	R -	R 5 925.93	R -	16	0.00%
585.52	R 1 300 000.00	R 2 600 000.00	R 2 220.25	R 4 440.50	9	57.80%
623	R 2 500 000.00	R 661 000.00	R 4 012.84	R 1 061.00	12	42.10%
740	R 5 000 000.00	R 2 500 000.00	R 6 756.76	R 3 378.38	10	52.60%

The South Africa government initiated capital investment per farm, whereby beneficiaries decide how to spend the funds received. Thus, expenditure was distributed in different amounts to different farmers. Lack of sharing of equipment has resulted in an increase in the use of contractors, where 66% of farmers use regular contractors. The different factors are categorised into four key areas, which comprise the socio-economic characteristics of the smallholder producers, the lack of access to sufficient agricultural support services, transaction costs and institutional factors, as well as the lack of appropriate agricultural and developmental infrastructure (Hutson, 1987).

According to Martey, Al-Hassan and Kuwornu, (2012), agricultural commercialisation refers to the process of increasing the proportion of agricultural production that is sold by farmers. The commercialisation of agriculture, as a characteristic of agricultural change, is more than the question of whether or not a cash crop is present to a certain extent in a production system. It can take many different forms by either occurring on the output side of production, with increased marketed surplus, or occurring on the input side, with increased use of purchased inputs. Commercialisation is the outcome of a simultaneous decision-making behaviour of farm households to improve their production and marketing in areas with few marketing opportunities, where those households had been engaged primarily in subsistence agriculture, which has constrained the improvement of their quality of life. Martey et al. (2012) reported the commercialisation levels of households engaged in the production of maize and cassava produce which is jointly sold by the majority of households in Effutu Municipality, ranging from 41 to 60%. The proportion of cassava sold by 90% of the cassava-producing households ranged from 81 to 100%. The maize yield per hectare is low, compared with the cassava yield per hectare. Households selling cassava are, therefore, described as being highly commercialised households. The successful agricultural production entails investment of resources, and farmers will have no incentive for making investments in areas where there is little opportunity for marketing their products, or if the returns accruing from the sales of agricultural products do not reflect the opportunity cost of investment. As a result, most farmers (Martey, Al-Hassan and Kuwornu, 2012)

The total recapitalisation investment provided to the crop farms in Gauteng amounts to R15 391 720. Largest amount (83%) of money went to tractor and implement purchases, while the remaining 17% was used for farm inputs. An investment of R12 200 000.00 was split among six farms, at an average investment of R5 230.44 per hectare. The study further revealed a total annual return of R16 985 750, which amounts to R7 282.21 per hectare. Kristian et al. (2012) indicated that the level to which governments and private promoters are able to do both these things determines the success or failure of endeavours to commercialise smallholder agriculture in sub-Saharan Africa. Savadogo et al. (1998) reported the agricultural commercialisation that has led to crop mix changes in the WASAT, with a shift from millet and sorghum to cotton, peanuts and maize.

If the farm measuring 740 hectares could increase its planting lands from 300 hectares to 720 hectares, it would significantly increase its revenue from R3 105 000 to R7 452 000. The scenario of two farms that were critically analysed on planted hectarages, as to yield per hectare and return per hectare, clearly shows that not all farms are being used to their fully capacity, although the recapitalisation investment is intend for increasing productivity. The farm measuring 144 hectares is the only farm for which records have been kept correctly, unlike the other five farms that only have skeleton records that cannot be interpreted. The current scenario is very bad because 83% of the integrated farms do not have accurate records. This means that those farmers have failed to understand the flow of the money in their farming enterprises. The comparisons of the quantities of products that can be produced per hectare between crops and beef have revealed huge differences. An area of under one hectare planted to crops can produce 4.5 tons, with an estimated average return of R 2 000.00 ((R1 700.00 + R2 300.00) / 2), as was shown in Figure 4.18 above. When calculating the average revenue from cattle per hectare, it can be seen that extensive beef farming needs an average of 12 hectares per animal, giving an average revenue of R4 800.00 from the 12 hectares. This means that the average revenue from one hectare of beef farming stands at R400.00 (R4 800.00 / 12 ha). If a crop farmer were to receive 25% profit per hectare, this would work out to an overall amount of R500.00 profit gained per hectare, and an estimated R750 000.00 from a 500-hectare farm. Comparing this with a beef farmer, 25% of R400 will

amount to R100.00 and an overall profit gain of R50 000.00 from a farm of 500 hectares.

The majority (81%) of farmers indicated that they do receive dividends from their farming businesses. Thirteen percent indicated that they do not get dividends, while six percent did not understand the dividends. The two categories of labour workers employed on the farms stood at 65 permanent and 191 seasonal workers before recapitalisation, with significant post-recapitalisation increases being experienced, with 157 permanent and 314 seasonal workers being employed. According to von Braun (1995), the assessment of farm income or profits and employment benefits arising from the commercialisation of agriculture is not complete if only the farm household situation is evaluated. Accordingly, the current study has assessed the impact of recapitalisation on both farm beneficiaries and farm workers. The current study reveals that recapitalisation contributes significantly to the employment of permanent and seasonal workers. Such increase is very good for socio-economic activities which also results in food security for larger numbers of household members that will benefit from that employment. The analysis of variance has revealed a significance difference ($p > 0.006$) between permanent employees, before recapitalisation and after recapitalisation. Increased labour productivity led to improved socio-economic benefits for the entire household (Savadogo et al., 1998). However, the viability of a farming enterprise that is profitable is put under pressure in situations such as a lack of availability of land, high prices of land, high degrees of capital investment required on production resources, and natural disasters like drought.

CHAPTER 5

5 SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 SUMMARY CONCLUSION

The age range of 46 to 55 years constitutes the most active people, as compared to those aged 66 and above. The investment of recapitalisation in farming by people who are 66 and above cannot benefit the government in its millennium goal of achieving food security. The purpose of recapitalisation is to transform and graduate emerging farmers to commercialisation levels, and is also aligned to the transformation of redistributed farms. The large proportion of farmers in the 46 to 55 age range seems to be perfect, since these are people who have gone through many stages in life and are determined to make a success in farming. The commercial farming scale is difficult to attain in Gauteng due to the small sizes of the farms. However, the majority of the farms operate at the medium scale, and not the commercial scale. Based on the findings, Objective 1 is therefore concluded by indicating that a large portion of beneficiaries are people who are keen and energetic to practice farming, based on the characteristics and especially their age.

The production increase ranges from 40% to 70%. One of the farms (334 hectares) has increased its production to 100% of the total farm. The farm measuring 128hectares was recapitalised with a sum of R1 900 000 and the majority of the money should be used for the infrastructure and machinery with its implements. The operational cost was R384 500, with a return of R650 000. If the records and calculations of the farmer were accurate, it means that the farm has made a mark-up of 65%, which is equivalent to R267 750. The findings further lead to the conclusion of Objective 2 – as achieved by production increases after recapitalisation to achieve commercial-scale production.

Poor record management was identified as being one of the major constraints that farmers obstruct themselves with in endeavouring to operate commercially. The lack of access to organised markets, especially for crops, limits smallholders in participating competitively in the agricultural market. The lack of analytical skills for

determining which crop would be required, and when and at what quantity, results in most of the smallholders' products being wasted after harvest or being sold at very low prices. Although recapitalisation was undertaken to improve the productivity of farmers and graduate the beneficiaries to a commercial scale, the findings for Objective 3 reveal that constraints, such as lack of access to financial services and to guaranteed, organised markets, will continue to affect recapitalised farms in operating at a commercial scale.

The majority (81%) of beneficiaries indicated that they do get dividends from their farming businesses. Thirteen percent indicated that they do not get dividends, while six percent did not understand the dividends. Although the values of dividends were not indicated, 81% indicated a substantial amount and this is expected to improve the livelihoods of those beneficiaries who benefit from dividend payments. The socio-economic status of farm workers depends on their active employment. The current study revealed that 65 workers had been employed permanently and 191 as seasonal workers before recapitalisation, with significant post-recapitalisation improvements, when permanent employees now stand at 157 and seasonal employees at 314. The increase in numbers of employed workers shows how recapitalisation has improved the socio-economic activity of farm workers for securing their livelihoods. The recapitalisation of crop farms and crop–beef farms has improved the holdings of machinery and implements on the participating farms.

The actual recapitalised investment provided for the crop farms in Gauteng amounted to R15 391 720. The largest amount (83 %) of money went to tractor and implement purchases, while the remaining 17% was used for farm inputs. An investment of R12 200 000 was split among six farms, and the average investment amounts to R5 230.44 per hectare. The study further revealed the improved cash flow and annual returns on crop farms, where the farm measuring 740 hectare could increase its planting land from 300 hectare to 720 hectare, with a significant increase in its revenue from R3 105 000 to R7 452 000. Objective 4 was attained, since the study has revealed that the recapitalisation of crop farms in Gauteng has improved the livelihoods of beneficiaries and the socio-economic status of farm workers, improved the holdings of farm machinery and implements, and has enhanced farm cash flow.

5.2 RECOMMENDATIONS

- The current study recommends that government should consider facilitating the qualified agricultural youth who are unemployed to participate in projects like this to smooth transformation in agriculture and the sustainability of commercial farming in the hands of black farmers.
- It is fundamentally important for the South African government to standardise the methodology that will be used to determine the actual capital investment used for the acquired redistributed farms. The goals for improvement in productivity must be set and monitored for a minimum of seven years to build financial feasibility, productivity and profitability at a commercial farming scale.
- The majority of historically disadvantaged South African blacks struggle to access finance due to their lack of collateral that is consistently required by financial institutions. The guaranteed marketing and collusion on prices by big co-operatives exclude developing farmers from the markets. To overcome these identified constraints, the study further recommends that the government should make finance available to agricultural graduates, as is done in Great Britain, should provide continuous training and mentoring through bank consultants in running a bankable business in an open market system.
- Opening opportunities for black agricultural graduates will lead to smooth agricultural transformation, high productivity and a large market share for black farmers, while overcoming the problem of unemployment of youth that is growing in South Africa (and globally). Agricultural graduates are capable entrepreneurs who can stabilise food security in the country by adapting worldwide common food chain practices smoothly during the transformation process.

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APPENDIX A: CONSENT FORM AND QUESTIONNAIRE USED FOR STUDY

CONSENT FORM

TITLE OF RESEARCH PROJECT:

Determinants of productivity and commercialization on recapitalized farms in Gauteng Province

Dear Mr/Mrs/Miss/Ms/DR_____ Date _____2015

NATURE AND PURPOSE OF THE STUDY

The main purpose of the study is to assess the productivity and commercialization trend on recapitalized farms in Gauteng Province. The aim of recapitalisation on redistributed farms is improve the productivity and grow operation towards commercial farming scale. The recommendations will be drawn at the end of the study and be presented to Department of Rural Development and Land Reform (DRDLR) and other stakeholders for future decision making. An interview will be conducted with the beneficiaries of recapitalisation made by DRDLR.

RESEARCH PROCESS

- The study requires your participation in the following manner:
- All beneficiaries of recapitalised farms if DRDLR are requested to participate in the study.
- Respondents may be representative of any ethnic group, age or gender
- Basic demographic information will be required from you such as age, cell number, occupation, Language, educational background.
- The duration of this research project is a maximum of two hours.
- Each farmer will be provided with a questionnaire to read, after reading the interviewer will start asking questions.

CONFIDENTIALITY

Your ratings and assessments of any of the research instruments as well as your opinions are viewed as strictly confidential and only members of the research team will have access to the information. No data published in dissertations and journals will contain any information by means of which you may be identified. Your anonymity is therefore ensured.

WITHDRAWAL CLAUSE

I understand that I may withdraw from the study at any time. I therefore participate voluntarily until such time as I request otherwise.

POTENTIAL BENEFITS OF THE STUDY

The results will be published on a journal while your anonymity is still preserved.

INFORMATION

If I have any questions concerning the study, I may contact Prof. O. Oladele (018 389 2746)

CONSENT

I, the undersigned, *Mmagabayo Ruth Mogoje* (full name) have read the above information relating to the project and have also heard the verbal version, and declare that I understand it. I have been afforded the opportunity to discuss relevant aspects of the project with the project leaders, and hereby declare that I agree voluntarily to participate in the project.

I indemnify NWU and any employee or student of NWU against any liability that I may incur during the course of the project. I further undertake to make no claim against NWU in respect of damages to my person or reputation that may be incurred as a result of the project/trial or through the fault of other participants, unless resulting from negligence on the part of NWU, its employees or students.

A copy of this consent form can be obtained from the researchers.

Signature of participant: .....

Signed at ..... on .....

WITNESSES

1.....

2.....

Questionnaire

1 DEMOGRAPHY
1.1 Race: 1 ☐ African 2 ☐ Indian 3 ☐ Coloured 4 ☐ White
1.2 Gender: 1.M ☐ 2. F ☐
1.3 Marital status: 1 married ☐ 2 single ☐ 3 divorcee ☐ 4 widow ☐
1.4 Age: 1. 18- 25 ☐ 2. 26-35 ☐ 3. 36-45 ☐ 4. 46-55 ☐ 5. 56 – 65 ☐ 6. 66> ☐
1.5 Highest education level: 1.Grade 1-7 ☐ 2.Grade 8-12 ☐ 3.Tertiary
1.6 Principal occupation: 1.Project owner ☐ 2.project member ☐ 3.farmworker ☐
1.7 Home language: 1.Sotho ☐ 2.Setswana ☐ 3.Pedi ☐ 4.Xhosa ☐ 5.Zulu ☐ 6.Ndebele ☐ 7.Tsonga ☐ 8.Venda ☐ 9.Afrikaans ☐ 10.English ☐ 11.Other ☐
1.8 Do you want to grow towards commercial scale? 1. Disagree ☐ 2. Not sure ☐ 3. Agree ☐ 4. Strongly agree ☐

LOCATION OF FARM
2.1 Location of the farm: 1. Sedibeng ☐ 2.West rand ☐ 3.CTM ☐
2.1.1 Local municipality : 1. Lesedi ☐ 2. Emfulwene 3.Randfontein 4. Mogale City 5. City of Tshwane
FARM SIZE IN HA
Actual HA used currently
FARM COMMORDITY
1 Animals ☐ 4 Animals and Crop ☐
2 Cash crop ☐ 5 Animals and Vegetables ☐
3 Vegetables ☐ 6 Crop and Vegetables ☐

3 Poultry
3.1 1 ☐ Poultry 2 ☐ Broilers 3 ☐ Layers
3.2 Capital investment on poultry house 1 ☐ Yes 2 ☐ No
3.3 If yes, how much was invested on 1 ☐ Houses _____ 2 ☐ Inputs _____
3.4 Type of houses: 1 ☐ Control environment 2 ☐ Open sided
3.5 Production size before recapitalisation: 3.5.a Broilers per cycle_____ No cycles year_____ 3.5.b Layers: Eggs day_____ Numbers dozen year_____
3.6 Production size before recapitalisation:

3.6.a Broilers per cycle_____ No cycles year_____ 3.6.b Layers: Eggs day_____ Numbers dozen year_____
3.7 What is the nature of the current market? 1☐ Contract market 2☐ Direct to consumers 3☐ Other
3.8 What is the annual turnover poultry in Rand? R_____
3.9 Skill in poultry:
3.9.1 Skill gain trough training: 1. ☐ Train in agriculture at High School, 2. ☐ Trained by Seta. 3 ☐ Tertiary education, 4 ☐ Internship
3.9.2 Skill gain through experience: 1. ☐ Experience of working in commercial poultry, 2 ☐ Experience from village farming, 3 ☐ No Experience
3.9.3 Skill gain through extension services or mentoring: 1☐ Extension, 2☐ Mentorship

4 Piggery
4.1 Pig operation 1☐ Weaners 2☐ Porkers 3☐ Furrow to finish
4.2 Capital investment on piggery structure/ house 1☐ Yes 2☐ No
4.3 If yes, how much was invested on 1☐ Houses R_____ 2☐ Inputs R _____
4.4 Type of houses used in farm? 1☐ Control environment 2☐ Open sided
4.5 Production size <u>before recapitalisation</u>: 1☐ pigs weekly_____ 2☐ Pigs 3 weeks _____ 3☐ Pigs monthly _____
4.6 Production size <u>after recapitalisation</u>: 1☐ pigs weekly_____ 2☐ Pigs 3 weeks _____ 3☐ Pigs monthly _____
4.7 What is the nature of current market? 1☐ Contract market, 2☐ Direct to consumers, 3☐ Other
4.8 What is the annual running cost of the farm? _____
4.9 What is the annual turnover in Rand? R_____
4.10 Skill in piggery:
4.10.1 Skill gain trough training: 1. ☐ Train in agriculture at High School, 2. ☐ Trained by Seta. 3 ☐ Tertiary education, 4 ☐ Internship
4.10.2 Skill gain through experience: 1. ☐ Experience of working in commercial piggery, 2 ☐ Experience from village farming, 3 ☐ No Experience
4.10.3 Skill gain through extension services or mentoring: 1☐ Extension, 2☐ Mentorship

5 Dairy
5.1 Dairy operation 1☐ Self farm feed mix, 2☐ Commercial feed
5.2 Did you do capital investment on Dairy parlour? 1☐ Yes 2☐ No
5.3 If yes, how much was invested on parlour? 1☐ R_____ 2☐ Tractor and implements_____, 3☐ other farm inputs _____
5.4 Investment on Machinery and implements R_____
5.5 Number cows that can be milked at same time in parlour?
5.6 Production size <u>before recapitalisation</u>: 1☐ Number cows milked day _____ 2

☐ Litters milk daily_____
5.7 Production size after recapitalisation: 1 ☐ Number cows milked day _____ 2 ☐ Litters milk daily_____
5.8 How is the current market works? 1 ☐ Contract market, 2 ☐ Direct to consumers, 3 ☐ Other
5.9 What is the annual running cost? R _____
5.10 What is the annual turnover of farm in Rand? R_____
5.11 Skill in dairy:
5.11.1 Skill gain trough training: 1. ☐ Train in agriculture at High School, 2. ☐ Trained by Seta. 3 ☐ Tertiary education, 4 ☐ Internship
5.11.2 Skill gain through experience: 1. ☐ Experience of working in commercial dairy, 2 ☐ Experience from village farming, 3 ☐ No Experience
5.11.3 Skill gain through extension services or mentoring: 1☐ Extension, 2☐ Mentorship

6 Sheep & goats
6.1 Small stock operation 1☐ Weaners, 2☐ Feedlot, 3☐ Casual sales, 4☐ Wool, 5☐ Other
6.2 Capital investment on infrastructure 1☐ Yes 2☐ No
6.3 If yes, how much was invested on infrastructure _____ Inputs _____
6.4 Type of house
6.5 Production size before recapitalisation: 1 Animals sold monthly_____ 2 Animals sold yearly _____
6.6 Production size after recapitalisation: 1 Animals sold monthly_____ 2 Animals sold yearly _____
6.7 How is your current market? 1☐ Contract market, 2☐ Direct to consumers Other
6.8 What is the total annual running cost of the farm? R_____
6.9 What is the annual turnover in Rand? R_____
6.10 Skill in sheep and goats:
6.10.1 Skill gain trough training: 1. ☐ Train in agriculture at High School, 2. ☐ Trained by Seta. 3 ☐ Tertiary education, 4 ☐ Internship
6.10.2 Skill gain through experience: 1. ☐ Experience of working in commercial sheep & goats, 2 ☐ Experience from village farming, 3 ☐ No Experience
6.10.3 Skill gain through extension services or mentoring: 1☐ Extension, 2☐ Mentorship

7 Beef
7.1 Beef operation 1☐ Weaners 2☐ Feedlot 3☐ Stud breeder 4 Weaners and Feedlot ☐
7.2 Capital investment on farm infrastructure 1☐ Yes 2☐ No
7.3 If yes, how much was invested on parlour _____, Inputs _____
7.4 Investment on Machinery and implements R_____
7.5 Type of farming : 1☐ Intensive 2☐ Extensive
7.6 Production size before recapitalisation:

1 Total cattle _____ 2 No of weaners sold a year _____3 Mature cows year _____
7.7 Production size <u>after recapitalisation</u>: 1 Total cattle _____ 2 No of weaners sold a year _____3 Mature cows year _____
7.8 Type of current market used in farm? 1 ☐ Contract market to feedlot 2 ☐ Direct to consumers, 3 ☐ Public auctions 4 ☐ Contract market to feedlot and Direct to consumers 5 ☐ Contract market to feedlot and Public auctions 6 ☐ All
7.9 What is the annual running cost of beef farm R _____
7.10 What is the annual turnover of the farm in Rand? R_____
Skill in beef farming:
7.11.1 Skill gain trough training: 1. ☐ Train in agriculture at High School, 2. ☐ Trained by Seta. 3 ☐ Tertiary education, 4 ☐ Internship 5 ☐ Tertiary education and Internship 6 ☐ Train in agriculture at High School and Tertiary education 7 ☐ Trained by Seta and Tertiary education
7.11.2 Skill gain through experience: 1. ☐ Experience of working in commercial , 2 ☐ Experience from village farming, 3 ☐ No Experience
7.11.3 Skill gain through extension services or mentoring: 1 ☐ Extension, 2 ☐ Mentorship 3 ☐ Extension and Mentorship

8. Cash crop farm
8.1 What type of cash crop do you plant in the farm?
1 ☐ Maize, 2 ☐ Sunflower, 3 ☐ Soya bean, 4 ☐ Sorghum, 5 ☐ Ground nuts 6 ☐ Maize and Sunflower 7 ☐ Maize and Soya bean
8.2 What is the total capital investment awarded to your farm? R_____
8.3 How did you distribute your capital investment?
1 Tractor R_____, 2 Disc plough R_____, 3 Disc harrow R_____, 4 Planter R_____, 5 Boom sprayer R_____, 6 Harvester R _____, 7 Inputs (Seed, Fertilizer, & Diesel) R_____, 8 Repairs R_____, 9 Irrigation R_____ Other R____
8.4 Total size of the farm in hectors _____ha
8.5 Number of hectors planted <u>before</u> recapitalisation _____ha
8.6 Actual hectors planted for all cash crops <u>after</u> recapitalisation _____ha
8.7 Average yield harvested from all crops tonnes per ha _____ ton
8.8 Average price of planter sale crop per ton _____
1 ☐ Maize, 2 ☐ Sunflower, 3 ☐ Soya bean, 4 ☐ Sorghum, 5 ☐ Ground nuts
8.9 Average annual running cost or operational cost of the farm R _____
8.10 Total annual turnover of the farm in Rand R _____
8.11 Skill in cash crop farming:
8.11.1 Skill gain trough training: 1. ☐ Train in agriculture at High School, 2. ☐ Trained by Seta. 3 ☐ Tertiary education, 4 ☐ Internship
8.11.2 Skill gain through experience: 1. ☐ Experience of working in commercial cash crop farming, 2 ☐ Experience from village farming, 3 ☐ No Experience
8.11.3 Skill gain through extension services or mentoring: 1 ☐ Extension, 2 ☐ Mentorship

9. Vegetable farm
9.1 What type of vegetables do you plant in the farm?
1 ☐ Cabbage, 2 ☐ Tomato, 3 ☐ Spanish, 4 ☐ Onions, 5 ☐ Carrots, 6 ☐

Beetroots, 7 ☐ Lattices, 8 ☐ Piper, 9 ☐ Cucumber, 10 Potatoes and Others _____
9.2 What is the total capital investment awarded to your farm? R_____
9.3 How did you distribute your capital investment?
1 Tractor R_____, 2 Disc plough R_____, 3 Disc harrow R_____, 4 Planter R_____, 5 Boom sprayer R_____, 6 Harvester R _____, 7 Inputs (Seed, Fertilizer, & Diesel) R_____, 8 Repairs R_____, 9 Irrigation R_____ Other R____
9.4 total hectors of the farm _____ha
9.5 Actual hectors planter for all vegetables _____ha
9.6 Yield of all vegetables tonnes per ha _____ton
9.7 Average price of planter vegetables per kg or ton
1 Cabbage____, 2 Tomato _____, 3 Spanish _____, 4 Onions _ ___, 5 Carrots _____, 6 Beetroots _____, 7 Lattices _____, 8 Piper ____, 9 Cucumber _____, and Others _____
9.8 Average annual running cost or operational cost of the farm R _____
9.9 Total annual turnover of the farm in Rand R _____
9.10 Skill in vegetables:
9.10.1 Skill gain trough training: 1. ☐ Train in agriculture at High School, 2. ☐ Trained by Seta. 3 ☐ Tertiary education, 4 ☐ Internship
9.10.2 Skill gain through experience: 1. ☐ Experience of working in commercial vegetable farming, 2 ☐ Experience from village farming, 3 ☐ No Experience
9.10.3 Skill gain through extension services or mentoring: 1☐ Extension, 2☐ Mentorship

10 Reward to owners
10.1 Payments: 1.once a year ☐ 2. Every production cycle☐ 3. Every month☐ 4. Every three months☐ 5. Every six month ☐
10.2 Type of payment: 1.monetary payment☐ 2. Kind payment/product ☐
10.3 Level of payment per individual in money: 1.<R1500☐ 2.R1501-R2000☐ 3.R2001-R3000☐ 4. R3001-R5000 ☐ 5.>R5000☐
10.4 Reward to farm workers ☐
10.4.1 Number of farm workers before recapitalization _____
10.4.2 Number of farm workers after recapitalization _____
10.4.3 Level of payment per in kind: 1.<R1500☐ 2. R1501-R2000☐ 3.R2001-R3000☐ 4. R3001-R5000 ☐ 5. >R5000 ☐
10.5 Dividends payment: 1☐ Yes 2☐ No

APPENDIX B: TABLES FOR CORRELATIONS OF ANALYSED VARIABLES

Correlations

		Grow commercial	Farm classification	Location farm	Local manicipal	Farm size	Farm commiordity	Capita inves poultry	Capital invest house	Dairy capital investment	Capital investment	Beef capital invest	Value capital invested	Total recap invested	Dividends payment
Grow commercial	Pearson Correlation	1	.434	-.032	-.035	-.220	.124	.500	.[a]	.[a]	.[a]	.258	.175	.[a]	.326
	Sig. (2-tailed)		.056	.893	.884	.351	.602	.667	.	.	.	.576	.586	.	.218
	Sum of Squares and Cross-products	5.750	4.000	-.250	-.500	-509.238	1.750	100000.333	.	.000	.	.286	80076642.500	.000	1.250
	Covariance	.303	.211	-.013	-.026	-26.802	.092	50000.167	.	.	.	.048	7279694.773	.000	.083
	N	20	20	20	20	20	20	3	0	1	0	7	12	2	16
Farm classification	Pearson Correlation	.434	1	-.336	-.382	-.305	-.186	-.500	.[a]	.[a]	.[a]	-.258	-.143	-1.000[**]	.234
	Sig. (2-tailed)	.056		.147	.096	.192	.433	.667	.	.	.	.576	.657	.	.383
	Sum of Squares and Cross-products	4.000	14.800	-4.200	-8.800	-1131.210	-4.200	-199996.667	.	.000	.	-.571	-112724483.333	-1300000.000	1.375
	Covariance	.211	.779	-.221	-.463	-59.537	-.221	-99998.333	.	.	.	-.095	-10247680.303	-1300000.000	.092
	N	20	20	20	20	20	20	3	0	1	0	7	12	2	16
Location farm	Pearson Correlation	-.032	-.336	1	.808[**]	.124	-.128	.[a]	.[a]	.[a]	.[a]	1.000[**]	.627[*]	.[a]	.104
	Sig. (2-tailed)	.893	.147		.000	.603	.590	.000	.	.	.	.000	.029	.	.701
	Sum of Squares and Cross-products	-.250	-4.200	10.550	15.700	388.602	-2.450	.000	.	.000	.	1.714	502519395.833	.000	.563
	Covariance	-.013	-.221	.555	.826	20.453	-.129	.000	.	.	.	.286	45683581.439	.000	.038
	N	20	20	20	20	20	20	3	0	1	0	7	12	2	16
Local municipal	Pearson Correlation	-.035	-.382	.808[**]	1	.112	-.065	-.500	.[a]	.[a]	.[a]	.452	.289	.[a]	.115

	Sig. (2-tailed)	.884	.096	.000		.639	.784	.667	.	.	.	.308	.363	.	.671
	Sum of Squares and Cross-products	-.500	-8.800	15.700	35.800	645.185	-2.300	-100000.333	.	.000	.	1.286	369530511.667	.000	1.063
	Covariance	-.026	-.463	.826	1.884	33.957	-.121	-50000.167	.	.	.	.214	33593682.879	.000	.071
	N	20	20	20	20	20	20	3	0	1	0	7	12	2	16
Farm size	Pearson Correlation	-.220	-.305	.124	.112	1	-.034	.877	.[a]	.[a]	.[a]	.211	.284	-1.000**	-.044
	Sig. (2-tailed)	.351	.192	.603	.639		.886	.320	.	.	.	.649	.371	.	.871
	Sum of Squares and Cross-products	-509.238	-1131.210	388.602	645.185	931927.463	-194.724	713729.791	.	.000	.	74.857	56576501694.939	-102050000.000	-66.991
	Covariance	-26.802	-59.537	20.453	33.957	49048.814	-10.249	356864.896	.	.	.	12.476	5143318335.904	-102050000.000	-4.466
	N	20	20	20	20	20	20	3	0	1	0	7	12	2	16
Farm commodity	Pearson Correlation	.124	-.186	-.128	-.065	-.034	1	.277	.[a]	.[a]	.[a]	-.125	-.105	-1.000**	-.414
	Sig. (2-tailed)	.602	.433	.590	.784	.886		.821	.	.	.	.789	.747	.	.111
	Sum of Squares and Cross-products	1.750	-4.200	-2.450	-2.300	-194.724	34.550	200002.667	.	.000	.	-.429	-130954054.167	-2600000.000	-3.250
	Covariance	.092	-.221	-.129	-.121	-10.249	1.818	100001.333	.	.	.	-.071	-11904914.015	-2600000.000	-.217
	N	20	20	20	20	20	20	3	0	1	0	7	12	2	16
Capital investment poultry	Pearson Correlation	.500	-.500	.[a]	-.500	.877	.277	1	.[a]	.[a]	.[a]	.[a]	-1.000**	.[a]	.[a]
	Sig. (2-tailed)	.667	.667	.000	.667	.320	.821		.	.	.	.	.	.	.
	Sum of Squares and Cross-products	100000.333	-199996.667	.000	-100000.333	7137299.791	200002.667	599992000004.667	.	.	.	.	-193757354140.000	.000	.000
	Covariance	50000.167	-99998.333	.000	-50000.167	3568649.896	100001.333	299996000002.333	.	.	.	.	-193757354140.000	.	.000
	N	3	3	3	3	3	3	3	0	0	0	0	2	1	2
Capital invest	Pearson Correlation	.[a]	.[a]	.[a]	.[a]	.[a]	.[a]	.[a]	.[a]	.[a]	.[a]	.[a]	.[a]	.[a]	.[a]

house	Sig. (2-tailed)	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	Sum of Squares and Cross-products	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	Covariance	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	N	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dairy capital investment	Pearson Correlation	.[a]	.[a]	.[a]	.[a]	.[a]	.[a]	.[a]	.[a]	.[a]	.[a]	.[a]	.[a]	.[a]	.[a]
	Sig. (2-tailed)	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	Sum of Squares and Cross-products	.000	.000	.000	.000	.000	.000	.	.	.000	.	.	.	.	.000
	Covariance	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	N	1	1	1	1	1	1	0	0	1	0	0	0	0	1
Capital investment	Pearson Correlation	.[a]	.[a]	.[a]	.[a]	.[a]	.[a]	.[a]	.[a]	.[a]	.[a]	.[a]	.[a]	.[a]	.[a]
	Sig. (2-tailed)	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	Sum of Squares and Cross-products	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	Covariance	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	N	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Beef capital invest	Pearson Correlation	.258	-.258	1.000[**]	.452	.211	-.125	.[a]	.[a]	.[a]	.[a]	1	1.000[**]	.[a]	.000
	Sig. (2-tailed)	.576	.576	.000	.308	.649	.789	.	.	.	.		.000	.	1.000
	Sum of Squares and Cross-products	.286	-.571	1.714	1.286	74.857	-.429	.	.	.	.	.857	239575000.000	.	.000
	Covariance	.048	-.095	.286	.214	12.476	-.071	.	.	.	.	.143	79858333.333	.	.000
	N	7	7	7	7	7	7	0	0	0	0	7	4	0	5
Value capital invested	Pearson Correlation	.175	-.143	.627[*]	.289	.284	-.105	-1.000[**]	.[a]	.[a]	.[a]	1.000[**]	1	.[a]	-.054
	Sig. (2-tailed)	.586	.657	.029	.363	.371	.747	.	.	.	.	.000		.	.874
	Sum of Squares and Cross-products	80076642.500	-112724483.333	502519395.833	36953051 1.667	565765 01694.939	-130954054.167	-193757354140.000	.	.	.	239575000.000	928130104 17776096.000	.	-28144701.818

	Covariance	7279694.773	-1024768 0.303	4568358 1.439	335936 82.879	5143 3183 35.90 4	-11904914.0 15	-193757 354140 .000	.	.	.	798583 33.333	843754640 1616009.00 0	.	-2814470.182
	N	12	12	12	12	12	12	2	0	0	0	4	12	0	11
Total recap invested	Pearson Correlation	.[a]	-1.000**	.[a]	.[a]	-1.000**	-1.000**	.[a]	.[a]	.[a]	.[a]	.[a]	.[a]	1	.[a]
	Sig. (2-tailed)	.	.	.	.	.	.	.	.	.	.	.	.		.
	Sum of Squares and Cross-products	.000	-1300000.000	.000	.000	-10205000.000	-2600000.000	.000	.	.	.	.	.	338000000000.000	.000
	Covariance	.000	-1300000.000	.000	.000	-10205000.000	-2600000.000	.	.	.	.	.	.	338000000000.000	.
	N	2	2	2	2	2	2	1	0	0	0	0	0	2	1
Dividends payment	Pearson Correlation	.326	.234	.104	.115	-.044	-.414	.[a]	.[a]	.[a]	.[a]	.000	-.054	.[a]	1
	Sig. (2-tailed)	.218	.383	.701	.671	.871	.111	.	.	.	.	1.000	.874	.	
	Sum of Squares and Cross-products	1.250	1.375	.563	1.063	-66.991	-3.250	.000	.	.000	.	.000	-28144701.818	.000	2.938
	Covariance	.083	.092	.038	.071	-4.466	-.217	.000	.	.	.	.000	-2814470.182	.	.196
	N	16	16	16	16	16	16	2	0	1	0	5	11	1	16

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

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

a. Cannot be computed because at least one of the variables is constant.

Correlations

		Crop farm size	Size Arable land hectors	Planted HA pre-recap	Planted HA post-recap	Total crop yield	Price ton	Crop annual cost	Crop annual turnover	Crop skill training	Crop skill experience	Crop Skill extension mentor
Crop farm size	Pearson Correlation	1	.818**	.619*	-.229	-.454	.169	.335	.255	.356	.709*	.077
	Sig. (2-tailed)		.007	.042	.498	.188	.619	.344	.476	.313	.014	.821
	N	11	9	11	11	10	11	10	10	10	11	11
Size Arable land hectors	Pearson Correlation	.818**	1	.557	-.385	-.273	-.233	.489	.408	.628	.840**	.009
	Sig. (2-tailed)	.007		.094	.272	.478	.518	.219	.315	.052	.002	.980
	N	9	11	10	10	9	10	8	8	10	10	10
Planted HA pre recap	Pearson Correlation	.619*	.557	1	.052	-.327	-.214	.187	-.139	.201	.386	-.103
	Sig. (2-tailed)	.042	.094		.873	.326	.504	.604	.701	.553	.215	.751
	N	11	10	12	12	11	12	10	10	11	12	12
Planted HA post recap	Pearson Correlation	-.229	-.385	.052	1	-.269	-.201	-.219	-.466	.077	.081	-.330
	Sig. (2-tailed)	.498	.272	.873		.424	.532	.543	.175	.822	.801	.295
	N	11	10	12	12	11	12	10	10	11	12	12
Total crop yield	Pearson Correlation	-.454	-.273	-.327	-.269	1	.158	-.150	.288	.129	-.239	.320
	Sig. (2-tailed)	.188	.478	.326	.424		.642	.700	.453	.707	.478	.337
	N	10	9	11	11	11	11	9	9	11	11	11

Price ton	Pearson Correlation	.169	-.233	-.214	-.201	.158	1	.368	.428	-.544	-.155	-.136
	Sig. (2-tailed)	.619	.518	.504	.532	.642		.296	.217	.084	.631	.674
	N	11	10	12	12	11	12	10	10	11	12	12
Crop annual cost	Pearson Correlation	.335	.489	.187	-.219	-.150	.368	1	.378	-.136	.437	-.479
	Sig. (2-tailed)	.344	.219	.604	.543	.700	.296		.282	.726	.207	.161
	N	10	8	10	10	9	10	10	10	9	10	10
Crop annual turnover	Pearson Correlation	.255	.408	-.139	-.466	.288	.428	.378	1	.153	-.068	.362
	Sig. (2-tailed)	.476	.315	.701	.175	.453	.217	.282		.694	.852	.304
	N	10	8	10	10	9	10	10	10	9	10	10
Crop skill training	Pearson Correlation	.356	.628	.201	.077	.129	-.544	-.136	.153	1	.551	.396
	Sig. (2-tailed)	.313	.052	.553	.822	.707	.084	.726	.694		.079	.228
	N	10	10	11	11	11	11	9	9	12	11	11
Crop skill experience	Pearson Correlation	.709*	.840**	.386	.081	-.239	-.155	.437	-.068	.551	1	-.296
	Sig. (2-tailed)	.014	.002	.215	.801	.478	.631	.207	.852	.079		.350
	N	11	10	12	12	11	12	10	10	11	12	12
Crop Skill extension mentor	Pearson Correlation	.077	.009	-.103	-.330	.320	-.136	-.479	.362	.396	-.296	1
	Sig. (2-tailed)	.821	.980	.751	.295	.337	.674	.161	.304	.228	.350	
	N	11	10	12	12	11	12	10	10	11	12	12

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

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

Correlations

		Farm size	Capital invest poultry	Produc pre-recap broiler per cycle	Produc pre recap No layers	Produc post recap broilers per cycle	Produc post recap No eggs day	Produc post recap No dozen yr	Poultry Annual turnover	Poultry skill	Skill training	Skill experience	Skill extension mentorship
Farm size	Pearson Correlation	1	.877	.[a]	-1.000**	.[a]	-.599	1.000**	-.988	.[a]	-.618	.[a]	-.305
	Sig. (2-tailed)		.320	.	.	.	.591	.	.097	.	.382	.	.803
	N	20	3	2	2	1	3	2	3	4	4	0	3
Capital investment poultry	Pearson Correlation	.877	1	.[a]	.[a]	.[a]	-1.000**	1.000**	-1.000**	.[a]	.000	.[a]	-1.000**
	Sig. (2-tailed)	.320		.	.	.	.	.	.	.	1.000	.	.
	N	3	3	2	1	1	2	2	2	3	3	0	2
Production pre-recap broiler per cycle	Pearson Correlation	.[a]	.[a]	.[a]	.[a]	.[a]	.[a]	.[a]	.[a]	.[a]	.[a]	.[a]	.[a]
	Sig. (2-tailed)	.	.	.	.	.	.	.	.	.	.	.	.
	N	2	2	2	1	1	2	2	2	2	2	0	1
Production pre-recap No layers	Pearson Correlation	-1.000**	.[a]	.[a]	1	.[a]	-1.000**	.[a]	1.000**	.[a]	1.000**	.[a]	.[a]
	Sig. (2-tailed)	.	.	.	.	.	.	.	.	.	.	.	.
	N	2	1	1	2	1	2	1	2	2	2	0	2
Production post recap	Pearson Correlation	.[a]	.[a]	.[a]	.[a]	.[a]	.[a]	.[a]	.[a]	.[a]	.[a]	.[a]	.[a]
	Sig. (2-tailed)	.	.	.	.	.	.	.	.	.	.	.	.

broilers per cycle	N	1	1	1	1	1	1	1	1	1	1	0	1
Production post recap No eggs day	Pearson Correlation	-.599	-1.000**	.a	-1.000**	.a	1	-1.000**	.713	.a	.831	.a	.a
	Sig. (2-tailed)	.591	.	.	.	.		.	.494	.	.375	.	.
	N	3	2	2	2	1	3	2	3	3	3	0	2
Production post recap No dozen yr	Pearson Correlation	1.000**	1.000**	.a	.a	.a	-1.000**	1	-1.000**	.a	-1.000**	.a	.a
	Sig. (2-tailed)	.	.	.	.	.	.		.	.	.	.	.
	N	2	2	2	1	1	2	2	2	2	2	0	1
Poultry Annual turnover	Pearson Correlation	-.988	-1.000**	.a	1.000**	.a	.713	-1.000**	1	.a	.983	.a	.a
	Sig. (2-tailed)	.097	.	.	.	.	.494	.		.	.119	.	.
	N	3	2	2	2	1	3	2	3	3	3	0	2
Poultry skill	Pearson Correlation	.a	.a	.a	.a	.a	.a	.a	.a	.a	.a	.a	.a
	Sig. (2-tailed)	.	.	.	.	.	.	.	.	.	.	.	.
	N	4	3	2	2	1	3	2	3	4	4	0	3
Skill training	Pearson Correlation	-.618	.000	.a	1.000**	.a	.831	-1.000**	.983	.a	1	.a	.945
	Sig. (2-tailed)	.382	1.000	.	.	.	.375	.	.119	.		.	.212
	N	4	3	2	2	1	3	2	3	4	4	0	3
Skill experience	Pearson Correlation	.a	.a	.a	.a	.a	.a	.a	.a	.a	.a	.a	.a
	Sig. (2-tailed)	.	.	.	.	.	.	.	.	.	.	.	.
	N	0	0	0	0	0	0	0	0	0	0	0	0

Skill extension mentorship	Pearson Correlation	-.305	-1.000**	.[a]	.[a]	.[a]	.[a]	.[a]	.[a]	.[a]	.945	.[a]	1
	Sig. (2-tailed)	.803	.	.	.	.	.	.	.	.	.212	.	
	N	3	2	1	2	1	2	1	2	3	3	0	3

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

a. Cannot be computed because at least one of the variables is constant.