

**ANALYSING THE FINANCIAL PERFORMANCE OF EMERGING BROILER  
FARMERS IN GAUTENG PROVINCE**

By

**BOKANG STEPHEN TLALI**

Submitted in partial fulfilment of the requirements for the degree  
Msc Agricultural Economics

in the

Department of Agricultural Economics

FACULTY OF NATURAL AND AGRICULTURAL SCIENCES

at the

UNIVERSITY OF PRETORIA

**MARCH 2010**

## ACKNOWLEDGEMENTS

Firstly, I would like to thank God for making all this happen.

To my supervisor – **Dr. M. Geys**

Thank you very much for constructive supervision you gave me and also thank you for those constructive criticisms which finally made my paper a success - Thank you

To my friend - **Samira Mahamo**

Thank you for being a pillar that kept me going during the hard times of my study. I know it was not easy for you also; you deserve a big recognition for that –thank you

To my uncle – **Fr. Phangoa**

Malome, thank you very much for being there for especially towards the end of my study

To my sisters – **Mantseli Tlali and Nthabeleng Tlali**

I would like to let you know that knowing that you care about me is one of crucial contributions for the completion of my studies, thank you.

To my friends – **Petlane Petlane and Menzi Dlamini**

Gentlemen, when times were tough, you were always there to help me through, thank you very much

## DECLARATION

I, ...Bokang Stephen Tlali.. declare that the thesis/dissertation, which I hereby submit for the degree ...Msc Agricultural Economics... at the University of Pretoria, is my own work and has not previously been submitted by me for a degree at this or any other tertiary institution.

SIGNATURE: .....B.S. Tlali.....

DATE: ...09 March 2010.....

# **Analysing the Financial Performance of Emerging Broiler Farmers in Gauteng Province**

By

**Bokang Stephen Tlali**

Supervisor: Doctor M. Geysler

Department: Agricultural Economics, Extension and Rural Development

University: University of Pretoria

Degree: Msc. Agricultural Economics

## TABLE OF CONTENTS

ACKNOWLEDGEMENTS .....	II
DECLARATION .....	III
TABLE OF CONTENTS .....	V
LIST OF TABLES.....	VIII
LIST OF FIGURES .....	IX
EXCECATIVE SUMMARY .....	X
CHAPTER ONE .....	1
1 INTRODUCTION .....	1
1.1 BACKGROUND.....	1
1.2 PROBLEM STATEMENT .....	3
1.3 GENERAL PROBLEM .....	3
1.4 SPECIFIC PROBLEM.....	4
1.5 RESEARCH OBJECTIVES .....	4
1.6 HYPOTHESES .....	5
1.7 RESEARCH METHODS.....	5
1.8 BENEFITS OF THE STUDY, ACADEMIC AND PRACTICAL IMPORTANCE.....	5
1.9 ASSESSING AND DEMONSTRATING THE QUALITY AND RIGOUR OF THE STUDY .....	6
1.10 DELIMITATIONS AND ASSUMPTIONS.....	6
1.11 DEFINITION OF KEY TERMS.....	7
1.12 CHAPTER OUTLINE .....	8
CHAPTER TWO .....	9
2 AN OVERVIEW OF BROILER PRODUCTION .....	9
2.1 INTRODUCTION .....	9
2.2 INDUSTRY OVERVIEW .....	11
2.3 PROVINCIAL DISTRIBUTION OF SOUTH AFRICAN BROILER PRODUCERS.....	14
2.4 PRODUCTION SYSTEMS AND PROFITABILITY.....	15
2.5 LIGHTING AND HOUSING TYPES.....	17
2.6 THE IMPACT OF HEALTH AND WELFARE OF BROILERS TO FARM PROFITS.....	22



2.7	BODY TEMPERATURE CONTROL AND MORTALITY RATE .....	26
2.8	FEEDING TIME AND HEAT PRODUCTION .....	27
2.9	MITIGATING PRODUCTION RISKS .....	27
2.10	TRENDS IN POULTRY PRODUCTION .....	30
2.11	CONSUMER EXPENDITURE ON AGRICULTURE .....	36
2.12	FARM INCOME .....	37
2.13	INTEGRATOR AND PRODUCER PERSPECTIVES.....	38
2.14	COMPETITIVENESS OF POULTRY IN THE MARKET .....	41
2.15	CONCLUSION.....	43
CHAPTER THREE.....		45
3	REPRESENTATIVE FARMING.....	45
3.1	INTRODUCTION .....	45
3.2	REPRESENTATIVE FARMING DEFINED .....	48
3.3	FINANCIAL ANALYSIS OF BROILER FARMS .....	52
3.4	CONCLUSION.....	55
CHAPTER FOUR.....		56
4	RESEARCH METHODS AND THE IMPERICAL ANALYSIS .....	56
4.1	INTRODUCTION .....	56
4.2	DESCRIPTION OF OVERALL RESEARCH DESIGN .....	57
4.3	RESEARCH METHODS.....	58
4.4	FARMS CONSTITUTING REPRESENTATIVE FARM.....	62
4.5	MARKETING SYSTEM.....	71
4.6	FARM PERFORMANCE MEASURES.....	73
4.7	RESULTS AND DISCUSSION .....	77
4.8	CONCLUSION.....	90
CHAPTER FIVE.....		94
5	CONCLUSIONS AND RECOMMENDATIONS .....	94
5.1	INTRODUCTION .....	94
5.2	APPROACH FOLLOWED .....	94
5.3	OTHER FACTORS OF PROFITABILITY.....	95
5.4	LESSONS LEARNED.....	96
5.5	RESEARCH INTERPRETATION.....	97
5.6	FURTHER RESEARCH TOPICS .....	98
5.7	CONCLUSION.....	99



6 LIST OF REFERENCES ..... 101



## LIST OF TABLES

TABLE 1: THE PER CAPITA CONSUMPTION OF COMMERCIALY PRODUCED CHICKEN FROM 2003 TO 2007.....	10
TABLE 2: THE ESTIMATES OF THE MARKET SHARE OF BROILERS IN SOUTH AFRICA .....	12
TABLE 3: THE MAJOR CHARACTERISTICS OF THE TWO VACCINES .....	25
TABLE 4: CENTRES WHERE FARMERS PARTICIPATED IN TRAINING .....	62
TABLE 5: MORTALITY RATES .....	66
TABLE 6: SIZE OF THE FARM USED FOR BROILER AND OTHER SECTORS IN THE FARM .....	67
TABLE 7: THE GEOGRAPHIC LOCATIONS OF THE FARMS FORMING THE REPRESENTATIVE FARM MODEL.....	69
TABLE 8: BROILER OPERATION SIZE OF CONTRACT AND NON CONTRACT GROWERS.....	72



## LIST OF FIGURES

FIGURE 1: INDUSTRY STRUCTURE AND MARKETING CHANNELS .....	13
FIGURE 2: GEOGRAPHIC DISTRIBUTION OF BROILER PRODUCERS IN 2005 .....	15
FIGURE 3: GROSS VALUE OF INDIVIDUAL PRODUCTS.....	31
FIGURE 4: BROILER PRODUCTION AND PRODUCER PRICES .....	32
FIGURE 5: TRENDS IN POULTRY FARM VALUE (1999 TO 2005) .....	33
FIGURE 6: PRODUCER PRICES OF AGRICULTURAL PRODUCTS .....	34
FIGURE 7: THE FARM VALUE SHARE OF FRESH WHOLE CHICKEN .....	35
FIGURE 8: FARM-TO-RETAIL SPREAD .....	36
FIGURE 9: CONSUMER EXPENDITURE ON SOME OF AGRICULTURAL PRODUCTS.....	37
FIGURE 10: THE FARM GROSS INCOME FROM MAJOR PRODUCTS.....	38
FIGURE 11: SOUTH AFRICAN PRICE INDEX OF ANIMAL PRODUCTS .....	42
FIGURE 12: GENERAL MANAGEMENT OF BROILER FARM.....	63
FIGURE 13: AVERAGE PERCENTAGES OF THE ROA FOR THE TEN REPRESENTATIVE FARMS.....	77
FIGURE 14: AVERAGE PERCENTAGES OF THE ROE FOR THE TEN REPRESENTATIVE FARMS .....	81
FIGURE 15: AVERAGE PERCENTAGES OF THE OPM FOR THE TEN REPRESENTATIVE FARMS.....	84
FIGURE 16: AVERAGE PERCENTAGES OF THE NFIR FOR THE TEN REPRESENTATIVE FARMS .....	88
FIGURE 17: A TYPICAL FARM .....	99

## EXCECATIVE SUMMARY

Emerging broiler famers are faced with the challenge of acquiring contracts with the contract providers in South Africa. The question is, are these emerging farmers able to perform well financially regardless of the availability of contracts to their disposal. Profitability is one of the core issues to the development and sustainability of emerging broiler farmers. A well performing farmer is the one who is able to manage and improve the good financial performance of the farm in general. In order to determine the financial performance of the farm, financial ratios can be useful in determining and analyzing how a farm performs financially.

In this study, four financial ratios are used to analyze and determine how emerging broiler farmers in Gauteng perform financially. This is done through a representative farm model which makes use of ten emerging farmers situated in the southern and northern sides of Gauteng. Out of ten emerging broiler farmers that took part in the study, the results show that only two of them are producing under contracts. This is an indication that emerging broiler farmers in Gauteng are characterized by both financial and production risk.

This further implies that farmers who do not have contracts are likely to have a poor financial performance in as far as broiler enterprise is concerned. The study establishes the differences between the contract growers and the non contractors that form the representative farm model and this is achieved by looking the results of the financial ratios. The study further distinguishes the financial performances between the southern and northern sides of Gauteng which form the representative farm model.

The results indicated that although 80% of the emerging broiler growers in Gauteng do not produce under contracts, they are still able to perform well financially. However the contract growers outperform the no contractors in terms of financial performance due to a well defined market structure.

## CHAPTER ONE

### 1 INTRODUCTION

#### 1.1 BACKGROUND

The management of a profitable broiler enterprise requires a farm manager that well informed in terms of several important aspect that underlie such an enterprise. The question arises as to whether the black emerging broiler farmers in Gauteng province are aware of this or not and whether these emerging farmers are able to generate enough profit for the survival of their respective enterprises. The responsibility therefore exists to support or create effective and sustainable programmes that will assist the emerging farmers to acquire the necessary skills in order to profitably run their broiler enterprises.

It is also necessary that not only sustainable programmes are put in place, but the programmes that are affordable such that the poor can be able to start and maintain their projects effectively. In the case of those who are already established, there is a need to equip them the necessary skills that will help them better manage their various enterprises , such as farming, country wide in a sustainable and profitable manner.

One of the important tools in equipping farmers with the necessary skills is through conducting workshops, training sessions and continued extension services. Once well established, there arises the question of whether the farmers are indeed able to make profit out of their enterprises or not.

To be able to answer that question, different measures are used to assess the performance of farms in this regard, and these are Return on Assets (ROA), Return on Equity (ROE), Net Farm Income (NFI) and Operating Profit Margin (OPM). These will be explained in detail in chapter three. This is because apart from the fact that these performance measures (financial ratios) provide a clear picture of the overall performance of the farm, it is also easy for the

farmer to understand the underlying concepts of these ratios. This will then help the farmer to be in a position to construct a well informed decision regarding profit optimisation of the farm.

Various studies have been done to determine the profitability of farms in South Africa but have not made use of representative farming approach. Representative farming is one crucial way of coming up with conclusions that are valid and more accurate than on the basis of individual farms. There are a number of emerging broiler growers in Gauteng province, contract and noncontract growers which need to be studied in a collective way, in order to establish a reliable conclusion on the basis of representative farm.

Broiler production plays an important role in the economy of South Africa taking into account the contribution made by the sector to the total gross value of agricultural value. The success of production depends not only on the choices of broiler farms and organizations, but also on the environment in which they operate (Gura, Eberle, & Olesinski, 2008)

Agriculture has changed dramatically in South Africa over the past decade (Department of Agriculture, 2008). This is due to the fact that agricultural sector is one of the sectors that are faced with a big challenge of increasing demand for food while on the other hand being globally competitive. In order to meet an increasing demand, broiler farmers have to maintain high levels of productivity to remain nationally and globally competitive and also contribute to the agricultural productivity and hence South African economy in general.

For any farming enterprise to be able to do well, production strategy, marketing as well as profitability should be taken into consideration. These aspects are important for the survival of any agricultural enterprise if profitability is to be achieved. For example, if there is no production expertise or strategy, then the particular farm cannot be in a position to produce something tangible at the end of the day.

On the other hand, if the farm can produce well, but cannot make profit out of its produce, then this in turn means that the farm cannot be sustained and is likely to dissolve quickly. Furthermore, if the farm is able to produce well, but does not have a well defined market, sustainability is still questionable as the farm will not be able to make profit out of its produce.

In order to construct properly the model for the selected broiler growers in Gauteng province, the representative farm model is used. The aim of the model is to analyze the data from all the farms under concern and then come up with the results that are representative of all the farms in consideration and hence representative of the two side of Gauteng, that is, Southern and Northern side of the province.

## **1.2 PROBLEM STATEMENT**

Most of South African black farmers do not raise broilers on a large scale compared to white farmers. However, after land reform, some of the black farmers had a chance to raise broilers at a large scale as they had access to land. Even though there are black farmers that are bale to produce broilers, few of them are able to maintain and grow their businesses. The purpose of this study is therefore to formulate a representative farm model to determine the financial performance of emerging broiler growers in Gauteng province using the selected accounting measures.

## **1.3 GENERAL PROBLEM**

The purpose of the study is to determine the financial performance of emerging broiler growers in Gauteng province. Several studies have been done before about the production of broilers, both at a large scale and small scale, but not too much attention has been paid to involve several farmers who will collectively form a single farm that can better be analysed to determine the overall performance within the same geographic area.

## **1.4 SPECIFIC PROBLEM**

The study is aimed at evaluating and analyzing how emerging broiler growers perform financially in the same geographic area. That is, to determine how farms, for example emerging farmers, operating in the same geographical region perform, specifically looking at their ability to make profit. In order to determine this, the study forms a representative farm model for all the farms that take part in this study.

## **1.5 RESEARCH OBJECTIVES**

### **1.5.1 General objective**

The main objective of this study is to determine how emerging broiler growers in Gauteng province perform financially. This is done in a representative farm approach.

### **1.5.2 Specific objectives**

Specific objectives of the study that follow the general objective are:

- To formulate the representative farm model for the selected farms in Gauteng province.
- To determine the viability of a broiler farms in Gauteng province paying attention to productivity.
- To identify the gaps that exists and thereby prevents the farmers to perform to their maximum potential in making their enterprises profitable.
- To determine the overall financial performance of the selected farms in comparison to the national standards of South African Poultry Association (SAPA).
- To come up with the strategies that can be used to improve the overall performance as well as productivity of the farms.

## **1.6 HYPOTHESES**

Following the previous objectives, the following hypothesis is tested:

**Broiler farmers in a selected geographical region in Gauteng province perform financially well.**

## **1.7 RESEARCH METHODS**

The financial performance of broiler producers is determined by calculating the several financial ratios including the ROA, ROE, OPM and the NFI of the farmers constituting the representative farm in Gauteng province.

## **1.8 BENEFITS OF THE STUDY, ACADEMIC AND PRACTICAL IMPORTANCE**

Limited studies have been done on determining financial performance of broiler farmers, in the form of representative farming model, in South Africa. In order to understand whether or not production of broiler has a role to play in the economy of the country, more studies need to be undertaken, specifically taking broiler representative farms into account.

It therefore remains a big assignment for South African farmers who are into the production of broilers to make it a point that the increasing demand is taken care of while at the same time global competitiveness is achieved. For these farmers to be globally competitive there has to be enough food supplied, in a form and at the right time, to the right location. Apart from competing globally, broiler industry has to be able to comply with regulations and standards set by the World Trade Organization (WTO) in order to be able export products to other countries world wide. This will therefore call for a need to determine whether or not broiler producers are able to meet an increasing demand of South African consumers while at the same time attaining enough profit for their produce.

Due to the fact that the word broiler is a broad title, this study specifically focuses on the financial performance of a few selected broiler farmers in Gauteng province. This will be of importance for those who wish to further their studies and expand on this topic. On the other hand this study will be of importance to the South African farmers or farm managers who are willing to improve the performance of their firms and thereby contributing to the South African economy as a whole.

## **1.9 ASSESSING AND DEMONSTRATING THE QUALITY AND RIGOUR OF THE STUDY**

In order to assess the quality, rigour and reliability of the proposed study, financial experts or specialists will be involved. This will help the researcher in collecting appropriate, accurate as well as reliable data to come up with better strategies on how the farmer can maintain high productivity of the farm and thereby increasing the financial performance of the farm.

## **1.10 DELIMITATIONS AND ASSUMPTIONS**

### **1.10.1 Delimitations**

It is important to highlight that the main focus of the study is to determine how broiler growers undertake their businesses, specifically looking at whether they are able to make enough profit out of their produce. During the process of identifying the participants of the study, not many farmers were willing to take part in the study.

On the other hand, the study is aimed at determining the ability of the farmer to keep up with an increasing demand while also making enough profit. The national financial indicators are taken into consideration when determining the

performance level of a farm, but these could not be all accessed due to security purposes.

The study is focussed mostly on looking at the contract as well as non contract growers of broilers in Gauteng province. Taking that into account the purpose of the study, the financial performance of the individual farm that is part of the study is not compared to those that did not take part in the study from around the province.

## **1.11 DEFINITION OF KEY TERMS**

### ***Broiler***

A broiler is defined as a chicken slaughtered for meat while it is still young and tender. Modern commercial broilers are specially bred for meat production and grow much faster than egg breeds.

### ***Producer***

A producer is defined as an organization or an individual who produces goods services for consumption.

### ***Consumer***

A consumer is defined as individuals or households that use goods and services generated within the economy.

### ***Contractor***

A contractor is defined as an organization or individual that contract with another organization or individual for the production of certain product or service.

### ***Per capita consumption***

*Per Capita* consumption is a Latin phrase meaning consumption for each head.

### ***Agribusiness***

Agribusiness is a generic term that refers to the various businesses involved in food production, including farming, seed supply, agrichemicals, farm machinery, wholesale and distribution, processing, marketing and retail sales.

### ***Subsistence***

Subsistence is defined as a self-sufficient farming in which farmers grow only enough food to feed the family, pay taxes or feudal dues.

### ***Husbandry***

Husbandry is defined as an agricultural practice of breeding and raising livestock

### ***Breeding***

Breeding is defined as the act of biological reproduction

### ***Mortality***

Mortality is defined as the condition of being susceptible to death

## **1.12 CHAPTER OUTLINE**

- **Chapter 2** presents an overview of broiler production in South Africa.
- An overview of Representative farming in the context of broiler production is discussed in **Chapter 3**.
- **Chapter 4** is the results and discussion of the broiler farms that constitute representative farming in Gauteng Province.
- The paper concludes with **Chapter 5** which entails conclusion of the study as well as the possible recommendations from the findings.

## CHAPTER TWO

### 2 AN OVERVIEW OF BROILER PRODUCTION

The poultry industry is one of the agricultural sectors that characterize most South African farms in when taking into account the emerging and small holder farmers. Both broiler and layer productions are of a great deal looking at both the small scale as well as commercial farmers. Broiler production is not only one of the cheap source of protein to consumers compared to other agricultural sectors such as pork, beef and mutton, but also provides a quick turnover to producers. Due to the fact that most black farmers in South Africa did not raise broilers on a large scale, there is a need to evaluate their performance so as to establish whether they are doing well in their broiler projects.

Poultry production encompasses a number of species which include chicken (reared for eggs and those reared for meat production), turkeys, ducks as well as other waterfowl and gamebirds. Taking into account the fact that each species and a particular type of production are unique in their own discipline, this chapter discusses the different ways in which broilers can be raised and also things that should be borne in mind when determining their production. Even though they can yield a turn over quickly for the producers, broilers need more attention in the different phases of growth. This means that farmers have to be careful when getting involved in broiler production. Looking at the statistical background of poultry, broilers constitute highest percentage of protein in comparison with other sources of protein such as beef, pork and mutton (SAPA, 2007).

#### 2.1 INTRODUCTION

Continual reduction in inflation, adjusted chicken prices and responses to changing consumer preferences played an important role in the growth of *per*

*capita* chicken consumption since the early 1940s (Martinez, 1999). The following table shows the *per capita* consumption of chicken.

**Table 1: The per capita consumption of commercially produced chicken from 2003 to 2007**

Year	2003	2004	2005	2006	2007
	kg/year				
<i>Per capita</i> consumption	20,53	21,46	23,99	26,78	27,45

Source: Department of Agriculture (2008)

According to table 1 above, it can clearly be seen that the per capita consumption of broilers has increased steadily from 2003 to 2007. This was due to the fact that more information was made available to consumers who were then well informed in terms of production ethics (safety) under which broilers were raised.

As a result of dynamic consumer preferences such as safety, taste and quality, broiler growers had to produce more safe and good quality broilers in order to keep up with an increasing demand as well as dynamic consumer preferences. This meant they had to increase the scale of production while maintaining safety as well as convenience for their products. Contracts and vertical integration have helped increase broiler supplies and improve safety, reduce chicken prices and improve product quality and consistency (Martinez, 1999).

Production contracts between growers and feed suppliers, for example, have encouraged rapid adoption of new technologies that created economies of size and lowered the costs of production in the process of producing broilers. Large feed companies recognised the broiler industry's potential for growth and their large market and this served as a signal for business opportunity for large contract growers (Sherif and Al-Kahtani, 1999).

These large companies then established production contracts under which they linked with different companies such as suppliers of inputs as well as the buyers who buy at both large scale and small scale. This linkage has been helpful in reducing the risk of producing large amount of broilers without knowing whether or not the products are going to be bought. There is also reduced financial risk which producers could face while at the same time providing incentives for producers to produce more efficiently and consistently (Martinez, 1999).

It is not surprising therefore that as broiler industry expanded more, supplies and prices became more and more unstable (Martinez, 1999). Despite the unstable prices and supplies for broilers, Farrelly (1996) shows that rapid technological progress in poultry sector had resulted in a remarkable reduction in the costs of production of poultry meat while on the other hand falling retail prices of poultry products as compared to those of other animal products had increased the consumption of poultry products worldwide. Development of improved systems as well as controlled environment have broken agriculture's confinement to climate and land, making modern poultry production technology fairly transferable to everywhere around the world (Farrelly, 1996).

Broiler production is increasing in all parts of the world. The rapid generation of broilers as well as rapid adaptation of broilers to mass production techniques have been the keys to increased production throughout the world (Parkhurst and Mountney, 1988). The rapidly changing technology helps broiler farmers to be able to further expand the rate at which they are producing broilers around the world. These innovations can be attributed to an increasing demand that broiler farmers must keep up with while at the same time attaining the highest possible profit (SAPA, 2007).

## **2.2 INDUSTRY OVERVIEW**

On a national scale, the majority of poultry products, including poultry meat and eggs are produced mainly by commercial farmers in South Africa. The reason behind this is the fact that small scale broiler farmers are not in the position to produce as much meat nor eggs to meet the national demand for poultry products. The national Agricultural Marketing Council and Commark Trust (2007) shows that the broiler industry consists of the non contract and the contract producers and these two groups are said to produce the majority of poultry products. Table 2 below gives a summary of production concentration when it comes to the production of broilers as well as the market share of broiler producers based on the amount of birds slaughtered per week on a national basis.

**Table 2: The estimates of the market share of broilers in South Africa**

Producer	% Market share
Rainbow	36
Astral	27
Country Bird	8
Tydstroom	5
Daybreak	4
Chubby Chick	4
Rocklands	4
Argyle	2
Others	10

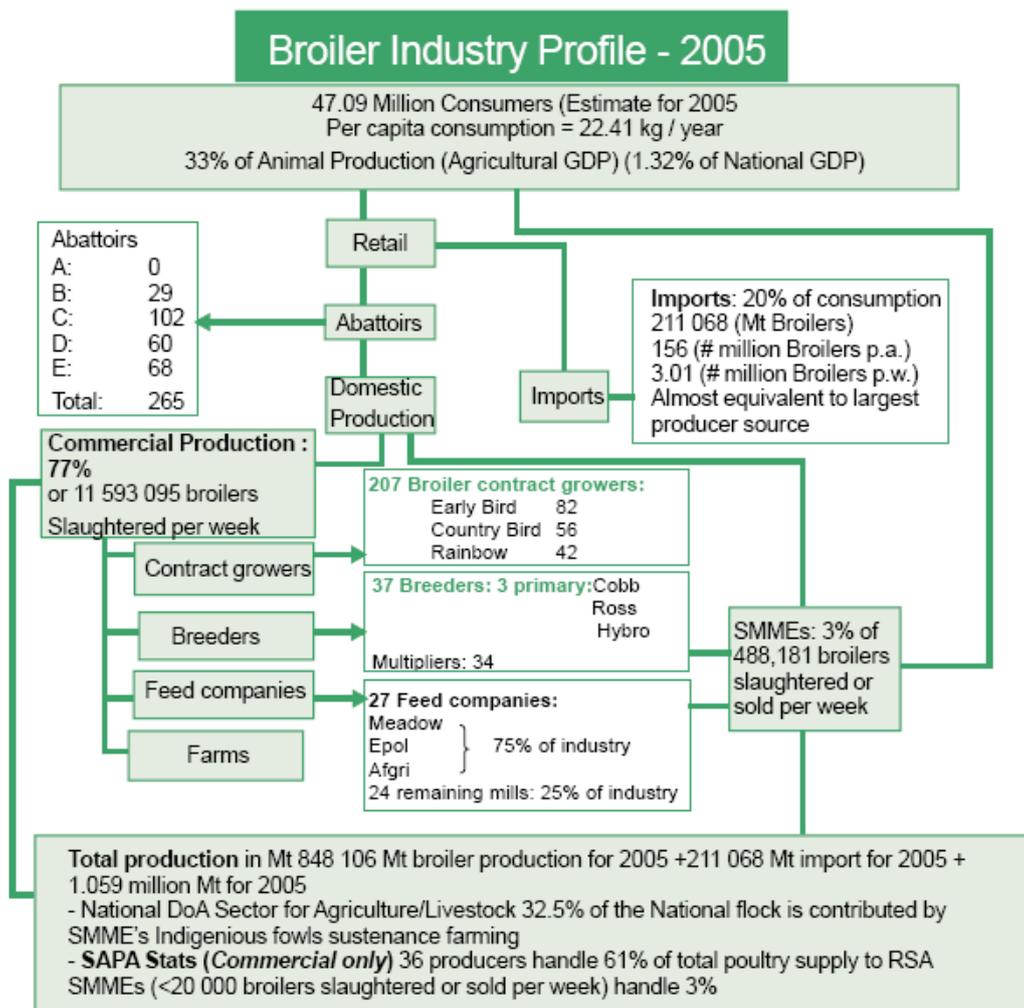
Source: SAPA (2007)

As table 2 clearly shows, Rainbow and Astral have the highest market share in the industry of broilers compared to other broiler producers. Both rainbow and astral are classified as large scale producers and are also characterise by contract production with other commercial farmers. On the other hand, these large scale producing firms such as rainbow and Astral have vertical integration with poultry feed companies. For example, Rainbow has

integration with Epol, Tydstroom with pioneer foods and Country bird with Senwesco voere, while Astral is linked to Meadow feeds.

The estimates regarding the size of the industry are made by the Southern Africa poultry Association (SAPA) as well as the department of agriculture. According to SAPA (2007), small, medium and micro enterprises contributed approximately 3 percent to the total chicken meat produced between the years 2003 and 2007. The Department of Agriculture (DoA) on the other hand estimates that 32 percent of the broilers produced in 2005 were produced by the subsistence farmers. The summary of the discussion of the relative sizes of producers and their market share is given in figure 1 below:

**Figure 1: Industry structure and marketing channels**



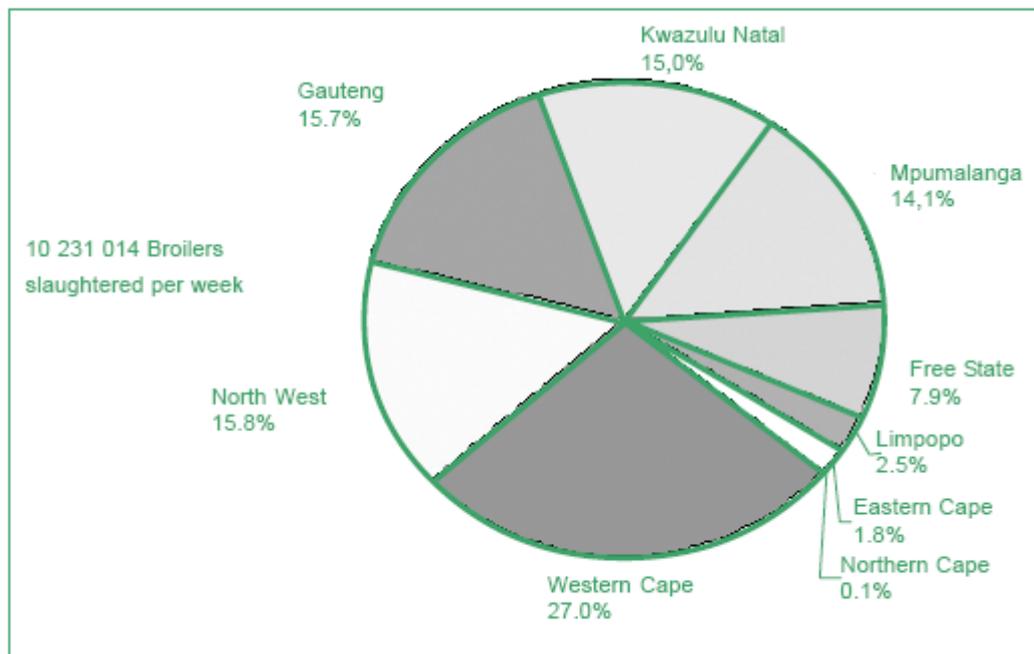
Source: NAMC and Commark Trust (2007).

As figure 1 show that large broiler producers have the largest share to the production of broilers in the country (Rainbow, Early Bird and Country Bird) contribute 87 percent of broiler contract growers while 13 percent is contributed by other contract growers. It is further shown that the large broiler feed companies are also the dominant figures in terms of feed supplies where Meadow, Epol and Afgri contribute 75 percent of the broiler feed supplies in the industry collectively. This results in a larger contribution of commercial broiler growers to the national chicken meat which is at 77 percent as shown in figure 1 above.

### **2.3 PROVINCIAL DISTRIBUTION OF SOUTH AFRICAN BROILER PRODUCERS**

According to statistics, most of the large scale broiler producers held back their expansion plans for the past decade (Van Hofwegen, Becx, and Van den Broek, 2005). This was due to the problems of unfavourable and informal markets that characterized the broiler industry as well as high cost to sales price ratios producers faced. These resulted in large scale producers not expanding well enough throughout the country as a result of uncertain markets which would expose broiler producers to high probability of production and financial risks. Figure 2 below shows the provincial distribution of broiler producers as estimated by the NAMC and Commark Trust in 2007.

**Figure 2: Geographic distribution of broiler producers in 2005**



Source: NAMC and commark Trust (2007).

As it is indicated in figure 2 above, Western Cape has the largest number of broiler producers contributing 27 percent of the total broiler producers in the country. North West, Gauteng, Kwazulu-Natal and, Mpumalanga are the second largest contributors to the national broiler industry contributing 15.8, 15.7, 15 and 14.1 percent respectively. Northern Cape, Eastern Cape, Limpopo and Free State do not contribute much to the industry with 0.1, 1.8, 2.5 and 7.9 percent respectively.

## 2.4 PRODUCTION SYSTEMS AND PROFITABILITY

There are two broad ways with which broilers can be raised and these entail small scale and large scale producers. Small scale producers are those that use mostly traditional ways of raising chickens mainly for home consumption. Farrelly (1996) argues that small scale broiler producers raise small number of domestic fowls with small and mostly seasonal surpluses being sold to the local market and also there is minimal resources invested in the poultry production. On the other hand, there are commercial broilers who are not

concerned with consumption of their own produce, but are mostly into business for supplying on a large scale. Large broiler growers are those that form contracts with other companies such as feedstuff companies as well as medication companies for better health of chickens while small scale farmers in most cases leave the birds to scavenge for themselves and are likely to acquire diseases and die (Farrelly, 1996).

In the process of raising chickens, there are a set of activities that are important for safety, convenience and consistency in the production, distribution and consumption of broilers. These play an important role especially for the farmers who aim at attaining the higher profits for farmers. The higher profits generated by the farmers on the further mean that the farm will have potential to survive many externalities to the broiler enterprise such bankruptcy. It is therefore important for emerging farmers to take in to account the following aspects which can have a considerable impact on the profitability of the farm:

- Feed preparation
- Lighting and housing types
- Animal husbandry
- Animal production
- processing
- Distribution and
- Consumption

#### **2.4.1 Feed preparation**

Chicken enterprise is one of the enterprises that are sensitive when it comes to feed types together with the period with which these types of feed should be given to birds (NAMC and commark Trust (2007). The study looks specifically at the intensive way of broiler production where feeding, drinking and temperature are internally controlled. It is therefore important to highlight

the fact that feeding intensity and intervals are crucial to well being of birds and hence to profitability.

#### **2.4.2 Performance of broilers versus feed costs**

The end product of broilers from hatchery is a live bird from the farm and the bird is taken to the market when ready for consumption. This can be in the form of eviscerated whole carcasses, portioned meat products or value added chicken products. The value of the final product, that is live bird, is subject to demand and supply in the meat market of poultry. Generally, the return from portioned meat products is better compared to that of whole chicken. This however depends largely on the demand needs of the market that the bird is being sold to.

Taking into account the fact that feed is one of the factors that contribute largely to input costs which can in turn have an effect on the profitability of broiler enterprise, it is recommended that emerging broiler growers be aware of the fact that productivity of broilers is highly dependent on the value of feed. For example, pellets provide birds with more nutrients than the powered feed per pellet. The cheaper the feed for broilers are, the less the value it is and hence the poorer results are going to be obtained and hence the lower the profit is likely to be obtained.

### **2.5 LIGHTING AND HOUSING TYPES**

Lighting plays an important role in the production of broilers when looking at the rate at which chickens feed. This is especially the case taking into account the process of growth, development and maturity of birds. For example, decreased amount of light delays the rate at which birds grow while at the same time it restricts birds from being fully matured and developed at the expected time. This therefore means that birds will not be able to generate profit as quickly as can be expected (Perry, Banker and Green, 1999).

While there could be some delays in turnover generation, birds that are not provided with enough light are likely to get diseases during their growing period. Sickness of birds can be as a result of insufficient nutrients in the body as birds do not consume adequate food due to darkness or insufficient light. The condition of sickness like in the case of poor lighting conditions leads to reduced growth and maturity of chickens and further to low rate of return.

### **2.5.1 Animal husbandry**

Proper chicken husbandry should also be taken into account by emerging farmers because poor husbandry could lead to reduced growth and sickness which could further result in increased birds' mortality. A farm which is characterised by high mortality rate is said to be making low profit and does not have better chances of growth and survival.

Animal husbandry involves all the technologies and processes involved in the hatching and growing of birds. Farrelly (1999) points out that in more intensive systems, breeding involves controlled breeding of parent stock to develop a strain of birds with certain specific genetic characteristics that are well adapted to different environmental conditions. Consideration of proper husbandry therefore increases the chances of emerging broiler farmers to have low mortality rate and hence high profits.

### **2.5.2 Animal production**

Once the breeding process has produced the fertilized eggs, hatching facilities are required. This then calls for more investment to be done on the special hatching equipment for satisfactory results. As hatching process must begin immediately after breeding, good coordination is required between breeding and hatching of eggs. This is because poor coordination might result in death of birds which will further mean that low profits are likely to be experienced by the farmer under consideration (Martinez, 1999).

### **2.5.3 Processing**

Profitability of a farm enterprise depends not only on the way the chickens are raised, but also by the way they are processed. Processing can range from slaughter at the point of sale in spot market to fully mechanised processing plants. Processing is affected by the cost of labour, the cost of capital and the availability of equipment (Perry, Banker and Green, 1999). The higher the labour costs can result in low profits for the farmer because of the fact that total cost will be higher than the total revenue and this will mean the farm is not making profit at all.

### **2.5.4 Distribution**

Apart from proper processing of live and slaughtered chickens, profitability of emerging broiler farms depends on the way either live or slaughtered birds are distributed. This involves the transportation of the birds from the production site to the retailers, and/or final consumers. Proper distribution facilities such as reliable transportation are crucial if the objective is to generate enough profits for the broiler farm enterprise. Not only should transport be reliable, but the environment within the context of transport facilities should also be conducive for the birds. This will help in reducing the stress of birds and further help avoid the weight loss of birds to be slaughtered.

The issue of non stress in chickens is important because selling chickens in a good condition will result the farmer getting a good price for the birds and in turn means that the farmer will be in a better position to have a higher return from the birds. Distribution may include a number of coordinated arrangements and these can include spot market, contracts as well as integration. To avoid spoilage of products at hand, timely and reliable transportation is required (MacDonald, 2003). This applies to the emerging

farmers who are producing under contract as they in some cases have to deliver their slaughtered birds to the buyers.

### **2.5.5 Consumption**

One of the most important issues when it comes to the broiler enterprise is that of getting products to the final consumer. The farmer that took part in the study indicated that it is difficult for them to sell all their produce due to the fact that there is no good market for the produce. The absence of a well defined market for any agricultural enterprise characterises the farm that is underperforming in terms of making enough profits for the farm. This means that the farm does not have enough chances of growth or future expansion possibilities.

Consumption depends on the availability of adequate information to the consumers. If all the above mentioned activities have been done properly, products will reach the final consumer in a good state and this will mean convenience to the consumers. Furthermore, by being aware that the products are in good condition and safe, consumers can be able to buy more of the product and this will increase consumption.

Chicken is one of the cheapest sources of meat in South Africa in comparison with other meat products such as beef, pork and mutton. This is due to the fact that chickens are not kept for long periods of time before they are ready for the market. In the process of raising chickens, broiler farms encounter the costs of production which vary depending on the systems that are put in place in raising chickens. These include housing, labour, food intake, hygiene, mortality and predictability of performance (Farrelly, 1999). It is therefore important for broiler farmers to take into account these costs as they might affect the profits obtained.

Labour is an important cost factor. This is due to the fact that chickens are raised on a large scale, especially looking at contract growers which raise

chickens at a large scale and this requires a lot of labour. For improved performance of chickens, more husbandry skill is required and greater labour input. On the other hand, housing plays an important part when it comes to better results concerning profitability of broilers.

This is because birds need enough space and ventilation for them to be able to feed freely and get enough oxygen for breathing. In general terms, if the stocking rate is low, this will result in a higher food intake of the birds which will in turn result in good results at the end of the day as birds have adequate space for feeding and relaxation, while if the stocking density is high, there will be lower food intake by the birds and this will in turn result in poor results (Farrelly, 1999).

Hygiene is important for food safety proper growth of birds and since in all the instances encountered in the study, the emerging farmers raise birds in such a way that birds are not separated from their droppings. This means that more care needs to be taken to avoid birds feeding on their own droppings and acquiring diseases and germs which will mean more expenses on medical treatment. For broiler farmers to achieve high profitability, hygiene must always be maintained as this can again help in reducing high mortality rate in birds (Parkhurst & Mountney, 1988).

The mortality rate for poultry under traditional growers is high due to high incidence of diseases as a result of poor or no veterinary care as well as their increased vulnerability to predators caused by lack of protection. In contrast, broilers produced under large scale are not subject to predators as the birds are well housed and taken good care of in terms of proper medication that prevents diseases.

Commercial producers are characterized by specialised and mechanised facilities which do not require intensive labour (Farrelly, 1996). Farrelly (1996) further shows that under commercial production, broiler feed is the most important variable cost component representing seventy to seventy five

percent of the production costs which is why profitability of commercial systems relies heavily on the ability to secure stable supplies of low cost feed.

## **2.6 THE IMPACT OF HEALTH AND WELFARE OF BROILERS TO FARM PROFITS**

The previous section discussed some of the important issues that accompany the financial success of broiler farmers in terms of farm profits sustainability. It is important to highlight the fact that apart from improved technical environment under which birds live from production to the point of sale, such as distribution, processing and proper animal husbandry, proper health of chickens also plays an important role towards generating profits for the farm.

Taking into account the issue of health, sick birds cannot be in a position to be sold to consumers. This means that are generally a loss for the farmer under concern because the fact that the birds cannot be sold does not mean the farmer did not incur cost of raising the birds. This further implies that the farm will have low if at all there will be profits for the farm. There are few disease problems that occur in the production of broilers and these are identified by (Boden 1993) as follows:

### **2.6.1 Poor quality chicks or poults**

The issue of poor quality chicks is a serious one when it comes to the broiler enterprise of emerging farmers. This is because high quality (healthy) chicks improve the chances of an emerging farmer to generate more profit as compared to the chicks that are of poor quality. Due to the fact that high quality chicks can be more resistance to diseases than the poor quality ones, they are likely to get matured and ready for the market quicker than the poor quality ones.

The high mortality rate is one of the major problems in broilers and is the sign of poor hatching egg or hatchery. Commercial farmers are the ones that are

mostly faced with this problem. If there are no medicinal actions taken with an immediate effect, this could lead to a serious profit loss of a particular farmer as there would not be enough birds to sell on the market due to birds dying at an early stage.

Baby chicks' nephropathy occurs during the first week of life and is one of the main causes of high rate of mortality of birds. This can be characterized or seen by the death of birds shortly after hatching, where the kidneys get to be swollen and the urates are usually deposited on the viscera and in the joints. It is therefore important that emerging broiler farmers take a good note of the fact that they should always be on a look out to buy chicks that are of a good quality if higher profits are to be obtained from a broiler enterprise.

Birds in poor condition cannot be sold to the market and this implies that the producer will experience some losses in terms of profitability and hence bad financial performance.

### **2.6.2 Miscellaneous**

There are other common conditions that are observable in the production of broilers such as sudden death syndrome. This is seen in broilers from as early as the end of first week onwards. Birds are found on their backs and the principal post mortem finding is severe pulmonary congestion and oedema. One of the main problems of this disease is that like the leg problem, the cause of this disease is unknown but there are possibilities of heart failure as a cause to this problem.

Due to the fact such a problem is not dependent on whether the birds are of good quality or not, disinfectants play an important role in preventing this problem. This is achieved, as indicated by the farmer, by the bio security system within the farm. During the field work, it was discovered that all the ten emerging farmers practise bio security for their birds and therefore reduce mortality of birds by these kind of diseases. The mortality rate for the

emerging broiler farmers that took part in the study is 5 percent on average. This means that the farmers are generally doing well financially as more than 90 percent of their produce goes to the market. Despite the broiler problems discussed above, emerging broiler farmers can deal with various diseases in various and one of the most important measures is summarised below.

### **2.6.3 Vaccination programs**

One way which the farmers use to prevent expected and unexpected diseases from their broiler is through vaccination. According to the farmers, vaccination is most important in helping broilers to acclimatise better to the environment in which they live, especially during their first weeks of arrival. This helps the broilers develop a strong immune system and therefore be in a position to perform well in terms of growth. This further helps the broilers to reach maturity and then generate turn-over as quickly as could be expected by the farmer.

The body protects itself against external forces such as bacteria and viruses. This is done through the action of immune systems. Immune system is largely determined by the diet the birds have on daily basis. This is important for the broiler farmer or manager to understand the function of the immune system of birds as this is the baseline for the extensive vaccination programs.

Leeson and Summers (1997) identify two types of vaccines available to the poultry industry, namely live and killed vaccines. The live birds are attenuated in some way and to be effective, they must grow and replicate in the tissue of the bird, increasing the protection capacity of the bird. On the other hand, killed or inactivated vaccines must be injected in to the body of the bird. For satisfactory results in terms vaccination programs, the sequence of the types of vaccines should be in a way that an initial administration of live vaccines/virus is applied first, followed by killed or inactive vaccines/virus at some older age. If the immune system of birds is not adequately primed, then

that means there would be a less response to the killed virus (Leeson and Summers, 2000).

#### 2.6.4 The major characteristics of live and killed vaccines

Table 3: The major characteristics of the two vaccines

<b>Comparison of live and killed vaccines</b>		
<b>Parameter</b>	<b>Live Vaccine</b>	<b>Killed Vaccine</b>
Bird reaction	Greater	Generally less, and local
Cycling	Present	Absent
Effective time period	Short	Long-lasting
Application method	Complex	Simple
Effective coverage	Some misses	Uniform exposure
Disease potential	Yes	No
Storage needs	Yes, refrigeration	No, long shelf life
Multivalents	Potential for interference	No interference
Cost	Less	More
Application time	Short	Long
Labour needs, cost	Low	High
Time for immunity to develop	Days	Three to six weeks
Quantity vaccine	Less – live virus replicates	Large quantity needed
Immunity	Local and cell mediated	Blood antibodies only

The main advantages of live vaccine are that they can be administered very quickly by spraying or through the drinking water and this increases the process of diffusion in the system of the bird. They are relatively inexpensive compared to killed vaccine and give almost immediate immunity more than killed vaccine. Killed vaccines on the other hand are much longer lasting as shown in table 3. They are easy to transport as they are not as fragile as the live vaccines and pose no disease threat. These vaccines help the farmer to

experience higher profits and this means a financially well performing broiler farmer.

## **2.7 BODY TEMPERATURE CONTROL AND MORTALITY RATE**

It has been mentioned in the previous section that high mortality rate can impact negatively on farm profits. Chickens barely achieve their genetic potential if the temperature they operate under is not to their advantage. According to Leeson and Summers (2000), birds should maintain the body temperature of about 41 °C.

This is helpful for the bird to be able to achieve its genetic potential and thereby improving the growth rate in general. On a cold environment, the birds are continuously losing their body heat to their surroundings and this eventually leads to birds getting cold and probably sick. Once they are sick, this means that it is the responsibility of the farmer to make it a point that the birds receive the necessary medication which helps them recover from the illness which requires money.

If not attended to in time, broilers are likely to die and the higher the mortality rate of birds further implies that the farmer would not generate enough profits and cannot there be classified as a financially well performing farm

Conditions of high temperature and low humidity can be tolerated by broilers. For example, a temperature of 32 °C and the humidity of 40 percent HR can be well adapted by birds while high temperatures of about the same level, 32°C, and the high humidity of about 90 percent HR are problematic conditions for the survival of the bird (Leeson and Summers 1997). These extreme environmental conditions have an influence on rate of mortality of broilers and further have an impact on the overall financial performance of the broiler farm.

There are several processes with which broilers can adapt to extreme environmental conditions under which they are raised and these include radiation conduction and evaporation. These processes involve losing the heat to the environment, gathering heat from the environment and conducting heat from one point to another.

### **2.7.1 Generalisations**

Radiation, conduction and evaporation should not be taken for granted as these can result in high mortality rate of broilers. For example, if broilers live under extreme weather conditions where temperature is not controlled, these processes can occur at the high rates which are not conducive for the survival of the birds and this implies that the farmer will experience high mortality rate within a given stock. High mortality rate as discussed earlier in this section characterises a farm that is not performing well financially since the farm would not make adequate profits.

## **2.8 FEEDING TIME AND HEAT PRODUCTION**

Most of the birds' heat comes from the feed stuffs they eat. This heat comes from the digestive processes that take place after the consumption of feed, which involves digestion, absorption and nutrient assimilation or excretion. It is therefore important that farmers take note of feeding time periods they employ when it comes to broilers as this has a big role to play in the body heat of the bird and hence the good performance of birds in general. This is important specifically for the well being of the broiler farmer in attaining the highest profits possible from the broiler enterprise which will in turn imply good financial performance.

## **2.9 MITIGATING PRODUCTION RISKS**

Classification of the farms according to their similarities in terms of production as well as geographical conditions is of utmost importance as this is enables

the researcher to obtain and assess the financial performance of each farm under consideration. Furthermore, it is not meaningful to compare and formulate a representative farm for the farms that are operating on different geographical regions as this will call for the researcher to take into account the different climatic problems that each farm faces in its production, such as cold, extremely hot as well as moist or dry conditions.

However, the study made an assumption that climate is not a limiting factor when taking in to account the two different sides of the focus. Climate is held constant in the study because broiler production is a farming enterprise that is undertaken within the context of controlled temperature. The fact that birds are kept indoors makes it possible for the study not to take climatic differences of the two sides of Gauteng as the limiting factor. This assumption is further validated by the fact that all the ten emerging farmers in the study have their temperature controlled for the conduciveness of the broilers.

The aspect of unfavourable climatic conditions and other outside forces can expose the farmer to vulnerability to risk in the process of production. However, there are some of the strategies that can be used to mitigate the possibility of risks that the farmers can be faced with and these are described as follows:

### **2.9.1 Government programs**

The South African government can step in to assist farmers to better manage and cope with the environmental hazards that they can be exposed to during the process of farming. This can be done through distributing money to farmers that produce on a large scale as a means of compensation should anything happen, such as disease outbreaks. Apart from the direct payments to farmers, other government programs involve the cases where the government pays the farmers based on the past history as well as yield that a particular farmer produces per year. Land reform programs play an important role in providing the emerging farmers with better chances of establishing

themselves in the context of farming enterprises. One example of land reform programs is summarised below:

### ***Comprehensive Agricultural Support Programme (CASP)***

The main aim of CASP is to provide post settlement support to the beneficiaries of target such as the previously disadvantaged farmers in South Africa. The aims of this programme are to enhance national and household food security while also addressing the needs of the previously disadvantaged people

#### **2.9.2 Diversification**

One of the methods that can be used to help farmers mitigate risk within the context of production is that of diversification. Diversification involves a situation where the farmer produces more than one type of commodity within the farm. This is helpful indeed because if the farmer happens to be faced with a certain outbreak that can expose him to major losses in production and income for a particular product, the farmer still has an advantage on the other product that is not directly affected by the outbreak. Unfortunately, for the purposes of this study, the main target is to look at the farmer that produces broilers and no other products.

#### **2.9.3 Farming contracts**

Apart from government programs and diversification, one of the measures that can be used to reduce the risk that can be faced by producers is that of a farmer forming contracts with outside bodies. Contract farming is helpful in that the farmer has the guaranteed market during the time of harvest while also the risk of selling in the open market is minimized. A guaranteed market enables the farmer to formulate accurate budget for the coming year better than in the case of a farmer who is not in the contract. On the other hand, the

farmer stands a better chance of buying the inputs of production, such as medication, feeder and drinkers, at the discount price from the input suppliers.

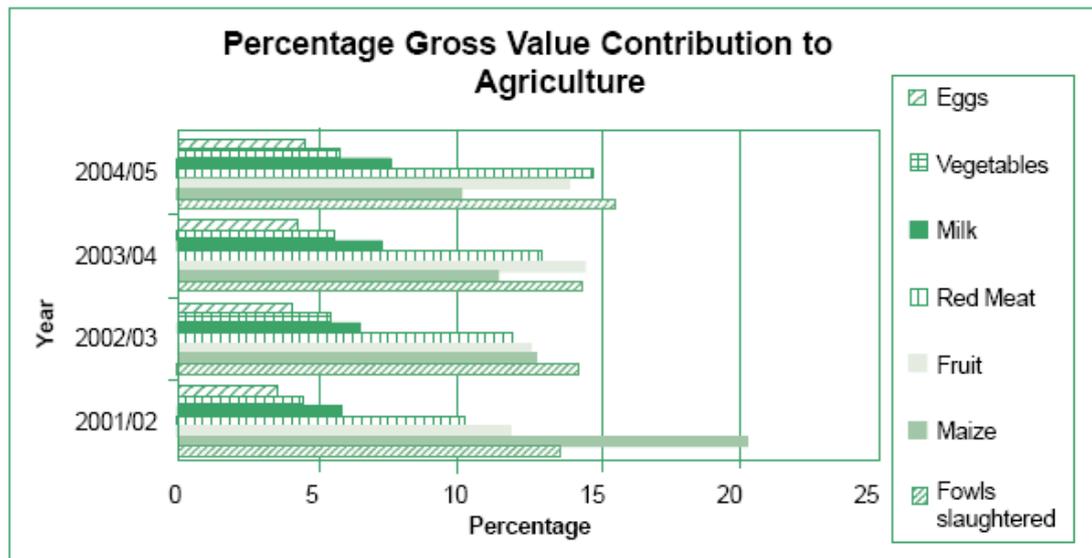
## **2.10 TRENDS IN POULTRY PRODUCTION**

### **2.10.1 Market Trends in Poultry**

Determination of farm profitability does not only depend on the ability of a particular farm to generate enough profits but also on the past and the present performance of the farm. The financial ratios that are used in the study therefore play an important part in establishing the performance of the respective emerging farmers taking into account the past and the present performance. This section discusses the overall past performance poultry in South Africa in comparison to other agricultural sectors.

According to SAPA (2007), poultry is one of the biggest subsectors in agriculture that contributes protein. The main reason behind this is the fact that poultry products such as meat fall under some of the cheapest sources of protein consumers can rely on in comparison to other sources of protein such as pork, mutton and beef. Figure 3 below shows the relative sizes with which poultry products can be categorized. These comprise of eggs, broilers as well as a day old chicks that can be supplied to the industry.

**Figure 3: Gross value of individual products**



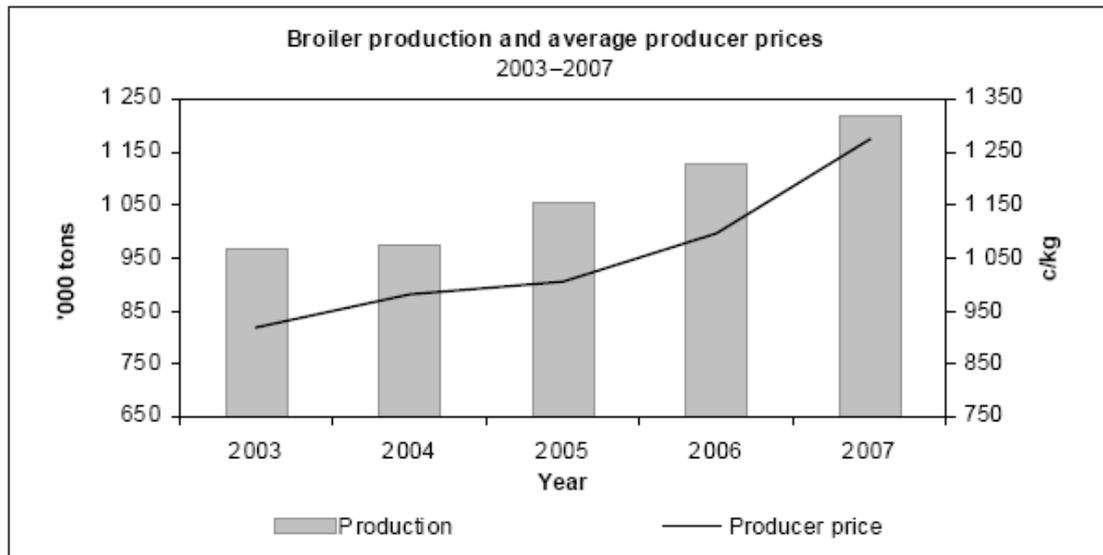
Source: The subsector study: chicken meat (2007)

Out of the total turnover of R11282 million that was generated by the industry of poultry, R8 693 million was generated by broilers at the producer level. On the other hand, at the retail level, poultry industry had a turnover of R18 029 million, under which the broiler sector contributed R14 532 million of the total turnover (The subsector study: chicken meat 2007).

This is an indication that the South African broiler industry is one those industries that perform well in terms of profit generation. This can on the other hand be attributed to the fact that people buy more of broiler products than they do with red meat as can be seen in figure 3 above.

It can further be seen from the figure 4 below that there has been an improvement in the production prices of broiler. These illustrations captured the changes in broiler production in relation to the price received by farmers which according to the figure has been increasing gradually with minor fluctuations from 2003 to 2007.

**Figure 4: Broiler production and producer prices**



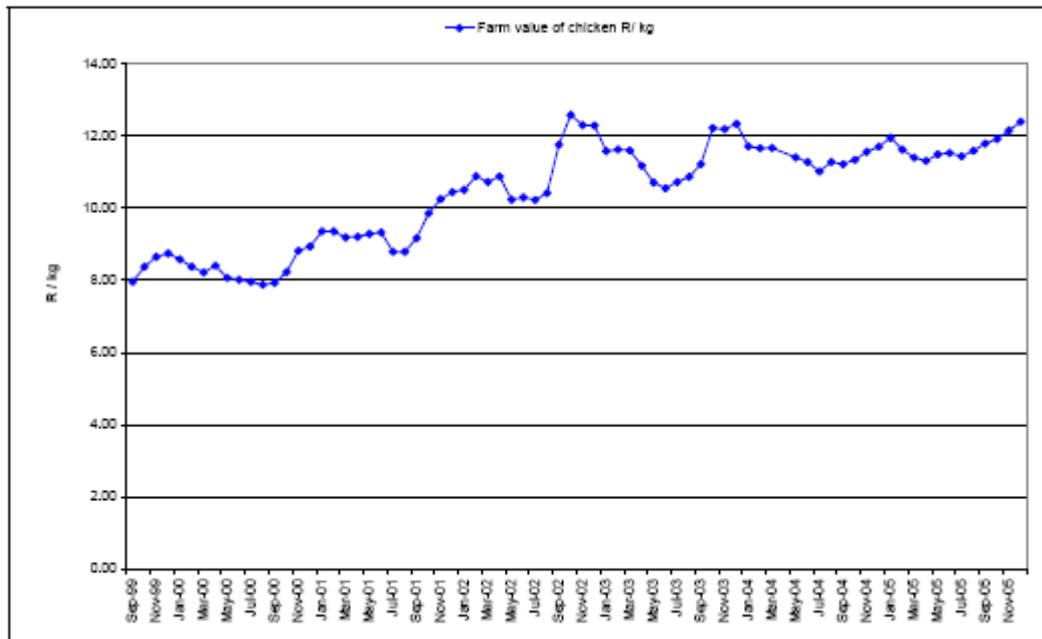
Source: Department of Agricultural (2008)

## 2.10.2 Financial trends and profitability

### *Farm value*

The farm value for chicken represents the amount of money that the farmers earn as a return for the produce or what the measure of return is, given the farm product equivalent of retail food sold to the consumer. In other words, the farm value is the return the farmer receives given the nature of the product being sold. Figure 5 below shows the trend in poultry farm value in South Africa from September 1999 to December 2005.

**Figure 5: Trends in poultry farm value (1999 to 2005)**



Source: The South African Food-cost Review (2006)

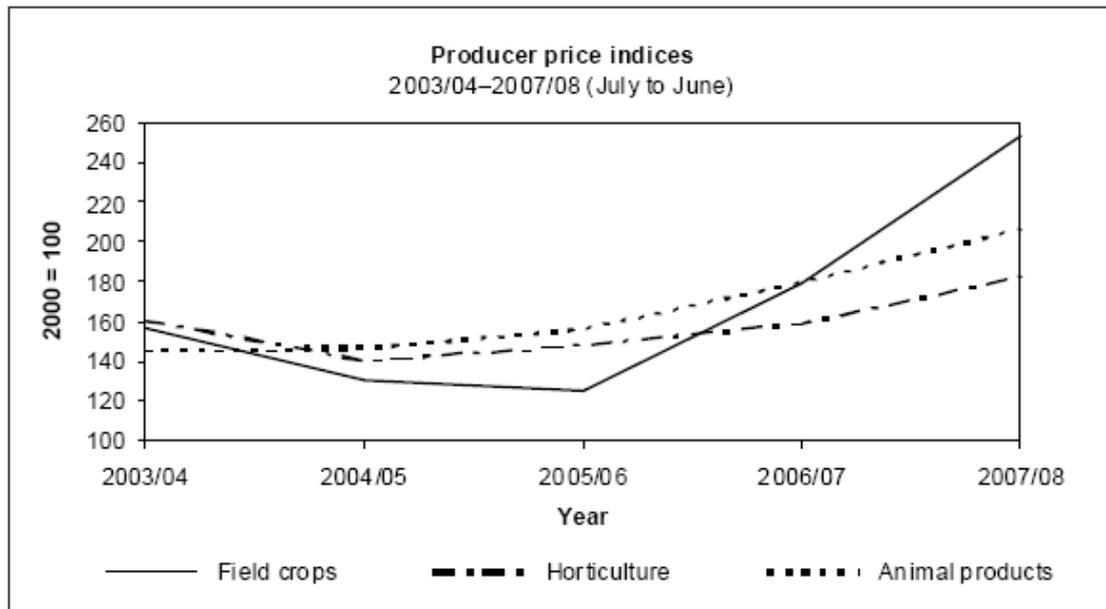
As the figure clearly shows, the farm value for chicken increased over time, peaking towards the end of 2002 and also towards the end of 2003. The steady increase in the farm value of chicken over time shows that the farmer's measure of return which is received for the product has increased over time.

This is an indication of a well performing farmer. A higher measure of return means that the farmer is able to generate enough profits out of the available assets. The farmer who is able to generate enough profits for the farm is also able to obtain higher NPV and OPM. Should this be the case, this means that the farmer will have an acceptable ROE which will be higher than the ROA and therefore indicating a good performance.

This can however be restricted by market forces such as low producer prices. This is the common problem when it comes to the situation where emerging broiler farmers are price takers. Out of ten emerging broiler farmers that took part in the study, only two farmers were strictly price takers since they were producing under contract. It was also observed during the field work of the study that even though they were not characterized by a well defined market

as the contract growers, non contract growers could set the average price for their produce depending on what they have agreed upon during their meetings as emerging broiler producers. Figure 6 below shows the national producer prices for broiler farmers from the year 2003 to 2008.

**Figure 6: Producer prices of agricultural products**



Source: Department of Agricultural (2008)

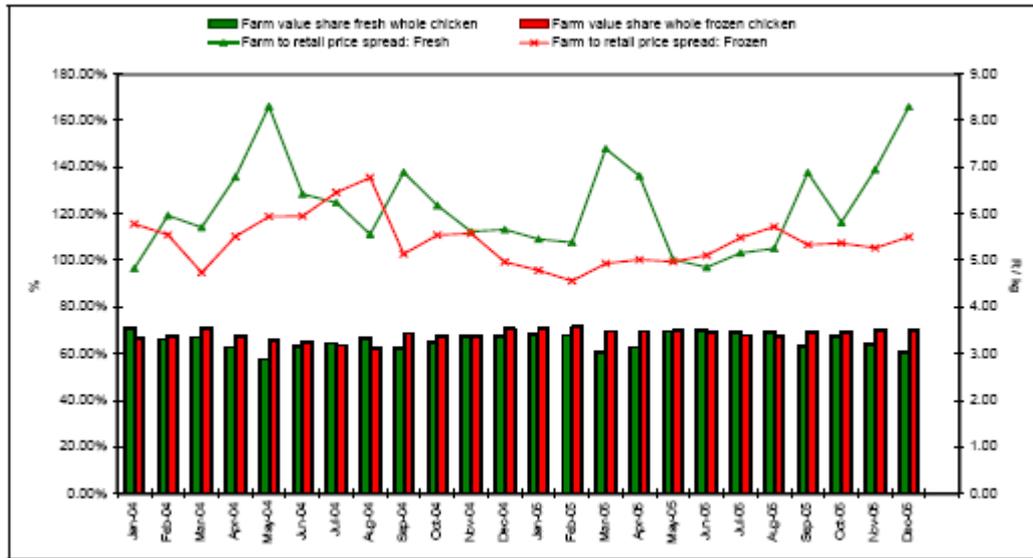
It can clearly be seen from figure 6 that the producers of animal products did not start out well as compared to the two other sectors. The prices for animal producers then increased in 2004 during which animal producers were earning better compared to other sectors until 2007/08. Even though the producer price of animal products does not dominate that of field crops for the year 2007 to 2008, this cannot be classified as too bad for the broiler producers since the graph for animal produce price is not very low and this means that the producers are still able to derive profit from their broiler enterprises.

### ***Farm-to-retail spread***

Statistics show that during the periods of 2004 to 2006, the farm value share of fresh chicken averaged around 65.61 percent, while that of frozen chicken

averaged 68.27 percent. This was due to the fact that both products receive the same producer price. This is demonstrated by figure 7 below.

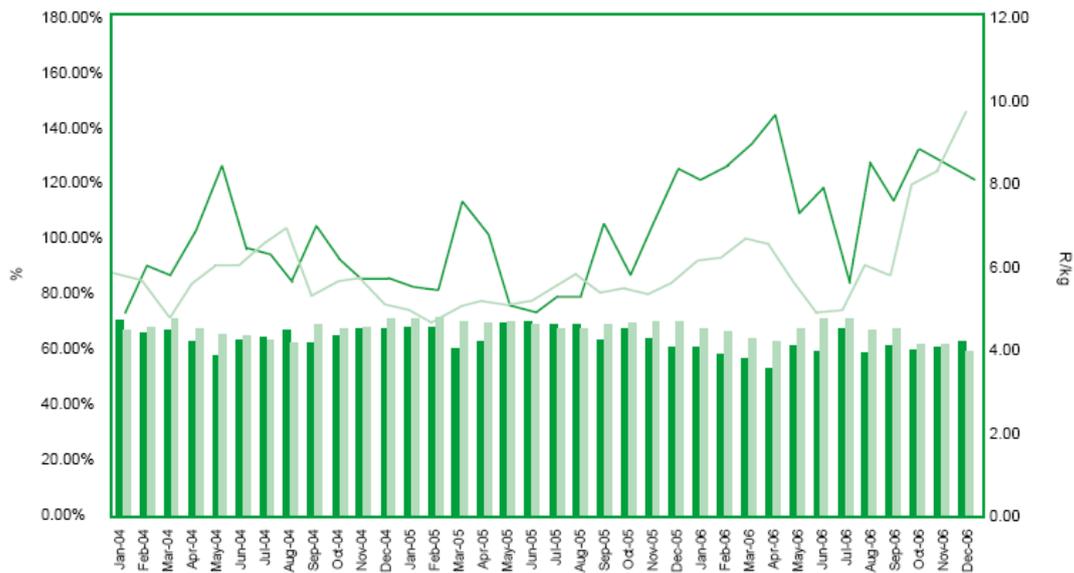
**Figure 7: The farm value share of fresh whole chicken**



Source: The South African Food-cost Review (2006).

As the figure shows, the farm value share of fresh whole chicken was mostly lower than that of frozen chicken. This is due to the fact that even though they both are chickens and may be produced by the same farm, consumers buy frozen chicken more than the whole chicken resulting in higher farm value for frozen chicken than fresh whole chicken. This further means that a producer derives more profit from frozen chicken than whole chicken. This is further illustrated in figure 8 below:

**Figure 8: Farm-to-Retail spread**



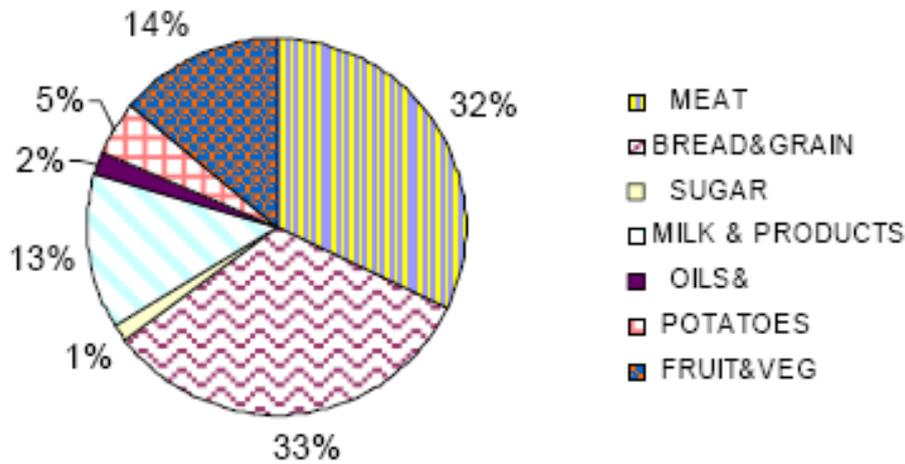
Source: The South African Food-cost Review (2006).

Figure 8 above shows the farm-to-retail price spread and the farm value share of fresh and frozen broilers for the years 2004 to 2006 which seems to have steadily increased with some fluctuations from 2004 to 2006. The concept of profitability of the farmer looking at frozen and whole bird production does not however fall in the scope of the study, instead the interest of the study lies with determining the how profitable an emerging broiler farmer is without necessarily looking at the processed products of chicken.

## 2.11 CONSUMER EXPENDITURE ON AGRICULTURE

According to quarterly agriculture economic review (2005), household expenditure on some of agricultural commodities increased to R45 billion in the first quarter of 2007. Taking this in to consideration, this is an indication that consumers rely more on agricultural products as their source of living. This is the case because the economic review shows that in 2006, household expenditure on agricultural products was at R43 billion, which therefore means that an increment of was experienced during the following year, which is R45 billion.

**Figure 9: Consumer expenditure on some of agricultural products**



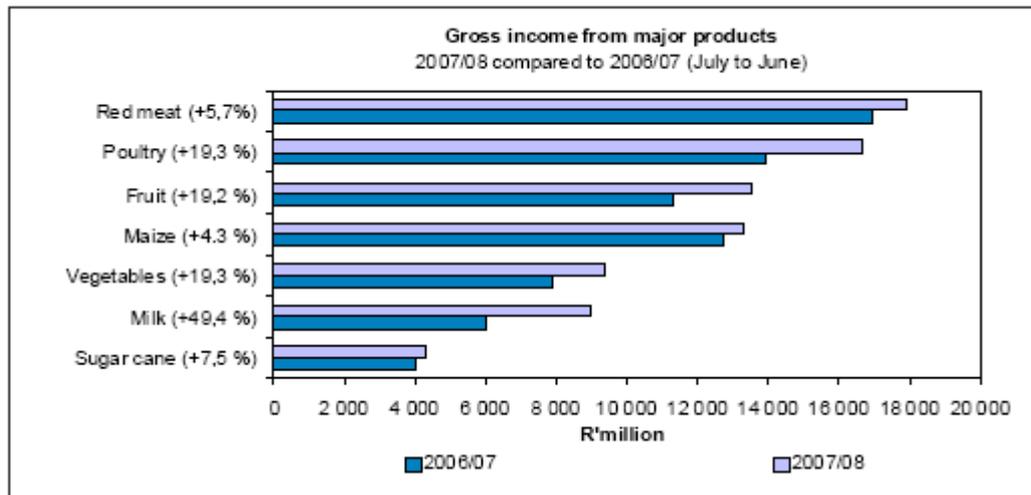
Source: Quarterly agriculture economic review (2005)

From figure 9 above, it is clear that consumers spend more on meat products and these include among others fresh and frozen chickens. The reason behind this is the fact that poultry products are one of the cheapest sources of protein which consumers can resort to despite the increasing prices of agricultural products, both fresh and frozen.

## 2.12 FARM INCOME

Apart from an increased consumer expenditure on agricultural products, a quarterly agriculture economic review shows that farm income had also experienced some improvements of 19.6 percent in the year 2007/8. This is indeed a great improvement in farm income to R16 666 million in comparison to the previous year. On the side of animal products, an increase of 18.3 percent was experienced in 2007/8 from R44 926 million in the year 2007 to R53 136 million in 2008. This is illustrated in figure 10 below:

**Figure 10: The farm gross income from major products**



Source: Department of Agriculture (2008)

From figure 10 above, it can be seen that poultry meat constitutes the second largest portion of the revenue from the animal products. The reason behind this, like in the case of consumer expenditure on agricultural products is the fact that poultry meat is one of the cheapest sources of protein compared to other sources of protein. On the other hand, poultry meat is characterized by being one of sectors with the largest sales increase due to the fact that poultry chickens are raised for the short period of time and this result in quicker maturity. The earlier the birds get matured, the more they are ready for the market and hence the faster the generation of revenue.

## 2.13 INTEGRATOR AND PRODUCER PERSPECTIVES

It is important to highlight that for broiler farmers to stand a better chance of attaining good results in terms of productivity, they have to involve themselves to integrating with other industries. This will help them minimize unnecessary costs that might be encountered from hatching of birds to the point of consumption.

### 2.13.1 Contract Production

Vertical integration of animal industries found that contract production may provide financial stability, reduced risk and increased ability to attract loans from financial institutions that allows them to stay productive and even enter the industry for the first time (Molna, Hoban & Brant 2002). This therefore means that growers that have involved themselves in contract production have far much more motivation of production as compared to those that produce on individual basis (Doye, Freking and Payne, 2002).

It also appears that in countries where there are many regions dominated by contract growers and integrators, the terms of production contracts are more generous than in areas where a single integrator predominates. On the other hand, vertical integration trends raise at least two important long-term issues: 1) an imbalance of power between the integrator and the producer and 2) environmental problems associated with the extreme concentration of animal and processing waste (Molna *et al*, 2002).

Molna *et al* (2002) further show that most rural communities are receptive to broiler complexes because broiler contracts tend to stabilize and improve farm incomes and create employment in feed mills, processing plants, and construction and hence also have some contribution to poverty alleviation. As an approach to rural development, it is not clear how the impacts of broiler industry development are distributed. Furthermore, it is not clear how the public tolerance for broiler production's odour and water quality impacts can be withstood (Costa and Houston, 2006).

Farmers find broiler contracts to be a desirable farm enterprise. This is helpful taking into account the impact of the contracts in uplifting the overall performance of contract growers and also reduction of production risk. Molna *et al* (2002) indicate that a number of disputes with growers took place on some of the countries practicing contract broiler production over the accuracy of feed delivery weights and other aspects of the company-grower relationship and this eventually lead to a number of contracts not being renewed.

### **2.13.2 Waste Management and Odour Control**

While the issue of contract broiler production is a better gain for the farmers, it does have a negative impact on other surrounding parties. For example, water pollution, flies and odour have always been problems with livestock farming. Firstly, with larger operations, the impacts also are larger. Secondly, environmental regulation of soil phosphorous levels present new limits on old patterns of repeated land application of animal waste that are now understood to compromise water quality. Thirdly, most poultry growers live on the farm and share their neighbors' factory experiences, but increasingly many do not. In addition, large processing facilities may tax local community water systems and natural groundwater capacities due to the large amount of water needed for waste disposal and stock watering. In some cases, large operations must meet permit requirements for producer standards, available acreage for land spreading and other requirements designed to reduce the probability of ground water pollution or waste spills into local water bodies.

An incidence involving a very large facility will have effects far beyond similar incidents at smaller operations because of the larger amount of material involved. Air quality, waste, and dead bird disposal are key issues for the poultry contract grower (Molna *et al*, 2002).

Waste management is therefore very important when it comes to raising broilers both on small and large scale. Even though they are the ones that contribute most to environmental degradation, animal industries such as broiler production are the ones that contribute a lot to the cheap source of protein people can afford.

The shifting or industrialization of animal production took place first in the poultry industry and then spread over to other sectors of animals (Molna *et al*, 2002). There are some mechanisms put in place to control amount or extend

to which producers can be liable to the pollution they cause to the environment. These strict standards to which producers must abide by are taken care of by the producers who produce at both commercial and subsistence level. This is done through vertical integration, where as mentioned earlier in this chapter, that there are several advantages under vertical integration which include reduced production as well as financial risk, improved performance of birds due to intensive medical care. This shows that vertical integration plays an important role in the industry of broiler production not only through the above mentioned aspects but also taking into account management of waste that is caused by broilers during the production process.

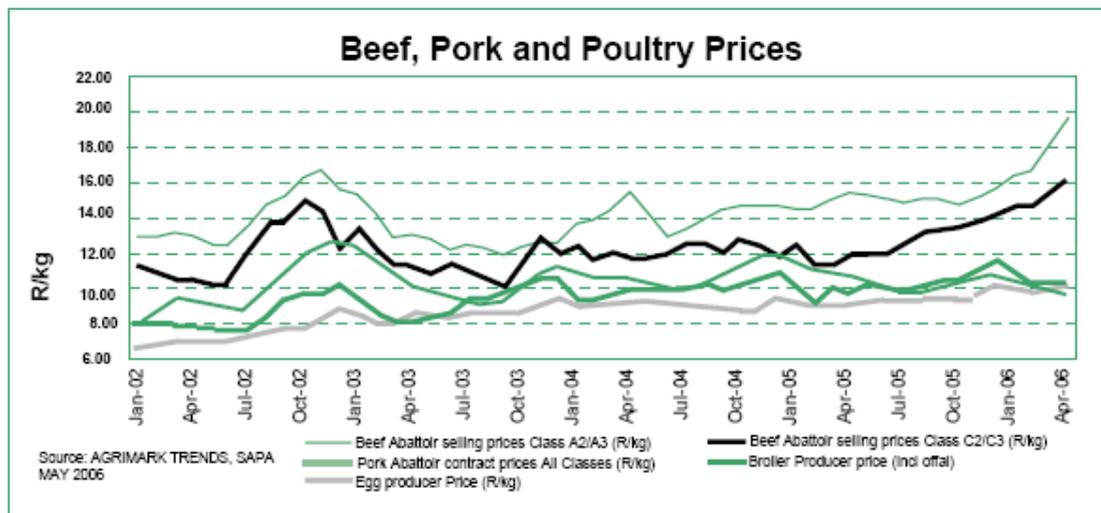
Environment is one of the most important factors to be taken into consideration when it comes to the business of broilers. Birds, like human beings, are meant to do well in terms of growth if they are exposed to conducive environmental conditions such as temperature, feeding time, heat production, building design as well as gas and dust levels. Without the correct measures of these, birds are highly unlikely to do well as could be expected by the farmer.

## **2.14 COMPETITIVENESS OF POULTRY IN THE MARKET**

### **2.14.1 Competitiveness at local market**

In the domestic market, broiler meat is considered to be a substitute for other sources of protein such as pork, beef and mutton. As pointed out in the previous sections, the reason behind this is the fact that broiler meat has a price advantage over pork, beef and mutton. This is illustrated in figure 11 below.

Figure 11: South African price index of animal products



Source: The subsector study: chicken meat (2007)

The subsector study: chicken meat (2007) identifies several reasons why broiler sector has a competitive advantage over other sources of protein.

- Breeding progress is faster in poultry than in other livestock.
- Extensive research has also been done on nutritional progress to reduce the high costs of production.
- Improvements of health management as sick birds tend to waste food.
- An improved bio-security as this limits the spread of diseases.
- Formation of contract farming systems which help in the management and use efficient use of resources as well as sharing production risk.
- High level of support offered by suppliers in helping the producers survives.
- Improved level of training and knowledge of industry role players.
- High performance pressure as a result of imports which contributes to the industry improvements.
- High performance pressure as a result of free market forces where price determines cost, not the other way round.
- Short production cycle of broiler compared to other livestock which leads to faster genetic progress than other comparable industries.

### **2.14.2 International Competitiveness**

Broiler as a subsector does not only compete on a local market, but there are other competitive forces that can affect the performance of the sector at international level. In order to assess the performance of South African broiler sector in comparison to other countries, there is a performance criterion that determines how competitive an industry is.

### **2.15 CONCLUSION**

Unlike the normal producers, contract growers have an added advantage to normal producers. This is caused by the fact that contract growers have agreements with different departments of production such that they have a reliable supply and reliable buyer as well as defined distribution facilities. On the other hand, independent producers are more vulnerable to such things as production risk, high labour costs, financial risk as well as absence of reliable buyer or supplier of inputs for consistent and better performance of broilers. This shows that poultry complex, which is the combination of producer, supplier of inputs as well as buyers, comprises of a manager for each of its different functions which include breeding, hatching, transportation, distribution as well as consumption (Boden, 1993)

While poultry has been one of the fast turn over generating in the industry of animal production, producers of broilers are able, especially under contract production, to manage the waste that is generated by the birds through certain mechanisms such as using litter as manure for crops. The only major problem and concern when it comes to management of waste of broiler is dead birds. It is always the case that the farmer should always expect a certain percentage of dead birds from the rest of the birds as not all the birds can survive from hatching to consumption. The main challenge in this regard is that once birds are dead, they are at moment producers' property but which is now problematic (Molna *et al*, 2002).

Apart from the waste generated by dying birds, producers are also faced with the problem of acquiring finance from the financial institutions. This is the case especially for small holder broiler producers and this is a disadvantage for compete in the formal market, letting alone dealing with the global competition. The result of this being the fact that most producers who raise broilers for home consumption do not have contracts with big buyers which makes it difficult for them to produce at a larger scale with the fear that their produce might not have a good market and that they might encounter production losses.

## **CHAPTER THREE**

### **3 REPRESENTATIVE FARMING**

#### **3.1 INTRODUCTION**

Farms can be characterized by similar set of characteristics which grouped together can result in one farm that is said to be a representative farm for all the farms under consideration. Representative farm models, econometric and other software packages are established for the purpose of generating recommendations that apply to these farms forming a representative farm. Every farm-household is faced with different set of problems and disadvantages, which is why every farm is seen as unique or different as the decision making problems are distinct.

Taking into account the fact that farmers are faced with different problems which include the problems of decision making, this cannot be seen directly, making it necessary to form groups of farmers that share the same characteristics within a selected area. This chapter discusses the concepts of one such group, which comprises of 10 emerging broiler farmers in the province of Gauteng in South Africa.

The representative farm model constructed in this paper is based on the classification made by Chaya in 2000 under the agricultural sector in Navara. Only one representative farm is constructed out of ten broiler farmers found in two regions (Southern and Northern sides of the province). The farms constituting the representative farm were selected on the basis of the same geographical conditions under which they operate as well as production capacity of each farm, that is, the size of the farm.

The purpose of the model is to look at the performance of ten farmers selected from the same geographical location collectively. Out of the production possibilities that can be reviewed, the aim is mainly to determine the financial performance of these farms and evaluate it. The study area was selected based on the number of things which include

- The Gauteng province is one of the provinces in South Africa which is characterized by a more broiler farmers both contract and non contract broiler growers. This is shown in chapter two.
- The province is also characterized by conducive climatic conditions for better performance of broilers since it does not get as cold as other provinces around the country and also neither does it get too hot.
- Literature shows that limited studies have been done on the evaluation of financial performance of broiler growers in the form of representative farm.

Most of broiler farmers that are unsuccessful in their operations are due to the failure to manage and coordinate their cash flows properly. This in turn lead to inability to determine whether or not the particular farm is making enough profit or not. However, financial ratios such as ROE, ROA, NFI and OPM play an important role in determining the financial performance of the farm and also suggesting a better way for the farmer to generate more profit.

The paper makes use of the above mentioned financial ratios, which will be explained later in this section, to determine the performance of the selected farmers, which in this case are ten farmers. The data for the individual farmers of the ten selected farmers is however not compared to each other, instead, it is compiled into one farm (model) which represents all the ten farms collectively.

### **3.1.1 Examples of farm representative models**

There are few farm representative models that one can rely on in terms of formulating a farm model. A number of these models are computer based and

need variables that are included in the model to be specified. Specifying the variables to be used in the model is of importance due to the fact that data collection is done bearing in mind what variables are the key determinants of the model being constructed.

### ***FLIPSIM***

Farm Level Income and Policy Simulation programme (FLIPSIM) is an example of one of the models that can be used to for the purposes of constructing a farm representative model. This model is a computer based model which performs the stochastic simulations and was developed at Texas at A&M University by James Richardson and Clair Nixon in 1981. It is mainly for analysing the impacts of farm policy on different kinds of production sub sectors. The FLIPSIM model is also a model that is able to simulate and forecast the net farm income of several producers. It can also be expanded to the 'what if' analysis by adapting the risk management strategies, conservation compliance as well as farm level programs (Ronald et al, 1998).

### ***Dairy farm Immigration model***

One other example of a representative farm model is that of Dairy farm immigration model which was built in 2004 in the United States. The model was mainly for testing the probability of success of a dairy farmer who was migrating from the Netherlands to United States. According to this model, for the farmer to be considered successful, the Net Present Value of the milk enterprise had to be positive. The key variables in this model were prices, yield and production.

Due to the fact that the representative farm model built in the study does not consider the issues of farm management decision in relation to production risks, these models are not going to be literally used in the study. Instead the study makes use the farm level analysis which involves determining the financial position of the selected farms and this involves the net Farm Income

like in the case of FLIPSIM and also predicting the future of the respective farms like in the case of Dairy Farm Immigration Model.

### **3.1.2 Farm Accounts**

It was assumed that broiler farmers that are taking part in the study, in Gauteng province, keep records (daily or weekly, monthly or annually) of how they have been performing for the past years. However, as this was not the case during the conduction of the study, more financial related questions were asked to compensate for this.

These records are the ones that are going to be used to determine the overall performance for each farm followed by the overall performance of the farms as a group. In other words, data sets from the individual farmers are compiled and evaluated in terms of financial performance, and this will be representative of the performance of all the farms under consideration and hence in Gauteng province. This makes it easier for the researcher to group the farmers not looking at the size but other characteristics of each farm that are important and also addresses the main purpose of the study.

## **3.2 REPRESENTATIVE FARMING DEFINED**

The representative farm is the model that can be constructed using focus groups of farmers within a given context. For the purposes of this paper, representative farm is constructed with ten of the broiler growers in the province of Gauteng.

There is no specific criteria for the selection of the farmers that take part in the representative farm model, instead, as mentioned earlier in this section, the criteria used for farm selection in this paper is based on the size of the farm and more importantly the geographical region of the farms. This is done so as to avoid the problem of taking in to account many variables that do not form part of the aim of this study. For example, if farms selected are from different

geographical regions, then that means such things as the impact of weather on the birds has to be taken in to consideration as it makes a significant contribution to the performance of broilers in a given area and this is not within the scope of this paper.

The data collected from the ten representative farms are entered into different financial statements or ratios, which will be discussed shortly, to calculate the key output variable for the representative farm. These financial measures are the key or primary tools for calculating and simulating the key output variables necessary to achieve the aim of the study. Each statement or sheets is characterized by items of different values according to the data obtained from the respective farms.

The values from different sheets or statements are then summarized in to one value that is representative of all the ten farms under concern. These statements or sheets are related as values from one of them can be utilized into another and this forms the basis for the discussion of the results of the paper.

### **3.2.1 Features of the model**

#### ***Overall description***

The representative model constructed in this study comprises of two components. The first component involves identifying the two regions (Northern and Southern side) of Gauteng from which 5 emerging broiler farmers were identified from each region. The second component involves categorization of the identified emerging broiler farmers into contract and non-contract growers under which there are 2 contract growers and 8 non-contract growers.

#### ***Distance***

The farms that form part of the model are divided into two regions, Southern and Northern sides of Gauteng. The Southern and Northern side comprise of

5 emerging broiler farmers each. The distance between the two sides is approximately 80 kilometres apart with the Southern side being 15 kilometres from the city of Johannesburg and the Northern side being 17 kilometres from the city of Tshwane on average.

The distances between the farmers in the Northern side is 10-15 kilometres apart on average while that of the Southern side is 10 kilometres apart on average. These figures are based on estimations made by the respective farmers who participated in the study.

### **Size**

Size of the farm is not an important variable in the study because all the broiler farmers do not use all the land for broiler purposes. For example, a contract grower (AG) in the Northern side has a 283 hectare farm but utilises only 5 hectares for broiler production. On average, though, the farmers in the Northern side have much bigger farms than those of the Southern side with farm sizes of 67 and 7 respectively. It is important to highlight that of all the farms that form the model, the contract growers (AG and WB) are characterised by the largest farm sizes with 283 and 13 hectares respectively in comparison with the non-contract growers (BF, HA, HB, ZA, ZB, ZC, ZD and ZE) which have 21.5, 8.5, 8.9, 2.5, 7, 2.5, 2.2 and 5 hectares respectively.

### **3.2.2 Factors influencing use of contracts**

The representative farm model constructed in this paper comprises of the contract and the non contract emerging broiler farmers. Contracts can be an effective way of managing risk that is caused by the market. As indicated earlier in the discussion, contracts and integration are better ways by which broiler growers can be in a better position to manage or at least reduce risks that they might encounter in the production process while also reducing the high production costs. Perry, Banker and Green (1999) further shows that

farmers have a large benefit when they have a guaranteed market, fixed prices as well as access to inputs to consistently engage themselves in the process of production and have enough chance to concentrate their efforts in a particular part of production process. This also means that farmers under contract production have an added advantage over those who produce broilers in a traditional way or individually in that they enjoy the stable income within a certain period of time.

On the other hand, owing to the fact that their efforts are concentrated to a particular department at the time, they have improved performance due to high level of expertise they get in the integration with other different departments of the production process (Perry *at al*, 1999).

Contrary to contract production is the non contract production. Emerging broiler farmers producing without contracts seem to have problems of the market. This is due to the fact that producing without a contract exposes the farmer to unpredictable consumers who can or cannot buy chicken from a given farm. This further means that the farmer producing without a contract is vulnerable to financial risk in a sense that if there are no buyers of the product, then the farmer might have to reduce the price of the chickens to the level at which he/she would not make any profit what-so-ever.

### **3.2.3 Development of broiler contracts**

Due to the fact that broilers are high-value products, farms on which they are produced tend to be farms with total annual capacity of 2000 birds and more, and only a few farms are characterized by lower sales. Farm size is based on the value of the products sold, not on the contract-fee income received. Broiler enterprises seem important for the emerging farms because of the fact that broilers have a higher turnover as their production cycle is quite short compared to other livestock productions such as pork, mutton and beef. This means, therefore, that a broiler producer can produce two or more stocks of

broiler while beef producer is still dealing with the first production cycle and this is one of the factors that make broilers more profitable (Perry *et al*, 1999).

In the case of contract grower, production practices are closely specified and many inputs, including day old chicks, are supplied by the contractor. Because the chickens are owned by the contractor, the role of the farmer in marketing is limited to choosing a contractor and negotiating the terms of the contract. Although many production and marketing decisions are stipulated by the agreement between the farmers and the contractor, farmers can employ other management strategies to reduce other risks associated with farming.

### **3.3 FINANCIAL ANALYSIS OF BROILER FARMS**

Perry *et al* (1999) indicate that several measures can be used to evaluate financial performance of a farm. Typically, after an income statement and balance sheet are produced, standard financial ratios are constructed. These ratios measure the ability of a business to earn a net income from sales, to generate a return to assets used in the production process, or to provide cash flow to service debt and replace depreciated assets.

In addition to traditional financial ratios, there is also a categorical framework that combines net income and debt measures placing farms into four groups describing the farm's ability to continue to be a viable business. A final measure of financial stability is characterized by combining information about management decisions made by farmers, their use of market and educational information, and the income generated by the business.

#### **3.3.1 Financial performance measures**

Ratios can be categorised as liquidity, activity, debt and profitability ratios (Gitman, 2003). For the purposes of the study, profitability ratios are used. They are helpful in determining the financial position and hence performance of the farmers which is the core idea of the study and these are briefly

discussed below. In this section, the performance measures that take part in the study are discussed in the following paragraphs.

#### Net Present Value (NPV)

Net farm income ratio measures the percentage of each sales remaining after all costs and expenses have been deducted. For any one farm to be better off, the net farm income has to be high. It is also the measure of success of the farm since the lower the net farm income means the less profits the farm is making and hence the little the chances of success the farm stands

#### *Operating profit margin*

Operating profit margin is a measure of farm profit per unit (Rand) of the product produced by the farm. A farm operation that has a high operating profit margin is the one that can be said to produce optimally with low costs. In other words, operating profit margin is a measure of the percentage of each sales rand remaining after all costs and expenses other than interest, taxes and preferred stock dividends are deducted. It is the pure profits earned on each sales rand (Gitman, 2003).

Farm managers may be able to respond to poor operating profit margin through instituting cost controls in order to increase profits per unit of production. Another way with which farm managers can enhance farm performance is that of increasing the revenues generated per unit (Rand) of farm assets. For a given set of farm resources or size of the farm, operating profit margin as well as the asset turn over are the two key determinants of profit that the farm manager can rely on in trying to improve the financial performance of the farm.

#### *Return on assets*

Farm managers should make it a point that the capital employed in the farm business is used in a productive way. Return on assets provides a measure for assessing the efficiency with which farm assets are being used to produce the net income from the farm operations. In other words, return on assets measures the overall effectiveness of management in generating profits with its available assets (it is also known as return on investment).

Return on assets is one of the best measures of operating performance within the frame work of farm enterprise. It brings together the outcome of farm operations with the resources used in the process of production. It is one of the farm performance measures that are recommended due to its simplicity in terms of interpretation.

### *Return on equity*

Debt is an important component of the capital structure of many farms. This is due to the fact that it provides needed resources to take advantage of profit opportunities. Farm managers have to be in a position to know whether or not the financial leverage is working for or against the farm enterprise. This will be of utmost importance because if the debt is managed wisely, this can be of a great benefit for the farm. Return on equity provides important information about the performance of debt a particular farm is faced with in the capital structure. In other words, return on equity measures the return on the common stockholders' investment in the firm.

Return on equity should exceed the return on assets for the farm to borrow money. If return on equity does not exceed the return on assets, then that means the capital borrowed by the farm is not earning enough to pay its costs. Alternatively, if the return on equity is less than the return on assets, then that is indicative of the potential of the farm to benefit from additional investment.

### 3.4 CONCLUSION

Representative farming is an important aspect when it comes to drawing reliable conclusions and on a large scale or conclusions that involve larger samples. Gauteng as province is small compared to other provinces in South Africa, but this does not render drawing conclusions about the outcomes of a research study easy. This is especially the case because undertaking a study on a provincial level requires a very large sample to be involved in the study. This is where the concept of representative farming jumps in because not every broiler farmer can be included in the study around the province, instead a few farmers are selected who will be representative of the province as a whole.

It is clear also that the issue of integration should not be over looked by broiler farmers. This is because not only does it help them minimise production costs but also the risk of producing broilers. It is not easy for farmers to produce broilers on individual basis because production itself is a chain or combination of more than one variable.

This therefore calls for the producers to be involved in forming contracts with other disciplines that form the basis of their productivity. For example, farmers under contracts have a defined market while on the other hand they are characterized by buying inputs such as feed stuff as well as medication for the chickens on a cheaper price. This introduces the next chapter which gives a discussion of the results of the research.

## **CHAPTER FOUR**

### **4 RESEARCH METHODS AND THE IMPERICAL ANALYSIS**

#### **4.1 INTRODUCTION**

The previous chapter discussed the importance of representative farming with regard to determining the profitability of emerging broiler growers in Gauteng province. It was showed in the previous chapter also that not only does it make it easier for readers to understand the performance of broiler growers being investigated, but also the effectiveness, reliability and accuracy of the data being analysed for the determination of the overall financial performance of the emerging broiler growers in the province.

This chapter therefore discusses data collection methods that were employed, data collected, then goes on to discuss the outcome of the data collected and finally the conclusion and recommendations. It is important to highlight the fact that the financial statements constructed from the data collected are only based on the poultry (broilers) sections and not the other parts of the farm. This is because most of the farmers that took part in the study had some other livestock productions within the farm.

Given that surveys are very costly, both in monetary and human resources, extra care was taken to use appropriate research methodologies while on the other hand obtaining the data that is relevant as much as possible. Due to the fact that the study makes use of the representative farm approach, broiler growers included in the study were appointed on a random basis, that is, no specific criterion was used to appoint farmers to take part in the study. It was difficult in including as many as one could want due to the fact that many of the emerging farmers were not willing to take part as respondents. This was because they felt it a waste of time participating since they would not benefit anyhow from their participation This resulted in a researcher being able to include only ten broiler growers within the province.

The broiler growers included in the study are constructed in such a way that five were identified in the southern part of the city of Johannesburg while the other five were identified in the Northern part of the city of Pretoria. This was done with a believe that even though a little distance from each other, these farmers are of the same province as the purpose of the study is to evaluate emerging broiler growers that are in the same geographical area.

## **4.2 DESCRIPTION OF OVERALL RESEARCH DESIGN**

The main focus of the study was to investigate emerging broiler growers located at Gauteng province in South Africa which made use of a representative farm approach. The reason for this approach is that relevant data for determining and analysing the financial performance of farms was collected. Constructed representative farm model is a model that is based on the analyses of the major findings of ten emerging broiler farms that are part of the study. This approach involves two sides of Gauteng province (North and South) under which each side comprise of 5 farms to be analysed.

The model is helpful in putting together the results of ten emerging broiler farms that are said to be representative of the emerging broiler farmers in the province, hence why the approach is representative farm. This approach also provide the broader picture of the how the emerging broiler farmers in Gauteng perform financially since it examines the individual farms and then give a picture of the financial performance of these farms collectively.

Primary data was collected from key informants who are the owners of the respective farms, while secondary data was obtained from the available records kept for the farm. Personal interviews were used during the course of field research, while observation and pilot work were also part of data collection.

## **4.3 RESEARCH METHODS**

### **4.3.1 Sample selection**

The purpose of sampling is to have a basis for making an accurate statement about the target population, which in this case is the black commercial broiler farmer in Gauteng province. There are various sampling methods that can be used to obtain relevant data. In quantitative research, samples should be representative. A representative sample reflects the characteristics of the population that is crucial to a researcher. Representativeness is partially dependant upon the degree of precision to which the population is specified, the satisfactoriness of the sample, and the heterogeneity of the population.

An adequate sample is of different sizes to allow researchers to have confidence, according to statistical techniques, that the characteristics of the sample are true for the population. Survey researchers ordinarily select respondents by taking a statistical or random sample from the population under the study. Members of the sample represent the whole structure of the group but in terms of their mathematical relationship to the totality of which they are part. Qualitative researchers usually count on the group's own patterns of interaction to ensure the validity of their sample logic and their method of selecting whom to talk to.

The subject of sampling is very significant for the reason that it is rare to have sufficient time as well as resources to carry out research on entirely those who could be incorporated in a study. Individuals or companies are selected for inclusion on a random manner.

Random sampling has two advantages over non-random sampling technique. Firstly, a random sample assists in controlling the researcher from being unfair. Such biases can be controlled within restrictions by selecting members of the sample purely on the basis of probability, which makes sure that the member of the population has an equal chance of being selected. Since each

member has an equal chance of being in the sample, biases are avoided and that may result from the researchers who do not want to interview members of certain race, and want to avoid informal settlements or not including someone because he/she is not at home.

Secondly, random sampling enables researchers to state numerically the degree of confidence in inferring to the population. A precise notion of the degree of confidence allows one to study to be compared to the next. The data in miscellaneous studies therefore are reduced to comprehensive as well as comparative form.

It is therefore on the basis of this background that the ten emerging broiler growers were selected on a random basis. Due to the fact that the study made use of the representative farm approach, the study aimed at contacting more than ten farmers in order to accommodate the problem of other farmers not willing to participate.

The names of the farmers, the number of people entitled to the farm as well as the registration numbers of the farmers were not exposed for in the study for the purposes of confidentiality. Owing to the fact that Gauteng is the smallest province with the least agricultural land available, the study involved emerging farmers from the southern and northern side of the province. This was done to avoid the problem of concentrating on one region which would not be as representative taking into account different regions of the province.

#### **4.3.2 Data collection**

Due to the fact the study will be undertaken on the representative farm approach, only few data collection methods were employed and these include observations as well as personal interviews with the farmers.

Primary data was collected from the farm owners as well as farm workers. This is because both the farm workers and farm owner have different perspectives about the performance of the farm as well as many other activities that take place in the farm

Personal interviews were arranged in order to meet with the farmer and farm workers and these were arranged through telephonic contact with the farm owners. Having made the arrangement with the farmer, the researcher visited the farmer for personal interviews in two regions of the province. The visits were undertaken depending on the availability of the farmer for interview where the minimum of one farmer was interviewed per day. However, the problem with data collection was that some of the farmers were not able to show up at the intended contact sessions.

The data collected included a group of questions related to farm income, expenses, and operator characteristics. The farmers were also asked about the means of productive practices by offering him different states of nature. The states of nature included production risk as a result of the variance of the mortality rates, price risk that represents price levels, and marketing risk due to lack of ability to sell the entire production, and therefore, effecting the production cycle. The farmers were also asked to provide, in their own view, the possible combinations of productive practices to counter for the present risks. Finally, the farmers were asked about the cost of each alternative action in addition to its impact on production to facilitate calculating the gross margin of each alternative.

#### **4.3.3 Data collected**

The collected data were used to construct the representative farm model financial statements which are helpful in providing the reader with a clear picture of the performance of emerging broiler farmers in the province. The collected information concerning the farms that took part in the study were also compared to those of national standards of well performing producers in

order to come up with advises and strategies as to where and how the farmers can improve the capability and productivity of the farm in the case of underperformance. For example, referring to the concept of performance measures used in the study, a farmer is characterised as well performing if the ROE is higher than the ROA.

The ordinary stochastic dominance (OSD) approach was used to determine the most efficient managerial decisions for the broiler farms. The OSD approach relies on making comparisons among the cumulative distribution functions (CDF) of the different production alternatives available to the farm manager. The approach basically assumes that the decision makers prefer more to less (for the first-degree stochastic dominance (FSD)) and that they are risk averse (for the second-degree stochastic dominance (SSD)).

#### **4.3.4 Data sources**

Data was obtained from farm records, farm workers and the farmers. It should however be mentioned that the farmers did not keep up to date financial records, but this problem was overcome by asking more questions relating to their financial operations, costs as well the means of profit generation. Some of the data was obtained from national departments about the recommended performance of farms across the country as well as the experts in the evaluation of financial performance.

#### **4.3.5 Pilot Work**

Due to the possibility of errors and inaccuracy, the collected data was presented to experts and the fellow students to help determine whether it makes sense and whether it is accurate and reliable for the purpose of the study.

## 4.4 FARMS CONSTITUTING REPRESENTATIVE FARM

### 4.4.1 Management Structure

Management is one of the core issues when it comes to farming enterprise. All the ten farmers who participated in the study are their own bosses. This means therefore that even though some have hired people to assist in day-to-day operations of the farm, managerial decisions are subjected to the owners of the farms. Out of the ten emerging broiler growers that were interviewed, only six of them had a good training background. These included theoretical background (through workshops and informative meetings with the extension agents) of how to profitably raise broilers in a sustainable way. On the other hand the training that was offered to the farmers included manuals on how to take care of broilers from day old to matured chickens. The training and back up manuals were provided by the DoA Pretoria.

On percentage, it was found that sixty percent of the emerging broiler farmers in Gauteng province are well trained in the management of broilers at different training institutions. Table 4 below shows the areas of the poultry projects that took part in the study as well as their centres of training:

**Table 4: Centres where farmers participated in training**

<b>Location of the Farm (District)</b>	<b>Training experience</b>	<b>Training Institution</b>
Haakdoornboom	Practical	Previous broiler farmers
Haakdoornboom	Practical	Previous broiler farmers
Attridgeville	Practical and theory	Tswane University of Technology (TUT)
West Brix	Practical and theory	Kroons Gourment Chickens
Zuurbekom	Practical and theory	Boskop training

Zuurbekom	Practical	Previous broiler farmers
-----------	-----------	--------------------------

Four other farmers are not directly trained in managing the broiler projects, but they did consult with other experienced farmers who have been in operation for some time. Furthermore, inexperienced farmers also contact the broiler institutes such as the Department of Agriculture (DoA) and Agricultural Research Council for advice with their projects. As indicated by the farmers that management is very crucial to the better performance of their broiler projects, they do their best to keep their management ability improved. This is done through attending workshops, poultry events and other training facilities which are set up by DoA through the agricultural extension agents.

**Figure 12: General management of broiler farm**

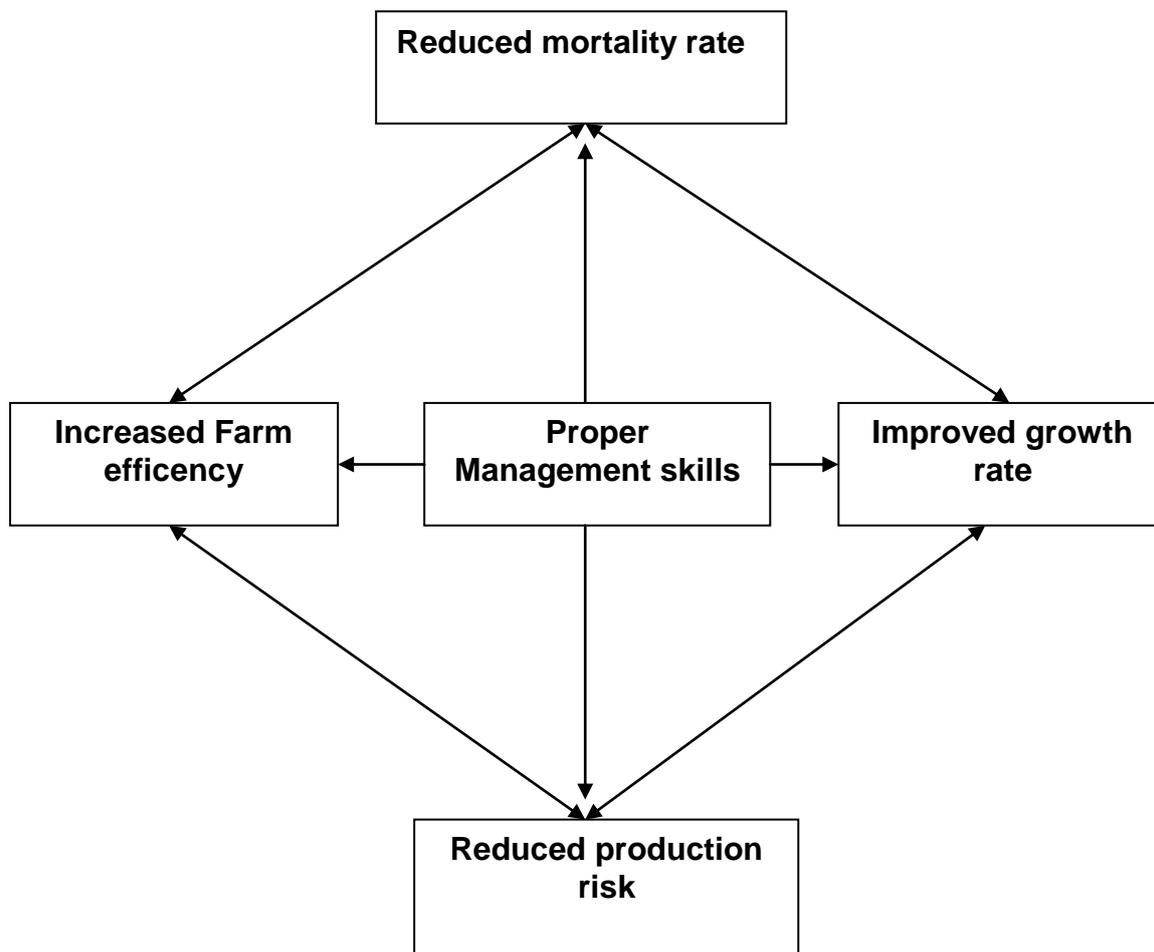


Figure 12 above shows that proper management skills of a farm manager have a number of benefits to the advantage of the farm in general. First, the proper management structure leads to the farm that is in a position to have low mortality rate. The lower mortality rate in turn leads to higher farm profits. Secondly, the fact that proper management is crucial to development of broiler farm enterprise is reflected by reduced production risks. This happens in a sense that a trained farm manager makes a decision based on the possible risks that a farm can be exposed to unlike the farm manager who will just decide on executing plans without proper revision of the possible shortcomings.

The ability of a particular farm manager to reduce the possibility of production risks has a positive impact on the chances of the farm to be in a better position to generate enough profits. The third and fourth important aspects that are reflected by the proper management structure is that of improved growth rate and increased farm efficiency. As figure 12 clearly shows, proper management skills of a farm manager leads to birds reaching maturity as could be expected and this also means that the farm is efficient due to the fact that the farm will be in a position to enough profits as expected by the farm manager. This further means that the farm is better off in terms of the possibility of future developments.

Management is not only important for the purpose of achieving high profits at the end of the day but also to maintain the sustainability of the farm. This is because daily farm operations have to be monitored in way that the farm can be in a position to have a longer life span while on the other hand improving its profits. Profit making is the core to the survival of the farm operation and it can only be achieved through improved management practices of the farm owner and or the farm manager.

One of the most serious challenges that determine the well being of the farm management is that of mortality rate of chickens. Different farmers show that the average mortality rate for broilers is six percent. This means that should it happen that the mortality rate of any one farm is above six percent, then there is definitely something wrong with the management system of that particular farm. So far the farmers that took part in the study are doing well in this regard since the average mortality for their farms is 5 percent. According to the farmers, the mortality rate of more than 6 percent is a signal of poor management of an enterprise. It was reported that an acceptable mortality rate should be less than 6 percent.

It should also be noted that without a proper management structure, the performance of the farm cannot be determined or monitored well. This is because for any farm manager to be able to determine how the farm has been performing, comparing the past performance with the present one, this would not be easily determined since there would be records for the previous year to compare with, as a result of poor management.

#### **4.4.2 Mortality of birds**

Mortality of birds refers to the rate at which birds within a particular farm die. The rate at which birds within a particular farm die depends largely on the management structure and skills of the farm. The ten farmers that formed part of the study are generally characterised by the mortality rate of less than 6 percent. According to the broiler farmers, mortality of chickens is acceptable and normal if it lies between 4 and 5 percent. Should the mortality of one farm be above 5 percent, this is an indication of poor management structure and lack of management skills by the farm manager. Table 5 below shows the different mortality rates for ten emerging broiler farmers that form the study.

**Table 5: Mortality rates**

<b>Location of the Farm (District)</b>	<b>Farm size (hectares)</b>	<b>Broiler Section of the Farm (hectares)</b>	<b>Number of birds raised</b>	<b>Mortality Rate on average(%)</b>
Bulfontein (BF)	21.5	1	1800	3
Haakdoornboom (HA)	8.5	1	1000	4
Haakdoornboom (HB)	8.9	1/2	300	2
Attridgeville (AG)	283	5	10500	6.2
West Brix (WB)	13	3	21000	5
Zuurbekom (ZA)	2.5	1	2000	6
Zuurbekom (ZB)	7	1/2	1500	4
Zuurbekom (ZC)	2.5	1	300	1.5
Zuurbekom (ZD)	2.2	1.86	1000	10
Zuurbekom (ZE)	5	1	2000	6
	<b>Average</b>			
	<b>5 %</b>			

According to table 5 above, it can clearly be seen that in terms mortality rate, the emerging farmers are generally doing well as the average mortality is around 5 percent. This can be attributed to, not only well structured management systems, but also the fact that these farmers invested a lot in to proper medical treatment of the birds from the time of arrival to the farm until the point of selling.

The only slight exception is that of the farm ZD with the highest mortality rate of 10 percent. In this case, the farmer indicated that the high mortality rate was experienced because birds are kept longer unnecessarily on-farm at which time they should be sold out to consumers (market). The reason why birds are kept unnecessarily long on the farm is due to the fact that during the

time of selling, not all birds get to be bought at the same time. When some birds are sold, some are not bought and therefore stay on the farm and this poses a production risk for the farmer and further results in increased mortality rate.

#### 4.4.3 Size

##### *Size of the Farm*

Even though it can be treated independently of other aspects related to the farm operations, the size of the farm is one of the most important factors which determine how the farm perform financially. Most farmers have bigger plot size (eleven hectors on average) of which most of it is not being used extensively for the purposes of broiler farming. Almost all emerging farmers that took part in the study use a very small margin of the farm for the broiler production. This is shown in the table 6 below:

**Table 6: Size of the farm used for broiler and other sectors in the farm**

<b>Location of the Farm (District)</b>	<b>Farm size (hectares)</b>	<b>Broiler Section of the Farm (hectares)</b>	<b>Other sectors (crops, beef cattle, sheep and dairy)</b>	<b>Percentage broiler (%)</b>
Bulfontein (BF)	21.5	1	20.5	4
Haakdoornboom (HA)	8.5	1	7.5	11
Haakdoornboom (HB)	8.9	0.5	8.4	5
Atteridgeville (AG)	283	5	278	2
West Brix (WB)	13	3	10	23
Zuurbekom (ZA)	2.5	1	1.5	40
Zuurbekom (ZB)	7	0.5	6.5	7

Zuurbekom (ZC)	2.5	1	1.5	40
Zuurbekom (ZD)	2.2	1.86	0.34	84
Zuurbekom (ZE)	5	1	4	20
	<b>Average (broiler)</b>			
	<b>27 %</b>			

It can clearly be seen from table 6 above that emerging broiler farmers in Gauteng make use of twenty seven percent of their overall farm size for broiler production. The farmers indicated that small portions of land are used because of lack of capital needed to make the necessary improvements as well as expansions of broiler houses (structures). Small size of the broiler project is one of the prohibiting factors that lead to the farmers not being able to have the necessary access to the markets as they would like to do. It is the case though, that farmers with larger farm size have other activities that take place within the farm except broiler production. These include beef cattle, crops, breeding houses, sheep, irrigation schemes as well as residential purposes.

Apart from capital necessary for expansions of the broiler projects, emerging broiler farmers are also concerned about the proper access to direct market. One of the ways with which emerging farmers can have access to the market is through contract grower schemes. This because being in a contract means that a particular farmer has a defined market such that there is not too much worry about a random buyer who might not even be available or interested to buy at times.

Out of ten emerging broiler farmers that participated in the study, only two are producing on a contract and this means that eighty percent of the emerging farmers in the province do not have a defined market. In the case of contract producers, it is clear that farmers have all of their chickens bought by the contractor.

The non contract producers on the other hand do not have the defined market and therefore sell their produce to individual buyers and the local shops which are able to buy in bulk to sell in the informal market. The arrangements of the producer with the local buyers are done individually with the buyers (including local shop owners) and these differ depending on how each buyer wants to purchase chickens. The fact that farmers are characterized by an informal market means that the chances of expanding and making improvements are very slim, hence why they use the small portion of farm for raising broilers.

### ***Size of the Representative farm model***

The representative farm model of ten emerging farmers was considered to be adequate for the accomplishment of the objective of the study taking into account the fact that these ten farmers represent the two regions within the province (North and South). It was also taken into consideration that ten farmers would be adequate due to the fact that these farmers are further spread within the given regions. For example, BF, HA, HB, AG and WB are in the Northern side, but within the Northern side these farms are far from each other, approximately 17 kilometres apart, while those in the Southern side are approximately 10 kilometres apart. Table 7 below shows the farmers that formed the model looking at their respective geographical locations.

**Table 7: The geographic locations of the farms forming the representative farm model**

<b>Location of the Farm (District)</b>	<b>North/South</b>	<b>Percentage of the representative model (%)</b>
Bulfontein (BF)	North	<b>North</b> Constitutes 50% of the farms in the representative model
Haakdoornboom (HA)	North	
Haakdoornboom (HB)	North	
Attridgeville (AG)	North	
West Brix (WB)	North	
Zuurbekom (ZA)	South	<b>South</b> also Constitutes

Zuurbekom (ZB)	South	50% of the farms in the representative model
Zuurbekom (ZC)	South	
Zuurbekom (ZD)	South	
Zuurbekom (ZE)	South	

It can clearly be seen from table 7 above that the two sides, Northern and Southern side of the province contributed equally to the representative farm model. This was done with an intention of attaining a balanced geographic dispersion of the province.

#### **4.4.4 Contract vs Non-contract**

As briefly indicated in the previous section, the issue of contract production is a very critical one when it comes to the survival and sustainability of a broiler project. Farmers producing under contract have a lot of benefits as compared to those who do not have the contracts. It was showed in chapter two that farmers that are involved in contract production do not have a high production risk, financial risk and are also characterized by a well defined market.

Apart from the above mentioned risks, contract production can also helps emerging farmers by stabilising their enterprises through reduced production costs. It is also important to highlight that farmers under contract production are able to produce a certain number of chickens at a discount price. This because farmers integrate with feed companies which sell them feed stuffs at the discounted price. This is demonstrated in chapter 2.

Looking at the farmers who participated in the study, the two out of ten that are producing under contract do have the benefits as explained in the two previous paragraphs. Even though these two emerging farmers are characterized by several benefits of contract production, there are still some concerns that were brought forward. One of the problems that contract farmers are faced with is the problem of price taking from the contractors. This a limiting factor when it comes to the dynamics of profit generation for the

farm because being a price taker does not take in to account the rising prices of feed stuffs.

Another concern as pointed out by the contract farmers was that they do not have a direct access to the market. This is due to the presence of a middle man between the producer and buyer.

Being a price taker seems to be problematic in that regardless of whether the price of feed stuff is increasing, the producer cannot be in a position to also increase the price of the chickens per kilogramme. This means then that the producer cannot make enough profit as long as the price of the chicken feed is rising.

#### **4.5 MARKETING SYSTEM**

The term marketing refers to the path that goods follow from the producer to the final consumer. In this case marketing system will mean the path chickens follow from when they are a day old until they reach the final consumer (SAPA, 2007). Marketing of matured birds can be a problem to broiler farmers, especially in the case of emerging farmers. This reason behind this is the fact that farmers do not have a defined market for their produce hence why they end up selling to the informal markets such as local township as well as individual buyers. This is dangerous for the farm because birds can get matured but not bought at the expected time. This further implies that the farmer will experience more feeding costs while also being faced with mortality of matured birds.

Emerging farmers are faced with the problem of finding a well defined market due to the fact that they produce on a small scale compared to the commercial farmers. One other thing that makes marketing of broilers a problem in as far as the emerging farmers are concerned is the fact that they do not have contracts of production. As mentioned in the previous section, only two emerging farmers are producing under contract. This means that

about eighty percent of the emerging farmers in the province are producing without any contract.

According to the information obtained from the farmers however, not only non contract producers are vulnerable to financial risk, but even the farmers that are producing under contract can be exposed to the threat of rising feed prices while price per kilogram of chicken is not increasing. This was attributed to the issue of being price takers.

It was shown by the farmers that are producing under contract that being in a contract does help them in selling all their produce, but there still exist a big problem of not setting the price per kilogram of their produce. This is one point where noncontract farmers have a little advantage over the contract producers. The noncontract producers are able to set the price per bird for the produce even though they sell informally and on a small scale.

The fact that they are able to set their own price per bird to their buyers does not however solve the problem of minimal profit. This is the result of the fact that the local shops do not buy chickens on a large scale compared to the contract producers who sell their produce all at once.

**Table 8: Broiler operation size of contract and non contract growers**

<b>Location of the Farm (District)</b>	<b>Farm size (hectares)</b>	<b>Producing under contract</b>	<b>No contract</b>
BF	21.5	No	Yes
HA	8.5	No	Yes
HB	8.9	No	Yes
AG	283	Yes	OBC
WB	13	Yes	No
ZA	2.5	No	Yes
ZB	7	No	Yes
ZC	2.5	No	Yes

ZD	2.2	No	Yes
ZE	5	No	Yes

As table 8 above clearly shows, all the emerging farmers from the southern side of Gauteng (Zuurbekom) do not produce under contracts. It is further indicated in the table above that out of five farmers from the Northern side (Bulfontein, Haakdoornboom, West Brix and Attridgeville), two of them are characterized by contract production and the rest of the emerging farmers are not. The contract producers and non-contract producers are characterised by average sizes of 125 and 7 hectares respectively which is huge gap validating the difference in the number of broilers raised by each category.

The reason behind this is the fact that there are no contract providers to their disposal. On the other hand, farmers indicated that they do not have contract because of the giant broiler producers such as Rainbow, Astral and Early Bird. These giant broiler producers have their own equipment of broilers from hatchery to consumption. This means they are not much in need of any necessary facilities that can cause them to form contracts with the producers. For example, they have their own hatcheries, abattoirs, and also have shares to feed companies.

According to the information provided by the farmers, it can be said that marketing strategies or problems of the contract and noncontract farmers need to be treated separately of each other. This is because all the emerging farmers that do not produce under contract have a problem of a well defined market. The solution to this problem can be attended to by, first, understanding the different situations under which the two groups operate and further assisting these farmers to have a well defined market by helping them have an access to the giant broiler structures such as Rainbow.

#### **4.6 FARM PERFORMANCE MEASURES**

The financial statements are a very important tool in helping farm managers decide whether or not they are making a progress or not. Financial analysis is therefore needed for the purpose of evaluating how the farm is performing. That is, financial ratios can help the farm manager to be in a position where he/she can tell whether improvement is needed for the farm to do better financially. This is because a successful farm decision depends largely on how well informed a farm manager is in terms of the productivity of the farm. An analysis of the farm can on the other hand be possible if the records are kept on the daily activities of the farm.

It was mentioned in the previous chapters that there are many different ratios that can be used to evaluate the performance of the farm, but the study makes use of only four of them and these are NFI, ROE, ROA and OPM. It was assumed that these profitability measures will help in analysing the financial performance of emerging broiler growers in Gauteng province that can be helpful to farm managers.

According to (Gitman, 2003), business managers need more information on several aspects and these are as follows:

- The ability of the farm to meet commitments. That is, the farm manager needs information on whether the farm is able to meet its financial commitments.
- The ability of the farm to pay loans and debts. The sustainability of any one farm depends not only in the profit making of the farm, but also on the ability of the farm to pay its debts as scheduled.
- The farm manager needs to have enough information on the trends of farm revenues and costs. That is, it is necessary for any farm manager to be aware and on a look out on how much the farm is making as compared to how much the farm is spending.

- The farm manager also needs to have enough information on the trends in the production and performance of the farm. This can help the manager to know what to execute and what to omit in daily operations of the farm.
- The farm manager needs to have information on how the farm makes use of resources to the farm's disposal. That is, the farm manager has to know how much of the scarce resources the farm uses in a given time period.

It is necessary that farm managers are well informed on the issues mentioned above for the optimal performance of the farm. This leads to the calculation of the financial ratios according to the information obtained from the respective farmers.

One of the limitations of the study was that most farmers did not keep up-to-date records and this makes it difficult to construct the necessary financial statements. However, more questions were asked to compensate for this problem such that it would be possible to calculate and evaluate the performance of the farmers.

#### **4.6.1 Calculations of Financial Ratios**

##### ***Operating Profit margin***

The operating profit margin measures the percentage of each sales rand remaining after all cost and expenses other than interest and taxes have been deducted (Gitman, 2000). This means that it measures the pure profit earned by the farmer after accounting for the necessary expenses of the farm. Operating profit margin is said to be pure because it measures only the profits of the farm earned on daily operations of the farm but does not take into account the financial and government charges of the farm such as interest and taxes. For a farm to be doing well, a high profit margin is preferred. This

is due to the fact that if the operating profit margin is higher enough, the farm can be sustainable.

$$\text{Operating Profit Margin} = \frac{\text{Operating profits}}{\text{Sales}}$$

The figures calculated in this chapter were obtained from the questions asked by the researcher. This was because most farmers did not have the well maintained financial records.

#### **4.6.2 Return on Assets (ROA)**

ROA is a measure of the overall effectiveness of the farm in the process of generating profit given the available resources (Gitman, 2003). The earnings power of an asset of the farm is very important because it is a symbol of the success of the farm as a whole. In order to determine the how effective a farm can be in terms of utilising its assets in the generation of profit, ROA can be calculated and this is done as follows:

$$\text{ROA} = \frac{\text{Operating income}}{\text{Total Assets}}$$

#### **4.6.3 Return on Equity (ROE)**

The return on equity measures the return earned on the owner's investment in the farm. That is, it measures the rate at which the owners or shareholders of the farm receive for what they had invested in the farm. This therefore means that if the ROE is higher, the owners of the farm are in better off in terms of the earnings they receive, but if it is low, the owners are worse off in terms of the earnings. ROE is one of the important ratios that can be used because it serves as a guide to the owners of the farms in regard to their investment decisions in the farm. It is also used to weigh incentives for individual owners if the farm is privately owned. It is calculated as:

$$\text{ROE} = \frac{\text{Net profits after tax}}{\text{Share holder's equity}}$$

#### **4.6.4 Net Farm Income ratio**

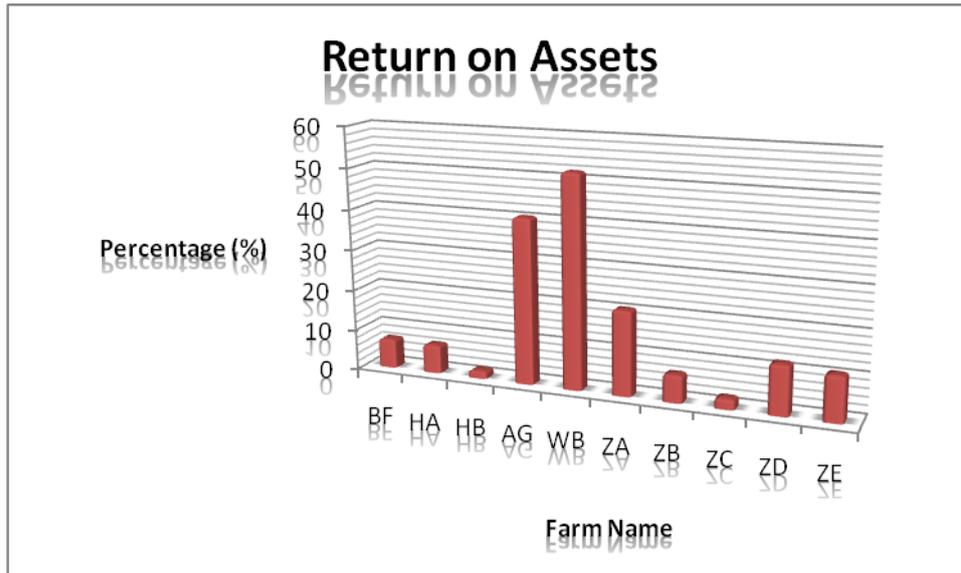
Net farm income ratio measures the percentage of each sales remaining after all costs and expenses have been deducted. The difference between the net farm income and the operating profit margin is the fact that operating profit margin measures only profits and ignores the financial and the government charges while net farm income includes the taxes and interest. For any one farm to be better off, the net farm income has to be high. It is also the measure of success of the farm since the lower the net farm income means the less profits the farm is making and hence the little the chances of success the farm stands. It is calculated as:

$$\text{Net Farm Income} = \frac{\text{Net profits after taxes}}{\text{Sales}}$$

### **4.7 RESULTS AND DISCUSSION**

#### **4.7.1 Return on Assets**

**Figure 13: Average percentages of the ROA for the ten representative farms**



ROA is one the performance measures under which the farm is said to be doing well if it has the higher ROA. The positive ROA is a good sign that the farm is performing well. It does however happen that the farm can have a negative ROA and could be as a result of huge loses a farm can encounter. This means therefore that a negative ROA can still be justified in the context of analysing the farm performance.

### ***Contract growers***

According to figure 13 above, the two contract growers have the highest of all the other farms that took part in the study. WB is characterized by the highest ROA of around 51 percent while AG follows with ROA of 40 percent. This could be attributed to the fact that the two farms generated a considerable amount of profit from their assets. As indicated in the previous section, about 81 percent of the gross income of WB is utilised to cater for farm expenses such as depreciation, tax payments and other daily farm expenses while on the other hand, about 82 percent of the gross farm income of AG is used to take care of farm expenses.

### ***Non contract growers***

The ROA for the farms that are not producing under contract are lower compared to those of contract growers. Although the ROA is for these farms, it is still positive and the positive ROA is sign of a considerable performance of the farm. The ROA for HB and ZC are very low at around 2 percent on average. This could be the fact that these farms did not generate enough profit out of the available assets. Although these farms have the lowest ROA, this does not however imply bad performance because they are still able to generate enough profit as HB has a net profit of R50,000 and ZC is making the profit of R33, 540 which is an acceptable profit looking at the scale with which they produce.

The rest of the other farms that are not producing under contract are also characterised by the acceptable ROA with BF and HA at around 7 percent, ZA at around 21 percent, ZB at around 7 percent, ZD at 12 percent and ZE at around 11 percent. Although compared to the contract growers, the non contract growers are not more efficient in the utilisation of their assets and hence performance, it cannot be concluded that they are performing bad as their ROA is generally not negative and their net income is still acceptable.

It can therefore be concluded that looking at the ROA, the contract growers are performing well financially, in comparison with the non contract growers in the province. One of the possible reasons to this performance is that contract producers are subject to better housing facilities as compared to non contract growers and this helps them improve their rate of return on assets.

The study is also aimed at comparing the outcome of the two parts of Gauteng province from which the broiler farmers took part and these are the Southern side of Johannesburg (Zuurbekom) and Northern side of Pretoria (Pretoria North).

### ***Southern Side***

According to figure 13, it clearly be seen that farmers that constitute the Southern side of Gauteng (ZA, ZB, ZC, ZD and ZE) are characterised by the

differing rates of ROA. ZA has the highest average in terms of ROA at around 21 percent and this is indicative of a good utilisation of the available assets in generating farm profit. ZB, ZC, ZD and ZE have an average of about 6.8, 2.6, 12 and 11 percent on average.

These farms have the acceptable ROA collectively, which is indicative of optimal utilisation of available assets within the farm for profit generation. Looking at this result, it can be said that the emerging farmers in the Southern side of the province have the acceptable ROA and are therefore performing well in that regard. An average of ROA of broiler emerging broiler farms in the Southern side of Gauteng is around 11 percent and this is indicative of a good performance in this regard.

The reason behind the good ROA could not only be attributed to the fact that these farmers are utilising their assets optimally, but could also be due to the fact that there is an advantage of economies of scale and an investment done on the farm.

### ***Northern side***

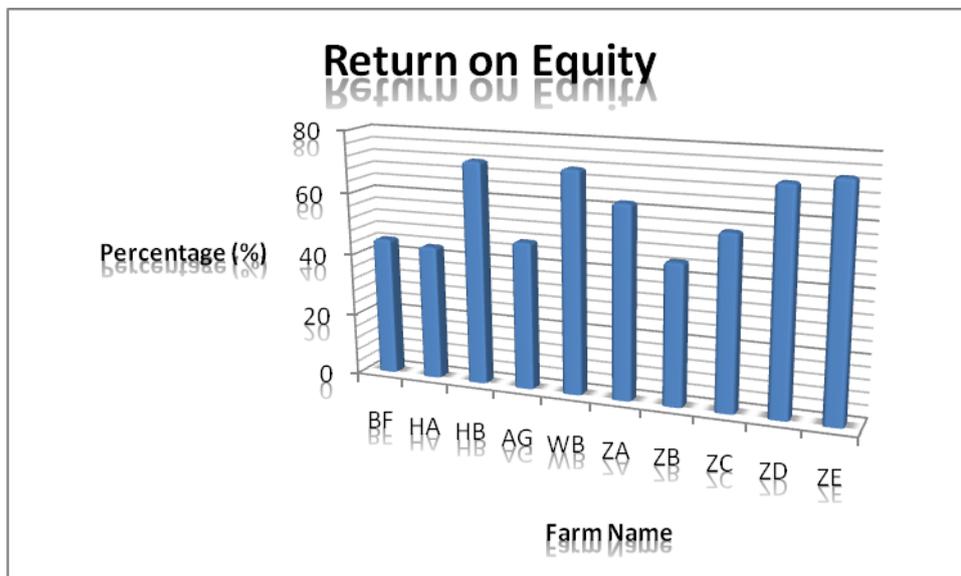
Although the farmers in the Southern side seem to be doing well in terms of the ROA, according to figure 13, the performance of the farmers in the Northern side of Gauteng outweighs that of the Southern side. Looking at figure 13, it can be seen that the farm with the highest ROA is WB with the rate of around 51 percent. When comparing this to the highest ROA in the Southern side, which is around 21 percent, it can be seen that the Northern side has far more the ROA than the Southern side.

Figure 13 goes further to show the ROAs of the other farmers (BF, HA, HB and AG) in the Northern side and these are around 7.3, 7, 1.9 and 40 percent respectively. The reason behind the variation of ROA in the Northern side is the fact that the two farmers having the highest ROA (WB and AG) have an

advantage of economies of scale over the other farmers. It should also be born in mind that these farmers with the highest ROA are producing under contract and therefore have a higher investment in the farms than those who are not producing under contract. On average the farmers in the Northern side of Gauteng have a collective ROA of 15 percent which is more than that the farmers in the Southern side collectively.

#### 4.7.2 Return on Equity

Figure 14: Average percentages of the ROE for the ten representative farms



ROE is one of the financial ratios which provide information on how the farm is performing taking in to account the debt on capital structure. For the ROE to be preferred, it should be more than the ROA.

#### **Contract growers**

Figure 14 above shows that the two contract farmers (WB and AG) have the ROE of around 71 and 47 percent respectively. This is a good percentage because referring back the previous graph on ROA, it shown in that graph that the ROA for the two farms is around 51 and 40 percent respectively. As

stipulated in the previous paragraph, it is expected that for a farm to be performing well, the ROE should be more than the ROA.

Looking at the results on the ROE, it can be said that the contract growers in Gauteng province generally doing well in generating profits and this means that these farms are considered profitable. On average, the contract growers have an ROE of 59 percent.

### ***Non Contract Growers***

The noncontract broiler growers (BF, HA, HB, ZA, ZB, ZC, ZD and ZE) are characterised by the averages of 44, 43, 72, 62, 45, 55, 71 and 73 respectively. Although these farmers are characterised by some variations in the ROE rates, the variations are not significant as the lowest the farm with the lowest ROE is HA with the ROE of around 43 percent. Generalising the results of ROE in terms of the highest and the lowest values, it can be seen that the non contract growers like in the previous section (looking at the ROA), outperforms the contract growers because the highest ROE according to the graph is achieved by the non contract grower (ZE) at around 73 percent.

On the other hand, the lowest ROE is from the non contract growers (HA) at 43 percent. The noncontract growers have an average ROE of 58 percent which is less than the average of the contract growers of 59. Since the difference on the averages of the contract and the non contract growers is not significant, it can be concluded that generally, no one can be said to be out performing another in the context of the ROE.

### ***Southern side***

The ROE of the farmers in this side of the province differ slightly. According to figure 14, it can be seen clearly that the farmers in the Southern part of the province (ZA, ZB, ZC, ZD and ZE) have the ROE of 62, 45, 55, 71 and 73 percent respectively. The ROE for these farms is acceptable and meet the

requirements of the farm that is profitable since for the farm to be profitable, its ROE should be more than the ROA.

This is the case because when referring to figure 14 above, the ROE for farm ZA is 62 percent and this is more than the ROA of around 21 percent. Likewise for the other farms ZB, ZC, ZD and ZE have the ROE of 45, 55, 71 and 73 percent which are more than their ROA of 6.8, 2.6, 12 and 11 percent respectively. It can therefore be concluded that the emerging broiler growers in the Southern side of Gauteng are performing well financially in relation to the ROE as the performance measure and the average for these farms is 61 percent which is good.

### ***Nothern side***

The farmers in The Northern side also do not differ significantly in regard to the ROE. This is because referring to figure 14, it can be seen that the highest ROE is from farm HB with the ROE of 72 percent while the farm with the lowest ROE is HA with the ROE of around 43 percent. The other farms that constitute the Northern side are BF, WB and AG and are characterised by an ROE of about 44, 71 and 47 percent respectively.

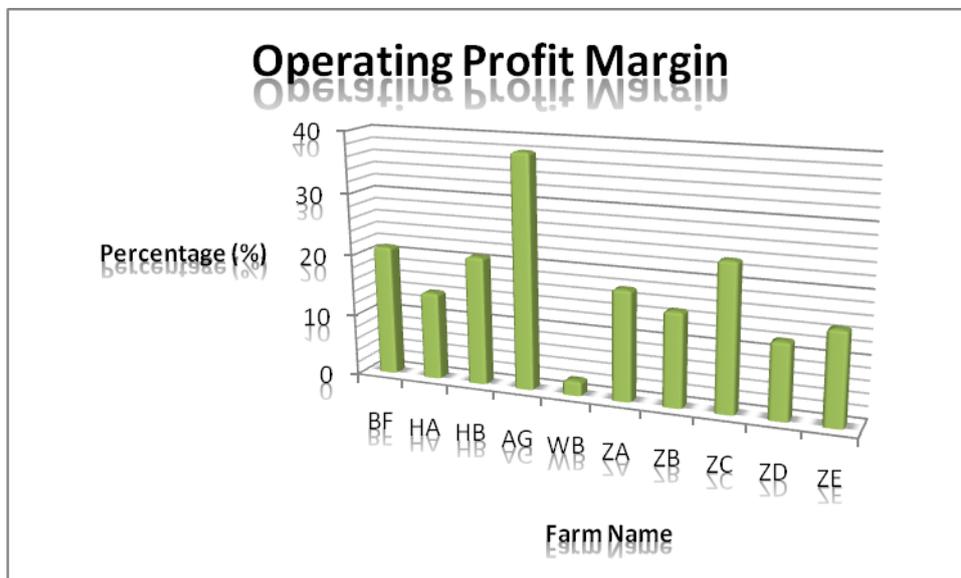
These ROEs, like in the case of the Southern side farms, are indicative of the a well performing farm. Furthermore, the ROE for these farms like that of the Southern side are greater than the respective ROA. Referring to the two graphs about the ROE and the ROA, it can be seen that HB has an ROE of 72 percent and this is greater than the ROA of 1.9. This means that although HB does not make a good use of its assets to generate more profit, it is characterised by high sales which then imply that there is enough investment done to generate more profits for the farm.

When looking at the other farms in this side of the province, it can be seen that HA, BF, WB and AG have the ROE of 43, 44, 71 and 47 which are also more than their respective ROA of around 7, 7, 51 and 40 percent. The

average ROE for the farms in the Northern side of Gauteng is 55 and this also good like in the case of the farmers in the Southern side. It is therefore applicable to say that in regard to the ROE, the performance of the emerging broiler growers in the Southern side of the province does not differ significantly from that of the farmers in the Northern side. It can therefore be concluded that none of the farmers from either side dominates another collectively.

### 4.7.3 Operating Profit Margin

Figure 15: Average percentages of the OPM for the ten representative farms



Operating profit margin is a measure of a percentage of gross income that is represented by the farm profit after all costs and expenses except tax and interest have been deducted. It represents the profits earned by the farm on each sales achieved.

#### **Contract growers**

From figure 15, it can clearly be seen that for the farmers that are producing under contract (WB and AG), on every rand that a farm earns from the operations, WB is characterised by obtaining an amount of about 2 cents per R1 that is received as profit. AG on the other hand seems to be the opposite

of WB earning around and is characterised by earning 37 cents on every R1 that a farm makes as profit.

It is therefore clear that when it come to the question of OPM, the issue of production scales that characterises the farms is not important. This is because according to the information obtained, WB produces about 40000 birds while AG produces only 10,500. The reason behind the low OPM for the WB could be attributed to the fact that the farm is experiencing the problems of expensive feed stuff without the discounts, electricity, medication and legal obligations that the farm faces.

AG on the other hand is doing well in this regard, but not yet until it compared to other farmers that took part in the study and these are those farms that are not producing under contract. On average, the contract growers that took part in the study have an OPM of about 20 percent where the larger portion as pointed out earlier in this paragraph is achieved by AG.

### ***Non Contract growers***

The farms that are not producing under contract are generally doing well with reference to the OPM. This is because looking at figure 15, it can clearly be noted that the farm with the lowest OPM ration is not from the non contract growers, but from the contract growers. This does not however, necessarily imply that the farms with higher OPM ratio receive a higher profit than those with low OPM. One could say that a farm with a higher OPM earns high profits than the one with low OPM on proportion, that is, it depends on the scale with which the farms are producing.

During the discussion of the previous financial ratios, it was seen that the farms that constitute the non contract growers are BF, HA, HB, ZA, ZB, ZC, ZD and ZE. According to figure 15, it can be seen that although they are not the farms with the highest OPM ratios, the non contract growers are performing well compared to the contract growers. Looking at the respective OPM ratios, it can be seen that the non contract growers are characterised by

the OPM ratios of 21, 14, 20, 18, 15, 24, 12 and 15 respectively. These ratios in comparison with those of the contract growers with the ratios of around 2 and 37 shows that the noncontract growers are outperforming the contract growers collectively.

The explanation behind the respective OPM ratios for the non contract growers is as follows.

BF earns 21 cents from each R1 received as the profit before tax and interest. HA, HB, ZA, ZB, ZC, ZD and ZE are characterised by the earnings of about 14, 20, 18, 15, 24, 12 and 15 cents on each rand received as profits before deduction of tax and interest. The average OPM ration for the farmers that are not producing under contract is around 17 percent which is without no doubt greater than for the contract growers. This therefore shows that even though they are exposed to a well defined market like the contract growers, the non contract growers are still able to earn a reasonable profit from their produce.

### ***Southern side***

Farmers constituting the Southern side of Gatuteng (ZA, ZB, ZC, ZD and ZE) are caharacterised by the earnings of 18, 15, 24, 12 and 15 cents per R1 of the profits generated before tax and interest. This is a good financial performance with ZC achieving the highest of 23 cents per R1. This means therefore that these farmers are characterised by enough profits to sustain the profits generated from the daily farm operations.

Furthermore, it can be understood that the farmers in Southern side of Gauteng are able to invest in their respective farms more in order to keep the margin of OPM high. This can be done through expansion of the farm which will in turn mean buying of more assets to help the farm experience more profits as the higher profits for the farm means the more sustainable the farm becomes and the larger the chances of growth gets.

On average, the farms in the Southern side of the province can be characterised by the earnings of 17 cents per R1 of the OPM and this is an acceptable OPM. It is therefore relevant to say that the farmers in Southern side of Gauteng generally perform well financially. The performance of farmers in the Southern is compared to that of the Farmers in the Northern side in the following paragraph.

### ***Northern Side***

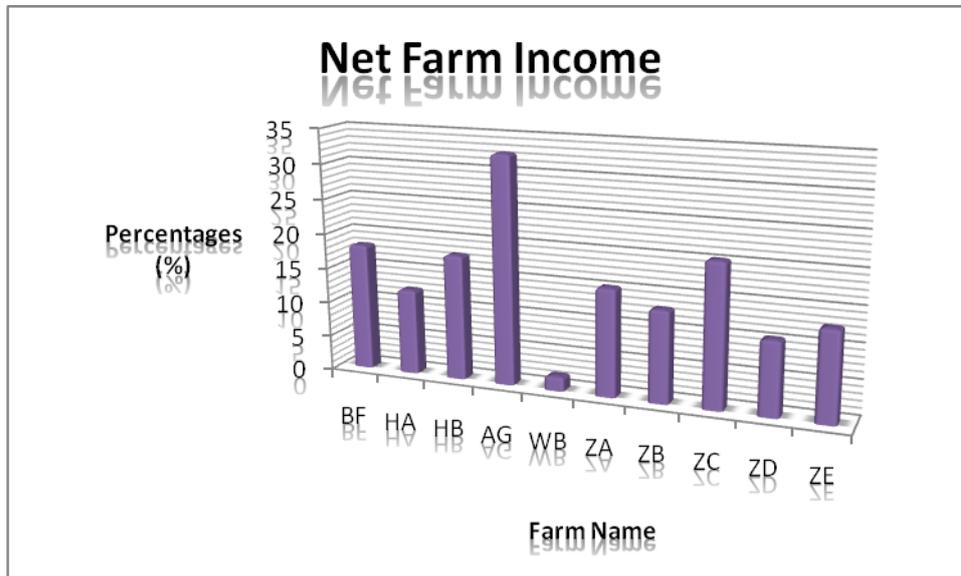
Farmers that constitutes the Northern side of Gauteng (BF, HA, HB, WB and AG) are characterised by the earnings of 21, 14, 20, 37 and 2 cents per R1 of the profits earned before tax and interest rate. Unlike in the case of the Southern side farmers, farmers in the Northern side differ in terms of the percentages of their respective OPM. This is because according to figure 15 it can be seen that the highest OPM ratio that characterises farmers in the North is 37 cents per R1 (AG). This is a huge difference when taking in to account the farm with the smallest OPM ration which is 2 cents per R1 of the profits earned before tax and interest (WB).

With reference to these differences, it can be said that farmers in the Southern side of the province are generally doing better than those in the Northern side financially. On the other hand, when looking at the averages of the two sides, it can be seen that the farmers in the Northern side out performs those that are in the Southern side. This is because Northern side farmers earn 19 cents of the profits earned before interest and tax per R1 while farmers in the Southern side earn 17 cents per R1 of the profit before tax and interest.

It can therefore be concluded that farmers from the two sides of the province are competitive in terms of performance when it comes to the OPM ratio, that is, no side can be said to be dominant over the other.

#### 4.7.4 Net Farm Income Ratio (NFIR)

Figure 16: Average percentages of the NFIR for the ten representative farms



#### **Contract Farmers**

From figure 16 above, it can be seen that the one of the contract growers AG is characterised by being one of the farms with highest Net Farm Income with the average of 37 percent. This means that for every R1 of the gross profits, farm AG receives 37 cents. This is a high income compared to other farmers like WB which earns 2 cents from every R1 earned from the gross profits.

These farms however have the highest net income compared to the non contract growers on average. This is due to the fact that for AG, about 68 percent of the gross income is used for covering the farm expenses such as taxes, depreciation, day to day operations as well as interest payments. On the other hand for WB, approximately 98 percent of the gross income is used to cover the daily operations of the farm taxes and depreciation of machinery within the farm. On average, the contract growers are said to earn an amount of about 17 cents of the gross income and this can be comparable to that of the non contract growers who are briefly discussed below.

### ***Non contract Farmers***

It is clearly shown in figure 16 that about 18, 12, 18, 15, 13, 20, 10 and 12 percent of the non contract emerging farmers in Gauteng province represent the Net Farm Income of the respective farms. The farms that are noncontracters are BF, HA, HB, ZA, ZB, ZC, ZD and ZE respectively. This is due to the fact that, like in the case of the contract growers, the above farmers employ an average of 82, 88, 82, 85, 87, 80, 90 and 88 cents per R1 received from the gross income respectively for the purposes of covering the day to day activities, interest payments, accounting for depreciation and tax payments. It can therefore be said that, on average, the non contract emerging farmers in the province make the NFI of 15 cents per R1 received in gross income and this is comparably lower than that of the contract growers.

According to the response provided by the contract growers, the less profits on proportion that they made from their farming was attributed to the fact that they are price takers in the stable market that they have. This means that even if the price of inputs increases, they are not able to increase the price per kilogram of the birds they produce, hence the low profit they make at the end of the day.

### ***Northern Side***

The emerging broiler farmers that constitute the Northern side side of the province include BF, HA, HB, AG and WB. According to figure 16, the broiler farms in the North of Gauteng are characterised by some differences in terms of their respective net income. This is because the NFI for these farms is on average 18, 12, 18, 32 and 2 percent respectively. AG is characterised by the highest in terms of NFI of all the farms in the Northern side followed by BF, HA, WB and HB.

This is because these farms are making enough profit for the farm and therefore able to settle debts and other farm expenses as they come due as the higher net income is preferred to low. The exception is WB with the lowest

NFI of 2 percent. This also means that out of the gross income the farm receives, this farm uses 98 cents for farm daily operations.

### ***Southern Side***

Farms that constitute the Southern side of Gauteng province are ZA, ZB, ZC, ZD and ZE. According to the analysis done on these farms, the NFI differs slightly compared to that of the Northern side. In this case ZC has the highest NFI of all the five farms with an average of 15 percent and it is followed by ZE, ZD, ZB and ZA with 12, 10, 13 and 15 percent respectively. This means that from the gross income, the farms earn 15, 12, 10, 13, and 15 cents per R1 respectively.

Looking at these results, it can be concluded that the emerging broiler farmers in the Northern side of Gauteng generally have the higher NFI than those in the Southern side of Gauteng. This is because on average, the Northern side makes a net income of 16 percent while those in the Southern side make the average net income of 14 percent. This means that collectively, emerging broiler farmers in the Southern side earn 14 cents of the gross income as their NFI while those in the Northern side earn 16 cents per R1 of the gross income.

Even though the difference is not significant for the two sides of Gauteng, the difference that is obtained does count when looking at the ability of the farmers to repay farm debts as well as being able to cater for depreciation expenses and daily expenses within the farm.

## **4.8 CONCLUSION**

The representative farm model was constructed out of ten emerging farmers in the Gauteng province. Four financial performance measures (NFI, ROA, ROE and OPM) were constructed, calculated, analyzed and discussed. The financial performance measures were discussed in the form of graphs which

reflected the ten emerging broiler farmers from the two regions of the province.

Graphical presentation of the four financial ratios was expected to better provide the reader with an idea of how the emerging farmers in Gauteng province perform financially. Although these ratios are characterized by some disadvantages, they are however able to give a picture of the whether or not the e farm is in the good direction. It is understood from this chapter that the emerging farmers in Gauteng province are doing well financially because looking at the four ratios that have been used to analyze and compare the outcomes in terms of the performance, non of the ratios resulted in a negative answer.

Furthermore, it was shown in this chapter that the ten farmers that took part in the study, contract and non contract, South and Northern side farmers can be characterized some differences because some of the farmers from either category mentioned above have different value in terms of ratios analysis. These differences were however taken care of by discussing the farms collectively and then comparing because individual farmers can be characterized by low ratios while others have high ratios in the same category of discussion, that is, contract, non contract, South and North side farmers.

Looking at the discussion about the out come of the calculated ratios, it can be concluded that, on general terms, emerging farmers in Gauteng province are doing well financially. Furthermore, it needs to be taken into account the fact that although they seem to be doing well, there are still a number of concerns that the farmers raised during the field work. One of the important concerns they raised was the increasing prices of feeds for broilers while the price per bird remains unchanged. This could in the long run affect the performance of the farmers and hence affect farm profits and sustainability of the farm in general.

### **Points to note about the constructed Representative Farm Model**

There are a number of problems that were encountered in developing the representative farm model during the course of the study and these are summarised as follows:

As mentioned in chapter 3, the farmers that formed part of the study did not keep up-to-date financial records and this was one of the challenges of the model during the study.

One other limitation of about the representative model in the study is that the model did not include all the financial statements of the farmers, but included only the broiler part of the farm. This means the conclusion reached on the financial performance of the farms is based on broiler section only which might be misleading when taking in to account the performance of the farm as a whole.

On the other hand, even though good in explaining the financial performance, the financial performance measures used in the model might be limited, on their own, in explaining the detailed financial performance of emerging broiler farmers in Gauteng. This calls for inclusion of other performance measures to validate the financial performance of the respective broiler farms such as the economic value added (EVA).

Apart from the limitations mentioned in the previous paragraphs, the representative farm model constructed in this paper gave a clear picture of the financial performance of the emerging broiler farmers in the province. This was validated by the farmers themselves who were individually asked to comment on how they thought the farm performance was like in terms of broilers.

The model should also be given credit for its ability to successfully assess the financial performance of emerging broiler farmers in the two regions of Gauteng (North and South).

Even though there was not enough data for the purpose of financial statements, the model was able to discuss the dynamics of the contract in comparison with the non contract emerging broiler farmers within the province. It should however be noted that for the broader picture of these dynamics of contract and non contract emerging broiler farmers, not only traditional measures (NFI, ROA, ROE and OPM) should be used, instead the traditional measures should be coupled with other different performance measures. This introduces us to the last chapter, which concludes the study and give recommendations for further research.

## **CHAPTER FIVE**

### **5 CONCLUSIONS AND RECOMMENDATIONS**

#### **5.1 INTRODUCTION**

The main objective of this study was to determine the financial performance of emerging broiler farmers in Gauteng province. This was done in a way of constructing a representative farm model. Other objectives of the study were to establish how viable the emerging broiler farmers in the Gauteng are through a critical analysis of the financial ratios.

There are various ratios that could be used for the purpose of analysing the performance of farmer financially. However, not all the ratios were involved as part of the study. The ratios used in the study were selected by their relevance to the achievement of the problem statement of the study. The four ratios (OPM, NFI, ROE and ROA) that formed the basis of the study were considered important under an assumption that they would provide a broader picture for the purposes of successfully achieving the aim of the study.

As it is one of the objectives of the study to determine the financial position of the farms constituting a representative farm, the financial ratios used in the study were helpful in this regard and also comparing the financial performance of the farms constituting the model.

#### **5.2 APPROACH FOLLOWED**

Ten emerging broiler farmers were randomly selected from the Northern and Southern side of Gauteng. This was done in such a way that each side was represented by five farmers. Although the farmers that took part in the study were reluctant to provide the financial statements such as income statements and balance sheet, the information concerning these statements was acquired by asking the farmers more questions on their financial matters.

The study established the performance measures (OPM, NFI, ROE and ROA) which were calculated, analyzed then used to critically evaluate the performance of ten farmers that were under concern. Furthermore, not only evaluation of the performance was achieved in the study, but also the study made a comparative analysis of Southern side farmers with the Northern side farmers. With this analysis, the study established the consequences of the ratios used to analyse the performance of the respective farms in the cases where the farmers did not seem to be up to standard.

### **5.3 OTHER FACTORS OF PROFITABILITY**

Apart from the use of financial ratios, one could be in a position to predict whether the farm has a potential of growing further or not. One of the most important aspect to take into account when determining the survival and hence profitability of the farm is by assessing the effectiveness of farm management. Poor management skills of the farm manager could get a farm into serious financial problems and eventually liquidation due to unmanageable debts. Managing a farm in a profitable manner requires a farm manager to take in to account several factors of production process. These can range from various possible risks associated with an enterprise to establishment of market fluctuations.

It is also important that farm managers do not take for granted the issue of record keeping. This is because record keeping helps the farm manager to be able to track the current performance of the farm by referring to the past performance. Furthermore, this can help farm managers to be in a position to have a better understanding of how to act at different situations or problems a farm could face.

Productions systems on the other hand play an important role in the accomplishment of farm profitability. Proper management can be put in place, but as long as the production systems of broilers are not suitable or properly

undertaken, the farm can experience a very high mortality rate which would in turn mean a big loss.

#### **5.4 LESSONS LEARNED**

One of the lessons that were learned during the course of the study was that broilers are not raised as simple as one could imagine. This is because from the day old chick until ready for the market, broilers need intensive care from the day they are received to the day they go to the market. One of the important factors that reduces high mortality rate is that of keeping the environment of broilers hygienic. By reducing mortality of birds, this can help the farmers increase profits and be in a good position to expand the farming business.

The other lesson learned during study was the fact that most emerging broiler farmers did not have well defined market for the broilers. This makes it difficult for them to grow and expand their enterprises because selling informally to the local people does not guarantee that all the produce would be sold out. This means that the farmers selling informally are then exposed to a high financial risk and this is why most farmers produce seasonally, that they stock more birds during December and other important holidays when they assume more people need chickens.

Farmers also indicated that in order to expand as they would like to, more training is required to help them acquire more knowledge on to profitably produce broilers. According to their perspective, it would be necessary that the government put more training centres in place. According to the farmers, there are a few training centres that are in place for broilers and these include ARC and DoA. In their view, the farmers indicate that the training centres should be introduced throughout the country so that they can serve as the informative institutions throughout the year.

It was observed during the course of the study that most farmers do not keep up-to-date financial records. Out of the ten farmers that took part in the study, only two of them had the up to date records and these are AG and WB. The reason behind this, for those who are not keeping records, was the fact that since they are selling informally, record keeping is a problem in that the birds do not get sold all at the same time making it difficult to keep up to date with the records.

## **5.5 RESEARCH INTERPRETATION**

### **Net Farm Income**

The NFI was calculated in the study to determine how much of the gross farm income emerging farmers earn as profit after expenses, farm costs and taxes have been deducted. According to the results obtained from this ratio, it can be seen that emerging broiler farmers in Gauteng generally have an acceptable NFI. This means that these farmers have the potential to grow and expand and generate more profit for the farm.

### **Return on Assets and Return on Equity**

After the calculation of these ratios, it can be seen that looking at both of the ratios, one can conclude that the emerging farmers in Gauteng perform well financially. Furthermore, it can be said that the farmers need to invest more on their farms as this will result in a better return on both cases and hence increase the profitability of the farm.

### **Operating Profit Margin**

This is an important ratio that can help the farm to see whether the farm is sustainable and whether it has future. Looking at the calculated ratio, it can be said that the emerging farmer in Gauteng are generally able to generate enough profit necessary to cater for farm debts and other daily farm

obligations as they come due. This is because all the farmers that participated in the study are characterised by a positive OPM and this implies that the farms are generating enough profit and hence the farms are considered profitable.

## **5.6 FURTHER RESEARCH TOPICS**

The following areas can further be explored

Do incorporating emerging farmers in to the markets help improve their financial performance?

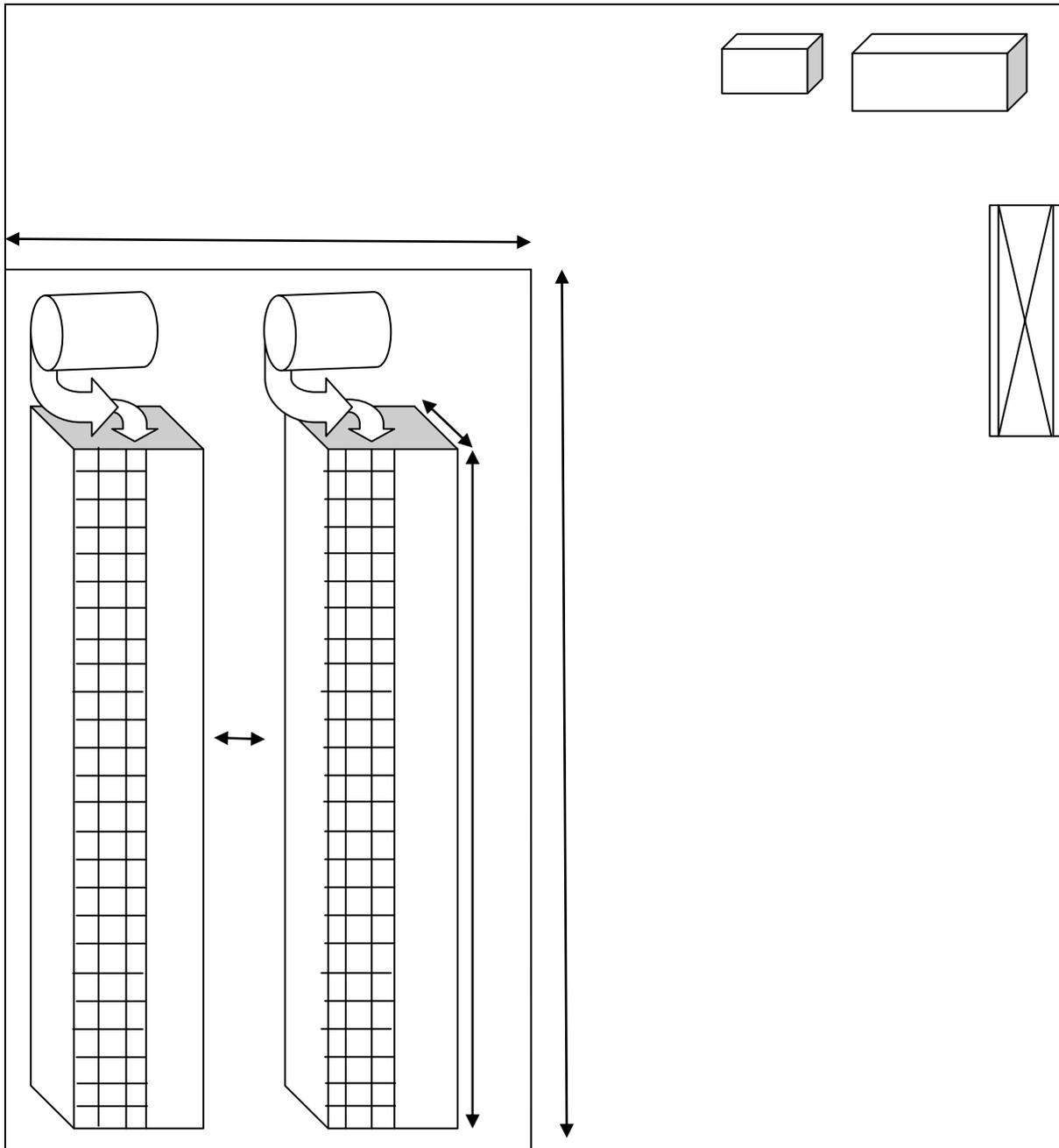
The issue of contract production and profitability. That is, establishing how price taking affect contract production as contract producers are currently price takers.

One could also establish whether there is positive or negative relationship between size of the farm and profit.

The influence of management practises on the financial performance of the farm.

## 5.7 CONCLUSION

Figure 17: A typical farm



According to figure 17 above shows a 13 hectare farm situated at West Bricks (North side). The farm started with the production of 21 000 broilers and is currently producing 40 000. This farm produces under contract with Kroons

Gourmet chicken. Out of 13 hectares, only 3 hectares are used intensively for the broiler production. The remaining 10 hectares is used for keeping beef cattle and for residential purposes of the farm workers.

### **Generalizations**

The farm has an automated feeding and drinking systems under which temperature is also controlled and this is shown by the tanks on the side of the each shed. The capacity of the broiler sheds is 20 000 birds per shed and the distance between the sheds is 10 meters. The sheds in such a way that there is enough ventilation for broilers (the upper part of the sheds is fence and the lower part built with bricks).

Farm managers should not overlook the importance of the financial statements in the production process. The importance of financial statements is seen not only for the purposes of identifying how much profit the farm is making but also for the purpose of identifying the overall performance through the successive years. This will also help the farm managers to be in a position to forecast the future performance of the farm taking the current situation as the base line.

The representative farm approach used in this study was aimed at generalising the performance of the emerging broiler growers in Gauteng. The model was constructed with ten emerging farmers from Southern and Northern side the province.

The four performance measures (NFI, ROE, ROA and OPM) were used to achieve the goal of the study under which a broad conclusion, based on results of these ratios, could be drawn that the emerging broiler farmers in Gauteng are generally performing well financially. It can further be said that these ratios have been effective in providing a clear picture about the performance of individual farmers that took part in the study and this is representative of emerging farmers in Gauteng.

## 6 LIST OF REFERENCES

Bailey, A., Irz,X., & Balcombe, K., 2004. *Measuring Productivity Growth when Technological Change is Biased – A New Index and an Application to UK Agriculture*.

Boden, E., 1993. *The In Practice Handbooks: Poultry Practice*. Dah Hua Printing. Hong Kong.

Boehlje M., 2003. *Economic Value Added, centre for food and Agricultural Business*, Purdue University, Available on line [[www.agecon.com](http://www.agecon.com)] Accessed 17 July 2009.

Chaya, C. & Ludez, L., 2000. *Comparative analyses of Sampling Plans to Create a Farm Accountancy Data Network for the Agricultural Sector in Navara*. Vol 24, 1 p. 137 – 150.

Costa, E.F., & Houston, J.E., 2006. *An interactive decision model integrating broiler production and processing responsiveness to consumer and producer prices*. Poster paper prepared for presentation at the International Association of Agricultural Economists Conference, Gold Coast, Australia.

Dalgaard, R., Halberg, N., Kristensen, S., & Larsen, I., 2002. *Modeling Representative and Coherent Danish Farm Types Based on Farm Accountancy Data for use in Environmental Assessments*.

Doye, D., Freking, B.a, & Payne, J., 2002. *Broiler Production: Considerations for Potential Growers: Oklahoma Cooperative Extension service*.

Esterhuizen, D., 2007. *South Africa, Republic of Poultry Products and Voluntary Report*.

Faour, K., & Singh, A., *A Representative Whole-Farm Model of Rice Based Farming Systems in the MIA*. NSN Agriculture, Yanco Agricultural Institute.

Farrelly, L.L., 1996. *Transforming Poultry Production and Marketing in Developing Countries: lessons learned with Implications for Sub-Saharan Africa*.

Gitman L.J., 2003. *Principles of Managerial Finance (10<sup>th</sup> Edition)* Person Education International Boston USA

Gitman L.J., 2000. *Principles of Managerial Finance (10<sup>th</sup> Edition)* Person Education International Boston USA.

Gura, N., Eberle, H. & Olesinski, W., 2008. *Flow Control in Out put Buffered Switch*. Menlo Park. USA

Helfand, S.M. & Levine, E.S., 2004. *Farm size and Determinants of Productive Efficiency in the Brazilian Centre-West*. *Agricultural Economics* 31(2004) 241-249.

Hopkins, J., Hanson, K., Somwaru, A., & Burfisher, M.E., 2003. *Allocation Effects of Policy Reform: A Micro-Simulation of Macro Model Results for United States*.

Kapombe, C.M., & Colyer, D., 1999. *A structural time series analysis of US broiler exports*. *Division of Resource Management, West Virginia University*.

Leeson, S., and Summers, J.D., 2000. *Commercial Poultry Nutrition*. Guelph. Ontario. Canada.

Leeson, S., and Summers, J.D., 1997. *Commercial Poultry Nutrition*. Guelph. Ontario. Canada

MacDonald, J.M., 2003. *Agricultural Contracting Update Contracts in 2003*. United States Department of Agriculture; Economic Research Service; Economic Information Bulletin Number 9.

Martinez, S.W., 1999. *Vertical Coordination in the Pork and Broiler Industries: Implications for Pork and Chicken Products*: United States Department of Agriculture. Agricultural Economic Report No. 777.

Molnar, J.J., Hoban, T. & Brant, G., 2002. *Passing the Cluck, Dodging Pullets: Corporate Power, Environmental Responsibility, and the Contract Poultry Grower*. *Southern Rural Sociology*, Vol. 18(2), 2002, pp.88-110.

NAMC and Commark Trust, 2007. Chicken Meat subsector Study. South Africa. National Agricultural Marketing Council and Commark Trust.

Paggi, M.S., Yamazak, F., & Diao, F., 2007. *Specialty Crop Representative Farm Models: Focast, Policy Analysis and International Comparative Studies*.

Parkhurst, C.R., & Mountney, G.J., 1988. *Poultry Meat and Egg Production*. Van Nostrand Reinhold Company. New York.

Perry, J., Banker, D. & Green, R., 1999. *Broiler Farms. Organization, Management, and Performance*. Resource Economics Division. Economic Research Service, U.S. Department of Agriculture. Agriculture Information Bulletin No. 748.

Ronald D., Edward G., & David, P., 1998. *Southern Farmers Exposure to Income Risk Under the 1996 Farm Bill*. Texas Agricultural experiment Station, Texas Agricultural Extension Service: Department of Agricultural Economics, Texas A&M University, Agricultural and Food Policy Center Working Paper 98-4.

Sheppard, A., & Edge, S. *Economic and Operational Impacts of the Proposed EU Directive laying down Minimum Standards for the Protection of Chickens kept for Meat Production*: research report number 13

Sherif, S.A., & Al-Kahtani, S.H., 1999. *Managerial efficiency under risk for broiler producers in Saudi Arabia*. Department of Agricultural Economics, College of Agriculture, King Saud University, Riyadh, Saudi Arabia.

Skully, D., 1998. *Opposition to contract Production: Self-selection, and Stranded Assets*.

South African Department of Agriculture., 2009. *Abstract of Agricultural Statistics*.

South African Department of Agriculture., 2008. *Annual Financial Statements*.

South African Department of Agriculture.,2008. *Trends in Agricultural Sector*.

South African Department of Agriculture.,2009. *Quarterly Agricultural Economic Review and Focast. Volume 6, Number 4*.

South African Department of Agriculture.,2005. *Quarterly Agricultural Economic Review and Focast. Volume 6, Number 4*.

South African Department of Agriculture.,2008. *Economic Review of the South African Agriculture*.

South African Department of Agriculture.,2006. *The South African Food Cost Review*.

South African Poultry Association (SAPA), 2007. *The Broiler Industry Profile for 2007*. South Africa.

Statistics South Africa., 2000. *The Broiler Industry*.

Sub Sector Study: Chicken Meat. National Agricultural Marketing Council and  
Commark Trust. Report No 2007-03