Share-milking as an alternative business model for the successful establishment of black commercial dairy farmers in South Africa

by

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M.Sc. (Agric.) Agricultural Economics

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DECLARATION

I, Jan Daniel Strydom, declare that this thesis/dissertation, which I hereby submit for the degree Master of Science (Agricultural Economics) at the University of Pretoria, is my work and has not been submitted by me for any other degree at this or any other tertiary institution.

Signature: 

Date: 14 December 2016

DEDICATION

I would like to dedicate this study to my late parents (Jan and Alletta Strydom), my wife Karin and children Tiaan, Kara and Jan Daniël.

ACKNOWLEDGEMENTS

First and utmost, I thank the Lord, our Heavenly Father, for granting me the opportunity and ability to conduct and conclude the study.

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ABSTRACT

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Department: Agricultural Economics, Extension and Rural Development
Study Leader: Professor André Louw

South African milk producers supply around 8.4 million litres of milk per day. The monetary value of this supply results in a contribution of approximately 6.7% to the gross value of agricultural production. In 2015 producer income was estimated at R14 900 million with an investment capital of around R32 500 million. In South Africa the dairy industry is the fourth-largest of all agricultural industries, creating approximately 20 000 sustainable job opportunities, excluding up and downstream opportunities (MPO, 2016).

Both small and large businesses are affected by global trends that are the driving forces behind major changes in the dairy industry. Agri-businesses and farmers are exploring methods to change their strategies, business models and production systems to be able to sustain their competitiveness in the global market. Entry barriers to the global markets and local industry are capital intensive, costly and complex (OABS, 2014).

In South Africa the tendency exists where the larger commercial dairy farms are expanding by incorporating smaller farming units. This tendency exists in most countries around the world. This trend will certainly increase the entry barriers for establishing black commercial dairy farmers, despite the pressure of transformation in South Africa. In fact, they would be at greater risk of business failure compared to their more established counterparts in the formal sector due

to the lack of access to critical resources and relevant experience. Therefore, alternative business models should be evaluated and implemented to assist with the establishment of black commercial dairy farmers in South Africa.

Kirsten and Sartorius (2002) referred to the formation of partnerships between small-scale farmers and thereby increasing their marketing power and enabling them to compete against large-scale farmers. These partnerships would allow the smaller farmers to enjoy the same benefits that their larger counterparts enjoy, as well as reduce managerial inputs required and transaction costs.

Milk SA (2014) refers to various success stories of transformation in the primary dairy industry. All of these success stories are based on share-milking agreements, hence the research on how share-milking contributes to the successful establishment of black commercial dairy farmers.

The availability of suitable land for dairy production where emerging farmers can be established is also becoming a major constraint. Suitable coastal land will become exhausted; therefore, there is a need for alternative models to establish emerging farmers. Both communal land and privately owned land are currently being used for share-milking projects.

The primary dairy industry is not excluded from the proposal stating that all commercial farmers should cede 50% of their land to farmworkers; hence Agri SA's proposal and presentation to the Department of Rural Development and Land Reform (DRDLR). According to Agri SA (2015), proposals should:

- "comply with the Constitution of South Africa;
- give full recognition to economic and market actualities;
- not necessarily be dependent on state support; while
- utilising the potential of private-public partnerships as far as possible;
- adhere to the NDP framework" (Agri SA, 2015).

Agri SA (2015) referred to the share-milking scheme at Reebok Rant as an alternative to the 50/50 proposal from Government.

As mentioned, various restrictions and barriers are hampering the successful establishment of black commercial farmers. The dairy industry is no exception. Venter (1997) listed constraints that hamper the successful establishment of black commercial farmers that are still relevant today:

- Personal constraints (management and biographical factors)
- Access to credit (especially credit to purchase production inputs)
- Access to markets (outputs, inputs and transport)
- Land tenure
- Adequate and efficient extension services and training before commencement with farming activities and while farming

The specific objective of the study was to evaluate to what extent the share-milking model addresses the following ten critical requirements for the successful establishment of black commercial dairy farmers (critical success factors):

- Access to land
- Opportunity to obtain to finance
- Opportunity to buy inputs and to be able to market their produce
- Utilization of extension/support services
- Obtaining the necessary training
- Utilization of available labour force – job creation
- Opportunity to utilize the latest available technology
- Gaining social capital
- Managerial skills
- Growth in equity

The respondents were asked the following important questions:

- What are the advantages of the share-milking business model?
- What are disadvantages of the share-milk business model?
- What are the major lessons learned?
- What are the major challenges experienced?
- Does the share-milking model assist in the establishment of black commercial dairy farmers, and why?

The various case studies were not compared directly, but evaluated in terms of whether they address the ten critical factors. The results of this study are valuable to any start-up project of a developmental nature. The mentioned challenges faced and lessons learned could easily be prevented with the start-up of a new development project. The major challenge raised by the respondents was for the beneficiaries to understand the basic business principles. Therefore it is important when starting up a new project ensure that the beneficiaries understand the basic business principles and to ensure that they receive the necessary training. The major lesson learned was to be transparent. When starting up a new project ensure that all the relevant parties are well informed regarding the conditions and expected outcomes of the anticipated project and ensure that this is the case through-out the project.

The emphasis should not only be on the most frequently raised lesson ("Be transparent") or challenge experienced ("Beneficiaries to understand basic business principles"), but on all the lessons learned and challenges faced when conceptualizing a new project.

From the dependency test results it is clear that the lessons learned and challenges faced are related to the duration of the various projects. The advantages and disadvantages are related to the position of the respondents in the project.

The study findings resulted in an overwhelming confirmation of the ability of the share-milking model to conform to all the critical success factors questioned. It should be noted that, although the level or intensity of addressing each critical success factor (CSF) has not been tested, access to and utilization of the CSF was confirmed.

Although the lessons learned and challenges experienced resulted from this study are based on the share-milking model, it could be adjusted for any joint venture business. One should be able to customize it for any type of developmental project where there is a joint venture between black emerging farmers and commercial farmers.

All Government departments involved in developmental work or projects should take cognisance of the ability of the share-milking model to conform to the ten critical success factors. This business model could also mitigate the risk for any financial institution interested in development projects.

The ***share-milking model*** could be referred to as a ***share-farming model*** and Government could use the share-model and its advantages to construct a reliable developmental model for the appropriate investment of tax payers' money. Sustainability should be the key driver in developmental projects. From the feedback and results of this study it is clear that the funds that were invested by Government in the case study projects had great returns on investment as well as the capacitation of the beneficiaries.

In conclusion, it can be said that the study failed to reject the hypothesis: *"The share-milking business model conforms to the ten critical requirements for the successful establishment of black commercial dairy farmers"*.

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LIST OF ACRONYMS & ABBREVIATIONS

Abbreviation	Meaning
AGRIBEE	Agricultural Black Economic Empowerment
ARC	Agricultural Research Council
B-BBEE	Broad Based Black Economic Empowerment
BMI	Business Monitor International
CASP	Comprehensive Agricultural Support Programme
CRI	Cooperative Resources International
CSF	Critical Success Factors
DAFF	Department of Agriculture, Forestry and Fisheries
DOA	Department of Agriculture
DRDLR	Department of Rural Development and Land Reform
Dti	Department of Trade and Industry
EF	Emerging farmer
EU	European Union
FAO	Food and Agricultural Organisation
FCB	Farmer Controlled Businesses
GDP	Gross Domestic Product
IGDP	Integrated Growth and Development Program
KWANALU	KwaZulu-Natal Agricultural Union
KZN	KwaZulu-Natal
LRAD	Land Redistribution for Agricultural Development
MPO	Milk Producers Organization
NAMC	National Agricultural Marketing Act
NDA	National Department of Agriculture
NGO	None Governmental Organization
OABS	Optimal Agricultural Business Systems
OECD	Organisation for Economic Co-operation and Development
PD	Private Distributors
PPP	Public Private Partnership
PLAS	Proactive Land Acquisition Strategy
SAMPRO	South African Milk Processors' Organisation

SAS	Statistical Analysis System
SDG	Sustainable Development Goals
SEZ	Special Economic Zone
SM	Share-milking
SPP	Surplus People's Project
SME	Small and Medium Sized Enterprises
USA	United States of America
UHT	Ultra High Temperature
UNDP	United Nations Development Program
WBCSD	World Business Commission for Sustainable Development
XLSTAT	Software for Statistical Analysis in Excel

CHAPTER 1 : INTRODUCTION

1.1 Context of the study

Milk and dairy products are important nutritious products in the developing world. During the past decades consumption and income patterns have changed, which increased the demand for raw milk for consumption and further processing. In Africa the top five milk producing countries (by volume) are Sudan, Egypt, Kenya, South Africa and Algeria. The first four countries produce 52% of total African milk (Ndambi, 2007). Africa is therefore a real export opportunity for the dairy industry in South Africa, which emphasizes the potential of the sector.

South Africa is a relatively small player in the global dairy scene, accounting for close to 0.5% of the total world production. Due to its relatively small size, it is a price taker in world markets. The global average per capita consumption of dairy products is 107 kg per person per year, whereas in South Africa the average consumption is 54 kg per person per year (Milk SA, 2014).

South African milk producers supply around 8.4 million litres of milk per day. The monetary value of this supply results in a contribution of approximately 6.7% to the gross value of agricultural production. In 2015 producer income was estimated at R14 900 million with an investment capital of around R32 500 million. In South Africa the dairy industry is the fourth largest of all agricultural industries, creating approximately 20 000 sustainable job opportunities, excluding up and downstream opportunities (MPO, 2016).

Both small and large businesses are affected by global trends that are the driving forces behind major changes in the dairy industry. Agri-businesses and farmers are exploring methods to change their strategies, business models and production systems in order to sustain their competitiveness in the global market. Entry barriers into the global markets and local industry are capital intensive, costly and complex (OABS, 2014).

The dairy industry and its whole value chain are exposed to certain macro drivers, listed by OABS (2014) as follows:

- Rise of emerging markets and urbanization driving a strong demand for dairy nutrition
- Higher prices, increased convergence, more volatility, less regulation
- Social demographics - a greater focus on paediatric nutrition and healthy ageing
- Rising income and busy lifestyles – convenience foods

- Increased focus on sustainability
- New technology and innovation

The assumption can be made that the macro-economic forces that influence large-scale dairy production units would also have a negative bearing on the livelihood and sustainability of operations of smaller farming units. In South Africa the tendency exists where the larger commercial dairy farms are expanding by incorporating smaller farming units. This tendency exists in most countries around the world. This trend will certainly increase the entry barriers for establishing black commercial dairy farmers, despite the pressure of transformation in South Africa. In fact, they would be at greater risk of business failure compared to their more established counterparts in the formal sector due to the lack of access to critical resources and relevant experience. Therefore, alternative business models should be evaluated and implemented to assist with the establishment of black commercial dairy farmers in South Africa.

Kirsten and Sartorius von Bach (2002) referred to the formation of partnerships between small-scale farmers and thereby increasing their marketing power and enabling them to compete against large-scale farmers. According to Kirsten and Sartorius von Bach (2002) these partnerships would allow the smaller farmers to enjoy the same benefits that their larger counterparts enjoy, as well as reduce managerial inputs required and transaction costs.

It is, therefore, important to evaluate the share-milking business model as a tool to successfully establish black commercial dairy farmers in cooperation with larger commercial dairy farmers in order that the dairy value chain with its various stakeholders may continue to fulfil its critical role in the South African economy.

Milk SA (2014) refers to various success stories of transformation in the primary dairy industry. All of these success stories are based on share-milking agreements; hence the research on how share-milking contributes to the successful establishment of black commercial dairy farmers. The share-milk model is being implemented in different formats in various projects and the model can therefore be evaluated over a spectrum of implementation formats.

1.2 Problem statement

There is a perception amongst politicians that the ruling political party failed to achieve the land reform and redistribution targets of 30% (thirty percent), set in 1994, by 2014. According to Kirsten (2012) evidence indicates that, given the Pro-active Land Acquisition Programmes

(PLAS) and various private transactions, the target of 30% (thirty per cent) is likely to have been achieved if not exceeded. Kirsten further indicates that "the real debate should centre on the unlocking of productive and economic potential in rural areas". Kwanalu (2012) refers to the "post transfer development and support policies and structures" as what is failing the nation and not land transfer as such. Establishment of black commercial dairy farmers is failing because the focus is on one facet of the process only, namely land reform. What happens post the transfer of land remains the main challenge. Obtaining land is one of the requirements to be a successful commercial farmer. Restrictions and barriers to entry post transfer of land are major constraints in the successful establishment of black commercial farmers (Venter, 1997).

The availability of suitable land for dairy production where emerging farmers can be established is also becoming a major constraint. Suitable coastal land will become exhausted; therefore, there is a need for alternative models to establish emerging farmers. Both communal land and privately owned land are currently being used for share-milking projects.

The primary dairy industry is not excluded from the proposal stating that all commercial farmers should cede 50% of their land to farmworkers, hence Agri SA's proposal and presentation to the Department of Rural Development and Land Reform (DRDLR). According to the Agri SA (2015) proposals should:

- "comply with the Constitution of South Africa;
- give full recognition to economic and market actualities;
- not necessarily be dependent on state support; while
- utilising the potential of private-public partnerships as far as possible;
- adhere to the NDP framework" (Agri SA, 2015).

Agri SA (2015) referred to the share-milking scheme at Reebok Rant in the Tsitsikama district in the Eastern Cape Province as an alternative to the 50/50 proposal from Government.

As mentioned, various restrictions and barriers to entry exist that are hampering the successful establishment of black commercial farmers. The dairy industry is no exception. Venter (1997) listed constraints that hamper the successful establishment of black commercial farmers that are still relevant today:

- Personal constraints (management and biographical factors)
- Access to credit (especially credit to purchase production inputs)
- Access to markets (outputs, inputs and transport)

- Land tenure
- Adequate and efficient extension services and training before commencement with farming activities and while farming.

The identification of the various critical requirements (the constraints listed above) for the successful establishment of new black commercial farmers and a proper understanding of each requirement are key aspects to ensuring success. It appears, though, that the requirements are not being adequately addressed in projects as new black commercial farmers continue to encounter these critical issues. It is furthermore important that project initiators and implementers (Government, private institutions and public private partnerships) have a clear understanding of these requirements as well as ensure that they are being addressed. Ensuring that these requirements are addressed when implementing the establishment of new black commercial farmers or related projects will directly impact on the outcome of such projects.

Creative business models are required for transformation in the current economic and political dynamics in South Africa. It also requires various stakeholders (from government, private sector and beneficiaries) to contribute to the effective functioning of these business models and new value chains and to meet the new challenges they face continuously.

1.3 Objectives of the research

1.3.1 General objective

Chamberlain and Anseeuw (2015) identified the share-milking model at Seven Stars in the Eastern Cape as one of the prominent inclusive business models that they have evaluated in South Africa. The objective of the study is to investigate to what extent the share-milking model, as an alternative business model implemented differently at the five case study projects, can assist with the successful establishment of black commercial dairy farmers in South Africa. The various case study projects will neither be individually assessed in terms of their success nor will comparisons be drawn, but the focus will rather be on how the share-milk model can assist with the establishment of black commercial dairy farmers.

1.3.2 Specific objective

The specific objective of the study is to evaluate to what extent the share-milking model addresses the following ten critical requirements for the successful establishment of black commercial dairy farmers (critical success factors):

- Access to land
- Opportunity to obtain finance
- Opportunity to buy inputs and to be able to market their produce
- Utilization of extension/support services
- Obtaining the necessary training
- Utilization of available labour force – job creation
- Opportunity to utilize the latest available technology
- Gaining social capital
- Managerial skills
- Growth in equity

The critical success factors (CSF) listed above are a culmination of various sub-factors and were based on the constraints identified by Venter (1997) with regards to the establishment of black commercial dairy farmers as well as discussions with prominent industry role players.

Terblanche and Willemse (2009) referred to some challenges identified by the groups they interviewed on "Farmer Controlled Businesses" (FCB). The challenges identified relate to some of the CSFs listed above, namely: access to finance, access to markets and access to information. They furthermore refer to a study conducted by Ozowa (1995) who identified four information needs of emerging farmers in Nigeria. These needs include extension education, agricultural technology, agricultural credit and marketing (Ozowa, 1995).

These needs relate to the CSFs that will be evaluated in this study. Addressing or adhering to the CSFs will be evaluated at each of the identified five case study projects.

1.4 Hypotheses

The share-milking business model conforms to the ten critical requirements for the successful establishment of black commercial dairy farmers.

1.5 Selection of case study projects

Five share-milking projects in the Eastern Cape form part of the case study. Milk SA listed various share-milking projects in their Transformation Handbook (2014/15) of which the following were prominent and were thus selected for the case study:

- Keiskammahoek Dairy Trust/Seven Stars Trust
- Shiloh Dairy Trust
- Grasslands Development Trust
- Reebok Rant Dairy Development Trust
- Wittekleibosch Dairy Trust.

These projects were also selected for their respective start dates, which vary from 2002 to 2011, so to obtain feedback from a wider spectrum of respondents in terms of period of involvement in share-milking. The compilation of each of the selected projects differs and therefore diversifies the research sample. The diversified sample should contribute to a more objective and representative result. Each of these case studies will be discussed in more detail in Chapter 4.

Figure 1.1 and Figure 1.2 below depict the geographical positioning of the five case study projects.

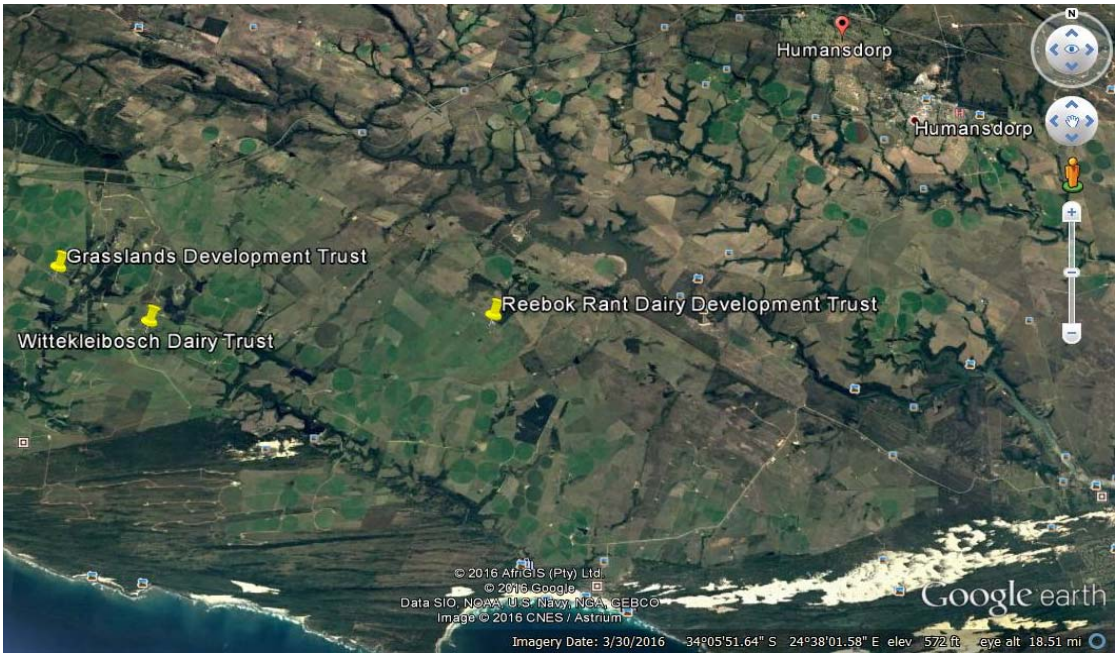

Figure 1.1: Geographical positioning of Grasslands, Wittekleibosch and Reebok Rant
Source: Google Earth Pro (2016)

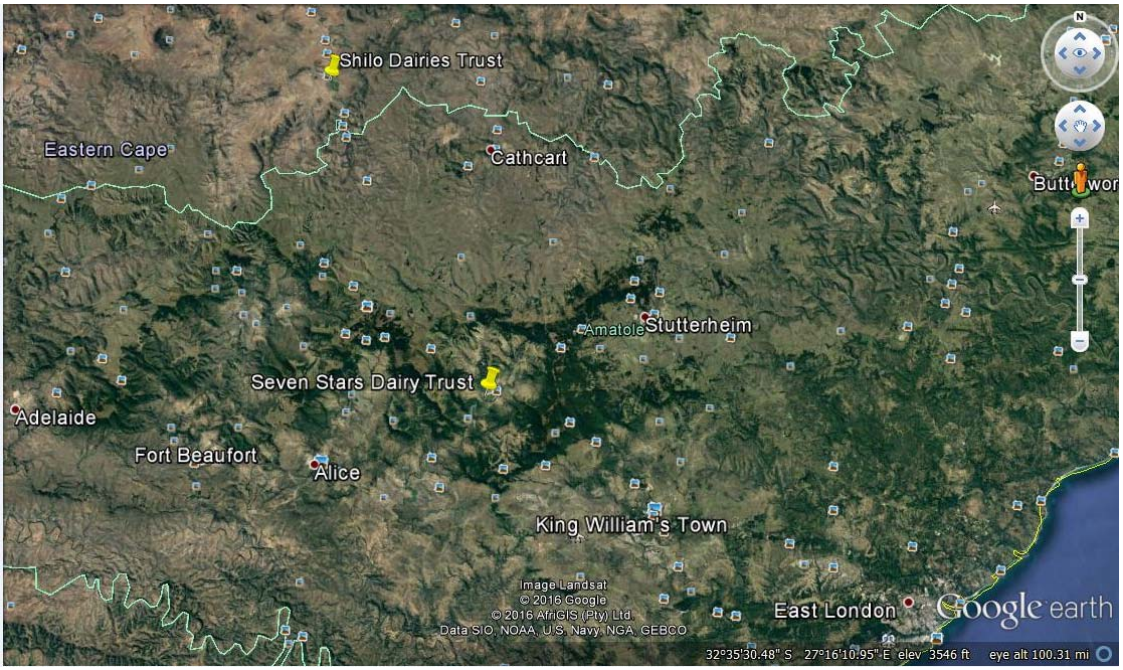

Figure 1.2: Geographical positioning of Seven Stars Dairy Trust and Shiloh Dairies Trust
Source: Google Earth Pro (2016)

1.6 Research methodology

The research methodology is based on the evaluation of five share-milking case studies. Yin (undated) referred to case studies as *"the preferred strategy when "how" or "why" questions are being posed"*. The "how" (how does the share-milking business model contribute to the successful establishment of black commercial dairy farmers?) and "why" (why does the share-milking business model assist in the establishment of black commercial dairy farmers?) questions are prominent in this specific study. Yin (undated) furthermore indicated that case studies are also found in economics. According to Yin (undated) *"the case study allows an investigation to retain the holistic and meaningful characteristics of real-life events-such as individual life cycles, organizational and managerial processes, neighbourhood change, international relations, and the maturation of industries"*. It should be noted though that a limitation of making use of the case study method to collect the qualitative data is the statistical analysis of the obtained data. Despite the mentioned limitation the information will be statistically tested for correlation, independency and contingency using statistical programmes such as SAS and XLSTAT.

The research is based on qualitative information obtained from five case study projects. The process necessitated visits to each of the five projects. Data was collected by means of a semi-structured questionnaire. Questionnaires were constructed for the black farmers and the share-

milker of each of the case study projects. Six black farmers/beneficiaries per project were randomly selected to complete the questionnaire as well as one representative from the share-milker of each project (i.e. seven per project). The information gathered was evaluated in terms of how the share-milking business model addresses the list of critical success factors in the establishment of black commercial dairy farmers, as well as in terms of the feedback on the following important questions:

- What are the advantages of the share-milk business model?
- What are disadvantages of the share-milk business model?
- What are the major lessons learned?
- What are the major challenges experienced?
- Does the share-milk model assist in the establishment of black commercial dairy farmers, and why?

The various case studies were not be compared, but evaluated in terms of how they address the ten critical factors. Each case study project received a code, which was used in the analysis and interpretation of the results. The coding of the various projects was for reasons of confidentiality.

Evaluation of the gathered information should indicate to the extent to which share-milking as a business model addresses the problem statement and whether it contributes to the achievement of the set objectives.

1.7 Conclusion

The study focuses on five case studies in which the approach is mainly qualitative of nature and is supported by interviews with relevant stakeholders. It is further supported by the relevant data and information. The purpose was to obtain information from emerging farmers, from a managerial and project management point of view and not to conduct a quantitative analysis. Being diverse case studies in the share-milking schemes, the approach was to evaluate in relation to the ten critical factors.

1.8 Chapter outline

In this study the chapters are organised as follows.

Chapter 1 provides the introductory issues, problem statement and objectives of the dissertation. It defines the hypothesis that will guide the research and outlines the research method.

Chapter 2 provides an overview of the dairy industry in South Africa in terms of the current raw milk production, areas of production, main products manufactured from the raw milk and the number of commercial dairy farmers in South Africa. B-BBEE

Chapter 3 focuses on the literature review, with emphasis on transformation, B-BBEE, AgriBEE, business models and concepts, business case approach and share-milking.

Chapter 4 provides a description of the various case studies used in the research with specific focus on background (formation), composition of the project, equity composition, share-milker's view on the share-milking model and the latest organogram of the project.

In **Chapter 5** the case study data is assessed. This chapter focuses on the biographical characteristics of the respondents and how the share-milk model addresses the ten critical success factors.

In **Chapter 6** the individual response is analysed in terms of the following questions:

- What are the advantages of the share-milking model?
- What are the disadvantages of the share-milking model?
- What are the lessons learned?
- What were the major challenges experienced?
- Does the share-milking model assist emerging farmers to become commercial dairy farmers, and if so, what are the reasons?

Chapter 7 provides the conclusions based on the findings of the study and recommendations based on the conclusions.

CHAPTER 2 : Overview of the South African Dairy Industry

2.1 Introduction

The dairy industry in South Africa has undergone various changes during the past decade and is currently dominated by commercial raw milk producers (approximately 1 700) and a few major dairy processors (MPO, Lacto Data 2016). There are approximately 100 emerging milk producers (Milk SA, 2014).

2.2 Number of raw milk producers

In 2006 there were 4 184 raw milk producers who created job opportunities for more than 60 000 farm workers, also providing 40 000 people with indirect jobs within the milk processing value chain and the feed milling industry (DAFF, 2012). There is a continuing trend towards higher production in the pasture-based areas. Figure 2.1 illustrates the concentration of milk production per district in South Africa (MPO, Lacto Data, 2015).

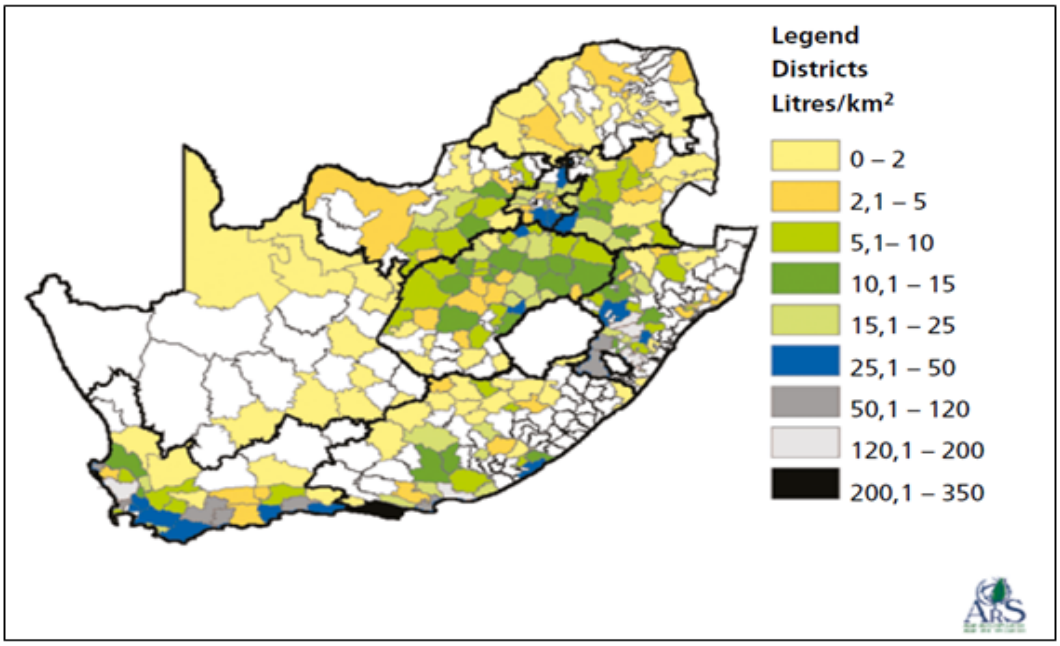

Figure 2.1: Milk production density (litres/km²) per district, 2014
Source: MPO, Lacto Data, 2015

Table 2.1 below reflects the number of milk producers from January 2007 until January 2015.

Table 2.1: Number of milk producers per Province, 2007-2015

Province	Jan '08	Jan '09	Jan '11	Jan '12	Jan '14	Jan '15	Jan '16
Western Cape	815	795	683	647	529	533	502
Eastern Cape	407	387	314	283	264	262	251
Northern Cape	34	37	28	21	25	14	14
KwaZulu-Natal	373	373	323	322	281	267	253
Free State	919	884	601	535	389	328	280
North West	549	540	386	352	233	222	181
Gauteng	228	217	127	126	109	100	97
Mpumalanga	302	286	201	164	117	94	93
Limpopo	38	32	23	24	14	14	12
TOTAL	**3 665**	**3 551**	**2 686**	**2 474**	**1961**	**1 834**	**1 683**

Source: MPO, Lacto Data, 2016

Figure 2.2 below illustrates the sharp decline in the number of milk producers in South Africa. The decline in the number of milk producers accentuates the fact that the dairy industry is undergoing serious transformation in terms of numbers. The smaller commercial farmers exit the industry, while the larger famers are increasing in size.

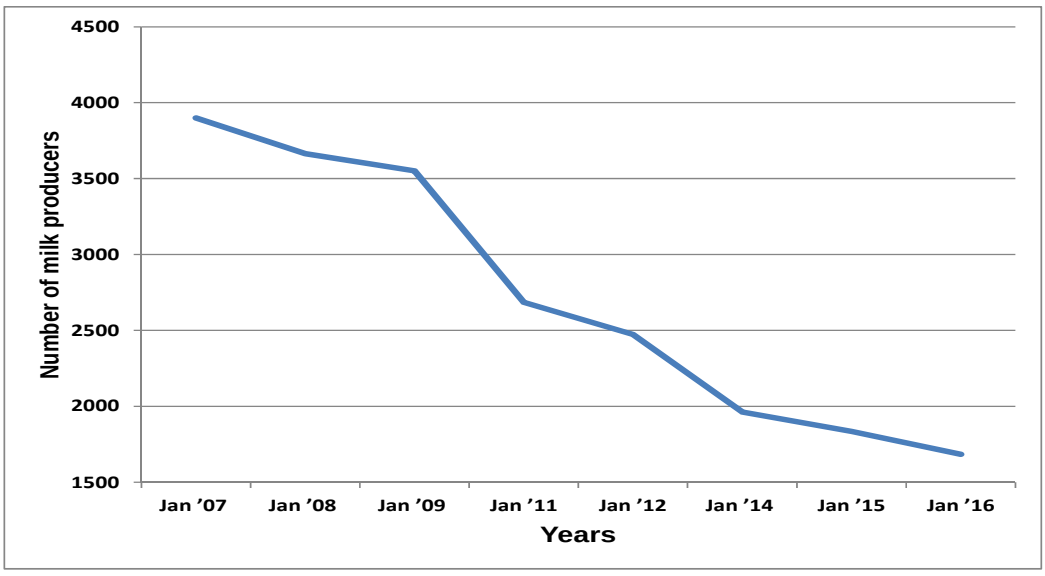

Figure 2.2: Illustration of the decline in number of commercial milk producers in South Africa

Source: MPO, Lacto Data, 2016

2.3 Production

Figure 2.3 below reflects the total monthly production. Figure 2.3 indicates that, although the number of dairy farmers are decreasing, the total production still reflects an increase.

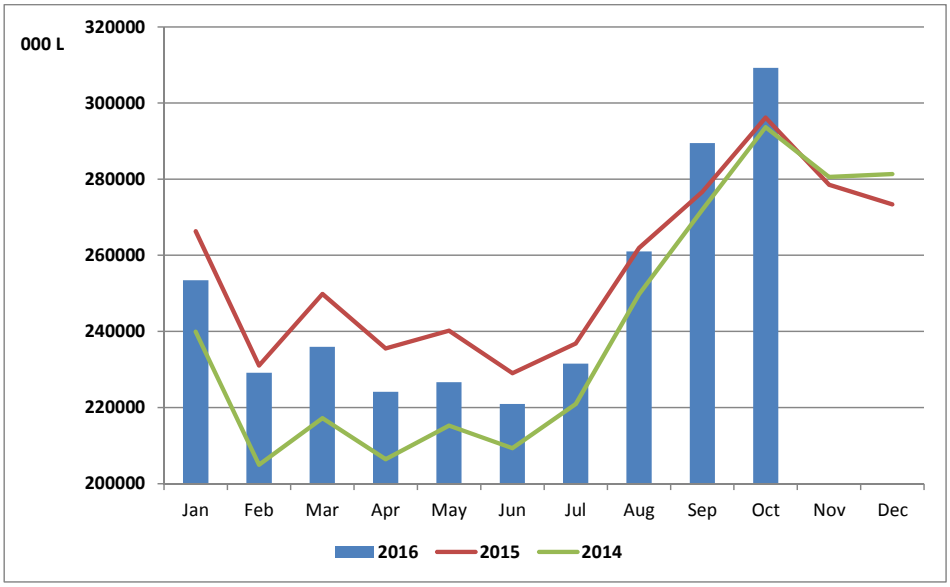

Figure 2.3: Monthly milk production in South Africa ('000 litres)
Source: MPO, Lacto Data, 2016

In South Africa, the dairy market is divided into 58% liquid and 42% concentrated products. Figure 2.4 below indicates that pasteurised liquid milk and UHT milk (a total of 80%) are the major liquid products, while hard cheese is the major concentrated product (44%) as per Figure 2.5 below.

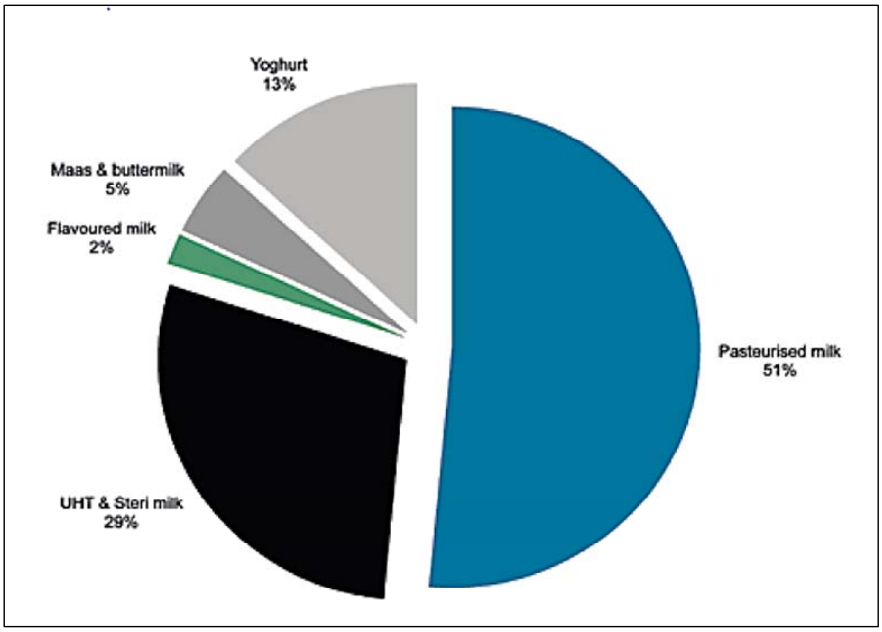

Figure 2.4: Composition of the South African liquid products (milk equivalent basis) market, 2011
Source: MPO, Lacto Data, 2016

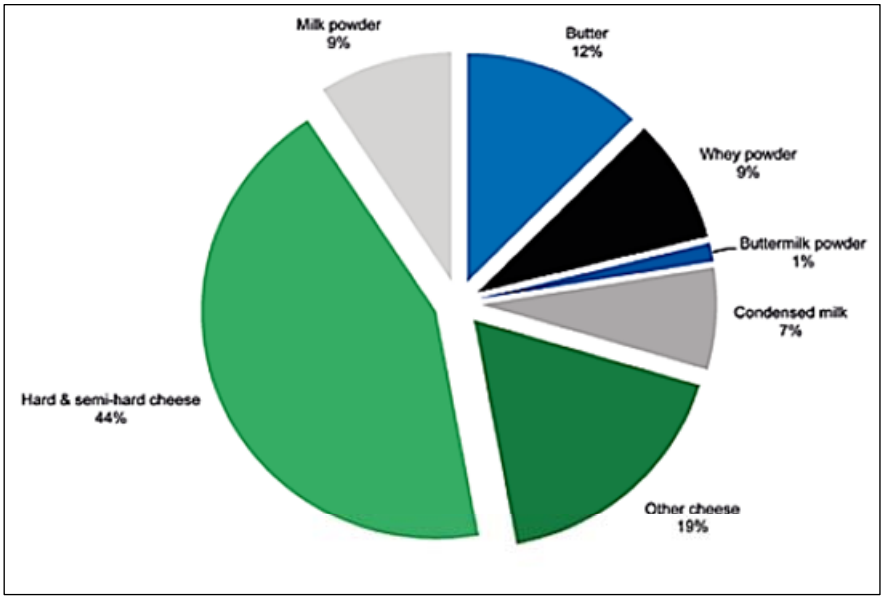

Figure 2.5: Composition of the South African concentrated products (mass basis) market, 2011

Source: MPO, Lacto Data, 2016

2.4 Importance of the industry

The dairy industry remains important for the following reasons:

- Its linkages to other sectors, namely the agricultural and feed industries that supply feed to the raw milk producers.
- Its linkages to other industries that supply as well as use manufactured dairy products as inputs in the manufacture of other downstream products.
- Its contribution to food security.
- Job creation at both the primary and perhaps more at the secondary level of the dairy value chain.

2.5 Conclusions

The dairy industry in South Africa is undergoing serious transformation in terms of commercial famers' numbers (rapidly reducing). Despite this tendency the raw milk production levels remain the same with even a slight increase in annual raw milk production.

The majority of the South African dairy production resides along the coastal areas where pasture based production enables the farmer to reduce the feed costs. Unfortunately the availability of suitable land along the coastal regions is diminishing.

The dairy industry remains important for various reasons, e.g. its forward and backward linkages, contribution to food security and contribution to job creation, more specifically at secondary level.

Given the importance and potential of the dairy industry, including its successes during the past decades, as well as the emphasis of transformation, the challenge to incorporate the smallholder dairy farmers in the commercialisation process should be grasped. It makes the research conducted more relevant and urgent.

CHAPTER 3 : LITERATURE REVIEW

In this chapter the literature will be reviewed on study related topics.

3.1 Transformation

BusinessDictionary.com defines the word "transformation" as follows: *"In an organizational context, a process of profound and radical change that orients an organization in a new direction and takes it to an entirely different level of effectiveness. Unlike 'turnaround' (which implies incremental progress on the same plane) transformation implies a basic change of character and little or no resemblance with the past configuration or structure."*

According to the OECD report of 2011, economic transformation is: *"The process in which a poor, rural-based country becomes a middle-income country with a rising share of industry and services in gross domestic product (GDP) and employment".*

The report furthermore highlights some characteristics of transformation:

- The increase in productivity, income per capita and job creation.
- Agricultural productivity increases, while there is a migration of labour from farms to towns and cities which result in a demographic change.
- Increased enterprise-level capacity is a result of continuous learning from the economy's involvement in global supply chains. Vision, planning, budgeting, co-ordination and the means for national engagement are results of a sympathetic and evolving state.
- Investment in infrastructure and institutional development (OECD, 2011).

Economic transformation in China and the impact or lessons learned from it is discussed. The purpose of referring to the economic transformation process in China is to highlight some relevant themes that could be applied to specific industry transformation within a certain economy, for example dairy.

The fundamental elements of China's transformation experience are referred to in

Table 3.1 below.

Table 3.1: Fundamental elements of China's transformation process

Element	Description
Responsible development-oriented state	Economic transformation as the central guiding objective of government: • Provides a basis for wide consensus and participation across society in a national project. • Drives pragmatic, evidence-based policy making and close, on-going review of performance. • Makes performance in terms of growth and poverty reduction the test for policies and resource allocation. • Strengthens learning and innovation. • Exercises discipline on the efficiency and effectiveness of both government and enterprises. • Prioritizes policymaking capacity and investment in research and extension capacities at universities and institutes and linking them to ministries and the decision and implementation processes. • Encourages the emergence of a well-educated professional middle class and attracts talented people to return home to work for their country.
Self-reliance and ownership – fundamental principle	This principle is deeply imbedded in China's strong ownership of its own development path while absorbing knowledge from a wide range of external actors, including investors and experts, and engaging with bilateral and multilateral policy processes.
Performance-based public management and decentralisation	Development-oriented leadership requires a high quality public management corps for policy formation and implementation at central and local levels.
Policy research capacities and innovation Systems	The transformation process through on-going policy testing and adaptation based on evidence is intensive. • China has created an extensive set of institutional capacities in the hard and soft sciences to enable the analysis of

	performance, problems and solutions. • The success principle of experiment-evaluate-scale-up is widely applied and rapidly implemented. This has demanded the expansion of higher education and the development of research institutions linked to policy decision making and implementation. • World expertise has been sought and attracted through incentive schemes, international partnerships and often via aid programmes.
Feedback mechanisms for identifying and addressing challenges	China's impressive transformation has also generated stresses and imbalances both internally and externally: • These major challenges are identified and addressed in the new five-year plan, which includes policy actions. • Responsible development-oriented government remains essential in a more diverse and complex economy and society.

Source: OECD, 2011

Although

Table 3.1 above refers to certain crucial fundamental elements required to successfully transform an economy, lessons can be learned from the China experience with regards to transformation within a specific sector of an economy as well.

Since the early 1990s, farmworker equity-sharing projects were initiated by the private sector in South Africa. It was thought that it is better to alter the ownership structure of an existing enterprise than dividing the land; hence the model of equity-sharing arrangements. In 1992 the Elgin Whitehall fruit farm was the first to restructure its ownership into an equity-share scheme (Knight, 2004).

"In 1998 the Surplus Peoples' Project (SPP) — whose mission is to promote the rights and interests of the economically and politically marginalised in South Africa — conducted a study of four farmworker equity-share schemes" (Knight, 2004). These projects were: Hoogland

Chickens, Ebukhosini, Whitehall and Warmwater and were situated in the Western Cape and Mpumalanga provinces. The main aim of the study was to find out if there was *"a difference between the advantages of equity-share schemes as perceived by outsiders compared to how they were perceived by the farmworkers"* (Knight, 2004). The report was surprisingly negative compared to the expected positive outcomes that equity-share schemes would offer farmworkers (Knight, 2004).

A detailed study of eight farmworker equity-share schemes in the Lutzville, Elgin, Piketberg, Stellenbosch and Paarl regions of the Western Cape, was conducted in 2001. The main aim of the study was to "explore the relationships between their institutional arrangements and their financial performance, outreach and empowerment" (Knight, 2004). Six of the eight farmworker equity-share schemes studied indicated that they had plans to transfer more shares to the workers over time (Knight, 2004).

The Surplus People's Project report focussed on nine major concerns:

- The involvement of the workers in the establishment phase of the scheme
- The expectations from the beneficiaries
- The worker-shareholders and the manager/original owner's possible power struggle
- How skills are being transferred
- Labour relations
- The involvement of non-beneficiaries on the farm
- Gender relations
- Tenure security
- Entry barriers to and exit strategy from the project (Knight, 2004).

The Surplus People's Project report, evaluating the above nine concerns, attributed to most of the criticism against farmworker equity-share schemes in South Africa. The studies conducted in November 2001, though, indicated that several of the concerns raised by the SPP report had been addressed (Knight, 2004). Several of the nine concerns listed above form part of the ten critical success factors to be evaluated in this study (see paragraph 1.3).

3.2 Transformation in the South African dairy industry

Milk South Africa defines transformation in the Dairy industry as *"A managed empowerment process, which results in a growing, successful and sustainable dairy industry with meaningful participation by black entrepreneurs"* (Milk SA, 2014).

Today, anyone who wants to produce milk successfully must have a definite understanding of all the critical factors. All relevant information must be available, strictly monitored and important decisions made and implemented at the right time (Endres, 2013).

Agricultural businesses must have the electronics to control the various working processes to be better equipped/positioned in the future. In addition to recording data, data monitoring, data maintenance, control and the interactive exchange of data is becoming more and more important. Details of milk quantity, conductivity, feed quantities, and weight and activity measurement then provide important information for optimal herd management (GEA, 2014).

Concentrated market power and information asymmetry represent forms of market failure within the South African dairy supply chain. Following deregulation, instead of having large numbers of buyers and sellers so that no buyer or seller could hold a significant amount of power to influence the market, as well as perfect information availability and accessibility, the supply chain is characterised by market concentration at processor and retailer level as well as information asymmetry (Bandama, 2011).

Agriculture forms an integral part of the economic transformation policies of government. The Land Redistribution for Agricultural Development sub-programme LRAD is designed to provide grants to black South African citizens to access land specifically for agricultural purposes. The strategic objectives of the sub-programme include the contribution to the redistribution of 30% of the country's agricultural land over 15 years; improving the nutrition and incomes of the rural poor who want to farm on any scale; decongesting over-crowded former homeland areas; and expanding opportunities for women and young people who stay in rural areas (LRAD, 2001). The LRAD programme has been phased out from 2007 to 2010 and was replaced by the PLAS programme in 2006. With the LRAD programme emerging farmers could obtain grants to purchase land and therefore received title deeds. The PLAS programme entails that the emerging farmer can rent the land from government with the option of purchasing it at a later stage.

The three main programmes that constitute land reform are; the restitution, tenure reform, and the redistribution programme (LRAD, 2001). The redistribution programme can be divided into separate components or 'sub-programmes':

- "Agricultural Development - to make land available to people for agricultural purposes.
- Settlement - to provide people with land for settlement purposes.

- Non-agricultural enterprises - to provide people with land for non-agricultural enterprises, for example eco-tourism projects" (LRAD, 2001).

According to BMI (2014) only 7% (seven percent) of agricultural land resides in black ownership (BMI, 2014). Government owns 14% of agricultural land which does not reside in emerging black ownership (refer to Table 3.2). There is furthermore 72 000 ha of communal land which resides in the hands of the Traditional Authority (Kings and Chiefs) in the Eastern Cape (refer to Table 3.3). The lack of ownership of land influences the emerging farmer's ability to obtain finance from commercial financial institutions as the land cannot be offered as security.

Table 3.2: Size and ownership of land per province in South Africa

Province	Province extent (Ha)	State owned land extent	Private owned land extent	State land %	Private land %	Totale extent	Unaccounted extent (Ha)	Unaccounted extent %
Eastern Cape	16,891,700	1,510,553	11,370,084	9%	67%	12,880,637	4,011,063	24%
Free State	12,982,600	845,084	11,857,160	7%	91%	12,702,244	280,356	2%
Gauteng	1,817,800	304,137	1,181,518	17%	65%	1,485,655	332,145	18%
KwaZulu-Natal	9,332,800	4,695,245	4,297,235	50%	46%	8,992,480	340,320	4%
Limpopo	12,575,600	2,551,790	8,844,083	20%	70%	11,395,872	1,179,728	9%
Mpumalanga	7,649,500	1,875,146	4,805,344	25%	63%	6,680,490	969,010	13%
North West	10,488,100	2,409,778	7,481,942	23%	71%	9,891,720	596,380	6%
Northern Cape	37,288,800	1,829,347	35,210,998	5%	94%	37,040,345	248,455	1%
Western Cape	12,946,300	1,040,801	11,502,427	8%	89%	12,543,228	403,072	3%
Total	**121,973,200**	**17,061,882**	**96,550,791**	**14%**	**79%**	**113,612,673**	**8,360,527**	**7%**

Source: DRDLR, 2013

Table 3.3: Land use per Province in South Africa

Land user	GP	KZN	LMP	NW	NC	WC	MP	FS	EC
	Hectares								
Government department	46,850	178,079	2,923,146	358,256	752,638	331,936	390,812	554,216	232,044
Municipality	61,400	54,217	507,827	675,578	1,337,719	790,445	48,249	323,661	103,328
Organization	6,898	39,129	195,505	55,031	96,373	766	52,897	27,483	57,402
Private person	21,086	19,906	309,158	242,701	122,787	531	91,471	39,939	78,451
Public entity	2,335	14,321	32,244	44,162	57,888	1,257	62,802	34,987	205,412
Traditional authority	7,033	544,213	3,483,784	927,200	16,511	148	108,655	63,413	72,480
Unknown	90,162	74,361	620,652	1,036,711	394,313	46,923	298,219	270,639	800,231

Source: DRDLR, 2013

There is a concern that the new Expropriation Bill of 2013 has a more aggressive approach to land redistribution than the 2008 Bill. The scope of expropriation will be expanded by the latest bill. Further concerns are that this process might result in a decrease in productivity on farms as well as in the production areas. According to the Human Science Research Council 167 land-reform beneficiaries from a sample of 301 have left the land unfarmed (BMI, 2014).

Further to government policy regarding transformation is the Integrated Growth and Development Plan (IGDP). The IGDP was developed to: *"provide a long term strategic plan for the growth and development of South Africa's Agriculture, Forestry and Fisheries sectors to allow it to address key government priorities and outcomes"* (DAFF, 2012).

below refers to the pillars of the IGDP as well as interventions required.

Table 3.4: Pillars of the IGDP (Integrated growth and Development Plan)

	Description	Problems	Intervention required
Equity and transformation	▪ Equity: fairness and equal outcomes in terms of gender, race and class. ▪ Transformation: process of profound change that should result in a new direction to a different level of effectiveness.	▪ Inadequate support to smallholder and subsistence producers. ▪ Slow progress of reform of land and resource rights. ▪ Jobless growth. ▪ Effects of trade liberalisation on transformation and national food security.	▪ Formulation and review of existing B-BBEE charters. ▪ Need for improved support, and spending strategies. ▪ Focus on Development Finance.
Growth and competitiveness	▪ Economic prosperity is vital for addressing poverty and improving human wellbeing. ▪ Requires supporting the commercial sector while also increasing the contribution of the smallholder and subsistence producers.	▪ Profitability. ▪ Innovation. ▪ Effects of trade liberalisation on competitiveness. ▪ Growth without increasing national food security.	▪ Area of production for agriculture and forestry must be increased. ▪ Productivity of existing areas increased. ▪ IGDP is crafted with the deliberate attempt to align with the relevant interventions as identified in the IPAP II.
Ecological sustainability	▪ Sustainability is about the capacity to endure. ▪ Maintenance of the productivity of ecological systems.	▪ Impacts of sector activities. ▪ Lack of compliance. ▪ Climate change. ▪ Regulatory frameworks and lack of compliance.	▪ Need for increased investment in economic sectors that build on and enhance the green economy. ▪ Climate change -

			need to develop both adaptation and mitigation strategies for the Sector.

Source: DAFF, 2012

In a study conducted by OABS Development in 2013 on "*The feasibility study on milk production and processing in Gauteng and surrounding areas*", reference was made to the NAMC (2001) Committee's main findings gathered from inputs from a wide spectrum of stakeholders on the impact of deregulation.

These findings are summarised below:

- "The changes brought about by deregulation have made varied impacts on the different sectors of the dairy industry (production, processing, marketing and consumption).
- Imports increased rapidly during deregulation and this has had an adverse effect on the milk powder, butter and cheese markets.
- The number of distributors and producer-distributors increased while the retail trade in the top end of the market saw greater concentration.
- There has been a noticeable decline in the application of regulatory measures for quality control and food safety, especially in the secondary sector.
- Unfair competition, low levels of investment in people and equipment, and the strength of the national groups in the retail trade have driven product prices down to unacceptably low levels, which makes control, investment and development very difficult.
- Small, emerging farmers are finding it difficult to enter the industry.
- The statistics and information now available, which are compiled on a voluntary basis, are incomplete and unreliable" (OABS, 2013).

The National Agricultural Marketing Council conducted a desktop study in 2012, to identify the forces that determine competitiveness in the South African Dairy Value Chain. The major constraining factors identified were the cost of inputs, current pricing strategies, the state of infrastructure, the current status of land & water reform, labour laws & regulations, unstable political environment and the cost of crime (NAMC, 2012).

The study indicated that there is a lack of convincingly identifying enhancing factors in the dairy industry, but highlighted a few factors that can enhance the dairy industry. These factors include the nature and activities of industry organisations, quality assurance programmes and mechanisms and the diversification strategies of firms at micro-level (NAMC, 2012).

The recommendations of a report commissioned by the IIED and compiled by Louw, Madevu, Jordaan, and Vermeulen (2004), suggest the following strategies to improve the sustainability and prosperity of emerging milk producers, which are, inter alia:

- Formal & Informal Training: academic institutions, NDA, ARC, NAMC, MPO, SAMPRO, PD's (private sector initiatives).
- Effective Extension Services: quality extension services and support to be constantly available.
- Appropriate Organizational Structures: co-operatives (FCB's – "farmer controlled businesses") should be small and flexible.
- Appropriate selection of emerging farmers or groups: candidates that are passionate about the industry and express the will to succeed will enhance the success rate.
- Establishment of a Mentorship Programme: identifying potential mentors amongst successful and experienced commercial dairy farmers and dairy co-operatives.
- Development of Infrastructure: insufficient infrastructure has been identified as a deficiency that needs to be addressed.
- Adopt a Commercial Focus from the outset: good genetics, good quality infrastructure, economies of scale, appropriate organizational structure and sound management principles.
- Research: effectiveness of quality assurance, market access, mentorship services, extension services and supply-chain management
- Commercial Sector involvement: strategic partnerships with all associated benefits (Louw, *et al.*, 2004).

Venter (2014) furthermore refers to an environment that needs to be created where it will provide the black emerging commercial farmers with access to services and resources to create growth and prosperity. This growth and prosperity will require access to training, markets, inputs, mechanisation services, credit and land, which are currently the main constraints for the establishment of black commercial farmers (Venter, 2014).

3.3 B-BBEE Act of 2003

The mandate of the first democratic elected government in 1994 was to redress the inequalities of the past in every domain: political, social and economic. A comprehensive programme has been embarked on to provide a legislative framework for the transformation of South Africa's economy. In 2003 a Broad-Based Black Economic Empowerment (B-BBEE) Strategy was

published followed by the B-BBEE Act, No. 53 of 2003. "The fundamental objective of the Act is to advance economic transformation and enhance the economic participation of black people in the South African economy" (Dti, 2015).

The purpose of the Act is: *"To establish a legislative framework for the promotion of black economic empowerment; to empower the Minister to issue codes of good practice and to publish transformation charters; to establish the Black Economic Empowerment Advisory Council; and to provide for matters connected therewith"* (Dti, 2015 – B-BBEE Act, 2003).
According to the Act 'black' -

> *"is a generic term which means Africans, Coloureds and Indians"*.

Broad-based black economic empowerment entails the following:

> "means the economic empowerment of all black people including women, workers, youth, people with disabilities and people living in rural areas through diverse but integrated socio-economic strategies that include, but are not limited to -
>
> (a) increasing the number of black people that manage, own and control enterprises and productive assets;
>
> (b) facilitating ownership and management of enterprises and productive assets by communities, workers, cooperatives and other collective enterprises;
>
> (c) human resource and skills development;
>
> (d) achieving equitable representation in all occupational categories and levels in the workforce;
>
> (e) preferential procurement; and
>
> (f) investment in enterprises that are owned or managed by black people" (Dti, 2015 – B-BBEE Act, 2003).

The objectives of the Act are to facilitate broad-based black economic empowerment by:

> "(a) promoting economic transformation in order to enable meaningful participation of black people in the economy;

(b) achieving a substantial change in the racial composition of ownership and management structures and in the skilled occupations of existing and new enterprises;

(c) increasing the extent to which communities, workers, cooperatives and other collective enterprises own and manage existing and new enterprises and increasing their access to economic activities, infrastructure and skills training;

(d) increasing the extent to which black women own and manage existing and new enterprises, and increasing their access to economic activities, infrastructure and skills training;

(e) promoting investment programmes that lead to broad-based and meaningful participation in the economy by black people in order to achieve sustainable development and general prosperity;

(f) empowering rural and local communities by enabling access to economic activities, land, infrastructure, ownership and skills; and (g) promoting access to finance for black economic empowerment" (Dti, 2015 – B-BBEE Act, 2003).

3.4 Amended B-BBEE Act, 2013

Act of 2013, *"To amend the Broad-Based Black Economic Empowerment Act, 2003, so as to insert certain definitions and to amend others; to clarify interpretation; to provide for the remuneration of Council members; to promote compliance by organs of state and public entities and to strengthen the evaluation and monitoring of compliance; to include the creation of incentive schemes to support black owned and managed enterprises in the strategy for broad-based black economic empowerment; to provide for the cancellation of a contract or authorisation; to establish the Broad-Based Black Economic Empowerment Commission to deal with compliance of broad-based black economic empowerment; to provide for offences and penalties; and to provide for matters connected therewith"* (Dti, 2015 – B-BBEE Act, 2013).

Section 2 of Act 53 of 2003 (objectives) was amended -

"(a) by the substitution for paragraph (f) of the following paragraph: ''(f) empowering rural and local communities by enabling access to economic activities, land, infrastructure, ownership and skills; [and]'';

(b) by the substitution for paragraph (g) of the following paragraph: ‘‘(g) promoting access to finance for black [economic empowerment] start-ups, small, medium and micro enterprises, co-operatives and black entrepreneurs, including those in the informal business sector; and’’; and

(c) by the addition of the following paragraph: ‘‘(h) increasing effective economic participation and black owned and managed enterprises, including small, medium and micro enterprises and co-operatives and enhancing their access to financial and non-financial support’’ (Dti, 2015 – B-BBEE Act, 2013).

Section 3 of Act 53 of 2003 (Interpretation of Act) was amended -

“(a) by the substitution for paragraph (a) of the following paragraph: ‘‘(a) to give effect to its objectives and purposes; and’’; and

(b) by the addition of the following subsection, the current section becoming subsection (1): ‘‘(2) In the event of any conflict between this Act and any other law in force immediately prior to the date of commencement of the Broad- Based Black Economic Empowerment Amendment Act, 2013, this Act prevails if the conflict specifically relates to a matter dealt with in this Act’’ (Dti, 2015 – B-BBEE Act, 2013).

3.5 B-BBEE codes

The Strategy on Broad-Based BEE1 provided some form of outline with regards to the broad-based scorecard, whereas before this strategy no framework or measurement existed. The Strategy provided only the outline of a broad-based scorecard, together with weightings, but did not contain any detail on crucial measurement principles and the application of the scorecard (Dti, 2015).

Table 3.5 below reflects the generic scorecard as contained within the Strategy on B-BBEE.

Table 3.5: Generic scorecard layout

ELEMENT	POINTS
Ownership	20
Management Control	10
Employment Equity	15
Skills Development	15
Preferential Procurement	20

Enterprise Development	15
Social-Economic Development	5
TOTAL	**100 POINTS**

Source: Dti, 2015

In February 2007, the B-BBEE Codes of Good Practice emerged. These codes serve as an implementation framework for B-BBEE policy and legislation. Institutional mechanisms were established for monitoring and evaluation of B-BBEE in the entire economy (Dti, 2015). Figure 3.1 below reflects a schematic approach indicating the role of the codes of good practices in measurement of B-BEE status.

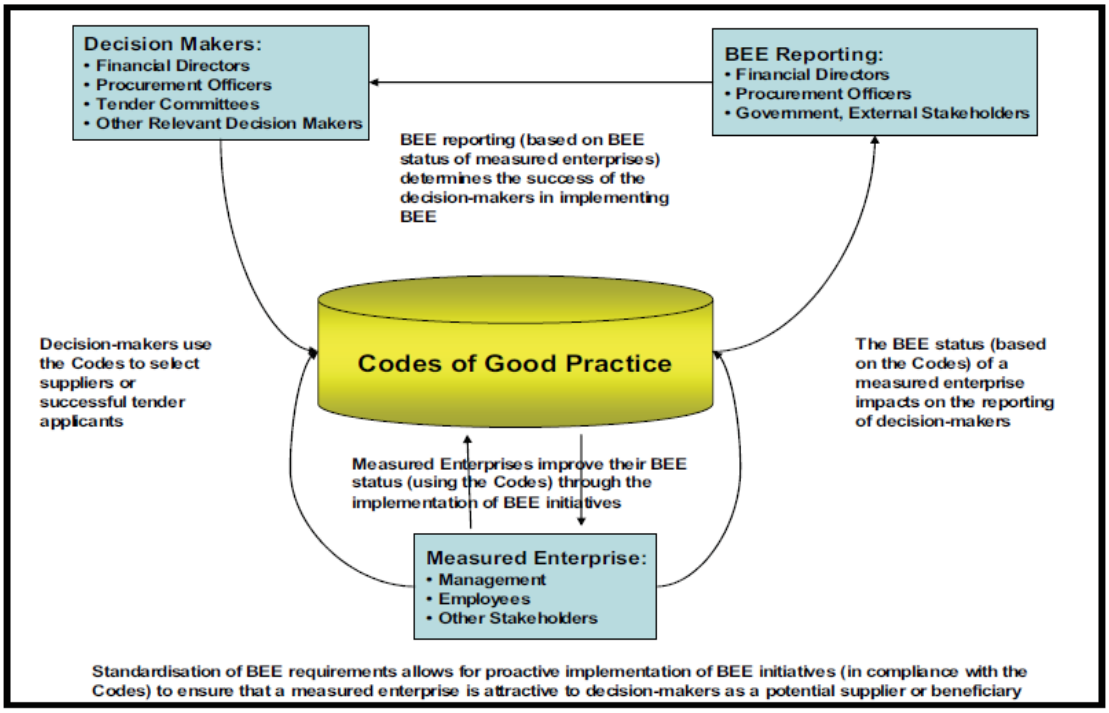

Figure 3.1: Schematic presentation of implementing codes of good practice
Source: Dti, 2015

3.6 AgriBEE and the AgriBEE Charter

AgriBEE is a: "*sectorial broad-based black economic empowerment framework intended at a deliberate and systematic support of Black South Africans to actively participate fully in the agricultural sector as owners, managers, professionals, skilled employees and consumers*" (Department of Agriculture, 2004).

The AgriBEE Charter is the sector code for agriculture in South Africa in terms of section 9 of the Act.

According to the Dti (AgriBEE Charter, 2015) the scope of the AgriBEE Sector Code shall include any enterprise that derives the majority of its turnover from:

- "The primary production of agricultural products;
- The provision of inputs and services to Enterprises engaged in the production of agricultural products;
- The beneficiation of agricultural products whether of a primary or semi-beneficiated from; and
- The storage, distribution, and/or trading and allied activities related to non-beneficiated agricultural products" (Dti, 2015).

According to Venter (2014) the objectives of the AgriBEE Sector Code are to facilitate B-BBEE in the Agriculture Sector. This can be accomplished by instigating initiatives to include Black South Africans at all levels in the agricultural value chain by (Venter, 2014):

- Black people should be able to access and participate in the entire agricultural value chain.
- Land and enterprise ownership, control, skilled occupations and management of existing and new agricultural enterprises should not be influenced by racial orientation.
- Unlocking entrepreneurial skills and potential of black people in the agricultural sector.
- Black South Africans should be assisted in owning, establishing, participating in and running agricultural enterprises.
- Restoring the dignity of black South Africans within the sector.
- The extent to which communities, workers, co-operatives and other collective enterprises own and manage existing and new agricultural enterprises should be increased.
- Increasing black designated groups' access to economic activities, infrastructure and skills training. This will increase their ability to manage existing and new enterprises.
- Rural and local communities should have access to agricultural economic activities, land, agricultural infrastructure, ownership and skills transfer.
- Overall improvement of living and working conditions for farm workers.
- Improving land rights and tenure security for labour tenants, farm workers and other vulnerable farm dwellers.

The AgriBEE Scorecard consists of the following key elements (Dti, 2015):

- Ownership

- Management control
- Employment equity
- Skill development
- Preferential procurement
- Enterprise development
- Social Economic Development

3.7 Business models and concepts

"A business model describes the rationale of how an organization creates, delivers, and captures value" (Osterwalder and Pigneur, 2010). Osterwalder and Pigneur (2010) believe that a successful business model comprises nine building blocks. These blocks are listed in Table 3.6 below.

Table 3.6: Building blocks of a business model

Building Blocks of a Business Model
1. Customer Segments
2. Value Propositions
3. Channels
4. Customer Relationships
5. Revenue Streams
6. Key Resources
7. Key Activities
8. Key Partnerships
9. Cost Structure

Source: Osterwalder and Pigneur, 2010

A study titled: *"Investigation into Farmer Controlled Businesses in SA: Options and Lessons Learnt"* (Terblanche and Willemse, 2009) was commissioned by the NAMC to investigate the implementation of the Farmer Controlled Business (FCB) concept locally within the dairy industry.

According to Terblanche and Willemse (2009) an FCB is defined as: "*A legal entity, not necessarily a co-operative or agribusiness but it should be managed and controlled by farmers or farmers' organisations"*.

Members should be able to effectively combine their respective efforts and marketing functions, which will contribute to their negotiating ability for better prices for their products (Terblanche and Willemse, 2009). The MPO (2013) concurs that the main goal of collaboration is to competitively source inputs and marketing of produce. This will result in an increase in production and business efficiency.

As stated by Terblanche and Willemse (2009), the South African situation follows the same pattern as in the United Kingdom. Farmers are detached from their markets because of market deregulation, which lowers their profits as market concentration increases at the processing and retailing level. Market access is still a major constraint for emerging farmers who produce smaller volumes.

Research done by Terblanche on "The Powers of Groups" (Terblanche, undated) reflects certain functions and disadvantages of FCB below.

Functions of FCB:

- To bargain better and fairer prices with processors and distributors on behalf of producers.
- Ensuring producers a market for their milk.
- Quality check of producer's milk.
- Providing market information to producers, assisting them with business planning at farm level.
- Ensure access to technology, marketing channels, technical expertise and vital market information.
- Gaining access to capital and equipment.
- Increasing production efficiency by reducing input costs.
- Reducing costs by collective decision-making and the sharing of marketing and transport costs.
- Assisting the producer to handle market shocks better. Increasing the bargaining power of the producer.

- Creating a network linking producers, resources, funding, government and others (Terblanche, undated).

Disadvantages of forming FCB:

- Individual sovereignty can be lost.
- The coordination of the production process and other business issues can result in additional cost to participants.
- Working in a group, without being in a management role.
- Smaller farms that are not part of the FCB can be put out of business (Terblanche, undated).

Globally there are numerous successful models, businesses and institutional arrangements through which smallholder milk producers have gained sustainable access to markets. Some have not been that successful. Morgan (undated) listed successful smallholder dairy chain business models in various case study countries:

- "Cooperative dairying model: the world-renowned Anand Pattern model from India and more recent cooperative company models, such as in Bangladesh, India and Thailand.
- Contract farming model: essentially a private sector–smallholder incentive model, such as in Pakistan (Halla and Haleeb models), Sri Lanka and Viet Nam.
- China dairy park model: collective/community dairy cow raising in an investment-driven growth environment.
- Philippines dairy zone model: public–private sector equity partnerships.
- Mongolia dairy chain model: involving six enterprise modules for liquid milk and cheese for each link in the farm-to-consumer food chain.
- Bangladesh social and community dairying models:
    - Grameen Bank poor people's community livestock and dairying model, part of the environmentally sustainable, integrated crop-fish-livestock model.
    - Bangladesh: Grameen-Danone Foods NGO-private sector social model" (Morgan, undated).

Chamberlain and Anseeuw (2015) studied inclusive businesses in South African Agriculture. They referred to the UNDP, the World Business Council for Sustainable Development's definition of inclusive businesses as "*Models that aim to include poor people into value chains as producers, employees or consumers in ways that are both equitable and sustainable"*. The study also refers to the World Business Council for Sustainable Development (WBCSD) in 2005 that

refers to inclusive businesses as *"sustainable business solutions that go beyond philanthropy and expand access to goods, services, and livelihood opportunities for low-income communities in commercially viable ways. Inclusive business leads to the creation of employment opportunities for low-income communities – either directly or through companies' value chains as suppliers, distributors, retailers and service providers"*. The two authors define inclusive businesses as *"a profit-oriented partnership between a commercial agribusiness and low-income communities or individuals, in which the low-income community or individual is integrated in the commercial agricultural supply chain as a supplier of land, produce or value-sharing employment with a particular aim to develop its beneficiaries"*.

Chamberlain and Anseeuw (2015) indicate that these inclusive business models are being promoted as "win–win" strategies in South Africa. Furthermore, the models render solutions for smallholders and agribusinesses partnerships and revitalize smallholder and emerging agricultural development.

Chamberlain and Anseeuw's (2015) publication is "*indeed focusing on the way business models integrate smallholders and share value between the different stakeholders*". According to the two mentioned authors the means of assessing the ways in which businesses share value is based on 4 (four) criteria obtained from Vermeulen and Cotula (2010).

These criteria are:

- "Ownership: of the business (equity shares), and of key project assets, such as land and processing facilities.
- Voice: the ability to influence key business decisions, including weight in decision-making, arrangements for review and grievance, and mechanisms for dealing with asymmetries in information access.
- Risk: including commercial (i.e. production, supply and market) risk, but also wider risks such as political and reputational risks.
- Reward: the sharing of economic costs and benefits, including price setting and finance arrangements" (Chamberlain and Anseeuw, 2015).

Chamberlain and Anseeuw (2015) evaluated various inclusive business models across South Africa in their research. One of these models is the share-milking model at Seven Stars in the Eastern Cape that forms part of this study as well (refer to paragraph 1.5).

The FAO did a policy brief on "Inclusive business models for the integration of smallholders into agrifood value chains" (FAO, 2015). According to the FAO (2015) Inclusive business models will *"promote the integration of smallholders into markets, with the underlying principle that there are mutual benefits for poor farmers and the business community"*. The FAO (2015) describes a business model as *"how any given enterprise – large or small, informal or formal – creates and markets its products or services, obtains finance, and sources inputs"*.

The FAO policy brief reiterated that inclusive business models reinforce the value chain. The reason for this is that the model focusses exclusively on strengthening business models that link small farmers to value chains (FAO, 2015). According to the FAO (2015) smallholder business models include *"traders, farmer organizations, agrifood processors and large buyers"*.

The FAO (2015) listed certain criteria that define a model to be an inclusive business model if it:

- Offers a living wage to exposed groups, such as small farmers, women and young people working for an enterprise or supplying a buyer. Existence of flexible trading arrangements that make it easier for small farmers or enterprises to supply a buyer.
- Supporting small farmers and small enterprises in establishment a stronger negotiation position, through skills development, collective bargaining and access to market information and financial services.
- Building on the skills and expertise of existing market players and promotes collaboration, transparent pricing mechanisms and risk sharing.
- If more people can benefit and/or the business model can be replicated in other value chains.
- Diverse business models should enable the rest of the sector to benefit from upgraded skills and technologies.

The FAO (2015) conclude by stating that, collectively, smallholders and buyers of agricultural produce can contribute substantially to local economic development and food security.

Farinelli (2016) stated that the "*2030 Agenda for Sustainable Development and the Sustainable Development Goals (SDGs) have set a new scene for the way in which economic actors shall produce, consume and operate*". According to Farinelli (2016) multi-stakeholder partnerships are needed in order to achieve the global goals for sustainable development. She emphasized that *"business as usual is not an option anymore"* and urged for transformative changes and

innovative business models (Farinelli, 2016). This statement confirms the relevance of the study on share-milking as an alternative business model.

Farinelli (2016) furthermore documented the most effective support measures that Civil Society Organizations can provide to facilitate the development of pro-poor agricultural value chains:

- "Increasing access of small-holders to **information** needed to evaluate alternative market opportunities, as well as specialised technical information;
- Developing appropriate agricultural **technologies and training** smallholders for increasing productivity and increasing quality;
- Improving **infrastructure** (communication, transportation, irrigation, as well as cold chain storage systems)" (Farinelli, 2016).

The support measures listed above also forms part of the ten critical success factors that this study will evaluate (refer to in paragraph 1.3).

3.8 Share-milking

In this section the origination of share-milking is discussed. Furthermore, the share-milk model is discussed with reference to New Zealand and South Africa. Various share-milking projects in South Africa are listed, including a short description of each of the mentioned projects.

3.8.1 New Zealand

According to Gardner (2011) it is believed that share-milking originated from Scotland and that the share cropping system in the United States may have contributed to the establishment of the early contracts. In New Zealand, share-milking has a long history and records of the Henley Land Co. on the Taieri Plains in Otago indicate that the manager of the company, Mr. J. Stevenson, introduced the system in 1884 (Gardner, 2011).

Share-milking has become a significant institutional structure in the New Zealand dairy industry and the agreements are referred to as share leasing arrangements. The share-milker pays rent in the form of a share of production for the use of the farm owner's capital, but both parties (farm owner and share-milker) share the production risk (product quality and price) associated with a dairy enterprise. Two share-milking arrangements exist in New Zealand: Variable Order Agreements (sometimes termed lower order agreements) and Herd Owning Share-milking Agreements (sometimes termed 50/50 agreements) (Gardner, 2011).

According to Wynn Williams & Co. (undated), Share-milking agreements can be divided into three categories:

- "The farm owner providing the herd - these agreements are governed by the Share-milking Agreements Act 1937. In addition, the Shareholding Agreements Order 2001 sets out a model agreement. These types of agreements are sometimes referred to as contract milking agreements or 60/40 milking agreements.

- The share-milker supplying the herd - there is no legal restriction on this type of agreement. Usually the land owner and the share-milker receive an equal share of the income under these agreements. They are usually called 50/50 milking agreements.

- Hybrid agreements where the share-milker provides some of the herd and the owner provides the rest - these agreements are not common and the extent to which they are regulated under the Share-milking Agreements Act 1937 and the Share-milking Agreements Order 2001 is unclear. They are sometimes called variable agreements" (Wynn Williams & Co., undated).

The legal relationship between a farm owner and a share-milker in New Zealand is that of a principal and an independent contractor, not that of an employer and employee. In New Zealand, the farm owner partner to the agreement is always given the ultimate decision making power for practical operation purposes (Gardner, 2011).

In terms of cost bearing within the New Zealand share-milking agreement, expenses that are always borne by the share-milker include wages (as it is the share-milker who hires the labour), electricity to operate the milking plant, shed expenses and expenses associated with any machinery a share-milker brings to the agreement. The landowners, on the other hand, bear the expenses associated with land, buildings and other fixed assets (Gardner, 2011).

According to McIntosh and McIntosh (2010) the following are important considerations to look out for when entering a share-milking agreement:

- Owners must be like-minded with similar goals and objectives and must be prepared to work as a team for the benefit of both parties.
- To prevent any surprises, get professional advice with regards to the contract and ensure that it is signed prior to moving onto the farm.
- Surrounded yourself with competent people/consultants and perhaps a good dairy farmer as mentor.

- Ensure that all the inputs such as grass and fertiliser are consistent with what was expected.
- If possible, purchase top quality cattle.
- Ensure that you maintain good working conditions for your staff as you want to attract good staff and have a low staff turnover.
- Ensure proper timing and when buying and selling cows as cow prices are volatile and the rise and fall of prices will impact your equity and cash enormously.
- Prevent over-extending yourself - physically or financially (McIntosh and McIntosh 2010).

Venter (2014) states that approximately 40% of dairy farms in New Zealand operate on a share-milking basis; the major strengths of share-milking being the benefits to both parties (win/win agreement) - it allows for capital growth and assist new farmers in obtaining farm ownership. These are the major contributors to the popularity of share-milking.

3.8.2 South Africa

Venter (2014) confirms that share-milking in South Africa is based on the New Zealand share-milking concept. The share-milker provides the dairy cows, movable equipment and management, whilst the black emerging famers provide the land and necessary fixed improvements. The profits from milk and livestock sales are shared 50:50. Share-milking therefore provides an equal financial return for both parties.

Venter (2014) listed various objectives and principles of the share-milking model in South Africa (see Table 3.7 below).

Table 3.7: Objectives and principles of the share-milking model

Objectives	Principles
To be involved in a financially sound commercial dairy farming operation through the assistance of a share-milker	The parties involved contribute assets to the joint venture but retain individual ownership of these assets and they jointly operate the business. A few assets may be purchased by the venture after it has begun operating, but the number of assets owned this way will be limited.
To make optimal use of available natural and agricultural resources	Liabilities on assets owned individually are a responsibility of the individual parties. If an operating loan or line of credit is required, then either the joint venture can borrow the funds or the individual parties can borrow their required

	share and re-loan that amount to the joint venture.
To create new and maintain existing job opportunities	Joint ventures have a specific term indicating how long the business relationship will last (e.g. 10 years)
To render financial benefits to all the participants	Done correctly, it provides an easy entry and exit mechanism and total liability protection to the parties involved.
To assist in the training of workers and potential management personnel	
To enable the community/beneficiaries to eventually operate and manage the dairy enterprise on their own	

Source: Venter, 2014

The legal entities that are normally used in the share-milking arrangements are operating trusts, private companies and cooperatives.

Figure 3.2 below is a schematic presentation of a trust as a legal entity in a typical share-milk agreement (Venter, 2014).

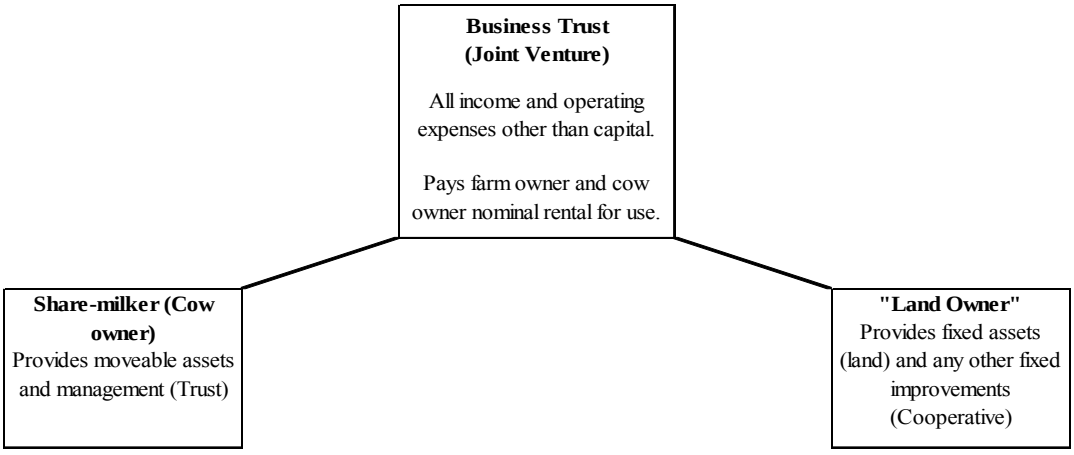

Figure 3.2: Share-milk agreement using a trust as legal entity

According to Venter (2014) the most important aspect of share-milking is the transferring of skills and a fair distribution of benefits to both parties. The participation in management and decision-making processes are also critical aspects.

In South Africa, the share-milking concept is implemented mostly between commercial dairy farmers and emerging black commercial dairy farmers. Most of these projects are found in the Eastern Cape Province. The oldest share-milking project within South Africa is approximately 13

years old. Some of the well-known and successfully operational share-milking projects in the Eastern Cape are:

- Fort Hare Dairy Trust
- Makua Trust
- Middeldrift Dairy
- Ncora Dairy
- Reebok Rant Dairy Development Trust
- Grasslands Development Trust
- Wittekleibosch Dairy Trust
- Seven Stars Trust (Keiskamma Irrigation Scheme)
- Shiloh Dairy Trust

Amadlelo Agri was established about twelve years ago as the brain child of Jeff Every and with the assistance of 70 commercial farmers from the Eastern Cape and KZN. Their main focuses are: Project development and implementation; to bring about transformation, engage in skills and knowledge transfer, and to create jobs. Amadlelo is involved in 6 of the above listed projects, which includes mentoring of black agricultural interns and aspirant farmers (Smith, 2015).

Although all the above-mentioned projects are based on the share-milking concept, their respective configurations and agreements differ. In Chapter 3 each of the selected projects' configurations are described in detail.

According to Casidra (undated), the following are prerequisites for the successful implementation of a share-milking project in South Africa:

- Ensure empowerment and skills transfer to the beneficiaries to allow for an exit strategy to be successfully implemented
- The South African dairy industry must be developed and supported by the private and public sector (Casidra, undated).

The Casidra study furthermore identified 3 (three) possible models, namely:

- "An existing, feasible and well-established dairy is bought by a Workers Trust
- A new dairy is started from scratch and shared by the Trust, and an experienced dairy man/woman who can't afford to set up his/her own operation and
- Identify small-scale dairies, milking approximately 150 to 300 cows which are not producing enough income, because of their relatively small size, and invest in increasing

the potential output of the dairy via increased herd size and infrastructure" (Casidra, undated).

According to the Casidra study the last option/model above is the best as it does not require substantial capital outlays. The study furthermore highlighted the importance of a fair agreement that should be developed in conjunction with an independent person. Although the share-milking agreement is negotiable, the study listed items that both parties should agree to:

- The contributions by both parties
- Allocation of shares
- How the growth of the herd will be shared
- How the revenue on the culled herd will be shared
- Agreement on the culling policy
- Declaration of dividends
- Each party's responsibility
- Management and labour contributions
- Defining Key Performance Areas linked to economic input
- Monitoring and evaluation of performance
- Duration of the agreement (Casidra, undated).

Further notable conclusions of the Casidra report are that, for the share-milking scheme to be successfully implemented in South Africa, core aspects such as skills transfer, development, involvement of the owner/commercial farmer for a longer period and total commitment from all parties involved should be addressed by the agreement. A duration term of not less than five years is recommended for a share-milking agreement (Casidra, undated).

Milk SA (2014) lists various success stories of transformation projects in the primary dairy sector. All of these success stories are projects based on the share-milking concept. A short description of each of these projects is provided below.

3.8.2.1 Fort Hare Dairy Trust

The Fort Hare Dairy Trust is an initiative of Amadlelo and includes the University of Fort Hare. "The Fort Hare Dairy Trust is a profit-based dairy initiative, milking 800 cows through a modern dairy facility on land belonging to the university. Shareholders include the university, which allows interns to learn hands-on about dairy farming" (Milk SA, 2014).

The Fort Hare Dairy Trust was established in 2007 and is situated near Alice in the Eastern Cape. The dairy is a commercial operation milking 800 cows and also includes teaching facilities for training of students in farm management. The first student graduates have already been placed at other projects where they operate as junior managers (Milk SA, 2014).

3.8.2.2 Middledrift Dairy Trust

The Middledrift Dairy Trust was established in 2008 with 600 cows on land owned by 65 families in the Middledrift community. Members of the community involved had minimal access to farming skills or equipment. The National Empowerment Fund and Amadlelo Agri donated funds (R9.92 million) and cows (600) respectively to start the project. The aim of the project is to eventually employ 30 local people full time and train a black female to manage the farm that is anticipated to produce 3,8 million litres of milk per year. The University of Fort Hare is also involved by identifying and training students in farm management (Milk SA, 2014).

3.8.2.3 Seven Stars Trust (Keiskamma Irrigation Scheme)

"This is a joint venture between emerging milk producers, the Department of Agriculture and Amadlelo to resuscitate 600 ha of irrigation and eventually milk 2 000 cows" (Milk SA, 2014). The project was established in 2010 and aims to milk 1 800 cows from gravity-fed irrigation on 660 ha of irrigable land, benefiting 36 producers and 185 beneficiaries and employing 40 people (Milk SA, 2014).

3.8.2.4 Shiloh Irrigation Scheme

The project is a joint venture between the Mayime Agricultural Cooperative and Amadlelo. The Cooperative represents 285 direct and a further 1 200 indirect beneficiaries from Whittlesea near Queenstown. The project was established in 2011 on 400 ha of irrigated land, milking 850 cows (Milk SA, 2014).

3.8.2.5 Grasslands Development Trust

The Grasslands Development Trust in the Tsitsikamma district of the Eastern Cape was established by well-known milk producer Trevor Elliot on the Trust's Schoonfontein dairy farm in 2004. The beneficiaries are 49 current and retired employees of Grasslands. The land was bought through the Land Redistribution for Agricultural Development (LRAD) programme (35%) and a loan from Standard Bank (65%). The project is based on a share-milking agreement

between Grasslands Agriculture and the Trust. The Trust owns all the fixed assets, while Grasslands owns the movable assets. The project started with 650 cows and by 2007 there were 828 cows. The Grasslands Development Trust and Grasslands were voted BEE deal of the Year by The Business Map Foundation in 2005. The project has also made extensive training available to its beneficiaries and their spouses (Milk SA, 2014).

3.8.2.6 Reebok Rant Dairy Development Trust

Reebok Rant Dairy Development Trust is situated near Humansdorp in the Eastern Cape and consists of 1 000 ha. The project is based on a profitable share-milking scheme between white commercial milk producers and black farm workers. The project started off with the Department of Land Affairs that offered farm workers the opportunity to apply for a grant. A total of 99 farm workers applied for the grant, each receiving R45 000. These farm workers are still employed with other commercial farmers and therefore receive their normal salaries as well as dividends from the project. The project itself employs 20 workers (Milk SA, 2014).

3.9 Conclusion on literature study

The characteristics of transformation as described in the OECD report as well as the fundamental elements of China's economic transformation experience can be applied to transformation in the dairy industry in South Africa. The characteristics and elements mentioned are reflected in the critical success factors identified for this thesis.

Within the agricultural sector and specifically the dairy industry, transformation is being induced by external macro related challenges as well as political related drivers, in the form of Land Reform Policies and AgriBEE. These challenges and drivers should be addressed in a business model (e.g. the share-milking scheme) where the sustainability is priority and emerging farmers are given the opportunity to empower themselves.

Government owns a great deal of agricultural land that does not reside in emerging black ownership and there is furthermore a large portion of communal land that resides in the hands of the Traditional Authority (Kings and Chiefs). Land tenure security is important for any investor in a development project. If the ownership of the land does not reside with the emerging farmer, his ability to obtain finance from commercial financial institutions is very much limited as the land cannot be offered as security.

There is a concern that the new Expropriation Bill of 2013 has a more aggressive approach to land redistribution than the 2008 Bill and that this process might result in a decrease in productivity on farms as well as the production areas. The possibility of a more aggressive Bill places more emphasise on the implementation of a business model that will address the external macro challenges as well as political related drivers.

Black emerging farmers require an environment where they have the ability to access the necessary resources and services (ten critical success factors to be evaluated in this study) by overcoming the entry barriers to some of these resources. The ability of the share-milking model to create this environment for the emerging black farmers in South Africa will be evaluated in this study.

While implementing an alternative business model cognisance should be taken of the objectives of the AgriBEE Sector Code which are to facilitate B-BBEE in the Agriculture Sector by allowing black South Africans to participate at all levels in the agricultural value chain.

From the literature it is clear that there are advantages to FCB as it strengthens the farmer's ability to negotiate better input and product prices. The collaboration between farmers or production entities will lead to more effective businesses as costs will be minimized and best prices for their produce can be negotiated.

In addition to the topic of collaboration, inclusive business models are being promoted as "win–win" strategies in South Africa. The models render solutions for smallholders and agribusinesses partnerships and revitalize smallholder and emerging agricultural development.

Share-milking has become a significant institutional structure in the New Zealand dairy industry as early as 1884 and the agreements are referred to as share leasing arrangements. The share-milker pays rent in the form of a share of production for the use of the farm owner's capital, but both parties (farm owner and share-milker) share the production risk (product quality and price) associated with a dairy enterprise.

The share-milking model in South Africa is based on the New Zealand share-milking concept and the most important aspect of share-milking is the transferring of skills and a fair distribution of benefits to both parties. The participation in management and decision-making processes are also critical aspects. In South Africa, the share-milking concept is implemented mostly between

commercial dairy farmers and emerging black commercial dairy farmers. Most of these projects are found in the Eastern Cape Province.

The literature review undoubtedly indicates a serious and substantial need for an efficient business model to accommodate the transformation targets set by government and ensuring the successful establishment of black commercial dairy farmers. The ten critical success factors in paragraph 1.3.2 lists what is required from a business model to successfully establish black commercial dairy farmers. Although some success stories with regards to the transformation in the dairy industry were referred to, literature on share-milking in South Africa is very limited and therefore the study becomes more relevant.

The share-milking business model has been validated by collecting data from the emerging farmers and share-milkers in five case study projects in the Eastern Cape to determine to what extent the share-milking model addresses the critical requirements for the establishment of black commercial dairy farmers in South Africa.

CHAPTER 4 : DESCRIPTION OF THE CASE STUDIES

In this chapter, each of the five case study projects is discussed in terms of their compilation and implementation of the share-milking model with information as acquired through personal interviews with the relevant parties and the completion of a semi structured questionnaire.

The main objective of the selection of the various case study projects as per paragraph 1.5 was to obtain information from a wide spectrum of applications of the share-milking business model. Each of the selected case study projects differs in terms of land owner basis; it varies from individual title deed owners to communal land. The difference in land owner basis results in unique challenges and is expected to be a real test for the successful implementation of the share-milking business model.

4.1 Grassland Development Trust

4.1.1 Background

The Grassland Development Trust was formed in 2004 for the workers of Grassland Agriculture. The Grassland Development Trust is the registered owner of the farm Schoonfontein that was obtained for the workers of Grassland Agriculture to do dairy farming by means of the LRAD program and a loan that they have obtained from a commercial bank. The LRAD program contributed one third (R3 million) of the farm's purchase price and infrastructure development cost of R9 million - the loan covered the remaining two thirds (R6 million). The commercial farmer and owner of Grassland Agriculture, Trevor Elliot, provided the necessary security for the loan at the commercial bank.

The project is based on the share-milking principle and the share-milker is Grasslands Agriculture. The main reasons for entering into such a share-milking agreement with their workers was to make a meaningful financial difference to beneficiaries, empowering and motivating employees by letting them share in success, while contributing to land reform and addressing the wrongs of the past.

The agreement allows for the milk income to be shared on a 50 to 50 basis, after which each partner needs to cover the cost related to their relevant assets. There are some costs that are shared on a 50 to 50 basis, such as purchasing of concentrates or lucerne; effectively all feed that is not being produced on the farm. After covering all the different variable and fixed costs, the

emerging farmer's (land owner's) net profit should result in 55% to 60%, and the share-milker in 40% to 45%, of the total net profit, which relates to their respective initial capital contributions.

4.1.2 Project description

The project is situated in the Tsitsikama district, within the Koukamma municipality and on the farm, Schoonfontein. The share-milking scheme is operating a 1 100 cross-breed herd size, dairy with a herringbone parlour. The annual milk production amounts to 6.3 million litres and there is a formal off-take agreement with Woodlands Dairies.

The farm consist of a total of 486 ha of which 128 ha is under irrigation and 207 ha are dryland pastures. The remainder is made up of natural veld, wasteland and homestead.

The Grasslands Development Trust initially consisted of 49 beneficiaries of which 41 have remained by 2016. Four of the beneficiaries are employed on the farm Schoonfontein while the remainder are either employed on other Grassland Agriculture farms or retired employees. The trust has ten trustees selected by the beneficiaries to represent the beneficiaries of the respective farms. Four of the beneficiaries are female employees of Grasslands Agriculture.

4.1.3 Project equity composition

The composition of the project is based on the principles of the share-milking agreement that originates from New Zealand and the share-milker strives to implement the model as close as possible to the New Zealand model. The contribution of Grassland Development Trust to the agreement is the land and all fix improvements and the infrastructure also needs to be maintained from their share of income. The initial value of their contribution is estimated at R9 million with a debt of R6.0 million. The share-milker's contributions are all the moveable assets, of which the cattle are the most important. The share-milker must also maintain all the moveable assets and replace when necessary. The initial contribution of the share-milker is estimated at R4.5 million without any debt. The current estimated value of Grasslands Development Trust's contributions (land and fixed improvements) is R35 million and that of Grasslands Agriculture (cattle and moveable assets) R15 million. Table 4.1 below reflects the growth in equity in real terms (inflation of 6% excluded) since 2004 for the two entities involved in the Grasslands share-milking project.

Table 4.1: Equity growth for Grasslands share-milking project (2004 – 2016)

Entity	Initial equity '(000)	Current equity '(000)	Current equity in real terms '(000)	Years in bussiness	AVG % growth/year
Emerging farmers	R 3 185	R 35 000	R 18 438	12	16
Share-milker	R 4 500	R 15 000	R 7 902	12	5

Although the figures in Table 4.1 are not audited figures they still indicate the movement in equity for both partners to the agreement. An average annual growth in equity in real terms of 16% for emerging farmers and 5% for the share-milker respectively has been recorded.

4.1.4 Share-milker's view on the share-milking business model

According to the share-milker there is no formal exit strategy to their agreement, only a termination date to the initial agreement. This termination date was reached in 2014, but was extended for another five years. The Grasslands Development Trust could have opted to exit the agreement but decided to extend the agreement as the agreement ensures them the benefit of greater economies of scale, as well as the continued expertise of the share-milker.

The share-milker listed some major advantages of the share-milking model, as well as lessons learned, by completing a questionnaire:

Advantages

- 100% black ownership of land
- Parties to the agreement responsible for maintaining own asset base
- No working capital required from emerging farmer
- Both parties share the risk and returns of the business
- Ensures employee participation.

Lessons

- It takes time to overcome the scepticism of beneficiaries
- Training/guidance required for beneficiaries to deal with financial reward
- Participating employees/beneficiaries experienced changed attitude to the employment relationship.

The share-milker furthermore indicated that this business model can assist emerging farmers to become commercial dairy farmers by transferring technical skills and experience. The

importance that there should be one authority that makes the decisions was noted and that it is unlikely that transfer of operation will work when ownership is too broad.

Through the questionnaire the share-milker indicated that the share-milking business model allows the emerging farmers/beneficiaries, by means of their specific project, access to all ten critical success factors referred to in paragraph 1.3.

4.1.5 Share-milking structure

Figure 4.1 below depicts the organogram for the Grasslands share-milking project.

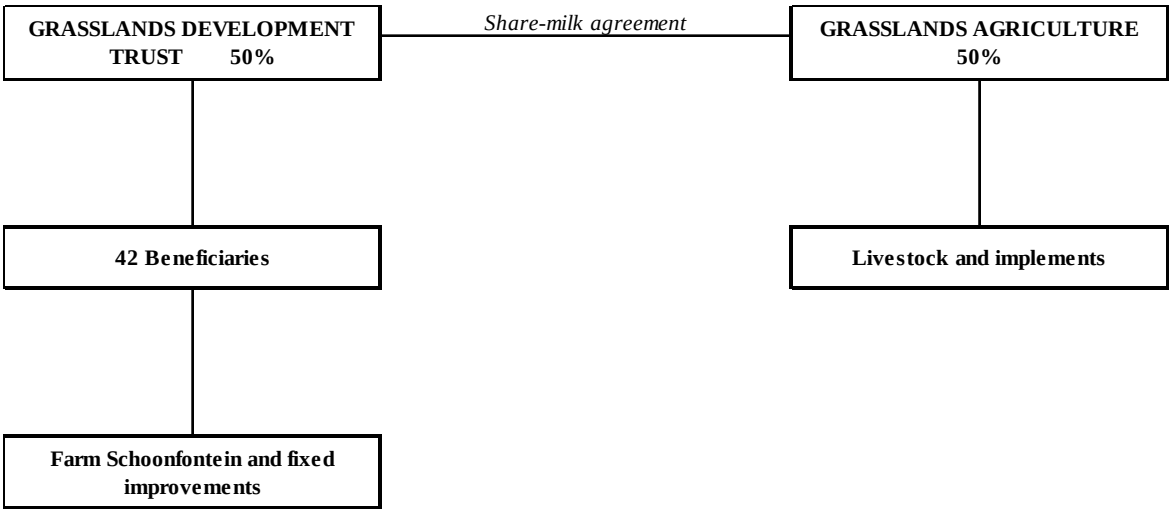

Figure 4.1: Grasslands' current share-milking structure (2016)

Grasslands Agriculture functions as the operating entity with a separate book-keeping system for the share-milking project.

4.2 Wittekleibosch Dairy Trust

4.2.1 Background

The Wittekleibosch Dairy Trust was formed in 2002 and forms the joint venture entity between Wittekleibosch Development Trust and Johan du Plessis Familie Trust. The joint venture consists of two representatives/trustees from Wittekleibosch Development Trust and two from the Johan du Plessis Familie Trust. There is also an independent trustee. The Tsitsikama Development Trust is the registered owner of the farm Villa Fonte. The Wittekleibosch Development Trust leases the land from the Tsitsikama Development Trust who obtained the specific farm as well as other surrounding areas via a court order in 1994. The Fengu people were forcefully removed from the area in 1977 and in 1994 reverted back to the High Court to regain ownership of the land they were removed from.

The joint venture is based on the share-milking principle and the share-milker is Mr. Johan du Plessis representing the Johan du Plessis Familie Trust. The main reasons for entering in such share-milking agreement with the beneficiaries of the Wittekleibosch Development Trust were that the commercial farmer was leasing the land and was then approached by the beneficiaries regarding the possibility of forming a joint venture. The commercial farmer realized the opportunity to capacitate and empower the beneficiaries by letting them participate in a commercially viable dairy enterprise based on firm business principals.

4.2.2 Project description

The project is situated in the Tsitsikama district within the Koukamma municipality, and the farming activities take place on five farms: Dennegeur, Vyfster, Graspan, Shalom and Villa Fontè, of which Villa Fontè is the main farm. The share-milking scheme is operating a 2 100 Jersey and crossbreed herd size dairy with a herringbone parlour. The project has recently (September 2016) been awarded R30 million from Department of Rural Development and Land Reform to build a rotary parlour. The annual milk production amounts to 6.2 million litres and there is a formal off-take agreement with Parmalat.

The farm consist of a total of 1 100 ha of which 240 ha are under irrigation and 500 ha are dryland pastures. The remainder is made up of natural veld, wasteland and homestead.

The Wittekleibosch Development Trust beneficiaries consist of 152 families of which six beneficiaries are actively involved in the business and there are two office bearers in the Wittekleibosch Dairy Trust. The project employs 45 permanent staff, of which 39 are male, 6 are female and 8 are casual workers.

4.2.3 Project equity composition

The project is based on the principles of the share-milking agreement that originates from New Zealand and the Wittekleibosch Development Trust provides the land, including all fixed improvements that they lease from the Tsitsikama Development Trust. The Wittekleibosch Development Trust is responsible for maintaining the land and all fixed improvements. The share-milker's contribution is all the moveable assets of which the cattle are the most important. The share-milker must also maintain all the moveable assets and replace when necessary. The initial contribution of the share-milker is estimated at R4 million with debt of R300 000. The current estimated value of Wittekleibosch Development Trust's contributions (land and fixed improvements) is estimated at R75 million and that of the share-milker (cattle and moveable assets) R10 million. Table 4.2 below reflects the growth in equity in real terms (inflation of 6% excluded) since 2002 for the two entities involved in the Wittekleibosch Dairy Trust share-milking project.

Table 4.2: Equity growth for Wittekleibosch Dairy Trust share-milking project (2002 - 2016)

Entity	Initial equity '(000)	Current equity '(000)	Current equity in real terms '(000)	Years in bussiness	AVG % growth/year
Emerging farmers	R 8 000	R 75 000	R 35 163	14	11
Share-milker	R 3 700	R 8 000	R 3 751	14	0

Although the figures in Table 4.2 are not audited figures, it still indicates the movement in equity in real terms for both partners to the agreement. The share-milker actually just maintained his cattle and implements' value and had no real growth in equity.

4.2.4 Share-milker's view on share-milking business model

Although there is no formal exit strategy to their share-milking agreement, the Wittekleibosch Development Trust will operate a separate dairy farm on 152 ha (farm Dennegeur) from 2017.

They will farm with their own cattle and implements acquired through the current share-milking scheme. The share-milker will still assist with mentoring.

The share-milker listed some major advantages of the share-milking model, as well as lessons learned, by completing a questionnaire:

Advantages

- The success and profit is shared 50 to 50 by both parties
- Share-milker does not have to buy land, but can farm on the joint venture's land (land owned by the emerging farmers)
- Access to Government funding

Lessons

- There must be mutual trust between the partners
- Honesty and transparency are very important criteria for a successful partnership

They furthermore indicated that this business model can assist emerging farmers to become commercial dairy farmers, by transferring technical skills and enabling them to accumulate sufficient funds to eventually buy-out the share-milker.

The share-milker indicated through the questionnaire that the share-milking business model implemented at Wittekleibosch allows the emerging farmers/beneficiaries involved in the project access to all ten critical success factors referred to in paragraph 1.3.

4.2.5 Share-milking structure

Figure 4.2 below depicts the organogram for the Wittekleibosch share-milking project.

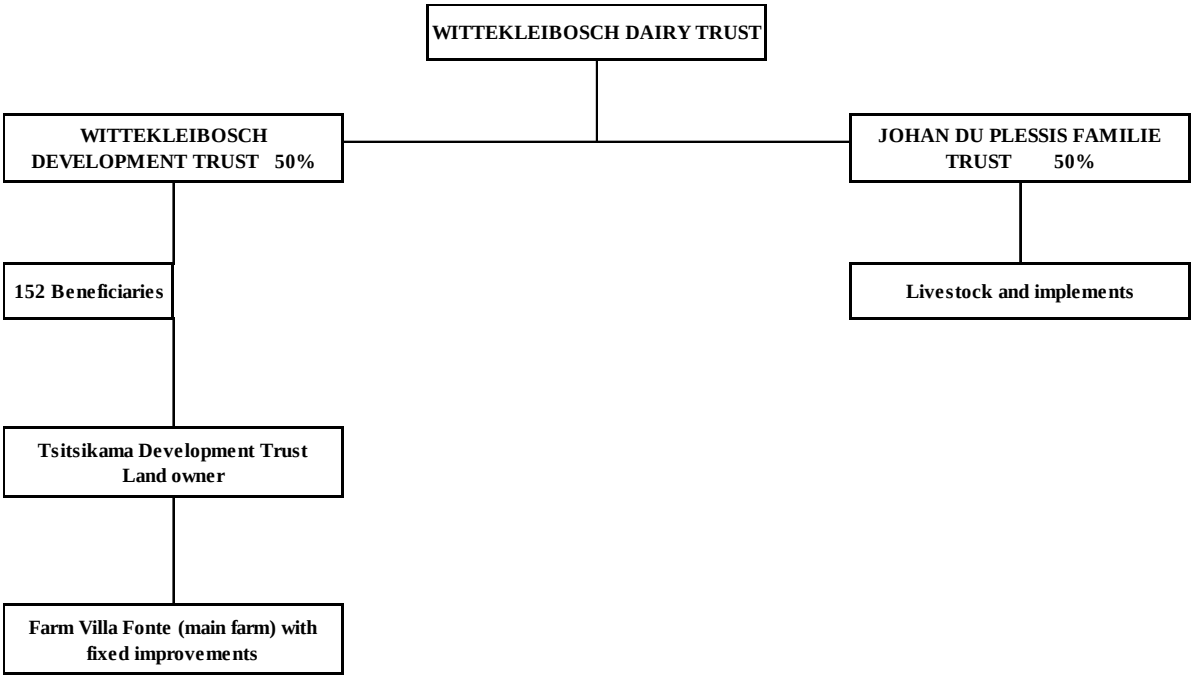

Figure 4.2: Wittekleibosch's current share-milking structure (2016)

The Wittekleibosch Dairy Trust functions as the operating entity for the share-milking project.

4.3 Reebok Rant Dairy Development Trust

4.3.1 Background

During the period 2005 and 2006 commercial farmers in the area decided to seek opportunities to empower their workers. The Reebok Rant farm became available to purchase and to establish a share-milking project. The Reebok Rant Dairy Trust was formed in 2006 as a joint venture entity between Reebok Rant Workers Trust and the Dairy Trust. The Reebok Rant Workers Trust established in 2006 was for the workers of the Reebok Rant farm and the farm workers of the five commercial farmers. The main prerequisite to be a beneficiary was to work for at least five years on any of the commercial farms or Reebok Rant farm. The Reebok Rant Workers Trust is the registered owner of the farm Reebok Rant that was obtained by means of the LRAD program and a loan that they obtained from a commercial bank. The LRAD program contributed R4.7 million towards the farm's purchase price and the loan covered the remaining R6 million. The land was used for security as well as personal suretyship from the commercial farmers to obtain funding.

The project is based on the share-milking principle and the share-milker is the Dairy Trust that consists of five commercial farmers. The main reasons for entering in such a share-milking agreement with their workers were to contribute to a better life for their workers and to secure opportunities to expand.

The initial agreement allowed for the milk income to be shared on a 49 to 51 basis after which each partner needed to cover the cost related to their relevant assets. In March 2016, the Reebok Rant Workers Trust purchased shares in the Dairy Trust, increasing their equity in the project to 60% resulting in a current share ratio of 60 to 40.

4.3.2 Project description

The project is situated in the Humansdorp district, within the Kouga municipality and on the farm, Reebok Rant. The share-milking scheme is operating a 2 300 Jersey, Holstein and crossbreed herd size dairy with two herringbone parlours. The annual milk production is 8 million litres and there is a formal off-take agreement with Woodlands Dairy.

The farm consist of 1 000 ha of which 850 ha are dryland pastures. The remainder is made up of natural veld, wasteland and homesteads.

The Reebok Rant Dairy Development Trust consists of 58 beneficiaries of which two beneficiaries are actively involved in the business, while the others work on the commercial farmers' farms. The Reebok Rant Workers Trust consists of seven trustees, while there are four office bearers at Reebok Rant Dairy Development Trust. The project employs 24 permanent staff of which 13 are male and 11 are female.

4.3.3 Project equity composition

The composition of the project is based on the principles of the share-milking agreement that originates from New Zealand. The contribution of the Reebok Rant Workers Trust to the agreement is the land and all fixed improvements, the infrastructure of which has to be maintained as stipulated in the agreement. The initial value of their contribution is estimated at R10.7 million with a debt of R6 million. The share-milker's contribution is all the moveable assets of which the cattle are the most important. The share-milker must also maintain all the moveable assets and replace when necessary. The initial contribution of the share-milker is estimated at R7.5 million without any debt. The current estimated value of Reebok Rant Workers Trust's contributions (land and fixed improvements) is R35 million and the 40% share of the Dairy Trust (cattle and moveable assets) R18.6 million. Table 4.3 below reflects the growth in equity in real terms (inflation of 6% excluded) since 2006 for the two entities involved in the Reebok Rant share-milking project.

Table 4.3: Equity growth for Reebok Rant Workers Dairy Trust's share-milking project (2006 – 2016)

Entity	Initial equity '(000)	Current equity '(000)	Current equity in real terms '(000)	Years in bussiness	AVG % growth/year
Emerging farmers	R 4 700	R 29 500	R 17 461	10	14
Share-milker	R 7 500	R 18 600	R 11 009	10	4

Although the figures in Table 4.3 are not audited figures they still reflect an upward movement in equity in real terms for both partners to the agreement.

4.3.4 Share-milker's view on share-milking business model

There is no formal exit strategy to their share-milking agreement, but the Reebok Rant Dairy Development Trust has the option to buy-out the Dairy Trust after five years.

The share-milker listed some major advantages of the share-milking model, as well as lessons learned, by completing a questionnaire:

Advantages

- The knowledge of five commercial farmers invested in the project ensures commitment
- The share-milker is part of management
- There is profit sharing
- The learning opportunity for emerging farmers with regards to dairy farming and financial and farm management.

Lessons

- Initially difficult to establish trust between the parties
- Transparency and honesty eventually led to the current trust among the parties
- It takes time to transfer skills and experience

The share-milker indicated that this business model can assist emerging farmers to become commercial dairy farmers due to all the opportunities and training that are provided. The emerging farmers, however, must have the drive to do this. The networking opportunities created by the agreement will also contribute to the successful establishment of commercial farmers.

The share-milker indicated through the questionnaire that the share-milking business model allows emerging farmers and beneficiaries sufficient access to the ten critical success factors referred to in paragraph 1.3.

4.3.5 Share-milking structure

Figure 4.3 below depicts the organogram for Reebok Rant share-milking project.

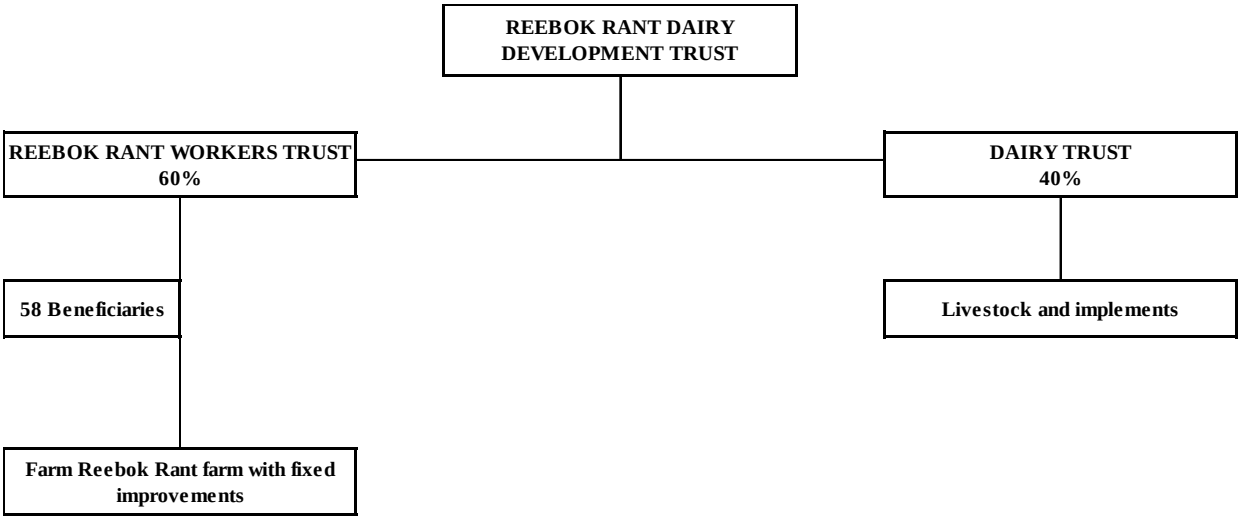

Figure 4.3: Reebok Rant's current share-milking structure (2016)

The Reebok Rant Dairy Development Trust forms the operating entity for the share-milking project.

4.4 Seven Stars Trust

4.4.1 Background

The Seven Stars Trust was formed in 2010 as the joint venture entity/agent between the two share-milking parties, Seven Stars Central Agricultural Cooperative and Keiskamma Livestock Pty (Ltd). Seven Stars Trust consists of seven trustees representing the Cooperative and share-milker. Seven Stars Central Agricultural Cooperative is a secondary Cooperative and consists of six primary cooperatives representing 36 members who own a total of 591 ha. This land is divided into seven production units of which six are owned by the Primary Cooperatives and one by the Amathole Municipality which is leased from the Municipality. Attempts are being made to get this land also registered into the individual emerging farmers' names.

The project is based on the share-milking principles originating from New Zealand and the main reasons for entering in such a share-milking agreement with the Seven Stars Central Agricultural Cooperative was to uplift the community, create employment opportunities for young black managers and to optimally utilize latent community assets.

The agreement allows for the gross income and pre-capital expenditure to be shared on a 50 to 50 basis.

4.4.2 Project description

The project is situated in the Keiskammahoek district, within the Amathlathi municipality and the farming activities take place on six farming units owned by the Primary Cooperatives and one unit that is owned by the Municipality. The land forms part of the Keiskamma Irrigation Scheme of the former homeland of the Ciskei. The share-milking scheme is operating a 2 800 Jersey and cross-breed herd size dairy with two rotary parlours. The annual milk production amounts to 9 million litres and there is a formal off-take agreement with Coega Dairy. The project utilizes 770 ha of land under irrigation.

The Seven Stars Central Agricultural Cooperative consists of 36 members representing the six Primary Cooperatives. There are six beneficiaries that are actively involved in the business and 15 office bearers (board members and trustees). The project employs 48 permanent staff, of which 30 are male, 18 are female and 15 are casual workers.

4.4.3 Project equity composition

The project is based on the principles of the share-milking agreement that originates from New Zealand and Seven Stars Central Agricultural Cooperative provides the land including all fixed improvements and is responsible for the maintenance thereof. The share-milker's contribution is all the moveable assets of which the cattle are the most important. The share-milker must also maintain all the moveable assets and replace it when necessary. The initial value of the emerging farmers' contribution is estimated at R50 million with R2.5 million debt. The initial contribution of the share-milker is estimated at R8 million with no debt. The current estimated value of Seven Stars Central Agricultural Cooperative's contributions (land and fixed improvements) is estimated at R100 million and that of the share-milker (cattle and moveable assets) R28 million. Table 4.4 below reflects the growth in equity in real terms (with inflation at 6% excluded) since 2010 for the two entities involved in the Seven Stars Trust share-milking project.

Table 4.4: Equity growth for Seven Stars Central Agricultural Cooperative's share-milking project (2010 – 2016)

Entity	Initial equity '(000)	Current equity '(000)	Current equity in real terms '(000)	Years in bussiness	AVG % growth/year
Emerging farmers	R 47 500	R 100 000	R 74 726	6	8
Share-milker	R 8 000	R 28 000	R 20 923	6	17

Although the figures in Table 4.4 are not audited figures they still indicate a positive movement in real term equity for both partners to the agreement. This is the only project out of the five case study projects where the share-milker's equity in real terms has increased more than the emerging famers' equity in real terms. The reason for this is that the share-milker has doubled up his herd size because of the implementation of a second rotary parlour on the project.

4.4.4 Share-milker's view on share-milking business model

Although there is no formal exit strategy to their share-milking agreement, the current agreement expires after five years, but is renewable. The share-milker listed some major advantages of the share-milking model, as well as lessons learned, by completing a questionnaire:

Advantages

- Relative low capital outlay
- Economy of scale
- Access to markets

- Shares in value chain

Lessons

- There must be constant formal meetings for sound communication and maintaining trust with accurate and complete minutes of the meetings
- Maintaining good relationships
- Training the shareholders in its totality in basic business skills
- Chairpersons with business experience enhances credibility of management and governance

The share-milker furthermore indicated that this business model can assist emerging farmers to become commercial dairy farmers, by transferring knowledge and emerging farmers gaining the necessary experience.

The share-milker confirmed through the questionnaire that, in his opinion, the share-milking business model allows the emerging farmers/beneficiaries access to all ten critical success factors referred to in paragraph 1.3.

4.4.5 Share-milking structure

Figure 4.4 below depicts the organogram for Seven Stars share-milking project.

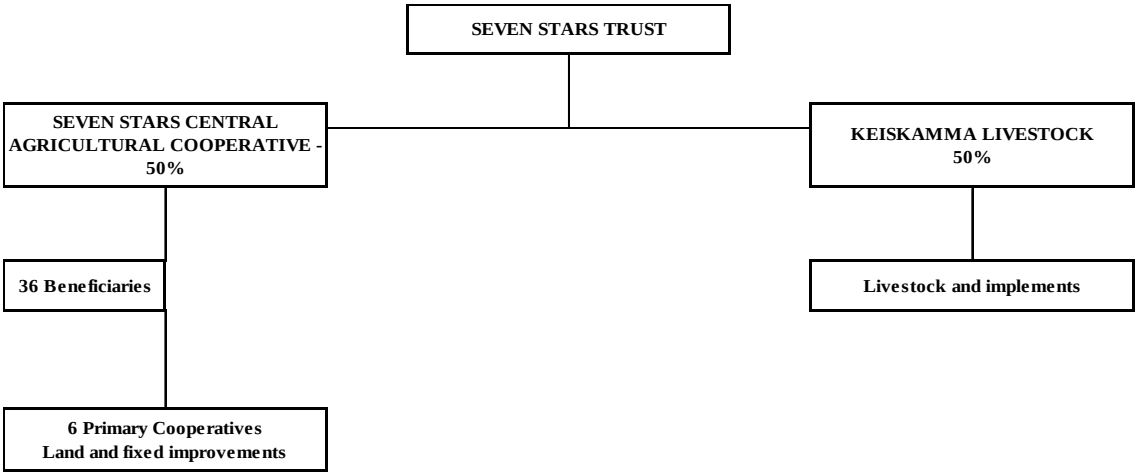

Figure 4.4: Seven Stars share-milking structure (2016)

Seven Stars Trust is the operating entity for the share-milking agreement between Seven Stars Central Agricultural Cooperative and Keiskamma Livestock Pty (Ltd).

4.5 Shiloh Dairies Trust

4.5.1 Background

The Shiloh Dairies Trust was formed in 2011 as the joint venture entity/agent between the two share-milking parties, Mayime Primary Cooperative and Shiloh Livestock Pty (Ltd) (share-milker). Shiloh Dairies consists of six trustees representing the Cooperative and the share-milker. Mayime Primary Cooperative is a primary cooperative with 395 members. This land is communal land that has been organized into a structure in the form of a Primary Cooperative. The land forms part of the Shiloh Irrigation Scheme of the former homeland of the Ciskei.

The project is based on the share-milking principles originating from New Zealand and the main reasons for entering in such a share-milking agreement with Mayime Cooperative is to uplift the community, create employment opportunities for young black managers and to optimally utilize latent community assets.

The agreement allows for the gross income and pre-capital expenditure to be shared on a 50 to 50 basis.

4.5.2 Project description

The project is situated in the Chris Hani District, within the Enoch Mgigima local municipality at Wittlesea. The farming activities utilize 330 ha irrigation land of a total of 450 ha that form part of the Shiloh Irrigation Scheme of the former homeland of the Ciskei. The share-milking scheme is operating a 1 508 cross-breed herd size dairy with a rotary parlour. The annual milk production amounts to 4.5 million litres and there is a formal off-take agreement with Coega Dairy.

Mayime Primary Cooperative consists of 395 members. There are 28 beneficiaries who are actively involved in the business and 15 office bearers (board members and trustees). The project employs 24 permanent staff, of which 18 are male, 6 are female and 4 are casual workers.

4.5.3 Project equity composition

The project is based on the principles of the share-milking agreement that originates from New Zealand and Mayime Primary Cooperative provides the land including all fixed improvements and is responsible for the maintenance thereof. The share-milker's contribution is all the moveable assets of which the cattle are the most important. The share-milker must also maintain all the moveable assets and replace it when necessary. The initial value of the emerging farmers'

contribution is estimated at R26 million with no debt against it. The initial contribution of the share-milker is estimated at R12 million with no debt. The current estimated value of Mayime Primary Cooperative's contributions (land and fixed improvements) is estimated at R66 million and that of the share-milker (cattle and moveable assets) R14 million. Table 4.5 below reflects the growth in equity in real terms (at inflation of 6%) since 2011 for the two entities involved in the Seven Stars Trust share-milking project.

Table 4.5: Equity growth for Mayime Primary Cooperative's share-milking project (2011 - 2016)

Entity	Initial equity '(000)	Current equity '(000)	Current equity in real terms '(000)	Years in bussiness	AVG % growth/year
Emerging farmers	R 26 000	R 66 000	R 52 278	5	15
Share-milker	R 12 000	R 14 000	R 11 089	5	-2

Although the figures in Table 4.5 are not audited figures they still indicate an upward movement in real term equity for the emerging farmers. This is the only project where the average percentage growth per year in real term equity shows a negative growth for the share-milker. It should be noted that this project is the newest of the five case study projects and the herd size could not be expanded due to the current lack of additional land to the project.

4.5.4 Share-milker's view on share-milking business model

There is no formal exit strategy to their share-milking agreement with the current agreement expiring after ten years, but is renewable. The share-milker listed some major advantages of the share-milking model, as well as lessons learned, by completing a questionnaire:

Advantages

- Relative low capital outlay
- Economy of scale
- Access to markets
- Shares in value chain

Lessons

- There must be constant formal meetings with good record keeping
- Maintaining good relationships
- Training the shareholders in its totality in basic business skills
- Chairpersons with business experience helps hugely

The share-milker furthermore indicated that this business model can assist emerging farmers to become commercial dairy farmers by transferring expertise and emerging farmers gaining the necessary experience.

The share-milker indicated through the questionnaire that the share-milking business model implemented at Shilo Dairies allows the emerging farmers or beneficiaries of the project access to all ten critical success factors mentioned in paragraph 1.3.

4.5.5 Share-milking structure

Figure 4.5 below depicts the organogram for the Shiloh Dairies Trust share-milk project.

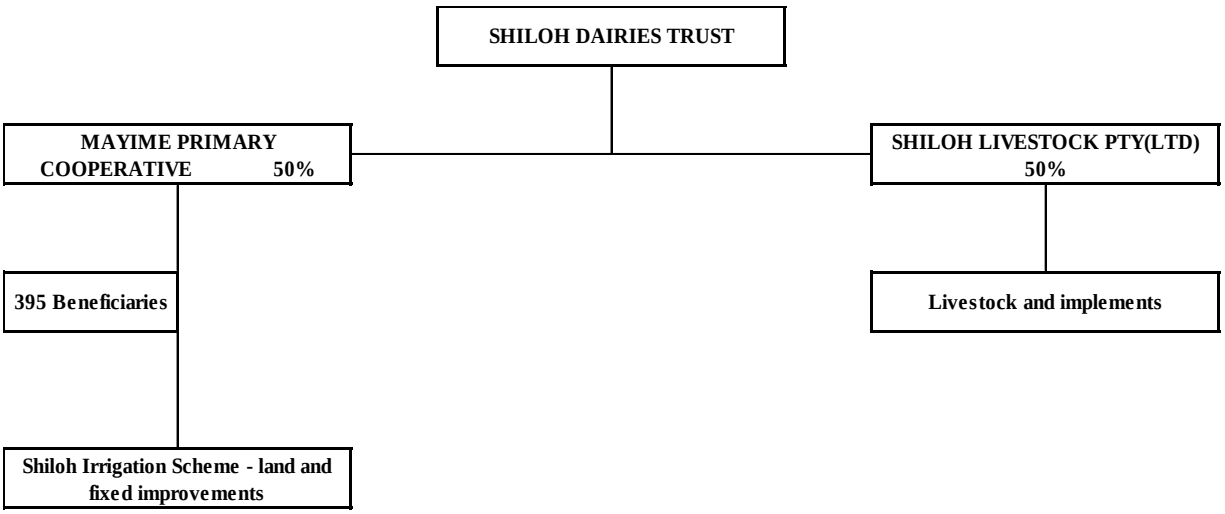

Figure 4.5: Shiloh Dairies' current share-milking structure (2016)

Shiloh Dairies Trust is the operating entity for the share-milking agreement between Mayime Primary Cooperative and Shiloh Livestock Pty (Ltd).

4.6 Conclusions

The information in this chapter clearly presented the variation in the composition of the various case study projects. Each of the case study projects has it unique origin and has different land tenure security with substantial variations in beneficiary numbers.

Each case study project operates as a fully commercial entity with reputable off-takers for their produce.

All the share-milkers confirmed that the share-milking model allows the emerging farmers to access the ten critical factors necessary for the establishment of black commercial dairy farmers.

CHAPTER 5 : ASSESSING THE CASE STUDY DATA

In this chapter the relevant data gathered through the semi-structured questionnaire and interviews conducted with all the selected respondents from each of the case study projects will be assessed.

5.1 Biographical characteristics and analysis

In this section the biographical characteristics of the sample group will be presented, including the respondents' gender, age, marital status, qualification and respective position within the project.

5.1.1 Respondents' gender, age, marital status, qualification and position

It is important to have a description of the sample group before analysing its respective responses. Table 5.1 below depicts the frequency and percentage representation of the gender, age, marital status, qualification and position of the respondents.

Table 5.1: Frequency distribution of sample group's profile

Sample group profile	Frequency	% percentage
Gender		
Male	29	83
Female	6	17
Age		
30 to 40	6	17
40 to 50	9	26
50 to 60	5	14
60 to 70	11	31
70 plus	4	11
Marital status		
Single	6	17
Married	29	83
Qualification		
Primary	2	6
Secondary	20	57
Tertiary	5	14
Post graduate	8	23
Position		
Project manager	2	6
Emerging farmer/Trustee	20	57
Board member	7	20
Dairy mananger	1	3
Share-milker	5	14

Table 5.1 indicates that most of the respondents are male (83%). The age of the respondents varies from 30 to older than 70 and most the respondents are in the 60 to 70 age group. Most of the respondents are married and have completed at least a secondary qualification.

The position of each respondent in the specific case study is crucial and should be noted. Each of the various positions might have different views on the share-milking business model and its impact on their well-being and that of the project. The whole spectrum of participants in a typical share-milking project was interviewed for the study. Table 5.1 further indicates that most respondents interviewed are emerging farmers and trustees (57%) who should be able to reflect an informed opinion of the share-milking model and its impact on the farmers' livelihood and the ability to assist them in becoming commercial dairy farmers.

Figure 5.1 and Figure 5.2 below depicts the frequency of gender and qualification per case study.

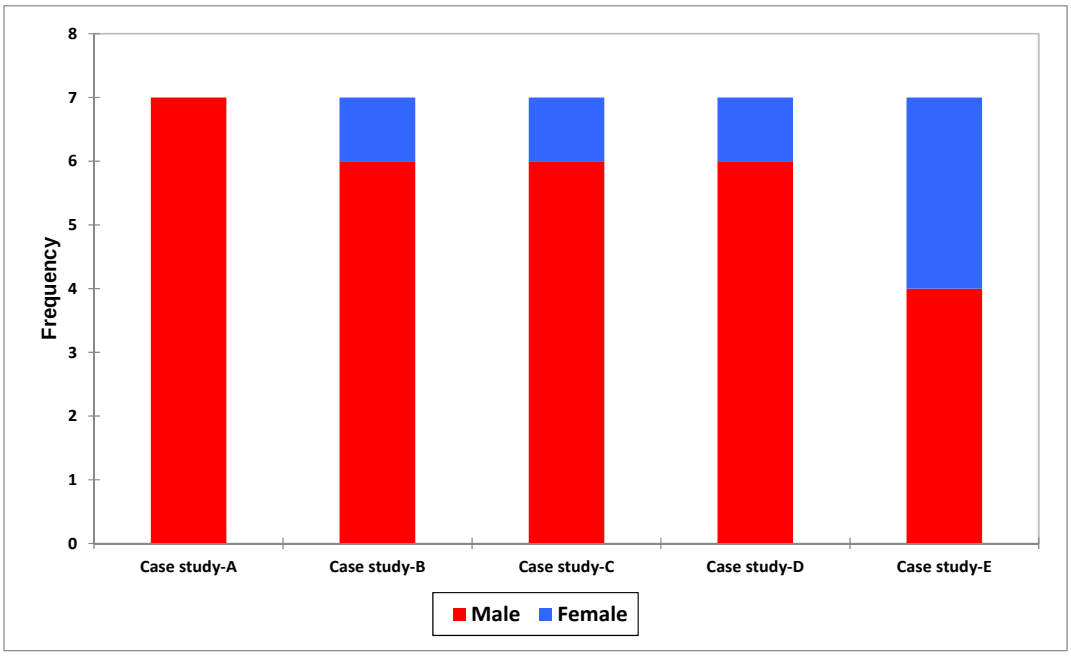

Figure 5.1: Gender frequency per case study

From the above Figure 5.1 it is clear the Case study E has the largest number of female respondents, with Case study A only having male respondents.

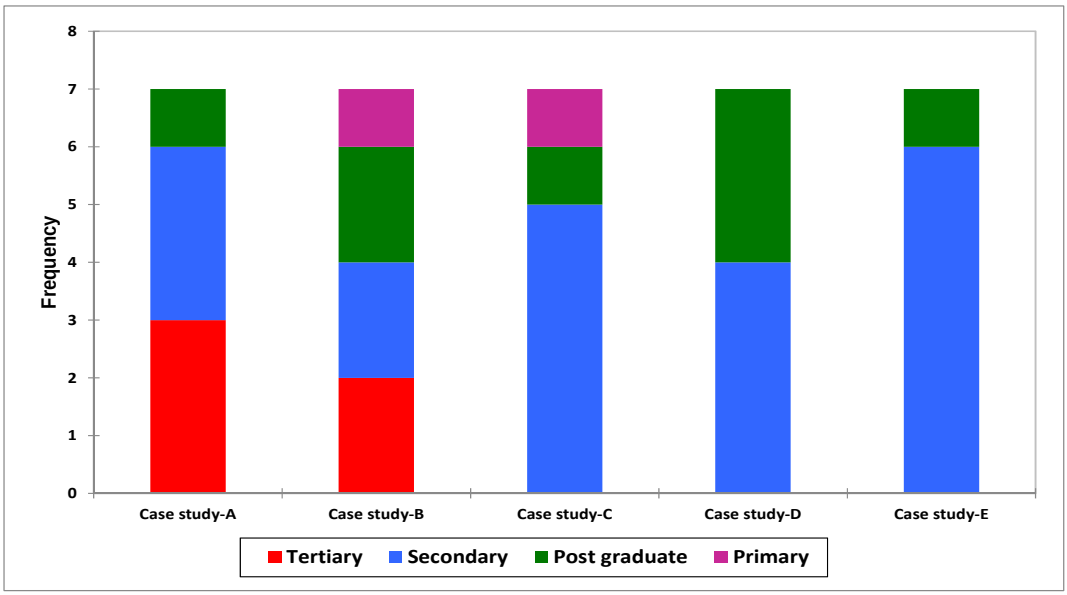

Figure 5.2: Qualification frequency per case study

Figure 5.2 confirms that most the respondents have secondary, tertiary and post graduate qualifications. The assumption can therefore be made that an educated sample group should be able to present better formulated answers to the relevant questions.

The data was analysed to determine any association between biographical variables and project information. Contingency tables were calculated for the variables that reflected an association when tested for independency (where H0 hypothesis can be rejected).

Figure 5.3 and Figure 5.4 below reflect the contingency tables for age versus position and education, in 3D graph format. From Figure 5.3 it can be seen that the majority of the emerging farmers/trustees are in the 60 to 70 age bracket, managerial in the 30 to 50 bracket and share-milker also in the 60 to 70 bracket. From Figure 5.4 below it is clear that the majority of post-graduates are in the 40 to 50 age bracket, primary education in the 60 to 70 plus bracket, secondary spread over all age groups with the highest number in the 60 to 70 bracket, and tertiary in the 30 to 60 age group.

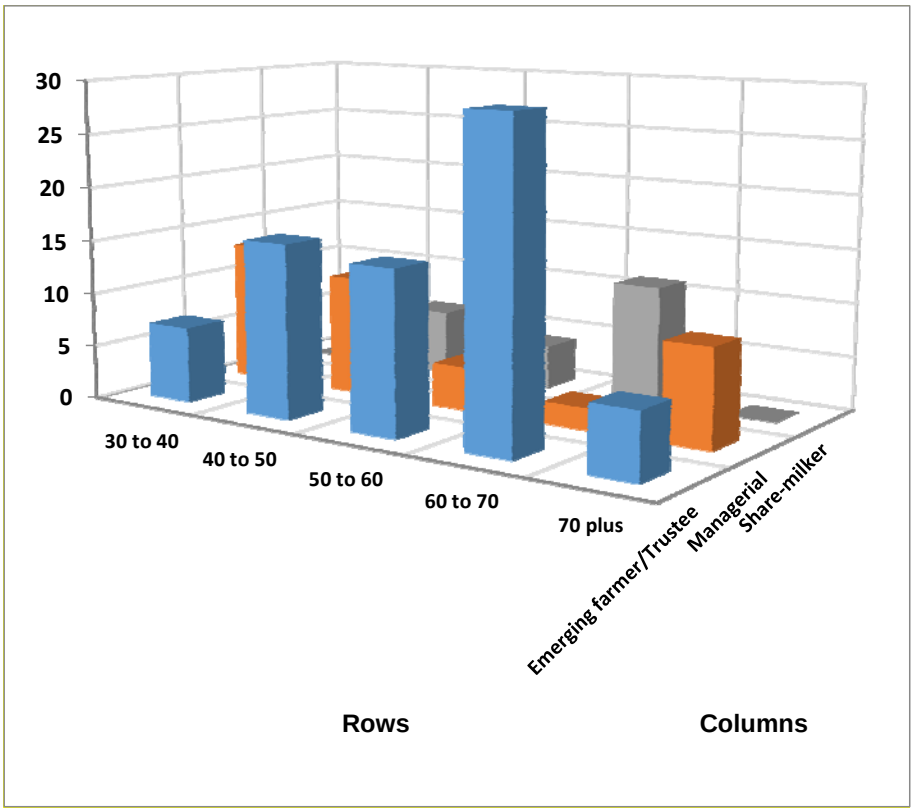

Figure 5.3: Contingency graph for age vs position in the project

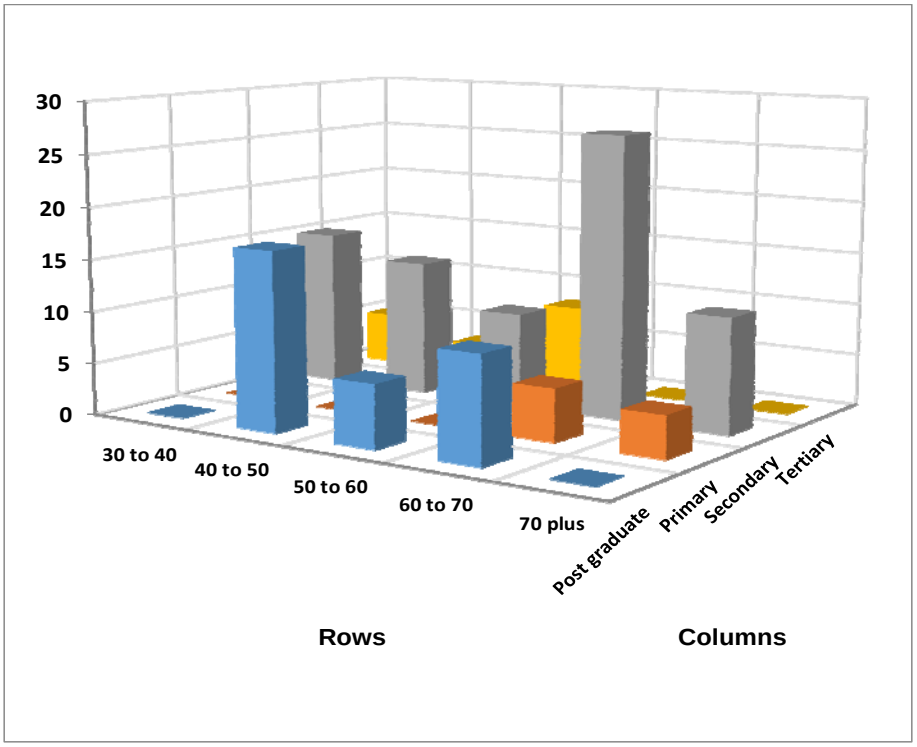

Figure 5.4: Contingency graph for age vs education

Table 5.2 below depicts the association coefficient between age and position of respondents and their respective education.

Table 5.2: Relationship between age, position and education

Variable	p-value
Position	< 0.0001
Education	< 0.0001

As the computed p-value is lower than the significance level alpha=0.05, one should reject the null hypothesis H0 (age, position and education are independent), and accept the alternative hypothesis Ha (there is a link between age, position and education). This means that the association between age, position and education is noticeable. With regard to position of the emerging farmers/trustees, who were the initial start-up partners, they are mostly in the 60 to 70 age bracket and predominantly the older participants in the project. The younger generation is pre-dominantly represented in managerial positions. The share-milkers are spread between the age of 40 and 70, but mostly in the 60 to 70 bracket. This confirms the age group of commercial farmers who understand the importance of uplifting emerging farmers and who have the maturity to engage in these types of projects.

With regard to education, the results indicated that primary education as the highest qualification was predominant in the age group 60 to 70 plus. Historically, this has unfortunately been the case in many countries where it had been the norm to start working directly after finishing primary school. This being said, secondary education is the most represented qualification within the sample group and probably the reason why they are in the "managerial" positions. Tertiary education, as highest qualification, is found the age range of 30 to 60 and correlates with the post graduates ranging from 40 to 70 years of age.

Figure 5.5 and Figure 5.6 below reflect the contingency tables for education versus position and project duration, in 3D graph format.

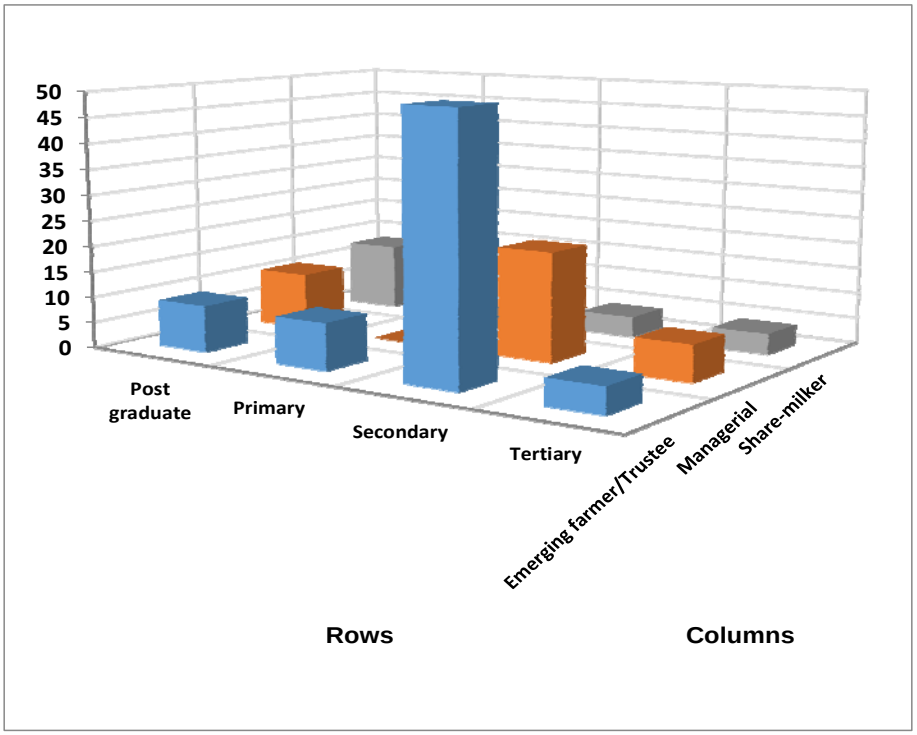

Figure 5.5: Contingency graph for education vs position

Figure 5.6 below indicates that secondary education is the type of education most commonly found in all the projects over all the various durations.

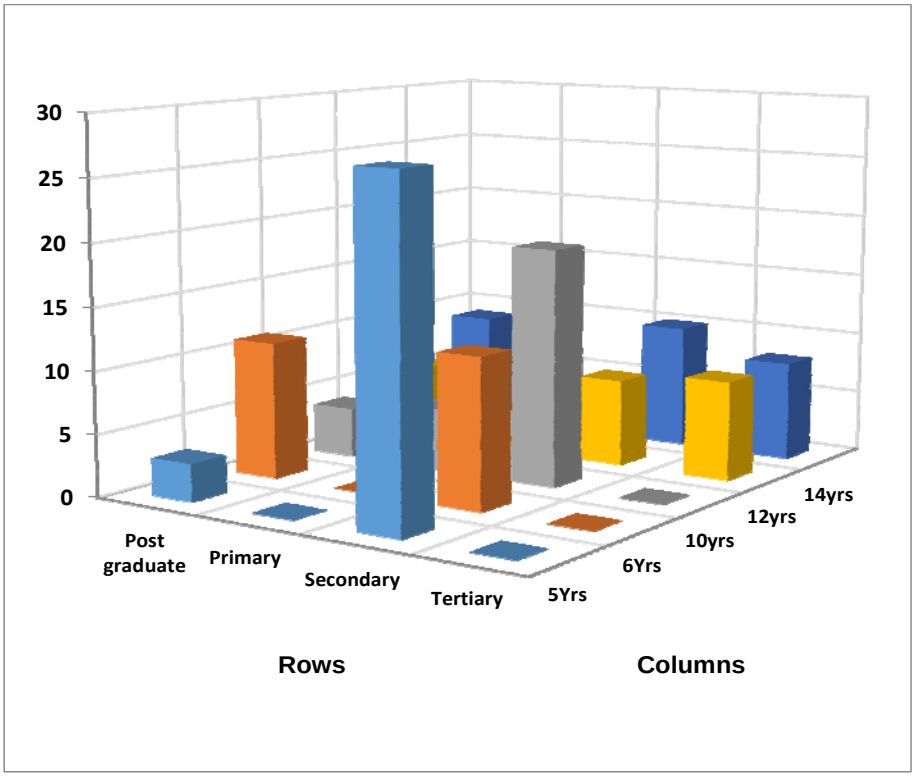

Figure 5.6: Contingency graph for education vs project duration

Table 5.3 below depicts the association coefficient between education and position in the project, as well as the project duration.

Table 5.3: Relationship between education, position and project duration

Variable	p-value
Position	< 0.0001
Project duration	< 0.0001

As the computed p-value is lower than the significance level alpha=0.05, one should reject the null hypothesis H0 (education, position and project duration are independent), and accept the alternative hypothesis Ha (there is a link between education, position and duration of the project). This can be interpreted as that the emerging farmers'/trustees' qualifications range from primary to post graduate with a secondary school qualification as the most frequent qualification. 'Managerial position' in the project reflects mostly secondary, tertiary and post graduate qualifications. The share-milker position mostly reflects post graduate qualifications.

Projects that are 12 years and older are represented in all the qualification categories. This does not exclude the possibility that some of these tertiary and post graduate qualifications were obtained during the project term. In the projects that are younger than ten years, respondents

have either secondary or post graduate qualifications and are indicative of the younger generation coming through.

5.2 Critical success factors

The data referring to the ten critical success factors of establishment black commercial dairy farmers will be presented in this section. The data will be presented as per case study's response to questions asked during the personal interview of each respondent. The information presented below represents all the respondents' answers per case study.

5.2.1 Defining the critical success factors

Venter (1997) identified constraints associated with regards to the establishment of black commercial dairy farmers as:

- Personal constraints (management and biographical factors)
- Access to credit (especially credit to purchase production inputs)
- Access to markets (outputs, inputs and transport)
- Land tenure
- Adequate and efficient extension services and training before commencement with farming activities and while farming.

Terblanche and Willemse (2009) referred to some challenges identified by the groups they interviewed on "Farmer Controlled Businesses" (FCB). These challenges are access to finance, markets and information.

Ozowa (1995) identified four information needs of emerging farmers in Nigeria. These needs include extension education, agricultural technology, agricultural credit and marketing (Ozowa, 1995).

The above listed constraints, challenges and needs, as well as discussions with various prominent industry role players, resulted in the identification of the ten critical success factors for the establishment of black commercial dairy farmers in South Africa.

5.2.2 Access to land

Access to land may refer to land already in the possession of the emerging farmers, or newly acquired land because of the share-milking model, or the ability to acquire additional land because of the share-milking model. Table 5.4 below reflects the answer to the question of whether the share-milking model assists the emerging farmer in accessing land, as well as the description of the land.

Table 5.4: Access to land

Criteria	CASE STUDY				
	A	B	C	D	E
Access to land	yes	yes	yes	yes	yes
Total (ha)	486	1 100	1 000	770	450
Dryland (ha)	207	500	850	0	0
Irrigation (ha)	128	240	0	770	330
Veld (ha)	151	360	150	0	120

Table 5.4 indicates that all the case study projects confirmed that they have access to land. Although three of the five case studies had land before the share-milking agreement, they still indicated that, because of the share-milking agreement, they would be able to obtain even more land.

5.2.3 Opportunity to obtain finance

Finance includes obtaining loans from private financial institutions or funding from Government. Finance is required to purchase land, production inputs or implements. Table 5.5 below reflects the access to finance, either from private institutions or grant funding from Government that the various case study projects have obtained.

Table 5.5: Access to finance

Criteria	CASE STUDY				
	A	B	C	D	E
Access to finance	yes	yes	yes	yes	yes
Short term	yes	yes	yes		yes
Medium term			yes		
Long term			yes		
Result of share-milking	yes	yes	yes	yes	yes
Security required		yes	yes		yes
Security by whom			Emerging farmers		Emerging farmers
	share-milker	share-milker	share-milker		
Access to grant funding	yes	yes	yes	yes	yes
Result of share-milking	yes	yes	yes	yes	yes

All the case study projects indicated that they have or could obtain access to finance from private financial institutions and Government. Each of the case study projects confirmed that the share-milking agreement allowed them to obtain this finance. Four out the five case study projects indicated that they utilize either an overdraft facility from a commercial bank and/or a production loan facility from a cooperative. The security required for the specific finance is either given by the share-milker (commercial farmer) or the emerging farmers (land) or a combination of both. Security required from private financial institutions in South Africa is a major constraint (entry barrier) for emerging farmers. The share-milking model clearly assists the emerging farmer in overcoming this constraint or entry barrier.

5.2.4 Opportunity to buy inputs and to be able to market their produce

Obtaining access to land without the ability to obtain access to production inputs is a major constraint for emerging farmers in South Africa. Table 5.6 below confirms that all the case study projects indicated that they have access to all necessary production inputs due to the share-milking agreement. The inputs are either being obtained through a cooperative production facility or bank overdraft facility.

Table 5.6: Access to inputs

Criteria	CASE STUDY				
	A	B	C	D	E
Access to inputs	yes	yes	yes	yes	yes
Credit facility (Coop production loan/Bank overdraft)	yes	yes	yes	yes	yes
Result of share-milking	yes	yes	yes	yes	yes

Off-takers require consistent supply of quality produce and once farmers can comply with these requirements they should be able to access markets. Table 5.7 below confirms that the various case study projects do have access to markets and include formal contracts from off-takers. All the case study projects indicated that these formal contracts obtained are because of the share-milking agreement and the fact that they comply with the consistency and quality requirements.

Table 5.7: Access to markets

Criteria	CASE STUDY				
	A	B	C	D	E
Access to markets	yes	yes	yes	yes	yes
Formal contract	yes	yes	yes	yes	yes
Result of share-milking	yes	yes	yes	yes	yes

5.2.5 Utilization of extension/support services

Unfortunately, all the case study projects indicated that they do not make use of governmental extension services as indicated in Table 5.8 below. According to the respondents these services do not exist or they have sufficient access to the required technical information from the share-milker and industry organization.

Table 5.8: Access to and utilization of extension services

Criteria	CASE STUDY				
	A	B	C	D	E
Access to extension services	no	no	no	no	no

5.2.6 Obtaining the necessary training

Access to quality training has been identified by Venter (1997) and Terblanche and Willemse (2009) as critical to the successful establishment of emerging farmers. Table 5.9 confirms that all the case study projects have access to relevant and quality training. The respondents furthermore indicated that the access to training is a result of the share-milk agreement. Although the Likert scale is based on the five-level format the respondents were asked to rate the training they received on a scale of good, average or bad and all the projects indicated that it was good.

Table 5.9: Access to training

Criteria	CASE STUDY				
	A	B	C	D	E
Access to training	yes	yes	yes	yes	yes
Type of training					
Financial & business management	√	√	√	√	√
Pasture management	√			√	√
Calf rearing			√	√	
Parlour operations		√	√	√	√
Personal financial management	√		√		
Farm management	√	√	√	√	√
Personel management	√				
First Aid		√	√		√
Rating (good/average/bad)	good	good	good	good	good
Result of share-milking	yes	yes	yes	yes	yes

Table 5.9 listed the most commonly received training by the respondents. *"Financial & business management"*, *"Farm management"* and *"Parlour operations"* were the three most frequent training subjects received by the respondents.

5.2.7 Utilization of available labour force – job creation

Table 5.10 below confirms that all the case study projects have sufficient access to labour and due to the share-milking agreement jobs are being created. The current ratio for number of cattle per labourer in South Africa is 32. The average number of cattle per labourer for the five case study projects is 72. Therefore, although the aim is to create job opportunities, there is still a sense for effective management systems within the case studies.

Table 5.10: Access to labour – job opportunities

Criteria	CASE STUDY				
	A	B	C	D	E
Access to labour	yes	yes	yes	yes	yes
No permanent	14	35	24	48	24
Men	14	33	13	30	18
Women	0	2	11	18	6
Youth < 35	10	12	3	43	17
No Casual	0	6	0	15	4
Men	0	6	0	11	4
Women	0	0	0	4	0
Youth < 35	0	6	0	12	4
Result of share-milking	yes	yes	yes	yes	yes

Table 5.10 above depicts the amount of permanent and casual labour utilized by the various case study projects.

5.2.8 Opportunity to utilize the latest available technology

Table 5.11 below confirms that all the case study projects have access to the relevant technology needed and that is because of the share-milking agreement.

Table 5.11: Access to technology

Criteria	CASE STUDY				
	A	B	C	D	E
Access to technology	yes	yes	yes	yes	yes
Type of technology					
Dairy parlour computer system			√	√	√
Computerized irrigation		√	√	√	√
Dairy parlour operations	√	√	√	√	
Cold chain	√	√	√	√	
Result of share-milking	yes	yes	yes	yes	yes

The major required technologies are listed in Table 5.11 above and all the respondents indicated that they have had training or access to most of the listed technologies.

5.2.9 Gaining social capital

Sander (2016), defines social capital as *"the collective value of all social networks (who people know), and the inclinations that arise from these networks to do things for each other (norms of reciprocity) and emphasizes specific benefits that flow from the trust, reciprocity, information, and cooperation associated with social networks and creates value for the people who are connected, and for bystanders as well."*

Table 5.12 below confirms that the respondents have gained social capital because of the share-milking agreement. They are either members of a farmer's union, study group, MPO or have shares in an agricultural cooperative. The share-milking agreement creates a platform for the persons involved in the project to engage in networking and to obtain and maintain linkages/relationships with relevant role-players.

Table 5.12: Social capital gained

Criteria	CASE STUDY				
	A	B	C	D	E
Social capital gained	yes	yes	yes	yes	yes
Membership	no	yes	yes	yes	yes
Farmers Union		√			
Study Group - internal/external	√	√		√	√
Community Group			√		
MPO member	√	√	√	√	√
Shares in Coop		√			
Result of share-milking	yes	yes	yes	yes	yes
What was gained					
Training experience	√	√	√	√	√
Health services	√	√	√		√
Irrigation	√	√		√	√
Agricultural input/technology/industry	√	√	√	√	√

Table 5.12 indicates that all the case study projects gained experience in training and agricultural input and technology. Their level of confidence has improved because of the share-milking agreement and they are comfortable to engage with external agricultural businesses.

5.2.10 Managerial skills

Table 5.13 below confirms that all the case study projects have access to managerial skills training because of the share-milking agreement. The training they have received was rated on a scale of good, average or bad and all the respondents rated the training as good.

All the case study projects indicated that the respective share-milker provides mentorship and they have rated the mentorship on a scale of good, average or bad. All the respondents rated the training as good. Chapter 6 confirms the impact of the mentorship portrayed by the respondents.

Table 5.13: Access to managerial skills training

Criteria	CASE STUDY				
	A	B	C	D	E
Managerial skill					
Access to managerial training	yes	yes	yes	yes	yes
Result of share-milking	yes	yes	yes	yes	yes
Rating (good/average/bad)	good	good	good	good	good
Metorship from share-milker	yes	yes	yes	yes	yes
Rating (good/average/bad)	good	good	good	good	good

5.2.11 Growth in equity

The growth in equity has been determined through the questionnaire by obtaining the initial capital contribution less any debt from the share-milker and the emerging farmers as well as the current value of each partner's share in the project less debt. The time value of money and the appreciation in agricultural land values have surely contributed to the increase in value of each partner's contributions. It is for these reasons that the inflation (6%) has been taken out of the current equity value so to be able to compare the initial and current equity in real terms. After these facts have been considered the conclusion can still be made that there was an increase in the value of each partner's share in the project.

Table 5.14: Total growth in equity of all the case study projects

Respondent	Initial equity '(000)	Current equity '(000)	Current equity in real terms '(000)	Years in bussiness	AVG % growth/year
Emerging farmers	R 89 385	R 305 500	R 191 674	9	9
Share-milkers	R 35 700	R 83 600	R 52 452	9	4

Table 5.14 reflects the total value of the initial and current equity of emerging farmers and share-milkers over all the case study projects. The average years in business of the case study projects have been calculated to determine the average percentage growth per year. The emerging farmers' average percentage growth in equity per year in real terms amounts to 9% and that of the share-milker to 4%. Although agricultural land in South Africa did appreciate during the past decade, which contributed to the growth in equity of the emerging farmers, the commercial utilization of the land through the share-milking model also contributed to the growth in equity of the emerging farmers' assets. The major contributors to the increase in share-milkers' equity is an increase in number of cattle, implements and increase in value of cattle and implements.

5.2.12 Correlation between herd size, work force and annual production

When analysing the data certain correlations were pertinent and are reflected in Table 5.15 and

Table 5.16 below. Strong correlation was found between herd size and total number of work force (0.777), as well as annual production (0.922).

Table 5.15: Correlation between workforce and herd size

Variable	Observations	Obs. without missing data	Minimum	Maximum	Mean	Std. deviation
Herd_size	36	36	1508.0	2800.0	2072.5	471.3
Total work force	36	36	14.0	63.0	33.7	17.0

	Total work force	Herd size
Total work force	1	0.777
Herd size	0.777	1

Figure 5.7 below depicts the regression between herd size and total work force (R^2 = 0.604) and confirms the strong correlation.

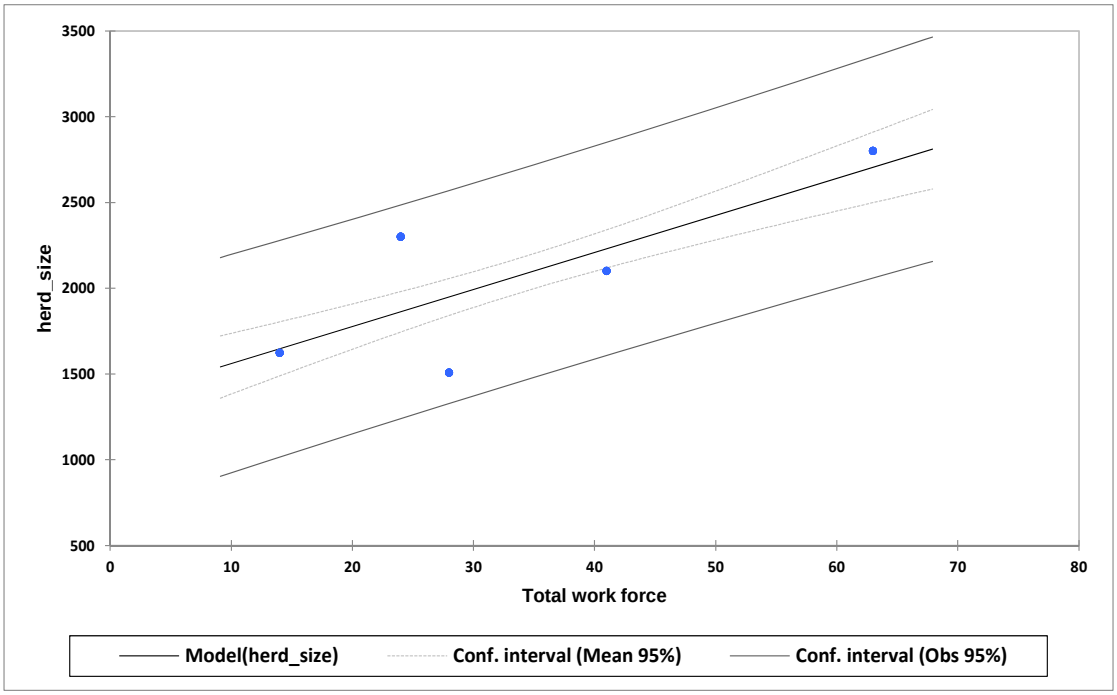

Figure 5.7: Regression of herd size by total work force (R^2=0.604)

Table 5.16: Correlation between herd size and annual production

Variable	Observations	Obs. without missing data	Minimum	Maximum	Mean	Std. deviation
Annual_production	176	176	4.5	9.0	6.8	1.6
Herd_size	176	176	1508.0	2800.0	2067.3	470.0

	Herd size	Annual production
Herd size	1	0.922
Annual production	0.922	1

Figure 5.8 below depicts the regression between annual milk production and herd size (R^2 = 0.851) and confirms the strong correlation.

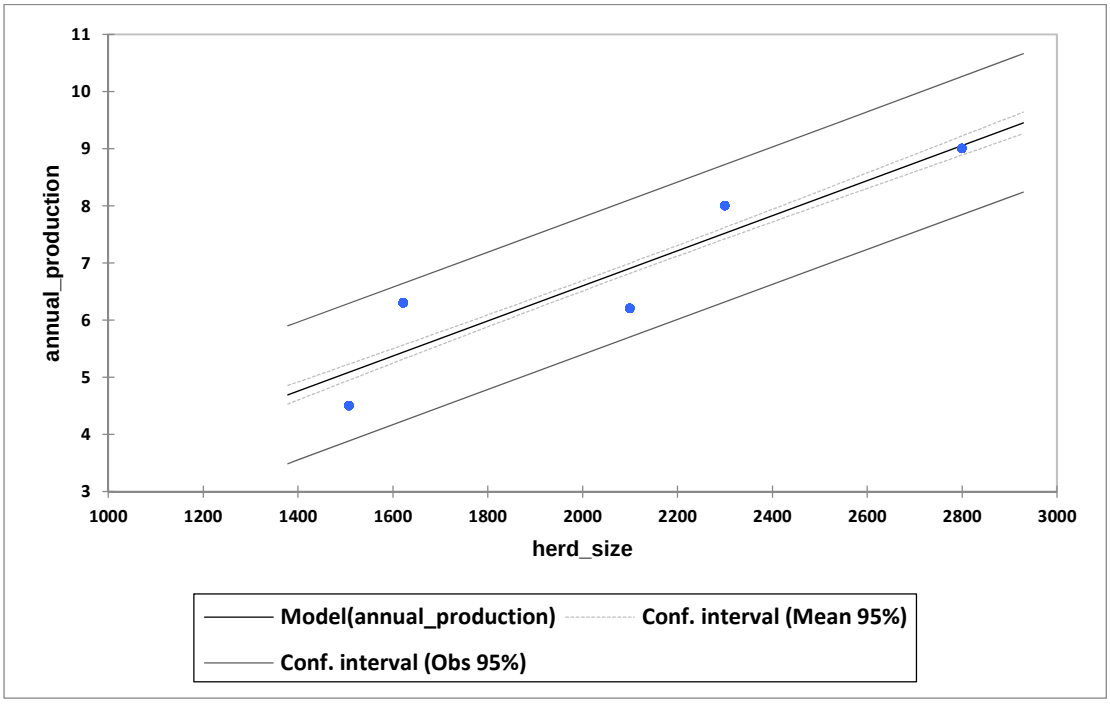

Figure 5.8: Regression of annual production by herd size (R^2=0.851)

The independency test indicated association between age, position of respondents in the project and education of the respondents. Further association was confirmed between education of respondents, position in the project and project duration. Strong correlations between herd size, work force and annual production exist. This is indicative of the fact that these projects operate as commercial farming entities. The larger the herd size, the more people are expected to work on the farm. Although this is true, paragraph 5.2.7 indicates that the average labour efficiency on these five case study projects is more than twice higher than the current norm in South Africa. Increased annual production as a result of increased herd size does not convert to profit, but is indicative of the ability to produce more milk.

5.3 Conclusions

It is important to have a good understanding of the sample group. Mostly emerging famers/trustees were interviewed, with most of the respondents in the 40 to 70 age bracket. Secondary qualification is the most common qualification among the respondents.

The study results with regards to the ten critical factors were overwhelmingly positive and confirm that the share-milking model does conform to granting the emerging farmers access to these critical factors. As mentioned previously, the objective of the study was not to evaluate the intensity of the access gained, but only whether there was access to these critical factors.

The share-milking model allows the emerging famers to share in economies of scale and to benefit from the commercial farmers' experience and skills. The social capital gained through the share-milking model allows the emerging farmers to fulfil their role in the community as well as in the industry; a factor that would have been difficult to achieve without the exposure given by the share-milking model.

CHAPTER 6 : Individual response analysis

In this chapter the individual feedback from respondents on questions aimed at the evaluation of the share-milking model will be analysed. The answers to these questions should reflect valuable feedback on the share-milking model as some of the respondents have 14 years' experience with the model.

Open-ended questions were asked to the 30 emerging farmer respondents and to five share-milker respondents. They were not given any guidance on the answers, i.e. no list of possible answers to choose from was provided. The answers reflect their own experience of the share-milking model gained over the years of involvement in their respective projects. The questions were:

- What are the major advantages of share-milking?
- What are the major disadvantages of share-milking?
- What are the major lessons learned from share-milking?
- What are the major challenges experienced from share-milking?
- Does share-milking assist emerging farmers to become commercial dairy farmers?
- Why does share-milking assist emerging farmers to become commercial dairy farmers?

The individual feedback obtained for the above listed questions was populated in terms of the various answers and the frequency of the various answers by all the case study projects. Pivot tables, XLSTAT and SAS were used to populate the answers. The result is being presented in graph and table format and clearly indicates the most frequently given answers by the respondents. As mentioned in Chapter 4 the various case study projects have been operating for between 5 and 14 years resulting in valuable feedback from respondents with substantial experience of the share-milking model.

6.1.1 Major advantages of share-milking

All 35 respondents were asked what they considered as the major advantages of the share-milking model. The various answers obtained were listed and the frequency of the answer or similar answer was recorded and is displayed in Figure 6.1 below.

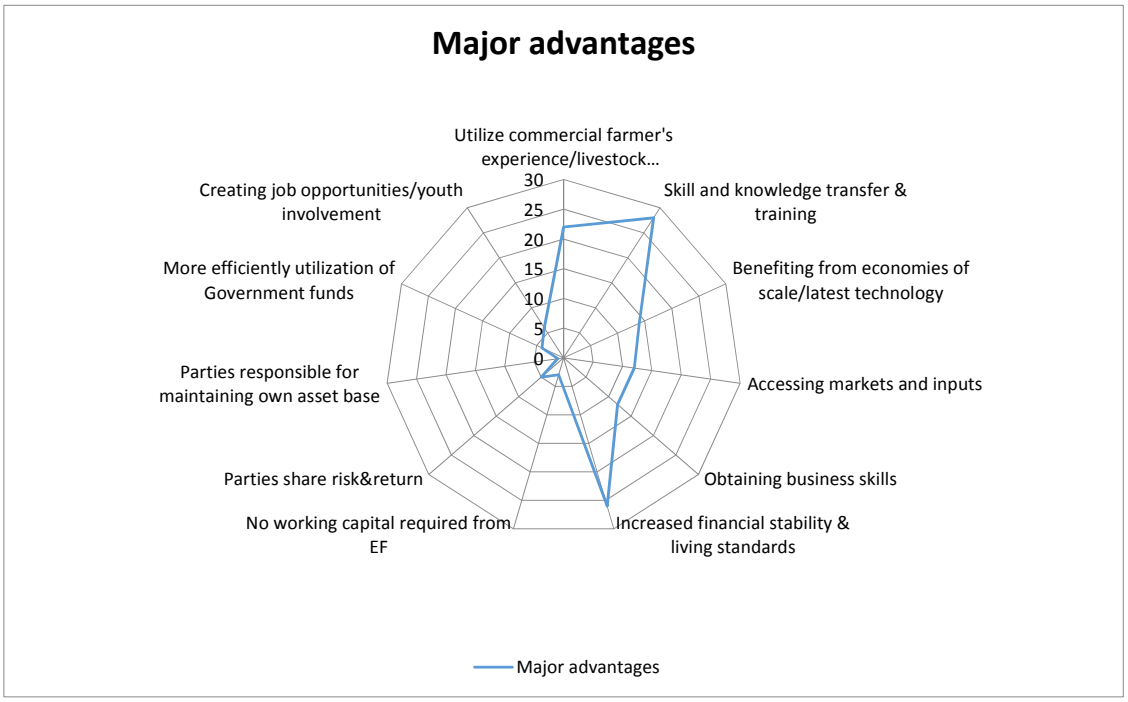

Figure 6.1: Major advantages of share-milking

Table 6.1 below reflects the frequency of all the major advantages listed by the respondents by case study.

Table 6.1: Major advantages of share-milking listed by each case study

	Case studies (in %)					
Respondents' answers - major advantages	**A**	**B**	**C**	**D**	**E**	**Grand Total**
Utilize commercial farmer's experience/livestock improvement	9.52	19.35	17.86	17.39	16.67	16.54
Skill and knowledge transfer & training	23.81	22.58	21.43	21.74	16.67	21.05
Benefiting from economies of scale/latest technology	14.29	6.45	17.86	0.00	13.33	10.53
Accessing markets and inputs	0.00	16.13	7.14	4.35	13.33	9.02
Obtaining business skills	4.76	12.90	14.29	13.04	0.00	9.02
Increased financial stability & living standards	28.57	9.68	17.86	26.09	20.00	19.55
No working capital required from emerging farmer	4.76	3.23	0.00	4.35	0.00	2.26
Parties share risk & return	4.76	9.68	3.57	0.00	0.00	3.76
Parties responsible for maintaining own asset base	4.76	0.00	0.00	0.00	0.00	0.75
More efficiently utilization of Government funds	4.76	0.00	0.00	8.70	3.33	3.01
Creating job opportunities/youth involvement	0.00	0.00	0.00	4.35	16.67	4.51
Grand Total	100.00	100.00	100.00	100.00	100.00	100.00

Figure 6.1 and Table 6.1 above reflect all the responses from the various case studies of which ***"Skill and knowledge transfer & training"*** is the most frequent answer (21.05%) to the question of what the major advantage of the share-milking model is. The second most frequent answer (19.55%) is ***"Increased financial stability & living standards"***.

6.1.2 Major disadvantage of share-milking

The respondents were asked what the major disadvantages were with regard to the share-milking model. Figure 6.2 and Table 6.2 below clearly indicate the major disadvantages listed by the various respondents.

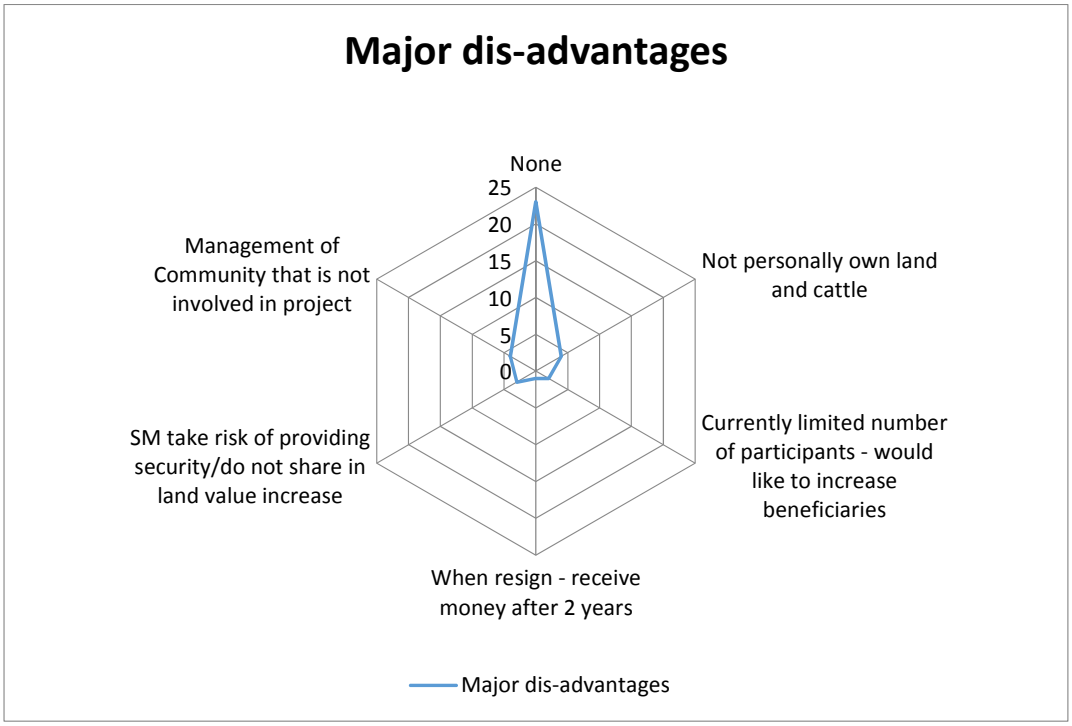

Figure 6.2: Major disadvantages of share-milking

Table 6.2 below reflects the frequency of all the major disadvantages listed by the respondents by case study.

Table 6.2: Major disadvantages of share-milking listed by each case study

	Case studies (in %)					
Respondents' answers - major dis-advantages	**A**	**B**	**C**	**D**	**E**	**Grand Total**
None	37.50	57.14	100.00	33.33	75.00	58.97
Not personally own land and cattle	25.00	0.00	0.00	33.33	0.00	12.82
Currently limited number of participants - would like to increase beneficiaries	25.00	0.00	0.00	0.00	0.00	5.13
When resign - receive money after 2 years	12.50	0.00	0.00	0.00	0.00	2.56
SM take risk of providing security/do not share in land value increase	0.00	14.29	0.00	11.11	12.50	7.69
Management of Community that is not involved in project	0.00	28.57	0.00	22.22	12.50	12.82
Grand Total	100.00	100.00	100.00	100.00	100.00	100.00

From Figure 6.2 and Table 6.2 above it is clear that most respondents indicated that they have not experienced any disadvantages (58.97%). The second most frequent answers were ***"Not personally own land and cattle"*** and ***"Management of community that is not involved in project"***, both at 12.82%.

6.1.3 Major lessons learned from share-milking

The respondents were asked what the lessons were that they have learned since start-up of the share-milking project and what any new project should take note off. Figure 6.3 below reflects the major lessons learned by the respondents through the years of operations and participation in the share-milking business model.

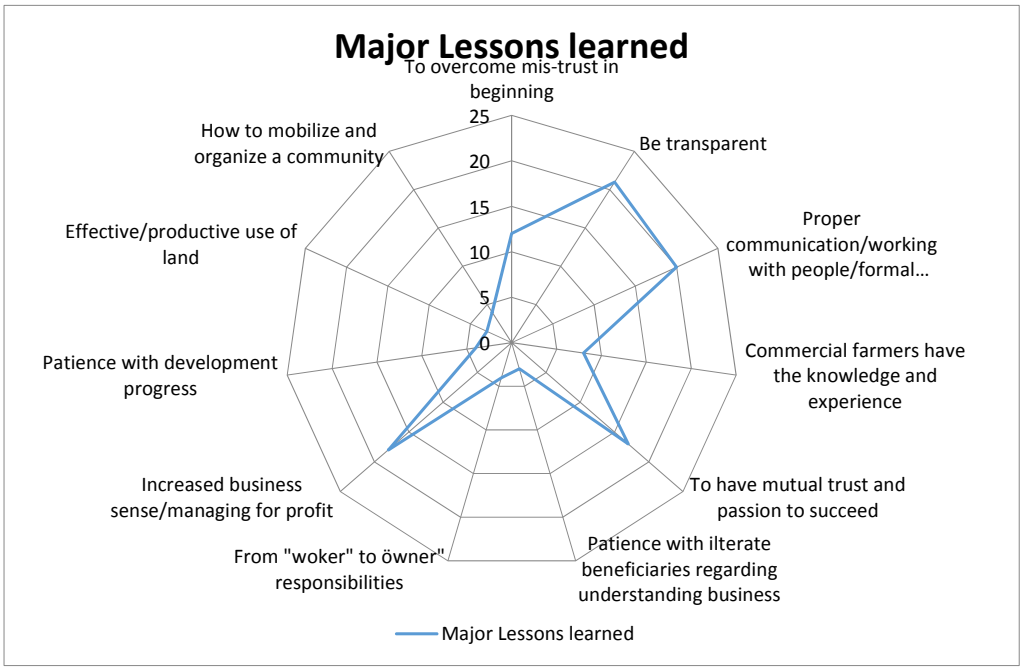

Figure 6.3: Major lessons learned from share-milking

Table 6.3 below reflects the frequency of all the major lessons learned listed by the respondents by case study.

Table 6.3: Major lessons learned from share-milking listed by each case study

	Case studies (in %)					
Respondents' answers - major lessons learned	**A**	**B**	**C**	**D**	**E**	**Grand Total**
To overcome mis-trust in beginning	5.56	10.53	19.23	4.17	11.11	10.53
Be transparent	16.67	26.32	19.23	20.83	11.11	18.42
Proper communication/working with people/formal meetings with record keeping	16.67	21.05	11.54	16.67	22.22	17.54
Commercial farmers have the knowledge and experience	16.67	0.00	11.54	8.33	0.00	7.02
To have mutual trust and passion to succeed	5.56	26.32	19.23	20.83	3.70	14.91
Patience with illterate beneficiaries regarding understanding business	5.56	5.26	3.85	0.00	0.00	2.63
From "worker" to owner" responsibilities	16.67	0.00	3.85	0.00	0.00	3.51
Increased business sense/managing for profit	16.67	10.53	11.54	25.00	14.81	15.79
Patience with development progress	0.00	0.00	0.00	0.00	14.81	3.51
Effective/productive use of land	0.00	0.00	0.00	4.17	7.41	2.63
How to mobilize and organize a community	0.00	0.00	0.00	0.00	14.81	3.51
Grand Total	100.00	100.00	100.00	100.00	100.00	100.00

From Figure 6.3 and Table 6.3 above the most frequent answer is ***"Be transparent"*** (18.42%) closely followed by ***"Proper communication/working with people/formal meetings with record keeping"*** (17.54%) and ***"Increased business sense/management for profit"*** (15.79%).

6.1.4 Major challenges experienced from share-milking

The respondents' feedback on the question regarding major challenges experienced serves as valuable information for any new/start-up project. Figure 6.4 depicts the major challenges that the various respondents experienced through the implementation and operations of the share-milking business model.

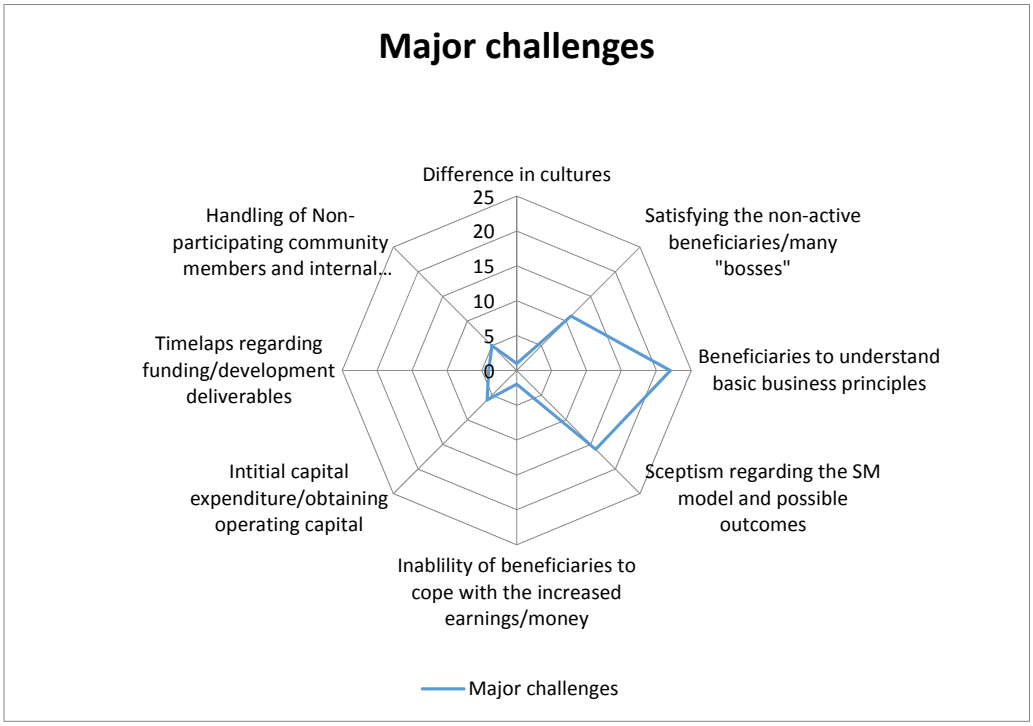

Figure 6.4: Major challenges experienced from share-milking

Table 6.4 below reflects the frequency of all the major challenges experienced by the respondents by case study.

Table 6.4: Major challenges experienced from share-milking listed by each case study

	Case studies (in %)					
Respondent answers - major challenges of share-milk model	**A**	**B**	**C**	**D**	**E**	**Grand Total**
Difference in cultures	0.00	0.00	0.00	6.25	0.00	1.45
Satisfying the non-active beneficiaries/many "bosses"	15.38	40.00	0.00	12.50	14.29	17.39
Beneficiaries to understand basic business principles	46.15	40.00	18.18	31.25	28.57	33.33
Sceptism regarding the SM model and possible outcomes	23.08	6.67	36.36	18.75	35.71	23.19
Inablility of beneficiaries to cope with the increased earnings/money	15.38	0.00	0.00	0.00	0.00	2.90
Intitial capital expenditure/obtaining operating capital	0.00	13.33	27.27	6.25	0.00	8.70
Timelaps regarding funding/development deliverables	0.00	0.00	18.18	0.00	14.29	5.80
Handling of Non-participating community members and internal politics	0.00	0.00	0.00	25.00	7.14	7.25
Grand Total	100.00	100.00	100.00	100.00	100.00	100.00

Figure 6.4 and Table 6.4 above indicate that the major challenge experienced is ***"Beneficiaries to understand basic business principles"*** (33.33%), followed by ***"Scepticism regarding the share-milking model and possible outcomes"*** (23.19%).

6.1.5 Does share-milking assist emerging farmers to become commercial dairy farmers, and why?

The answer to the question with regards to the ability of the share-milking business model to assist emerging farmers to become commercial dairy farmers was overwhelming "*Yes*".

Respondents were asked what the reasons are that the share-milking model will enable emerging farmers to become commercial dairy farmers. These answers are reflected in Figure 6.5 below.

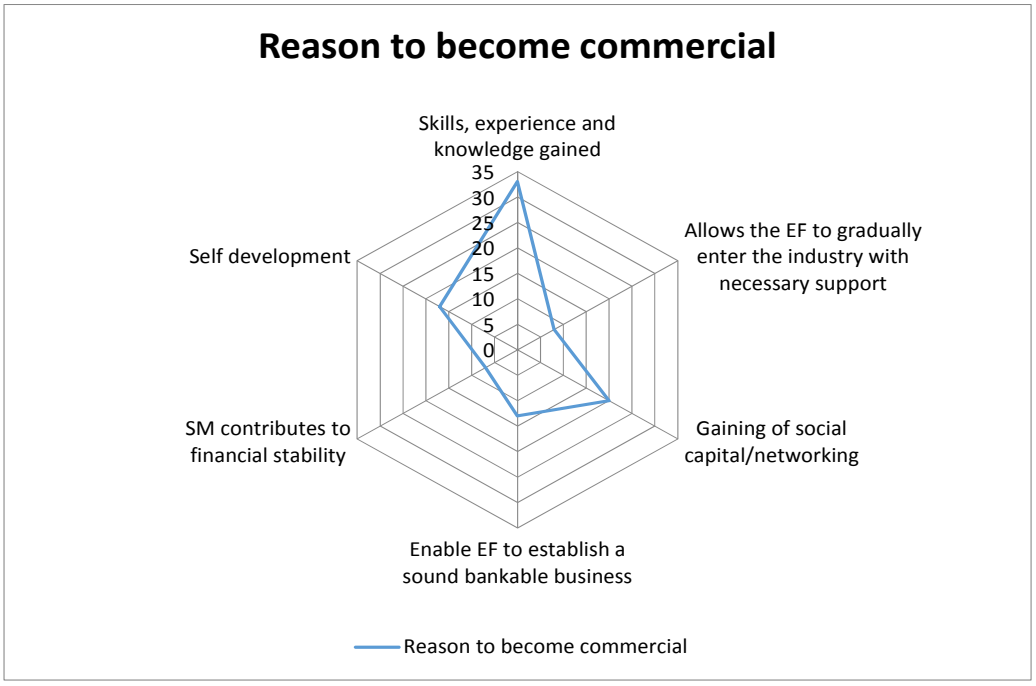

Figure 6.5: Reasons why share-milking model assists with the establishment of black commercial dairy farmers

Table 6.5 below reflects the frequency of the major reasons why the share-milking model can assist with the establishment of commercial dairy farmers listed by the respondents by case study.

Table 6.5: Reasons why share-milking assists in the establishment of commercial dairy farmers

	Case studies (in %)					
Respondent answers - reasons why share-milk model assists in establishing commercial farmers	**A**	**B**	**C**	**D**	**E**	**Grand Total**
Skills, experience and knowledge gained	35.00	30.43	33.33	33.33	33.33	33.01
Allows the EF to gradually enter the industry with necess	5.00	8.70	14.29	4.76	5.56	7.77
Gaining of social capital/networking	20.00	26.09	14.29	23.81	16.67	20.39
Enable EF to establish a sound bankable business	10.00	8.70	19.05	14.29	16.67	13.59
SM contributes to financial stability	10.00	8.70	0.00	9.52	5.56	6.80
Self development	20.00	17.39	19.05	14.29	22.22	18.45
Grand Total	100.00	100.00	100.00	100.00	100.00	100.00

Figure 6.5 and Table 6.5 above clearly indicates the most frequent answer to the question to be ***"Skills, experience and knowledge gained"*** (33.01%), followed by ***"Gaining of social capital/networking"*** (20.39%). The most frequent answer was also the most frequent answer by each of the case studies.

The findings of the open-ended questions to the respondents are informative, as is Maslow's hierarchy theory of needs, illustrated in Figure 6.6**Error! Reference source not found.** below. When the list of major advantages and the personal interaction with the respondents are evaluated, it is clear that all three the phases of Maslow's theory of needs are being fulfilled by the share-milking model.

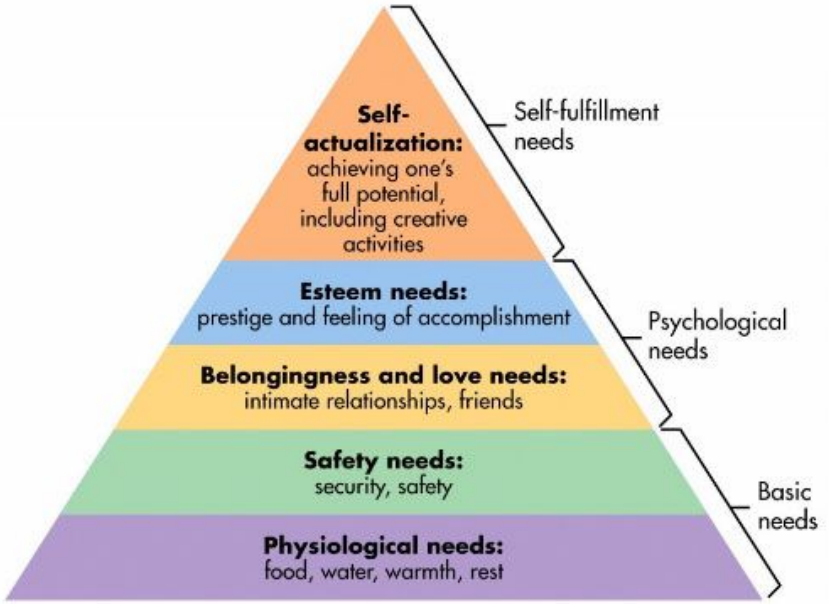

Figure 6.6: Maslow's hierarchy theory of needs
Source: Maslow, 1943

The respondents indicated that the share-milking model contributes to their basic needs, which includes housing, which they are now able to obtain. It also fulfils their psychological needs and self-fulfilment needs by acquiring the necessary skills, experience, social capital and self-development ability.

6.1.6 Statistical analysis of the individual response

The various responses to the questions referred to in paragraphs 6.1.1 to 6.1.4 were tested against case study information for dependency. The case study information refers to biographical and project specific information.

Table 6.6: Individual response vs project duration and position in project

Variables	Chi-Square
Challenges vs duration	0.0103
Lessons vs duration	0.0094

Disadvantages vs position	0.0033
Advantages vs position	0.028

Table 6.6 depicts the variables that were tested for dependence (Ha hypothesis) and independence (H0 hypothesis) and according to the chi-square that is less than 0.05 the null hypothesis can be rejected. Therefore, it is fair to conclude that there is a high dependency between duration of the projects and the challenges experienced from share-milking and lessons learned since inception of the project. The answers to the question regarding lessons learned were more project inception related at the less than ten year old projects compared to the more mature projects. Answers such as "overcoming mistrust in the beginning" and "how to mobilise the community" were some of the more frequent answers. With regards to the challenges the older projects' answers were more business orientated, e.g. beneficiaries to understand business principles and satisfying non-active beneficiaries. The newer projects' answers focused more on time-lapse of funding and handling of internal politics.

There is also a definite dependency between position in the project and disadvantages and advantages of share-milking. Although almost 60% of the respondents answered that there are no disadvantages to share-milking, there is a definite trend in the remainder of the answers obtained from the emerging farmers/trustees and share-milker. The share-milkers focussed more on the risk of providing security and not sharing in the appreciation of the land value, where-as the emerging farmers and trustees were more concerned about the fact that they do not own the cattle and implements and would like to increase the number of participants/beneficiaries.

With regard to the advantages, both the emerging farmers/trustees and the share-milker indicated that skills, knowledge transfer and training are given and received. The managers focussed more on utilizing the experience of the commercial farmer and on accessing markets and inputs.

6.2 Conclusions

In conclusion to this chapter it can be stated that the information gathered from the respondents was extremely informative and inspiring. With a project duration of between five and fourteen years the experienced gained since inception and shared during that period is absolutely priceless. Numerous persons, companies and government institutions can gain significant insight from the learning experiences gained over the years without repeating mistakes and capitalise on the positive information from this project and study.

Any institution or group of individuals considering a start-up project should utilize the answers to these five questions from conceptualizing their projects, through to implementation and managing the project. This could save substantial time, effort and money.

CHAPTER 7 : CONCLUSIONS AND RECOMMENDATIONS

7.1 Conclusions

In this chapter conclusions will be formulated from the results obtained from the study. The conclusions will be entertained within the framework of the study and the major outcomes obtained. The study hypothesis will also be discussed in this section.

The study highlighted two major contributions:

- Individual responses to important questions regarding the share-milking model
- Addressing the ten critical success factors for the establishment of black commercial dairy farmers

7.1.1 Individual experience shared by respondents

The information portrayed in Chapter 6 is not only valuable to this study, but also to any start-up project of a developmental nature. The mentioned challenges faced and lessons learned could easily be prevented with the start-up of a new development project. The most frequent answer per question and per case study is:

- Advantages: Skill and knowledge transfer & training
- Dis-advantages: None
- Lessons: Be transparent
- Challenges: Beneficiaries to understand basic business principles
- Why share-milk assist: Skills, experience and knowledge gained

The emphasis should not only be on the most frequently raised lesson ("Be transparent") or challenge experienced ("Beneficiaries to understand basic business principles"), but on all the lessons learned and challenges faced when conceptualizing a new project (see Appendix B for all the other relations to the individual questions analysed).

From the dependency tests' results it is clear that the lessons learned and challenges faced are related to the duration of the various projects. The advantages and disadvantages are related to the position of the respondents in the project.

The Surplus People's Project report referred to in paragraph 3.1 focussed on nine major concerns of which seven are being highlighted either as advantages, disadvantages, lessons learned or challenges, according to the findings of this study. These seven concerns are:

- To overcome mistrust in beginning
- Beneficiaries to understand basic business principles
- Skills, experience and knowledge gained
- Proper communication/working with people/formal meetings with record keeping
- Satisfying the no-active beneficiaries/many " bosses"
- Not personally own land and cattle
- When resign - receive money after 2 years

According to Venter (2014) the most important aspect of share-milking is the transferring of skills, fair distribution of benefits to both parties and participation in management and decision-making processes. All these important aspects were listed with the question on *"Why the share-milking model assists with the establishment of black commercial dairy farmers"* (paragraph 6.1.5).

Both the prerequisites for the successful implementation of a share-milking model identified by Casidra (undated) were also confirmed by this study. It was confirmed by the question *"Why the share-milking model assists with the establishment of black commercial dairy farmers"* (paragraph 6.1.5).

In conclusion it can be stated that the results obtained from the study confirmed what was highlighted by previous studies reflected in the literature study. Valuable additional information was gathered by asking the questions on the advantages of share-milking, disadvantages of share-milking, lessons learned, challenges experienced and why the share-milking model assists with the establishing of black commercial dairy farmers. This additional information should be considered when starting-up a new developmental project.

7.1.2 Critical success factors for the establishment of black commercial dairy farmers

The study findings resulted in an overwhelming confirmation of the ability of the share-milk model to conform to the critical success factors questioned. Paragraph 5.2 discussed each critical factor individually. All the case study projects' respondents confirmed that the share-milking model addresses the ten critical success factors in some way or another. It should be noted that,

although the level or intensity of addressing each CSF has not been tested, access to and utilization of the CSF was confirmed.

Venter (2014) referred to an enabling environment that needs to be created where it will provide the black emerging commercial farmers with access to services and resources to create growth and prosperity. This growth and prosperity will require access to training, markets, inputs, mechanisation services, and credit and land, which are currently the main constraints for the establishment of black commercial farmers (Venter, 2014). From the study results in paragraph 5.2 it is clear that this environment is being created through the share-milking model.

This study confirms several of the functions referred to by Terblanche (undated) on "The Powers of Groups". The disadvantages referred to by Terblanche (undated) were also confirmed by this study.

In conclusion, it can be said that the study hypothesis: "*The share-milking business model conforms to the ten critical requirements for the successful establishment of black commercial dairy farmers"* can be accepted.

7.2 Recommendations

The study has confirmed various findings by previous studies as referred to in paragraph 7.1.1. The findings necessitate certain recommendations, which are discussed in the following section.

7.2.1 Assisting start-up projects

It is advisable that any developmental start-up project should familiarize itself with the challenges experienced with the implementation of the share-milking model and the lessons learned from the operation of the share-milking model. Table 7.1 below ranks the various lessons learned and challenges experienced that should be taken into consideration in the pre-implementation phase of a developmental start-up project.

Table 7.1: Ranking of the most frequent lessons learned and challenges experienced

Ranking	Major lessons learned	Major challenges experienced
1	Be transparent	Beneficiaries to understand basic business principles
2	Proper communication/working with people/formal meetings with record keeping	Sceptism regarding the SM model and possible outcomes
3	Increased business sense/managing for profit	Satisfying the non-active beneficiaries/many "bosses"
4	To have mutual trust and passion to succeed	Intitial capital expenditure/obtaining operating capital
5	To overcome mis-trust in beginning	Handling of Non-participating community members and internal politics
6	Commercial farmers have the knowledge and experience	Timelaps regarding funding/development deliverables
7	From "worker" to owner" responsibilities	Inablility of beneficiaries to cope with the increased earnings/money
8	How to mobilize and organize a community	Difference in cultures
9	Patience with development progress	
10	Patience with ilterate beneficiaries regarding understanding business	
11	Effective/productive use of land	

Although Table 7.1 depicts the lessons learned and challenges experienced based on the share-milking model, it could be adjusted for any joint venture business. One should be able to customize it for any type of developmental project where there is a joint venture between black emerging farmers and commercial farmers.

The lessons learned and challenges experienced listed in Table 7.1 should play a prominent role in the conceptualization stage of any development project. Transparency, the main lesson learned by all, should be one of the main building blocks on which a project should be built and it should be prominent through-out the process of conceptualization and implementation. The mobilization or buy-in from a community is of utmost important for a project to succeed. If this is not obtained from the start the possibility for the project to fail is high.

Transparency, poor communication and mistrust are pertinent governance risk factors for any project, more specifically for a start-up development project. The lack of addressing these factors in the planning phases of a project will undoubtedly result in unwanted conflict and end in failure.

Various governance issues can be pre-empted and resolved in the business planning phase already, when considering the lessons learned and challenges experienced in Table 7.1 above. Sufficient budgeting for training should be allowed for at business planning stage as beneficiaries will have to improve their business acumen and be trained on basic business principles. It is critical that they understand basic principles and how to manage profit and cash. To have a proper understanding of capital re-investment in developing a project and not paying out all the profit to the beneficiaries is a crucial concept. Once this is understood it will be much easier for management to focus on what is important as they will have the support of the broader base of participants. It will greatly assist with the handling of non-active beneficiaries if the majority of the beneficiaries understand the basic principles of business.

7.2.2 Governmental interest

All Government departments involved in development work or projects should take cognisance of the ability of the share-milking model to conform to the ten critical success factors:

- Access to land
- Opportunity to obtain to finance
- Opportunity to buy inputs and to be able to market their produce
- Utilization of extension/support services
- Obtaining the necessary training
- Utilization of available labour force – job creation
- Opportunity to utilize the latest available technology
- Gaining social capital
- Managerial skills
- Growth in equity

The ***share-milking model*** could be referred to as a ***share-farming model*** and Government could use the share-model and its advantages to construct a reliable developmental model for appropriate investment of tax payers' money. Sustainability should be the key driver in developmental projects. Given the feedback and results of this study it is clear that the funds that were invested by Government in these case study projects had high returns on investment and growth in equity (see paragraph 5.2.11), as well as capacitation of the beneficiaries (see paragraph 6.1.5). It is important to notice that the share-milking model is not bound to the Eastern Cape, but could be duplicated anywhere in the country and across industries. The requirements are two partners with the same goal and not necessarily the same expertise, each

contributing assets to the partnership, sharing the operational and financial risks of the business, and willing to learn. This could also include enterprises downstream and upstream of the value chain and could create a sound platform for youth to get involved. This may just be the opportunity that our rural youth requires to enter the broader economy.

7.2.3 Risk sharing and access to commercial financing

The results from the study clearly indicate that the share-milking model allows the emerging farmer access to the ten critical factors mentioned before. One of these factors is access to finance and it is evident from the survey that all the case study projects have access to some form of financial instrument from a commercial lender. This could be in the form of either a cooperative production loan or overdraft facility from a commercial bank.

One reason listed by the respondents whom the share-milking model assists (i.e. the emerging farmers being assisted to become commercial farmers) is the financial stability it provides and through it, reassurance for commercial banks. For any commercial bank, financial stability in a project as well as tangible security are crucial factors to enable them to engage in a project, and more so, a development project. The share-milker brings the measure of stability (known history) and possible security to the partnership that commercial banks require. There is definite risk-sharing that should surely entice commercial lenders. Commercial financiers should take cognisance of the share-milking model as it could create significant opportunities for them to get involved in sustainable development projects.

The share-milking model allows the emerging farmer to gradually enter the industry with the necessary support from the share-milker, i.e. commercial farmer. This was another reason listed by the respondents for why the share-milking model assists emerging farmers to become commercial farmers as it enables them to also gain the necessary social capital. Proper networking in any industry is crucial to the success of that business/project.

7.2.4 Further research recommended

The study predominantly focused on qualitative research and information gathered. All the results though are indicative that the share-milking model has many advantages, should the lessons and challenges experienced be addressed. It is, therefore, strongly recommended that quantitative research be considered to determine the monetary intensity of how the share-milking model allows emerging farmers to access the ten critical success factors. An in-depth feasibility

study should suffice to address this issue and such feasibility study should also focus specifically on evaluating the equity growth within the share-milking model.

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APPENDIX A

UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

Confidential

SHARE-MILKING QUESTIONNAIRE FOR M.Sc. STUDY – EMERGING FARMER

Case study project:

Jannie Strydom

October 2016

PERSONAL INFORMATION				
Title & Name of respondent				
Position in project	1. Project manager		2. Emerging farmer/Trustee	
	3. Board member		4. Dairy manager	
Questionnaire completed by				
Date				
Signature of respondent				

BIOGRAPHICAL INFORMATION

5. Gender? Man Women

6. Age? ____

7. Marital status? Single Married Divorced

8. Qualification? Primary Secondary Tertiary Post graduate

PROJECT INFORMATION

Project information	Name		Date started		Share-milker		9. Code	
10. Joint venture entity type		11. Trust		12. Company				
Location	District			Municipality				
13. Landownership	Farm name			Registered owner				
	How was land obtained		14. Lease		15. LRAD		16. Bought	
			17. Donated		18. Inherited		19. Share-milking	
20. Number of beneficiaries	21. Total	22. Male	23. Female	24. Disabled				
				Male		Female		
25. Number of beneficiaries younger than 35	26. Total	27. Male	28. Female	29. Disabled				
				Male		Female		
30. Number of beneficiaries actively involved in business	31. Total	32. Male	33. Female	34. Disabled				
				Male		Female		
35. Number of office bearers	36. Total	37. Male	38. Female	39. Disabled				
				Male		Female		

ENTERPRISE

Description	Type		40. Breed						
			41. Holstein		42. Jersey		43. Cross		
	44. Total herd size	45. No of cows	46. No of followers	47. No of heifers	48. % in milk				
	49. Parlour type	50. Tandem		51. Herringbone		52. Rotary			

VALUE OF CONTRIBUTIONS (EQUITY)

53. What percentage does the **share-milker** have in the scheme? _____

54. What percentage do the emerging farmers have in the scheme? _____

55. What was the value of the **emerging farmers'** contribution? _____

56. Was there any debt against the **emerging farmers'** contribution? Ye No

57. If yes – what was the amount? _____

58. What is the current value of the **emerging farmers'** contribution? _____

59. Is there any debt against the **emerging farmers'** current contribution? Ye No

60. If yes – what is the amount? _____

61. Does the **joint venture entity** have any assets? Ye No

62. If yes – what is the value? _____

63. Is there any debt against the **joint venture entity's** assets? Ye No

64. If yes – what is the amount? _____

65. If no – how was assets acquired? _____

66. Is there a formal exist strategy to the SM agreement? Ye No

67. If yes – after what period? _____

68. If no, why? _____

69. Are there any specific requirements pertaining the exit strategy? Ye No

70. If yes – what are the requirements? _____

71. Please list major advantages of the share-milking agreement. _____

72. Please list major disadvantages of the share-milking agreement: _____

73. What are the major lessons learned so far? _____

74. What are the major challenges experienced thus far? _____

75. Does the share-milk scheme/model assist you to become a commercial dairy farmer? Yes | No

76. If yes – what are the reasons? _____

77. If no – what are the reasons? _____

ACCESS TO LAND

78. Do you have access to land? Ye No

If yes - complete table below.

79. Own land		Hectare	78. Rented/Leased land		Hectare
80. Total farm size			79. Total farm size		
Arable land	81. Dryland		Arable land	80. Dryland	
	82. Irrigation			81. Irrigation	
Pastures	83. Dryland		Pastures	82. Dryland	
	84. Irrigation			83. Irrigation	
85. Veld			84. Veld		
86. Homestead & wasteland			85. Homestead & wasteland		

86. If no – what are the reasons? _____

_____

_____

_____

_____

_____

_____

_____

ACCESS TO FINANCE

87. Do you have access to finance? Yes No

If yes - complete tables below.

88. If no – what are the reasons? _____

_____

_____

_____

Type of credit	Description	As a result of SM agreement?				Loan amount (Rand)	Interest rate (%)	Period (years)
89. Short term	90. Bank overdraft	Yes		No				
	91. Co-operative – production loan	Yes		No				
	Other: (Mention)							
	92.	Yes		No				
93. Medium term	94. Milking equipment	Yes		No				
	95. Livestock	Yes		No				
	96. Machinery	Yes		No				
	97. Tractors	Yes		No				
	98. Implements	Yes		No				
	99. Trucks	Yes		No				

	100.	Yes		No				
101. Long term	102. Land	Yes		No				
	103. Fixed improvements	Yes		No				
	104.	Yes		No				
	105.	Yes		No				

106. Is there any security given for the loans? Ye No

107. If yes – What type of security? _____

_____

_____

108. Have you received any Grant Funding? Ye No

109. If yes – is it as a result of the SM agreement? Ye No

110. If you have received grant funding, provide details below:

GRANT FUNDING				
Type of grant		Institution	Grant amount (Rand)	Date received
111.				
112.				
113.				
114.				

ACCESS TO MARKETS

115. Do you have access to markets? Ye No

If yes, complete table below.

116. If no – what are the reasons? _____

_____

_____

_____

Sales	Off-taker			Formal contract				Result of SM agreement			
117. Milk		Litres		Yes		No		Yes		No	
118. Milk		Litres		Yes		No		Yes		No	
119. Milk produce				Yes		No		Yes		No	
120. Livestock				Yes		No		Yes		No	
121. Other:											
122.				Yes		No		Yes		No	
123.				Yes		No		Yes		No	
124.				Yes		No		Yes		No	
125. Any conditions to off-take?											

ACCESS TO INPUT SUPPLIES

126. Do you have access to input supplies? Ye No

If yes, complete table below.

127. If no – what are the reasons? _____

_____

_____

_____

Input	Supplier	Credit				Result of SM agreement			
128. Feed		Yes		No		Yes		No	
129. Medicine		Yes		No		Yes		No	
130. Bull semen		Yes		No		Yes		No	
131. Other:									
132.		Yes		No		Yes		No	
133.		Yes		No		Yes		No	
134.		Yes		No		Yes		No	

ACCESS TO EXTENSION/SUPPORT SERVICES AND TRAINING

135. Do you have access to extension/support services and training? Ye No

If yes, complete table below.

136. If no – what are the reasons? _____

_____

_____

_____

Type of extension/support	Provider	Cost or free	Result of SM agreement				Rating: 3=good 2=average 1=bad
137. Livestock			Yes		No		
138. Grazing/ Pasture			Yes		No		
139. Palour			Yes		No		
140. Breeding/ genetics			Yes		No		
141. Feeding			Yes		No		
142.			Yes		No		
143.			Yes		No		
144. If bad, what is the reason?							

Type of training	Provider	Rating: 3=good 2=average 1=bad	Result of SM agreement				Accredited (Y/N)
145.			Yes		No		

146.			Yes		No		
147.			Yes		No		
148.			Yes		No		
149.			Yes		No		
150.			Yes		No		
151.			Yes		No		

ACCESS TO LABOUR

152. Do you have access to labour? Ye No

If yes, complete table below.

153. If no – what are the reasons? _____

_____

_____

	Total	Gender								
		155. Male				156. Female				
		<35	>35	Disabled		<35	>35	Disabled		
				M	F			M	F	
154. Permanent										
		158. Male				159. Female				
		<35	>35	Disabled		<35	>35	Disabled		
				M	F			M	F	
157. Casual										

160. Does the SM agreement create job opportunities for the beneficiaries/community? Ye No

If yes, complete table below.

161. If no – what are the reasons? _____

_____

_____

	Total	Gender									
		163. Male					164. Female				
		<35	>35	Disabled			<35	>35	Disabled		
				M	F				M	F	
162. Permanent											
		166. Male					167. Female				
		<35	>35	Disabled			<35	>35	Disabled		
				M	F				M	F	
165. Casual											

ACCESS TO TECHNOLOGY

168. Do you have access to technology? Yes No

If yes, complete table below.

169. If no – what are the reasons? _____

_____

_____

_____

Type of technology	Provider	Result of SM agreement	Cost (Rand)	Rating: 3=good 2=average 1=bad

170. Dairy management program		Yes		No			
171. Computerized irrigation		Yes		No			
172. Dairy parlour operations		Yes		No			
173. Cold chain		Yes		No			
Other:		Yes		No			
174.		Yes		No			
175.		Yes		No			

176. If bad, what is the reason?

_____

_____

_____

_____

_____

SOCIAL CAPITAL GAINED

177. Do you believe that you have gained social capital with the SM? Ye / No

If yes, complete table below.

178. If no – what are the reasons? _____

_____

_____

Type of Organization interacting	Name of Organization	Membership				Joined: **1** Before SM **2** After SM **3** As a result of SM	How active: **1** Very much/ in management **2** Actively take part **3** Just attend meetings **4** Not that involved
179.		Yes		No			
180.		Yes		No			
181.		Yes		No			
182.		Yes		No			
183.		Yes		No			

What was gained (benefit)? – rating 3=good, 2=average, 1=bad											
184. Education or Training		185. Health services		186. Credit or Savings		187. Irrigation		188. Agricultural input or technology		189. Other (specify)	

MANAGERIAL SKILL

190. Please rate your managerial skill: Good ☐ Average ☐ ☐
Poor

191. Do you have access to managerial skill development? Ye ☐ No ☐

If yes, complete table below.

192. If no – what are the reasons?

_____

_____

_____

_____

193. If yes, is it a result of the SM agreement?			Yes		No	
194. If yes – rating: 3=good, 2=average,1=bad						
195. Who organized the training	196. Share-milker		197. Self			
198. Does the Share-milker provide mentorship?			Yes		No	
199. If yes - Rating: 3=good, 2=average, 1=bad						

If 194 is bad, what is the reason?

If 199 is bad, what is the reason?

APPENDIX B

Relation of age to individual response

	Age range of respondents					
Respondent answers - major advantages of share-milk model	**70 plus**	**30 to 40**	**40 to 50**	**50 to 60**	**60 to 70**	**Grand Total**
Utilize commercial farmer's experience/livestock improvement	26.67%	15.00%	9.09%	17.39%	19.05%	16.54%
Skill and knowledge transfer & training	13.33%	20.00%	24.24%	17.39%	23.81%	21.05%
Benefiting from economies of scale/latest technology	6.67%	20.00%	12.12%	13.04%	4.76%	10.53%
Accessing markets and inputs	13.33%	5.00%	9.09%	13.04%	7.14%	9.02%
Obtaining business skills	13.33%	0.00%	15.15%	8.70%	7.14%	9.02%
Increased financial stability & living standards	20.00%	30.00%	18.18%	13.04%	19.05%	19.55%
No working capital required from EF	0.00%	0.00%	3.03%	4.35%	2.38%	2.26%
Parties share risk&return	0.00%	0.00%	3.03%	8.70%	4.76%	3.76%
Parties responsible for maintaining own asset base	0.00%	0.00%	3.03%	0.00%	0.00%	0.75%
More efficiently utilization of Government funds	0.00%	5.00%	3.03%	0.00%	4.76%	3.01%
Creating job opportunities/youth involvement	6.67%	5.00%	0.00%	4.35%	7.14%	4.51%
Grand Total	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

	Age range of respondents					
Respondent answers - major dis-advantages of share-milk model	70 plus	30 to 40	40 to 50	50 to 60	60 to 70	Grand Total
None	75.00%	50.00%	54.55%	80.00%	53.85%	58.97%
Not personally own land and cattle	25.00%	16.67%	27.27%	0.00%	0.00%	12.82%
Currently limited number of participants - would like to increase beneficiaries	0.00%	33.33%	0.00%	0.00%	0.00%	5.13%
When resign - receive money after 2 years	0.00%	0.00%	9.09%	0.00%	0.00%	2.56%
SM take risk of providing security/do not share in land value increase	0.00%	0.00%	0.00%	20.00%	15.38%	7.69%
Management of Community that is not involved in project	0.00%	0.00%	9.09%	0.00%	30.77%	12.82%
Grand Total	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

	Age range of respondents					
Respondent answers - major lessons learned from share-milk model	70 plus	30 to 40	40 to 50	50 to 60	60 to 70	Grand Total
To overcome mis-trust in beginning	0.00%	0.00%	17.86%	15.00%	11.43%	10.53%
Be transparent	7.69%	16.67%	21.43%	20.00%	20.00%	18.42%
Proper communication/working with people/formal meetings with record keeping	23.08%	27.78%	10.71%	15.00%	17.14%	17.54%
Commercial farmers have the knowledge and experience	7.69%	11.11%	10.71%	5.00%	2.86%	7.02%
To have mutual trust and passion to succeed	15.38%	5.56%	7.14%	20.00%	22.86%	14.91%
Patients with ilterate beneficiaries regarding understanding business	7.69%	5.56%	3.57%	0.00%	0.00%	2.63%
From "woker" to öwner" responsibilities	0.00%	5.56%	7.14%	0.00%	2.86%	3.51%
Increased business sense/managing for profit	15.38%	11.11%	14.29%	20.00%	17.14%	15.79%
Patients with development progress	7.69%	5.56%	0.00%	5.00%	2.86%	3.51%
Effective/productive use of land	7.69%	5.56%	3.57%	0.00%	0.00%	2.63%
How to mobilize and organize a community	7.69%	5.56%	3.57%	0.00%	2.86%	3.51%
Grand Total	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

	Age range of respondents					
Respondent answers - major challenges of share-milk model	70 plus	30 to 40	40 to 50	50 to 60	60 to 70	Grand Total
Difference in cultures	0.00%	0.00%	5.88%	0.00%	0.00%	1.45%
Satisfying the non-active beneficiaries/many "bosses"	22.22%	18.18%	11.76%	22.22%	17.39%	17.39%
Beneficiaries to understand basic business principles	22.22%	45.45%	29.41%	22.22%	39.13%	33.33%
Sceptism regarding the SM model and possible outcomes	22.22%	18.18%	29.41%	22.22%	21.74%	23.19%
Inablility of beneficiaries to cope with the increased earnings/money	0.00%	9.09%	5.88%	0.00%	0.00%	2.90%
Intitial capital expenditure/obtaining operating capital	11.11%	0.00%	5.88%	22.22%	8.70%	8.70%
Timelaps regarding funding/development deliverables	0.00%	9.09%	5.88%	11.11%	4.35%	5.80%
Handling of Non-participating community members and internal politics	22.22%	0.00%	5.88%	0.00%	8.70%	7.25%
Grand Total	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

	Age range of respondents					
Respondent answers - reasons why share-milk model assists in establishing commercial farmers	70 plus	30 to 40	40 to 50	50 to 60	60 to 70	Grand Total
Skills, experience and knowledge gained	36.36%	31.25%	31.03%	29.41%	36.67%	33.01%
Allows the EF to gradually enter the industry with necessary support	0.00%	6.25%	6.90%	11.76%	10.00%	7.77%
Gaining of social capital/networking	18.18%	18.75%	17.24%	29.41%	20.00%	20.39%
Enable EF to establish a sound bankable business	18.18%	12.50%	10.34%	17.65%	13.33%	13.59%
SM contributes to financial stability	18.18%	12.50%	3.45%	0.00%	6.67%	6.80%
Self development	9.09%	18.75%	31.03%	11.76%	13.33%	18.45%
Grand Total	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

Relation of position to individual response

	Position in share-milk project					
Respondent answers - major advantages of share-milk model	Board member	Dairy mananger	Emerging farmer/Trustee	Project manager	Share-milker	Grand Total
Utilize commercial farmer's experience/livestock improvement	21.43%	0.00%	15.07%	28.57%	14.29%	16.54%
Skill and knowledge transfer & training	14.29%	25.00%	24.66%	14.29%	19.05%	21.05%
Benefiting from economies of scale/latest technology	10.71%	25.00%	9.59%	14.29%	9.52%	10.53%
Accessing markets and inputs	10.71%	25.00%	9.59%	14.29%	0.00%	9.02%
Obtaining business skills	7.14%	0.00%	12.33%	14.29%	0.00%	9.02%
Increased financial stability & living standards	25.00%	0.00%	21.92%	14.29%	9.52%	19.55%
No working capital required from EF	0.00%	25.00%	0.00%	0.00%	9.52%	2.26%
Parties share risk&return	0.00%	0.00%	2.74%	0.00%	14.29%	3.76%
Parties responsible for maintaining own asset base	0.00%	0.00%	0.00%	0.00%	4.76%	0.75%
More efficiently utilization of Government funds	3.57%	0.00%	1.37%	0.00%	9.52%	3.01%
Creating job opportunities/youth involvement	7.14%	0.00%	2.74%	0.00%	9.52%	4.51%
Grand Total	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

	Position in share-milk project					
Respondent answers - major dis-advantages of share-milk model	Board member	Dairy mananger	Emerging farmer/Trustee	Project manager	Share-milker	Grand Total
None	50.00%	100.00%	71.43%	50.00%	28.57%	58.97%
Not personally own land and cattle	37.50%	0.00%	4.76%	50.00%	0.00%	12.82%
Currently limited number of participants - would like to increase beneficiaries	0.00%	0.00%	9.52%	0.00%	0.00%	5.13%
When resign - receive money after 2 years	0.00%	0.00%	4.76%	0.00%	0.00%	2.56%
SM take risk of providing security/do not share in land value increase	0.00%	0.00%	0.00%	0.00%	42.86%	7.69%
Management of Community that is not involved in project	12.50%	0.00%	9.52%	0.00%	28.57%	12.82%
Grand Total	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

	Position in share-milk project					
Respondent answers - major lessons learned from share-milk model	Board member	Dairy mananger	Emerging farmer/Trustee	Project manager	Share-milker	Grand Total
To overcome mis-trust in beginning	4.00%	0.00%	11.29%	14.29%	18.75%	10.53%
Be transparent	16.00%	25.00%	16.13%	28.57%	25.00%	18.42%
Proper communication/working with people/formal meetings with record keeping	24.00%	25.00%	16.13%	14.29%	12.50%	17.54%
Commercial farmers have the knowledge and experience	0.00%	0.00%	12.90%	0.00%	0.00%	7.02%
To have mutual trust and passion to succeed	12.00%	25.00%	12.90%	14.29%	25.00%	14.91%
Patients with ilterate beneficiaries regarding understanding business	0.00%	0.00%	1.61%	28.57%	0.00%	2.63%
From "woker" to öwner" responsibilities	0.00%	0.00%	4.84%	0.00%	6.25%	3.51%
Increased business sense/managing for profit	16.00%	25.00%	17.74%	0.00%	12.50%	15.79%
Patients with development progress	8.00%	0.00%	3.23%	0.00%	0.00%	3.51%
Effective/productive use of land	12.00%	0.00%	0.00%	0.00%	0.00%	2.63%
How to mobilize and organize a community	8.00%	0.00%	3.23%	0.00%	0.00%	3.51%
Grand Total	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

	Position in share-milk project					
Respondent answers - major challenges of share-milk model	Board member	Dairy mananger	Emerging farmer/Trustee	Project manager	Share-milker	Grand Total
Difference in cultures	6.67%	0.00%	0.00%	0.00%	0.00%	1.45%
Satisfying the non-active beneficiaries/many "bosses"	26.67%	50.00%	19.44%	0.00%	0.00%	17.39%
Beneficiaries to understand basic business principles	20.00%	50.00%	38.89%	20.00%	36.36%	33.33%
Sceptism regarding the SM model and possible outcomes	26.67%	0.00%	25.00%	20.00%	18.18%	23.19%
Inablility of beneficiaries to cope with the increased earnings/money	0.00%	0.00%	0.00%	20.00%	9.09%	2.90%
Intitial capital expenditure/obtaining operating capital	0.00%	0.00%	11.11%	20.00%	9.09%	8.70%
Timelaps regarding funding/development deliverables	6.67%	0.00%	2.78%	20.00%	9.09%	5.80%
Handling of Non-participating community members and internal politics	13.33%	0.00%	2.78%	0.00%	18.18%	7.25%
Grand Total	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

	Position in share-milk project					
Respondent answers - reasons why share-milk model assists in establishing commercial farmers	Board member	Dairy mananger	Emerging farmer/Trustee	Project manager	Share-milker	Grand Total
Skills, experience and knowledge gained	31.58%	33.33%	34.48%	28.57%	31.25%	33.01%
Allows the EF to gradually enter the industry with necessary support	0.00%	0.00%	6.90%	14.29%	18.75%	7.77%
Gaining of social capital/networking	15.79%	33.33%	20.69%	28.57%	18.75%	20.39%
Enable EF to establish a sound bankable business	21.05%	0.00%	12.07%	0.00%	18.75%	13.59%
SM contributes to financial stability	5.26%	0.00%	8.62%	14.29%	0.00%	6.80%
Self development	26.32%	33.33%	17.24%	14.29%	12.50%	18.45%
Grand Total	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

Relation of qualification to individual response

	Qualification of respondent				
Respondent answers - major advantages of share-milk model	Post graduate	Primary	Secondary	Tertiary	Grand Total
Utilize commercial farmer's experience/livestock improvement	15.15%	22.22%	17.33%	12.50%	16.54%
Skill and knowledge transfer & training	21.21%	22.22%	20.00%	25.00%	21.05%
Benefiting from economies of scale/latest technology	3.03%	11.11%	12.00%	18.75%	10.53%
Accessing markets and inputs	9.09%	22.22%	8.00%	6.25%	9.02%
Obtaining business skills	9.09%	11.11%	9.33%	6.25%	9.02%
Increased financial stability & living standards	15.15%	11.11%	22.67%	18.75%	19.55%
No working capital required from EF	6.06%	0.00%	0.00%	6.25%	2.26%
Parties share risk&return	6.06%	0.00%	2.67%	6.25%	3.76%
Parties responsible for maintaining own asset base	3.03%	0.00%	0.00%	0.00%	0.75%
More efficiently utilization of Government funds	6.06%	0.00%	2.67%	0.00%	3.01%
Creating job opportunities/youth involvement	6.06%	0.00%	5.33%	0.00%	4.51%
Grand Total	100.00%	100.00%	100.00%	100.00%	100.00%

	Qualification of respondent				
Respondent answers - major dis-advantages of share-milk model	Post graduate	Primary	Secondary	Tertiary	Grand Total
None	36.36%	100.00%	66.67%	60.00%	58.97%
Not personally own land and cattle	18.18%	0.00%	9.52%	20.00%	12.82%
Currently limited number of participants - would like to increase beneficiaries	0.00%	0.00%	9.52%	0.00%	5.13%
When resign - receive money after 2 years	0.00%	0.00%	4.76%	0.00%	2.56%
SM take risk of providing security/do not share in land value increase	18.18%	0.00%	0.00%	20.00%	7.69%
Management of Community that is not involved in project	27.27%	0.00%	9.52%	0.00%	12.82%
Grand Total	100.00%	100.00%	100.00%	100.00%	100.00%

	Qualification of respondent				
Respondent answers - major lessons learned from share-milk model	Post graduate	Primary	Secondary	Tertiary	Grand Total
To overcome mis-trust in beginning	15.38%	0.00%	10.61%	5.88%	10.53%
Be transparent	26.92%	0.00%	13.64%	29.41%	18.42%
Proper communication/working with people/formal meetings with record keeping	15.38%	40.00%	16.67%	17.65%	17.54%
Commercial farmers have the knowledge and experience	0.00%	0.00%	9.09%	11.76%	7.02%
To have mutual trust and passion to succeed	15.38%	20.00%	13.64%	17.65%	14.91%
Patients with ilterate beneficiaries regarding understanding business	3.85%	20.00%	0.00%	5.88%	2.63%
From "woker" to öwner" responsibilities	3.85%	0.00%	4.55%	0.00%	3.51%
Increased business sense/managing for profit	15.38%	20.00%	16.67%	11.76%	15.79%
Patients with development progress	0.00%	0.00%	6.06%	0.00%	3.51%
Effective/productive use of land	3.85%	0.00%	3.03%	0.00%	2.63%
How to mobilize and organize a community	0.00%	0.00%	6.06%	0.00%	3.51%
Grand Total	100.00%	100.00%	100.00%	100.00%	100.00%

	Qualification of respondent				
Respondent answers - major challenges of share-milk model	Post graduate	Primary	Secondary	Tertiary	Grand Total
Difference in cultures	5.00%	0.00%	0.00%	0.00%	1.45%
Satisfying the non-active beneficiaries/many "bosses"	15.00%	33.33%	18.92%	11.11%	17.39%
Beneficiaries to understand basic business principles	30.00%	33.33%	32.43%	44.44%	33.33%
Sceptism regarding the SM model and possible outcomes	15.00%	0.00%	29.73%	22.22%	23.19%
Inablility of beneficiaries to cope with the increased earnings/money	5.00%	0.00%	0.00%	11.11%	2.90%
Intitial capital expenditure/obtaining operating capital	10.00%	33.33%	5.41%	11.11%	8.70%
Timelaps regarding funding/development deliverables	5.00%	0.00%	8.11%	0.00%	5.80%
Handling of Non-participating community members and internal politics	15.00%	0.00%	5.41%	0.00%	7.25%
Grand Total	100.00%	100.00%	100.00%	100.00%	100.00%

	Qualification of respondent				
Respondent answers - reasons why share-milk model assists in establishing commercial farmers	Post graduate	Primary	Secondary	Tertiary	Grand Total
Skills, experience and knowledge gained	29.63%	40.00%	34.55%	31.25%	33.01%
Allows the EF to gradually enter the industry with necessary support	14.81%	20.00%	1.82%	12.50%	7.77%
Gaining of social capital/networking	25.93%	0.00%	16.36%	31.25%	20.39%
Enable EF to establish a sound bankable business	11.11%	0.00%	18.18%	6.25%	13.59%
SM contributes to financial stability	0.00%	20.00%	9.09%	6.25%	6.80%
Self development	18.52%	20.00%	20.00%	12.50%	18.45%
Grand Total	100.00%	100.00%	100.00%	100.00%	100.00%