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The Impact of the New Co-operatives Act on Employment and Poverty Reduction: A Case study of Sorghum Producers in the Eastern Cape Province.

By

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DECLARATION

I hereby declare that this thesis is my original work, and has not been submitted in partial or entirety for degree purposes to any other university. All the work that was written by other authors and used in the thesis is fully acknowledged.

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ABSTRACT

In general, traditional co-operatives suffer from free-rider, horizon, portfolio, control and influence problems that starve them of both equity and debt capital. Evidently, the factors which constrain agricultural development also inhibit co-operative development in the former homelands. These factors include socio-economic as well as political factors operating in the environment of the cooperatives. In addition to these external factors, co-operatives have several internal problems such as inefficient management and lack of understanding of the co-operative concept and principles. The New Cooperative Act No. 14 of 2005 was an attempt at addressing these fundamental problems. The purpose of this study was to analyze the extent to which cooperatives organized on the basis of this new Act have performed and to ascertain whether or not they have met the expectations of the policy makers. In order to address these issues a structured questionnaire was used to interview 100 farmers. Farmers were divided into two groups, one group consisting of fifty members and the other fifty non-members; all these farmers were randomly selected from Ndonga and Maqhashu in Ladyfrère.

The study investigated and profiled the socio-economic situation of the communities of Ndonga and Maqhashu with particular emphasis on the employment and poverty situations, as well as the income earning opportunities in the communities. It also undertook a comparison of the members and non-members of the co-operatives in terms of their production results under the sorghum production programmes in the two communities.

The data were analyzed by means of descriptive and inferential statistics which explain some measures of central tendency and dispersion as well as levels of significance. A t-test of independent samples was used to compare the means for the sorghum yields and revenues for non-members and members of the co-operative. Gross margin analysis was also used to determine the financial implications of cooperation for the smallholders. In addition, a multiple regression model and a discriminant function were fitted to determine the factors explaining the differences in performance of members and non-members of the cooperative society. The Gross Margin analysis shows that the cooperatives are operating at a loss, meaning they produce less with high production costs. However, the results also show that the Ndonga and Maqhashu sorghum co-operative did not benefit only its members but the whole community through significant job creation for the local population.

Key words: New Cooperative Act, employment opportunity and poverty reduction

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LIST OF ABBREVIATIONS AND ACRONYMS

BEE	Black Economic Empowerment
COOPS	Cooperation
CTA	Technical Centre for Agricultural and Rural Cooperation
DLA	Department of Land Affairs
DSAC	Department of Sport Arts and Culture
DSD	Department of Social Development
DTI	Department of Trade and Industry
EC	Eastern Cape
FAO	Food and Agriculture Organization
GDP	Gross Domestic Product
GI	Gross Income
GM	Gross Margin
IAASTD	International Assessment of Agriculture Science and Technology for Development
IFAD	International Fund for Agricultural Development
IST	Institutional Strategy Technic
MEC	Member of the Executive Council
MFP	Massive Food Programme
MRLs	Minimum Residue Levels
NDA	National Development Agency
NIE	New Institution Economics

NTAE	Non-Traditional Agricultural Export
RDP	Reconstruction and Development Programme
	Rural Radio Resource Pack
TVC	Total Variable Cost
U.S.	United States
UNEP-UNCTED	United Nations Environment Programme- United Nations Conference on Trade and Development
WDR	World Development Report

TABLE OF CONTENT

DECLARATION.....	i
ABSTRACT.....	ii
ACKNOWLEDGEMENTS	iii
LIST OF ABBREVIATIONS AND ACRONYMS.....	iv
LIST OF TABLES	xi
LIST OF FIGURES	xii
CHAPTER 1.....	1
INTRODUCTION.....	1
1.1 Background.....	1
1.2 Problem statement.....	3
1.3 Objectives	4
1.4 Justification of the study	5
1.5 Research question and sub-questions.....	6
1.6 Hypothesis of the study.....	6
1.7 Assumption	6
1.8 Delineation and limitation.....	7
1.9 Outline of the study.....	7
CHAPTER 2.....	9
LITERATURE REVIEW	9
2.1 Introduction.....	9
2.2 Problems of agricultural development in developing countries.....	9
2.2.1 Population pressure in subsistence agriculture	10
2.2.2 Institutional constraints to smallholder development	11
2.2.3 Gender disparities	12
2.2.4 Availability of land to small scale farmers	13
2.2.5 Agricultural cooperative potential.....	14
2.2.6 Agricultural cooperative and food security.....	15

2.2.7 Agricultural cooperative and rural development.....	16
2.3 Problems inherent in traditional cooperatives.....	17
2.3.1 Free-rider problem	17
2.3.2 Horizon problem	18
2.3.3 Portfolio problem	18
2.3.4 Control problem	18
2.4 Agricultural cooperatives in the new institutional economics framework.....	19
2.4.1 Institutional arrangement	19
2.4.2 Transaction cost economics	20
2.4.3 Markets and institutions.....	22
2.4.4 Market information	23
2.4.5 Grade and standards	25
2.4.6 Application of NIE to the cooperative organization form.....	26
2.4.7 Agency theory	27
2.4.8 Property rights theory.....	27
2.4.9 Influence cost problem.....	28
2.5 Cooperation among producers	28
2.6 Contract farming	29
2.7 The future of cooperation as an instrument for agricultural development and economic empowerment of marginalized groups.....	30
2.8 Access to agricultural input and rural credit markets.....	32
2.9 Evolution of cooperative acts in South Africa	33
2.10 Issues and forces shaping the external environment of cooperatives.....	35
2.10.1 Changing farm demographics	35
2.10.2 Technological innovation.....	36
2.10.3 Changing competitive environment	37
2.10.4 Role of the consumers.....	37
2.11 New co-operative act and employment creation.....	38
2.11.1 Labour employment	38
2.11.2 Income.....	39
2.11.3 Livelihood and poverty alleviation	39
2.11.4 Limited ability to accumulate equity.....	40

2.12 Models for the assessment of performance of the cooperatives.....	41
2.13. Chapter Summary	42
CHAPTER 3.....	43
METHODOLOGY	43
3.1 Introduction.....	43
3.2 Description of study area	43
3.3 Sampling procedure	45
3.3.1 Selection of study area	45
3.4 Data for the study.....	46
3.4.1 Dependent variables	46
3.4.1.1 Total assets owned	46
3.4.1.2 Crop yields	47
3.4.2 Explanatory variables used in the model	47
3.4.2.1 Age of household head.....	49
3.4.2.2 Level of education for household head.....	49
3.4.2.3 Gender of the households head	49
3.4.2.4 Marital status of households head	50
3.4.2.5 Access to markets.....	50
3.4.2.6 Source of capital.....	50
3.4.2.7 Source of income	51
3.4.2.8 Type of market.....	51
3.4.2.9 Distance to market	52
3.4.2.10 Who manages the market	52
3.4.2.11 Gender preferred to be employed.....	52
3.4.2.12 Production of sorghum in home gardens	53
3.4.2.13 Contract with reliable market.....	53
3.4.2.14 Road condition	53
3.4.2.15 Access to market information	54
3.4.2.16 Production challenges	54
3.4.2.17 Marketing channels	54
3.4.2.18 Benefit from co-operation.....	55

3.4.2.19 Contribution of co-operation to poverty alleviation.....	55
3.5 Data collection	55
3.5.1 Transect walk	56
3.5.2 Preparation and Administration of Questionnaires	56
3.5.3 Focus Group.....	56
3.5.4 Key Informant Interviews	57
3.6 Analytical framework	57
3.6.1 Descriptive Statistics.....	57
3.6.2 Gross Margin Analysis.....	58
3.6.3 Multiple Linear Regression Model	59
3.6.4 Discriminant analysis.....	61
3.7 Chapter Summary	63
CHAPTER 4.....	64
EMPIRICAL RESULTS OF THE STUDY.....	64
4.2 Demographic and Socio-economic characteristics of sample farmers.....	64
4.2.1 Age of household head.....	65
4.2.2 Gender of household heads	67
4.2.3 Household size	68
4.2.4 Marital status.....	68
4.2.5 Level of education.....	69
4.3 Socio-economic characteristics.....	70
4.3.1 Source of income	71
4.3.2 Sources of capital	71
4.3.3 Contribution of cooperative to poverty alleviation	72
4.3.4 Benefit from cooperation	73
4.3.5 Employment effects of the cooperatives	74
4.3.6 Gender distribution of the employment	75
4.3.7 Production of sorghum in home gardens	76
4.3.8 Accesss to the market.....	77
4.3.9 Contract with reliable market.....	78
4.4 The comprehensive description of the farming system.....	79

4.4.1 Principal crops in the farming system.....	79
4.4.2 Animal production system	80
4.4.3 Assets ownership.....	80
4.4.4 Production challenges	80
4.5. The results of inferential analysis	82
4.5.1 Gross margin analysis	83
4.5.2 Hypothesis testing for yield and total revenue.....	86
4.5.3 The factors affecting the performance of the farming unit	87
4.6 Chapter summary	95
5.1 Introduction.....	96
5.2 Summary	96
5.2.1 Introduction and Background of the Study	96
5.2.2 Literature Review.....	97
5.2.3 Area of Study and Methodology	100
5.2.4 Presentation of Results.....	100
5.3 Conclusions.....	103
5.4 Recommendations.....	104
5.4.1 Extension services.....	104
5.4.2 The approaches that government must use in order to support traditional co-operative.....	104
5.4.3 The approach that must be used by members in order to improve cooperation.....	105
REFERENCES.....	106
APPENDIX 1.....	118
APPENDIX 2.....	129

LIST OF TABLES

Table 3. 1: Composition of the sample size.....	45
Table 3. 2: Definition and of measurement of key variables modeled	48
Table 4. 1: Demographic and socioeconomic characteristics	65
Table 4. 2: The description of the challenges faced by members and non members of the cooperative.....	81
Table 4. 3: Gross margin for group of members of sorghum co-operation in Ndonga co-operative	83
Table 4. 4: Gross margin for non of members of sorghum co-operation in both Maqhashu and Ndonga co-operative	85
Table 4. 5: Group statistics on mean sorghum yield and mean revenue.....	86
Table 4. 6: Independent samples test comparing total revenue with the yield	87
Table 4. 7: Results of multiple regression analysis with asset score as dependent variable.....	89
Table 4. 8: ANOVA Table for Testing of Model Goodness-of-Fit (Asset Score)	90
Table 4. 9: Results of multiple linear regression analysis with yield as dependent variable.....	91
Table 4. 10: ANOVA Table for Testing of Model Goodness-of-Fit (Yield Level)	92
Table 4. 11: Test of equality of group means for members and non-members of cooperatives...	93
Table 4. 12: Eigenvalues table	93
Table 4. 13: Wilks' Lambda.....	93
Table 4. 14: Standardized Canonical Discriminant Function Coefficients.....	94
Table 4. 15: Classification Results.....	95

LIST OF FIGURES

Figure 3. 1: Lady Frere town and its nearest centers	44
Figure 4. 1: Age of the household.....	66
Figure 4. 2: Gender of the household head.....	67
Figure 4. 3: Size of the household.....	68
Figure 4. 4: Marital status.....	69
Figure 4. 5: Level of education.....	70
Figure 4. 6: Source of income.....	71
Figure 4. 7: Sources of capital.....	72
Figure 4. 8: Contribution of cooperative to poverty alleviation.....	73
Figure 4. 9: Benefit from cooperation.....	74
Figure 4. 10: First preference to be employed.....	75
Figure 4. 11: Gender preferred to be employed.....	76
Figure 4. 12: production of sorghum in home gardens.....	77
Figure 4. 13: Accesss to the market.....	78
Figure 4. 14: Contract with reliable market.....	79

CHAPTER 1

INTRODUCTION

1.1 Background

The concept of modern co-operatives originated in Europe and spread to other countries during the late 19th century as self-help means to counter extreme conditions of poverty. The belief was that the co-operative mechanism will be an intervention through which to pool these resources in order to expand production and productivity (Ortmann & King, 2007). Co-operatives have been promoted in many developing countries such as South Africa as a way of increasing agricultural growth and rural development. The first co-operative in South Africa was a consumers' co-operative established in 1892 under the Companies Act, as no Co-operatives Act existed at that time. Several more co-operatives, particularly agricultural cooperatives, were registered under the Companies Act until 1908 when the first Co-operative Act was passed (Ortmann & King, 2007). The apartheid government subsequently repealed all previous co-operatives principles by Co-operative Act, No. 91 of 1981 which made provision for trading cooperatives. After 1994 the democratic government that emerged in South Africa did not consider the Co-operative Act, No. 91 of 1981 as a suitable for the development of co-operatives in the current era for various reasons, among which are:

- i. Registered co-operatives were not explicitly required to conform within the co-operative principles.
- ii. The presumption that the state plays a highly interventionist or paternalistic role in relation to co-operatives;
- iii. A focus primarily on agricultural co-operatives. Provisions protecting members' interests, particularly in regard to the board of directors, were poorly formulated; and
- iv. Stringent requirements to register a co-operative.

In August 2005 a New Co-operatives Act No.14 of 2005 was approved, which was based on the international co-operative principles. This Act aims to play a major role for co-operatives in promoting socio-economic development, in particular, by creating employment based on black economic empowerment and eradicating poverty (Ortmann & King, 2007).

The International Co-operative Alliance defines a co-operative as a large number of people who are united voluntarily to meet their common objectives (Ortmann & King, 2007). Such objectives may include economic, legal, political and organizational, goals to acquire access to meet other social needs through a jointly owned and democratically controlled enterprise organised and operated on co-operative principles (Nganwa *et. al.* 2010).

Poverty is multi-dimensional. As such, it must be seen as more than lack of income; it is primarily characterised by a lack of access to opportunities for a sustainable livelihood. Such lack of access to opportunities may include income, assets, skills, knowledge, self-confidence and access to decision making (Department of Social Development (DSD), 2009). In 2003 the Eastern Cape Province contributed approximately 8.1% to the National GDP, while 14.4% of the South African population live in this province. This implies that the *per capita* GDP in the Eastern Cape is lower than the national average. Eastern Cape *per capita* income was R6, 774 in 2000, only about half the national average of R12, 411. High levels of poverty and inequality persist as they do in the rest of the country (Punt *et al.* 2007). Nonetheless, poverty remains the most dominant problem throughout the country and the South African government makes pronouncements that suggest a strong commitment to eradicate the scourge.

According to DSD (2009) Section 27 (1) c of Chapter 2 of the South African Constitution, every citizen has a right to social security, including, if they are unable to support themselves and their dependants, appropriate social assistance must be provided. The South African government in its attempt to alleviate poverty, in September 2006 sent delegates to Chile and Tunisia in order to observe first-hand the successful poverty eradication strategies of these two countries. Chile is reported to have reduced poverty from 44% to 13% within a period of 20 years. According to DSD (2009), in February 2007 President Thabo Mbeki drew attention to the need to review and refocus poverty reduction efforts. With reference to the Chilean approach to poverty eradication, he also made the points that poverty reduction is central to all that government does and that we cannot treat poverty reduction in isolation from building social cohesion (DSD, 2009).

In addition, Government's approach was to situate black economic empowerment within the context of a broader national empowerment strategy that focused on historically disadvantaged people, and particularly black people, women, youth, disabled and rural communities. South Africa's New Constitution enshrined the right of all South Africans to equality and provided for

specific measures to be taken to redress historical imbalances. New legislation aimed at dismantling the machinery of apartheid and transforming society in all areas, from education to the arts, from health care to the justice system, was enacted. The Reconstruction and Development Programme (RDP) set out a comprehensive plan for mobilising all South Africans towards the final eradication of apartheid and the building of a new democratic, non-racial and non-sexist society and economy (DSAC, 2009).

1.2 Problem statement

In general, traditional co-operatives suffer from free-rider, horizon, portfolio, control and influence problems that negatively affect both their equity and debt capital. According to Nganwa *et. al.* (2010), these institutional problems result from poorly defined property rights. Property rights are poorly defined in traditional co-operatives because they adhere to rules that require member ownership, democratic control, returns to investment, and equity shares. Jones (1990) expands on this, saying that the development of co-operatives resulted in poor performance in Third World countries, including the South African homelands. Evidently, the factors which constrain agricultural development also inhibit co-operative development in the homelands. These factors were socio-economics and political factors. In addition to these external factors, co-operatives have severally internal problems such as inefficient management and lack of understanding of the co-operative concept and principles.

Like other co-operatives Maqhashu and Ndonga sorghum production are facing many challenges. The National Development Agency funded the projects of Maqhashu sorghum Belt Association with R808000, 00 in 2004 for a period of two years. Further Maqhashu primary cooperative has also been funded by the municipality to the tune of R 722 666.00. Ncedolwethu Agricultural Co-operative and Maqhashu Sorghum Belt Association came together in 2005 to form a secondary cooperative. In 2005, the Ndonga and Maqhashu sorghum secondary cooperative had 511 members at inception. A total of 1,112 hectares of land was consolidated by the group out of which only 200 hectares are been put to use. After the secondary co-operative was formed they applied for funding from the NDA to strengthen the two structures. NDA funded the new structure up to an initial amount of R 1173,250.00 in 2008 (NDA, 2009). From the Department of Agriculture, the project received a further R 1,000,000.00 for building a Hazz and shearing centre at Greyspan. A Tractor, boom sprayer, trailer were handed over by the MEC

of Agriculture. The projects also receive technical support from the department, with the hope that the project will employ many people and decrease poverty among the beneficiaries. But with the above mentioned resources Ndonga and Maqhashu sorghum co-operation still do not produce high enough output to guarantee enhanced livelihoods for the people.

NDA (2009) have revealed that the problems associated with massive food programme (MFP) implementation at Maqhashu and Ndonga Sorghum producers includes lack of physical capital, marketing, low yield and funding

, Most of tractors used in the project belong to some of the members and some are hired. Their tractors are not in good condition. These villages have no machinery and implements that belong to the association. After harvesting, each member stores his or her share in the homestead because they do not have centrally-managed storage facilities. Marketing is another challenge faced by the co-operative. Bijman et al (2007), state that farmers in developing countries generally face bigger risks than their counterparts in the industrialized countries. That is, smallholder farmers because of their low resource endowment, tend to be highly vulnerable to production and other risks due to natural conditions and climatic shocks, as well as being vulnerable to marketing risks due to price fluctuations, opportunistic buying behaviour, etc.

Another problem is that the cooperatives sell their grain sorghum product in unprocessed form whereas consumers need processed products such as meal for porridge and “imithombo” for traditional beer, among others. When consumers buy raw grain sorghum, they still have to take it elsewhere for processing. In addition, to this there is no marketing strategy in place; every member decides on how to sell his or her own produce. To date, no systematic assessments of cooperatives in remote rural areas of the Eastern Cape Province have been conducted thus creating a huge research gap. This study is an attempt to fill this void.

1.3 Objectives

The case study was carried out in the overall context of the need to evaluate the advantages of applying the concept of co-operatives as well as the constraints faced by its beneficiaries. The main objective of the study was to evaluate and explore the employment and poverty reduction impacts of the New Co-operatives Act No.14 of 2005 on the beneficiaries under the Sorghum

projects established in Ndonga and Maqhashu communities of the Eastern Cape Province. More specifically, the study objectives are to

- i. Investigate and profile the socio-economic situation of the communities with particular emphasis on the employment and poverty situations, as well as the income earning opportunities in the communities;
- ii. Determine the existing structure and operations of the co-operative societies and the trends in the development of the cooperatives in relation to the New Co-operatives Act;
- iii. In relation to objective (ii) above, to identify the problems and constraints faced by the cooperatives; and
- iv. Undertake a comparison of the members and non-members of the co-operatives in terms of their production results under the sorghum production programmes in the two communities

1.4 Justification of the study

Maqhashu and Ndonga sorghum production co-operatives have financial support from National Development Agency as well as Department of Agriculture. The project also has a large area of land measuring about 1112 hectares which can potentially be put to productive use to improve the lives of the people. Furthermore, the project had about 511 members in 2005 which shows that the co-operative has all the support of community households and labour is not a problem. With such good support, especially in terms of resources, Maqhashu and Ndonga sorghum production co-operative should be able to produce high yield, but this is not the case. The incidence of poverty is on the increase in these communities and many people are unemployed. Obviously, if projects like Maqhashu and Ndonga sorghum production co-operative can use scarce resources efficiently poverty can be eradicated in these communities. As such, the study will investigate the reason of low output despite the relatively generous support by way of provision of resources to Maqhashu and Ndonga sorghum production cooperative. This study is necessary because it will investigate challenges and proffer recommendations for addressing the above mentioned problems, which will in turn contribute to reducing poverty and unemployment in these areas.

The democratic government of South Africa came up with the New Co-operatives Act No.14 of 2005 which is promoting the development of sustainable cooperatives which follow time-tested co-operative principles. This helps to increase the number and variety of economic enterprises in communities such as Maqhashu and Ndonga. The New Co-operatives Act also encourages people to register co-operatives if they want to work together in a democratic manner, to help them have access to formal markets. The Act provides for the protection of employed persons within the international definition of cooperatives. The New Co-operatives Act promotes the participation of previously disadvantaged and vulnerable members of the society in co-operative activities and management such as black people, women, and youth, people who live in rural areas and also people with disabilities.

1.5 Research question and sub-questions

In light of the information above, the main research question of the study is: What are the Employment and Poverty Reduction Impacts of the New Co-operatives Act No.14 of 2005 on Sorghum producers in Ndonga and Maqhashu in the Eastern Cape Province? The two sub-questions arising from the main research question are:

- 1) What are the existing structures and operations of the cooperative societies and the trends in the development of the cooperatives in relation to the New Co-operatives Act?
- 2) What are the socio-economic situations of the communities with particular emphasis on the employment and poverty situations, as well as the income earning opportunities in the communities?

1.6 Hypothesis of the study

On the basis of the specific objectives outlined above, the following hypotheses are tested.

- i. Co-operative farmers of Ndonga and Maqhashu communities have no constraints after the introduction of New Co-operative Act of 2005.
- ii. There is no significant difference in revenue between members and non- members of the sorghum co-operative.

1.7 Assumption

The study assumes that the co-operative farmers of Ndonga and Maqhashu contribute to employment creation and improving livelihoods in their respective communities. Furthermore

the co-operative of sorghum producers in Ndonga and Maqhashu is assumed to be registered under the New Co-operatives Act No.14 of 2005 which accommodates all the small scale co-operatives farmers which were neglected under the previous dispensation during which the Co-operatives Act of 1981 was in operation. More specifically, the assumptions put forward for this study are that:

- i. The climatic conditions are suitable for the production of sorghum at Ndonga and Maqhashu.
- ii. Small scale farmers of the co-operative of sorghum producers in Ndonga and Maqhashu do not have management skills and adequate knowledge of the production.

1.8 Delineation and limitation

The study investigate the employment and poverty reduction impacts of the New Co-operatives Act (No.14 of 2005) on the beneficiaries under the Sorghum projects established in Ndonga and Maqhashu communities of the Eastern Cape Province. The study examines the development of livelihoods of the communities. The study was limited to agricultural co-operatives only. The New Co-operatives Act (No.14 of 2005) was introduced for the whole country of South Africa but this study was limited to the specified areas in the Eastern Cape Province.

1.9 Outline of the study

The dissertation has 5 chapters. Chapter 1 introduces the problem and the main objectives addressed by the study. The justification and assumptions for the study were also discussed. Chapter 2 reviews what different authors say about the employment and poverty reduction impact of cooperatives in general and the new generation cooperatives in particular. The issues around the New Co-operatives Act (No.14 of 2005) are also reviewed. One of the purposes of this review is to investigate the major constraints faced by beneficiaries of Ndonga and Maqhashu sorghum producers. The overall concepts in the reviewed literature guided data collection, analysis, and interpretation of the results. Chapter 3 discussed the methodological approaches and specific data collection techniques used in the study. The chapter commenced by describing the background of the study area. The description of the methodology was aligned with the specific objectives defined in chapter one. The nature of data collected was described in

addition to the sampling procedure, data collection techniques and data analysis methods. The chapter closed by highlighting the limitations of the study. Chapter 4 presents research findings in respect to the demographic and socio-economic settings. This is followed by a presentation of the findings in respect of the farming system, looking in particular at cropping patterns, assets ownership and resource use as well as challenges and opportunities identified. In this respect, the results of the Gross Margin analysis comparing the relative performance of members and non-members, were presented and discussed. Similarly, the results of other tests to determine differences between two groups were presented. Chapter 5 summarizes the research and proffers recommendations for policy.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

This chapter reviews the literature about problems of agricultural development in developing countries and the place of cooperatives. In general, these refer to concerns around population pressure in subsistence agriculture, the myriad technical and institutional constraints to smallholder development both regionally and nationally, as well as issues around gender disparities and availability of land to small scale farmers. The review importantly focuses on theoretical issues in respect of agricultural co-operative potential, agricultural co-operatives and food security and agricultural cooperatives and rural development and turns attention to the problems inherent in traditional co-operatives for example; free-rider problem, horizon problem, portfolio problem and control and co-ordination problem. Within that context, the review looks separately at the new institutional economics as the formal organizing framework within which co-operatives are studied. In this respect, institutional arrangement, transaction cost economics, markets and institutions, grade and standards, application of NIE to the co-operative organization form, agency theory and also property rights theory, are examined.

Cooperation among producers, contract farming, the future of cooperation as an instrument for agricultural development and economic empowerment of marginalized groups and also access to agricultural input and rural credit markets pose peculiar problems. An overview of the evolution of Co-operative Acts and sketch the characteristics of smallholder farmers in South Africa will be presented. The external environments of co-operatives, for example changing farm demographics, technological innovation, changing competitive environment and the role of the consumers are important. The review embraced the New Co-operative Act and its associated benefits, including employment creation, income creation, enhancement of livelihoods, poverty alleviation and limited ability to accumulate equity.

2.2 Problems of agricultural development in developing countries

There are many problems faced by agriculture in developing countries which prevent or slow down their economic growth. These problems include population pressure in subsistence farming, coupled with unequal allocation of resources and inheritance laws which result in land parceling. Population pressure contribute to environmental degradation as the growing pressure

on the land pushes farmers (especially rural women) to overexploit wood, water and other resources in order to meet household requirements. Another issue is gender disparities, which show that the living conditions of poor women in communal areas of developing countries appear to be worse than those of poor men (Prakash, 2003). The availability of land to small scale farmers, is also a critical issue in agricultural development. For example, many poor rural people live in remote areas on marginal lands, far from centres of economic activity and from policy makers.

2.2.1 Population pressure in subsistence agriculture

According to Punya *et. al.* (2000), one of the most serious consequences of the continuing population growth is the worldwide shrinkage in cropland per person. In developing countries, the per capita land availability has been decreasing to alarmingly smaller sizes. This has brought about stress in the form of increasing rural landlessness, underemployment, and poverty William *et al.* (1979) indicated that population increase is putting pressure on the distribution of resources, which leads to over utilization of agricultural land. Ituri Forest in the eastern Zaire shows temporal and spatial variations that have important implications for human populations employing a hunting and gathering subsistence strategy. The most significant spatial variation from the perspective of Mbuti hunters is the existence of disturbed forest areas due to the encroachment of non-Mbuti populations (William *et. al.* 1979).

The high population growth that is also experienced in Africa, coupled with unequal allocation of resources and inheritance laws which result in land parceling, contribute to environmental degradation as the growing pressure on the land compels farmers (especially rural women) to overexploit wood, water and other resources in order to meet household requirements. Such over exploitation may result in serious and irreversible environmental degradation including deforestation, long-term erosion, decreased soil fertility, and desertification, which limits the development of agriculture in most areas of sub-Saharan Africa (FAO, 1996). Klaus (2000), reported that, never before in human history has the planet had a population density of more than 6 billion people, despite the fact that birth rates are decreasing in most countries, coupled with the impact of HIV and AIDS which has led to accelerated mortality rates in many developing countries. According to Klaus (2000), in 1999, about 70-80 million people were added to the world population and 98 per cent of them in developing countries. People who were born before

1950 are the first generation in human history to witness a doubling of world population. While the world has been changing over the last decade politically and economically in unexpected and remarkable ways, food security remains an unfulfilled dream for more than 800 million people (Klaus, 2000).

2.2.2 Institutional constraints to smallholder development

Obi (2011) has shown quite clearly that the development of smallholder farmers in the Southern Africa region is severely constrained by a large number of factors linked to the institutional environments and arrangements operating in the region. Many of these constraints relate to the poorly developed extension services that mean that information flows about available inputs and prices are not adequate. According to Salami *et al.* (2010), for investment, smallholder farmers in four countries of East and Southern Africa which are Kenya, Ethiopia, Uganda and Tanzania depend on savings from their low incomes, which limits opportunities for expansion. They provided example of a survey sample of 344 rural households in Tanzania between May and August 2001 which showed that half of total rural household income came from farming, 46.6 per cent from nonfarm employment (wages and self-employment) and less than 4 percent from remittances. They reported that because of the lack of collateral and/or credit history, most farmers are bypassed not only by commercial and national development banks, but also by formal micro-credit institutions (Salami *et al.*, 2010). In addition to own sources, farmers thus rely on incomes from friends and relatives, remittances, and informal money lenders.

Inferences that can be reliably drawn are that significant investment is needed in capacity building among producers in order to respond to favourable market signals (Poole *et al.*, 2010). However, basic extension services are needed to address the lack of planting materials of the appropriate varieties, and the limited skills in new production processing practices. Supporting investments through innovative financial mechanisms are needed for new technologies and services for a large expansion of farm scale to meet projected demand (Poole *et al.*, 2010). Concentration of supply through local bulking is essential to reduce transaction and transport costs faced by buyers and external logistics players. Local producer group organisation is one effective means but in turn also requires development and extension of appropriate organisational models as well as investment in group organisation and management skills. Local

group organisation is a common phenomenon although there are real challenges in creating an efficient and sustainable collective enterprise sector (Poole *et al.*, 2010).

2.2.3 Gender disparities

According to Punya *et al.* (2000) living conditions of poor women in communal areas of developing countries appear to be worse than those of poor men. Punya *et al.* (2000) reported that women constitute one-third of the world's labour force and perform two thirds of the hours worked, for which they receive only 10 percent of the world's income. The impact of structural adjustment programmes on rural women came with negative results. Increasing attention has been paid to the impact of structural adjustment policies on rural women in Africa and empirical evidence are emerging which indicates that the impact has largely been negative (FAO, 1995).

According to Prakash (2003) women play an indispensable role in farming and in improving the quality of life in rural areas. However, their contributions often remain concealed due to some social barriers and gender bias. These barriers include; high illiteracy rates and poor living conditions among rural women. Many rural farm women lack leadership skills and encounter inadequate participation in the management of organisational and economic affairs of their agricultural co-operatives. Absence of property inheritance rights and restriction on acquiring membership of agricultural cooperatives consequently lead to the deprivation of farm credit. Prakash (2003) revealed the following constraints faced by rural many farm women which are inadequate health care services in rural areas; as well as inadequate water supply for household and farm operations which limit the women to produce a high yield. Prakash (2003), revealed the following factors as additional constraints faced by women, these includes lack of appropriate agricultural technology aimed at reducing the physical burden of farm women. inadequate access to credit and agricultural inputs and other services; lack of female farm extension workers; lack of marketing facilities and opportunities; traditional, religious, social and cultural obstacles; less participation in decision-making – even within the household; male migration/urban drift which increases pressure on women; lack of opportunities to improve socio-economic status of farm women; lack of skills and attitudes in leadership and management development; and lack of secretariat supporting functions for women's organisations and allocation of funds for them in co-operative organisations (Prakash, 2003). Despite the many challenges that women face, government programmes often fail to focus on women in agriculture. This undermines the

potential benefits from programmes, especially those related to food production, household income improvements, nutrition, literacy, poverty alleviation and population control. The lack of support for women's farming projects entails that women in developing countries remain a vulnerable group.

According to FAO (1995) women in agriculture continue to face many barriers in food production, it is important to state that some of these barriers are not gender specific. That is, they affect both men and women. Small scale farmers, male and female, in many developing countries have historically faced constraints ranging from a lack of credit and technology, through inadequate rural infrastructure and land tenure systems, to civil conflict (FAO, 1995). Decrease in foreign development assistance to agriculture in developing countries and a corresponding decline in direct foreign investment has small scale farmers in South Africa. These challenges were made worse when the processes of globalization eroded the traditional organization of agricultural systems, especially in instances where the division of labour was high, with women having primary responsibility for household food security (FAO, 1995). Regrettably, there are still some prevailing laws which place barriers on women's participation in agricultural cooperatives and/or farmers' associations. These barriers include land ownership and their inability to make appropriate farming decisions, but in many societies the women who need to organise to cooperate and prosper lack the time for participation due to multiple work demands. Co-operatives being people centered movement had recognised these limitations place on women by the society and economic institutions (Prakash, 2003) and action was taken to tackle these problems through the establishment of co-operatives.

2.2.4 Availability of land to small scale farmers

According to Sewaye (2003) many rural poor people live in remote areas on marginal lands, far from centres of economic activity and from policy makers. Because they are fully dependent on their natural environments, poor rural people put pressure on the eco-systems in which they live. But this is not the only source of pressure. Competing pressures from other land users (for example water or fuel) can undermine the carrying capacity of the environment and current patterns of climate change are having a profound effect on the ecology of dry land areas making it progressively harder to survive in them. Desertification and land degradation are currently undermining the very subsistence of these people, yet it is a topic that receives little attention in

international debates. Agriculture (including dry land agriculture) has been increasingly neglected as a development tool for about two decades yet it has made an unexpected and forceful return to the policy agenda recently, following rapid and unprecedented increases in food prices (Haren, 2010).

According to Meer (1997) the Department of Land Affairs is responsible for the country's land reform programme. The focus of this programme is social justice and poverty alleviation and to 'create and establish an equitable and fair land dispensation. Meer (1997) reported that the Department's Green Paper on land notes gender equality among its principles and women are prioritised among those most in need of land. In order to address women's land needs the department established a sub directorate on gender in 1996, and has introduced mechanisms aimed at ensuring women's participation in land reform. However, thus far delivery of land to beneficiary communities has been very slow, and there is little evidence that women are being included in land reform.

2.2.5 Agricultural cooperative potential

Agricultural co-operative potential includes overcoming barriers to achieve assets, information services and markets agricultural commodities through co-operatives. The management and handling of such organizationally complex issues, calls for an organization such an agricultural co-operative, to stand on behalf of small farmers and perform out the business in a cost effective manner (Chambo, 2009).

Poverty among rural people is caused by inadequate access to resources (such as land, capital and infrastructure) and the poor availability of social services (e.g. education, health and housing). South African government has committed itself to creating favourable environment for cooperative development. In particular, government will focus its relatively scarce resources on providing physical and legal infrastructure to reduce transaction costs, including risk, so that markets for products and resources (such as land) can work more efficiently. Improvements in physical infrastructure, such as roads and telecommunication facilities, would help to reduce transport and communication costs for farmers and traders and would improve access to inputs such as hybrid seed, fertilizer and chemicals, while access to product markets may also be improved (Ortmann & King, 2007).

2.2.6 Agricultural cooperative and food security

Food security can be defined as a condition where all people at all times have physical and economic access to sufficient safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life (UNEP-UNCTED, 2008). The Universal Declaration of Human Rights by government of South Africa recognised several dimensions of human rights for all people who live in South Africa. Some are physical and proven, such as access to education, health and a decent standard of living and ability to take part in the government of the country. This is central to the whole notion of food security. Others are intangible, such as freedom, dignity, and security of person and participation in the cultural life of the community. These promote sharing of work and experience between women and men in the work place as well as in the household (Prakash, 2003).

According to Chambo (2009), insufficient access to food is a common problem caused by income inequality and general income poverty seen as the primary causes. He also argued that, although poverty is generally prevalent in the rural areas of Africa, insufficient food access in urban areas has been higher than in the rural areas due to massive rural – urban migration of youth in search of decent jobs in the fast growing urbanization of the African continent. Countries like Nigeria are faced with challenges to improve food security, provide employment and ensure that women are mainstreamed into economic activities (Ukeje, 2006). According to Prakash (2003) in many parts of the world, women continue to play an important role as rural information sources and providers of food to urban areas. This may involve food from the sea as well as from the land. For example in Nigeria, women play a major role in the production of food crops and they also undertake some activities such as trade to earn cash income (Ukeje, 2006).

According to Chambo (2009), there is close correlation between food security and cooperatives. This has been witnessed in countries with long standing history of large size cooperative organizations like Tanzania, Kenya and Uganda. This correlation however, was made possible on account of the fact that small farmers had disposable cash income earned from co-operative activity, to buy food from ordinary village markets. Apart from having cash income from co-operative business, small farmers have also been food secure, due to climatic advantages in these areas. Farmers that join cooperatives have more advantages than farmers who are not part of

cooperatives since the family farm and cooperatives can provide a decentralized system of food security and employment (Chambo, 2009).

2.2.7 Agricultural cooperative and rural development

The 1970s were characterized by large-scale farming; centrally managed estate project farms. This was particularly the case with industrial crops 'where large units were desirable'. The project farming approach, obtained a further boost with the establishment in 1973 of an agricultural division in the Bantu Investment Corporation. However, it seems that substantial financial losses were the norm with these schemes. Further more, the distribution of benefits was limited in relation to total need and to aggregate resources available for development. Although higher levels of resource use, production and wage employment were achieved through these 'modern' farming enterprises managed by parastatal companies and consultants, little was done to promote a class of self-employed farmers or to improve farming conditions for smallholders outside these schemes (Vink, 2005).

Support from government is expected and is necessary for the success of any co-operation. This support can be in the form of finance or other assistance, such as providing the infrastructure and creating a good environment where co-operatives can succeed. In order to get co-operatives operational, bridging finance is needed. This bridging finance can be provided by local governments at subsidized interest rates in order to promote rural development (Walt, 2005). Farmers producing crops and marketed by co-operatives are gainfully employed because they can account for their labour input by the revenue they earn during the marketing seasons. Agricultural co-operatives, maintain higher levels of income, making small farmers able to construct decent houses, send their children to school and provide health insurance to sustain rural livelihoods (Chambo, 2009).

In addition Louw (2008), reveal that, regardless of the historically important role that co-operatives played in the development of the agricultural communities in South Africa, many other motivational aspects also support the role that this type of business can play in the development of local communities. Louw (2008) indicates that, cases of actual co-operative formation often reveal that members of a founding group commonly share some sort of common prehistory that binds the potential participants. The history of the communities built, was most

probably the reason behind the feeling of coherence that is normal observed amongst the members of the co-operatives. An aspect that also supports the principles of collective entrepreneurship is the value system from which African people have evolved, which implies that a person is a person through other people. Furthermore farmers who decide to join co-operatives can achieve economies of scale in bargaining with outside suppliers and markets (Louw, 2008)

2.3 Problems inherent in traditional cooperatives

In the traditional co-operatives, members are sometimes faced with major organisational challenges (Ortmann & King, 2007). These challenges include free rider, horizon, portfolio, control, and influence cost.

2.3.1 Free-rider problem

Previous studies reported that the free-rider problem emerges when property rights are untradeable, insecure, or unassigned. Ortmann & King (2007) referred to it as “a type of common property problem that emerges when property rights are not tradeable or are not sufficiently well defined and enforced to ensure that individuals bear the full cost of their actions or receive the full benefits they create.” Both internal and external free-rider problems are often associated with conventional co-operatives. With regard to the internal free-rider problem (the common property problem), since the rights to residual claims in a traditional co-operative are linked to patronage instead of investment, new members receive the same patronage and residual rights as existing members although the new members are not required to make up-front investments proportionate to their use. The general tendency of the free-rider problem then is to encourage decisions that increase cash flows per member. This creates a disincentive for existing members to invest in their cooperative because of the dilution of their returns (Ortmann & King, 2007).

Regarding internal free-rider problems, the rights of residual claims in a traditional co-operative are linked to patronage instead of investment, and external free-rider problems occur “whenever a cooperative provides its members with collective goods characterised by *de facto* unfeasibility of exclusion” (Iliopoulos & Cook, 1999:80, as cited by Ortmann & King, 2007).

2.3.2 Horizon problem

According to Chibanda (2009) this problem occurs as a result of the limited planning horizons of the members in a co-operative, and residual rights cannot be transferred when members withdraw. The different planning horizons between members, management and elected representatives make it difficult to make optimal investment decisions, and this inhibits the overall development of the organisation (Nilsson, 2001, as cited by Chibanda 2009). The implication of horizon problems for the performance of a co-operative organization is that residual claimants can capture the benefits of investment decisions only over the time horizons of their expected membership in the organization (Chibanda, 2009). A consequence of this is that co-operatives will tend to under-invest in assets with long-term payoffs (e.g., research and development, and marketing). Boards of directors and managers are, therefore, under pressure to increase current payments to members instead of investing in additional assets, to accelerate equity redemptions at the expense of retained earnings (Ortmann & King, 2007).

2.3.3 Portfolio problem

According to Chibanda (2009) portfolio problem comes from a co-operative's perspective as "another equity acquisition problem". The portfolio problem restricts residual claims to the supporter group in co-operatives, which deprives members of the opportunity to diversify their investment portfolios to minimize risk. He also argues that such portfolio problems usually give rise to further differences in preferences among subgroups of co-operative members. The result is economic inefficiency, since lower risk decisions are favoured. Ortmann & King (2007) challenge that, co-operative members have to carry these risks alone because potential outside investors, who could diversify the risks, are generally excluded from investing in a co-operative. This problem is exacerbated if a member's investment in the co-operative represents a high proportion of his off-farm investment and to the extent that his farming risks are positively correlated with the risks associated with the co-operative.

2.3.4 Control problem

Previous studies reported that organisations bear control costs as the interests of management (agent) and their representative board of directors (principal) diverge. For example, if new members are allowed to join without paying any membership fees, this may result in market distortion (Chibanda, 2009). According to Ortmann & King (2007), preventing this divergence

of interests may be more of a problem in conventional co-operatives “because of the absence of a market for exchanging equity shares and the lack of equity-based management incentive mechanisms available to other firms”. The absence of an equity market for co-operative shares means that members are not able to monitor their co-operative’s value or evaluate managers’ performance. Royer (1999) as cited by Ortmann & King (2007) also point out that, restricted cooperative membership to producers can contribute to the control problem in that production-oriented boards of directors are increasingly limited in monitoring the performance of managers as the co-operative expands and becomes more consumer-oriented. Specialists serving on the board or as managers may need to be employed to better manage the changing circumstances and for the cooperatives to better compete with other business organizations.

Chibanda (2009) also argues that control over the firm is thus weakened, since attempts by members to affect change cannot achieve the intended objectives. The principal-agent problems are reduced by the fact that the board is specifically responsible for controlling and directing the management. He also believe that severe control problems in a traditional co-operative arise because shares are not transacted at market value, so members do not get a clear signal of management performance.

2.4 Agricultural cooperatives in the new institutional economics framework

Small-scale (communal) farmers in South Africa have limited access to instruments of production, credit and information, and markets are often constrained by inadequate property rights and high transaction costs. However, the government is committed to ensuring that co-operative enterprise support is provided in an integrated fashion. In this regard, the national government endeavours to ensure the extension of provincial and local levels of business support to include co-operatives enterprises, while also encouraging horizontal integration between government and non-government agencies within each of these levels. The dti has an essential role to play in the coordination and integration of small business support agencies to include co-operative enterprises (IST, 2004).

2.4.1 Institutional arrangement

The history of traditional co-operatives suggests that co-operatives have not always been successful at serving the needs of their own members, and their popularity had waned in the few decades preceding the 1990s. However, the NIE can inform the design of such organizations and

cooperatives to prevent their failure (Kherallah & Kirsten, 2002). The New Institutional Economics is a large and relatively new multidisciplinary field that includes aspects of economics, history, sociology, political science, business organization and law. Institutions are understood as the humanly devised rules that constrain or enable individual and collective behaviour. They comprise formal rules, informal constraints and the enforcement characteristics of both rules (Beall *et al.*, 2004).

According to DTI (2004) the Government's institution and support to the co-operative development will be achieved by the following aspects: which laid a foundation or the benchmark for the New Co-operative Act (No.14 of 2005) the following are the aspects of DTI in trying to assist co-operative development.

- Giving a clear legal definition of a genuine co-operative enterprise.
- Reforming the co-operatives administration.
- Ensuring that the legal framework does not hinder the development and growth of co-operative enterprises.
- Making a clear distinction between technical support services to co-operatives and the regulatory functions of the state.
- Facilitating the formation of co-operatives with the objective of encouraging instead of replacing self-help.
- Allowing co-operatives to set up their own support service institutions.
- Coordinating and orienting external assistance to co-operatives and self-help groups.

2.4.2 Transaction cost economics

The process of production and marketing of all goods and services involves a number of different activities. For example, the various stages through which a food product such as cheese moves before it is purchased at the local supermarket. In this case we can distinguish between the production of the dairy feed, dairy farming, the assembly and processing of the milk and the provision of retail services (Harte, 1997). According to Makhura *et al.* (2001), in South Africa there is need for structural reform if participation of black farmers in the commercial agricultural sector is to be improved. The process of commercialization of subsistence agriculture implies an improved ability to participate in output markets.

Transaction costs are observable and non-observable costs associated with enforcing and transferring property rights from one person to another. These include; the costs of searching for a trading partner with whom to exchange with, the costs of screening partners of bargaining monitoring, enforcement and eventually transferring the product to its destination (Jari, 2009). Ortmann & King (2007) point out that every exchange involves each of these costs to a greater or lesser extent, with each transaction cost item being influenced by social institutions (norms of behaviour), legal institutions (definition and are allocated), and economic institutions (availability and efficiency of markets).

In the developing areas of South Africa, like in other developing countries, smallholder farmers find it difficult to participate in markets because of a range of constraints and barriers reducing the incentives for participation (Makhura *et al.*, 2001). Among those barriers are incomplete contracts caused mainly by bounded rationality (i.e. limits on the capacity of individuals to process information, deal with complex issues and consider all possible contingencies), difficulties in specifying or measuring performance, and asymmetric information will inevitably result in opportunism and transaction costs (Ortmann & King, 2007). According to Ollila and Nilsson (1997), production costs and transaction costs are interrelated. They explained that vertical integration, having transaction cost origin may be examined through the dimensions of transactions, which are: asset specificity, uncertainty, frequency, and externalities, by transaction-specific assets, meant such assets investments whose value in every other purpose is much lower than in their intended use. Agricultural production contains many of such investments and assets. Ollila & Nilsson (1997) further exemplified that an investment in a cow shed and milking machinery has little value in activities other than producing milk. Protection of such assets has universally induced dairy farmers to make special arrangements for downstream integration into milk processing (Ollila & Nilsson, 1997). Agricultural production is always open to uncertainty caused by nature. Because of many agricultural products being rather inelastic in demand, the effects of production fluctuations caused by the weather may result in the over-reaction of prices. They also believe that uncertainty is also harmful for production processes requiring stable capacity in order to utilize economies of scale with an acceptable capacity utilization rate. Forms of vertical integration have been beneficial to both production and processing.

2.4.3 Markets and institutions

According to WDR (2008), agricultural productivity has grown rapidly where modern varieties and fertilizers have been widely adopted, but not where adoption has been delayed. In much of Asian countries and parts of Latin America, promoting seed and fertilizer use was accompanied by complementary investments in irrigation, rural roads, marketing infrastructure, financial services, and other factors that made using seed and fertilizer profitable and paved the way for dynamic commercial input markets. But throughout most of Africa, these complementary investments are small or absent, and private input markets have yet to emerge on a large scale. Recent initiatives to build seed and fertilizer markets provide lessons that can inform future policy design (WDR, 2008)

For many small scale farmers in developing countries, the causes of poverty are many. The price of farm products is low, for example the price of sorghum is low and this impacts negatively on returns. In addition, they have insufficient access to credit, face high costs of agricultural inputs, and lack access to basic infrastructure, lack institutional support, the transfer of agricultural research, extension and access to markets. Furthermore, to enter the market and trade with commercial entities, farmers needed to issue invoices and receipts (IFAD, 2008).

However, within the context of increasing global integration of agricultural markets, the development of supply chains in international trade, and the diffusion of supermarkets in developing countries, contract farming has often been looked upon as a system that could integrate smallholder producers in rapidly developing mainstream markets. The effectiveness of contract farming arrangements as an institution could be viewed from the perspective of their success in involving smallholders in such schemes. Previous studies proposed that the investigation of effectiveness should not just stop at the mere inclusion of smallholders, but must also assess whether the engagement in such schemes were, on the whole, beneficial for such households rather than lead them to lesser incomes, or even to impoverishment (Catelo & Costales, 2009).

Bijman *et al.* (2007), states that farmers in developing countries generally face bigger risk than their counterparts in the industrialized countries. That is, small holder farmers because of their low resource endowment, tend to be highly vulnerable to production risks due to natural conditions and climatic shocks, as well as to the marketing risks due to price fluctuation,

opportunistic buying behaviour, etc. They believe that in most developing countries, institutions that can mitigate risks (such as insurances) are missing or weakly developed. In the past, the government of South Africa often reduced market risks by market intervention (e.g. through price stabilisation), but this was often not very efficient. With the withdrawal of state market intervention, risks for small holders have increased over the last decades, due to growing price instability, higher quality demands, more competition and more asymmetric information. The reason white farmers are so successful is because they are, given the economies of scale, in a position to negotiate better prices for their seedlings and products. Some of their produce is sold out long before it's even planted. That's what our people need; not cartels. "Market access is of critical importance because it's of no use for people to produce when there is no market for their products" (NDA, 2009).

2.4.4 Market information

Ozowa (1995) reported that much of the failure in small scale farming can be attributed to the adapted transformation approach to agriculture which is characterized by the introduction of a wide variety of large scale farming and processing technologies. The failure can also be attributed to the treatment of information delivery as a matter of course by most African governments. As often happens, agricultural information is not integrated with other development programs to address the numerous related problems that face farmers. Information is an essential ingredient in agricultural development programs, for example Nigerian farmers, like other farmers in developing countries, rarely experience the impact of agricultural innovations (Ozowa, 1995). The information provided is exclusively focused on policy makers, researchers, and those who manage policy decisions with scant attention paid to the information needs of the targeted beneficiaries of the policy decisions. The non-provision of agricultural information is a key factor that has greatly limited agricultural development in developing countries (Ozowa, 1995).

In the past, sales of agricultural crops have normally been done through face-to-face meetings, typically in a market place. This is now becoming less common, as farmers and buyers are increasingly doing deals over the telephone or through email. This ought to be a much more efficient process, reducing the need for farmers to actually leave their farms in order to visit markets, thereby cutting their costs and allowing them to continue with production. Market

information systems, like those described above, may also work to link farmers and buyers. The work of the network features in new technologies to link farmers and buyers. Some approaches, such as use of the internet or newspaper-based market information, may only be accessible to farmers who are literate in English language. The Network for Farmers Groups in Tanzania, has found that using mobile phones is the best approach for those who cannot read English language (CTA, 2008).

Rheingold (2005) reveals that markets aren't only for the rich in our days. Certain kinds of information, however, convey advantages to those who have the right data at the right time. Until recently, only the relatively wealthy had swift access to relevant market information. The cost of technologies that connect people with economically useful price data has declined steadily, however, from the tycoons of the early 20th century with their home ticker-tape machines to the day-traders of recent decades with their desktop Personal Computers, and now, to farmers in developing countries who are beginning to own mobile phones for communication. With more than 320 million mobile subscribers in China already, and 150 million mobile phones among the 200 million phones projected for India (where mobile phone use already exceeds land line use) by 2007, the mobile phone looks like tomorrow's most likely access device for agricultural market information (Rheingold, 2005).

Given the existent network and the role of each type of player, different communication forms were established using diverse information technologies. SMS and web based communications (through laptop with SIM-card enabled modems) are used for information exchange between markets enumerators, Information Board Managers, and market access companies at regional and national level and supported by mobile payment systems; internet platforms enable brokerage, advising, business-to-business learning, and lesson learnt documentation and sharing; telephone and e-mail facilitate one-to-one communications. However, although the network is good, there are challenges in building such a system focusing on pro poor business development from start-up capital. Initial public or project investments are needed, to provide training and mentoring to entrepreneurs, to provide lease and rental services through a network platform and for pre-commercial efforts (Nichterlein & Dias, 2009).

2.4.5 Grade and standards

Globalization of world economies has opened a window of opportunity for many African countries. With the failure of structural adjustment programs to spur reasonable growth, many developing countries turned to production of non-traditional agriculture exports (NTAE) to diversify their agricultural exports and increase foreign exchange earnings. The growth in NTAE exports has however been met with increased inspection for food safety by major European importers following greater consumer demand for food safety. The increased demand for safety arises from among other things: the rise in incomes that has made consumers able to pay for safe food; technological improvements which makes it easier to measure food contaminants and document their impact on human health and; the various international food scares, such as Salmonella and Listeria contamination of fruits and vegetables that have made consumers, producers, and legislators more aware of the risks associated with food safety problems. Compliance with these international food safety standards requires producers to switch to safer but more costly pesticides, invest in expensive medium and long-term assets (e.g. grading and cooling facilities), and keep technical records of pesticide usage and application (Okello, 2008).

Kherallah & Kirsten (2002) agree with Okello (2008) that the globalised agricultural sector is witnessing an increasing demand for safe, healthy, and high-quality food. This trend results in more stringent and complicated international grades and standards. They argue that grades and standards play a crucial role in providing internationally recognized information and quality assurance about a product, thereby reducing information and transaction costs and facilitating international trade. However, grades and standards can also be used as non-tariff barriers to trade if importing countries impose minimum standards that many developing countries cannot meet. For example, many supermarkets in Europe have strict regulations regarding pesticide residue on fruits and vegetables (formally known as Minimum Residue Levels (MRLs)). These regulations imposed by supermarkets to meet consumer demand and create market niches, are trickling down to the production level and thereby affect the structure and characteristics of the market downstream (Kherallah & Kirsten, 2002).

According to Moyo (2010), most smallholder producers lose a lot of money due to the quality of their products. He argues that recent trends in domestic, regional and international markets make it difficult for smallholder farmers to compete in agricultural markets. There are stringent

standards on quality and food safety in domestic, regional and export markets because of globalisation and the emergence of supermarket chains. It has become difficult to make money on traditional staple food grains. In order for small-scale farmers to increase their returns, Moyo (2010) suggested that farmers be taught post harvest handling skills. In addition he believes that farmers should be trained in grading and should know the entire grade for the commodities they sell to avoid being cheated by buyers. Lastly, he proposed that contract farming should be utilized by smaller holder farmers as it may overcome this difficulty and therefore increase quality and consequently exports of some crops.

2.4.6 Application of NIE to the cooperative organization form

According to Ortmann & King (2006) the applications of NIE to cooperatives reflects the difficulty of clearly linking economic theory and co-operative practice. Staatz (1987), as cited by Ortmann & King (2006), observed that many of the benefits farmers receive from establishing co-operatives originate from the holdup problem and the opportunistic behaviour associated with asset fixity. Royer (1999) as cited by Ortmann & King (2006) uses the “standard” example of the holdup problem in agriculture involving farmers of a perishable commodity and a processor who has no competition in the region. They reported that at harvest, the processor can refuse to accept delivery from farmers in an attempt to force them to accept a lower price or risk spoilage of their product. On the other hand, the processor who has invested in specific plant and equipment is also prone to the threat of holdup by the farmers. A strategy for producers to eliminate or minimize the holdup problem is for them to purchase the processing plant.

According to Chibanda (2009) the basic idea of NIE is that the success of a market system depends upon the institutions to facilitate efficient private transactions. North (1990) as cited by Chibanda (2009) demonstrates that institutions matter because they provide the rules of the game, constraining human interaction and providing incentives for individuals and co-operatives to engage in productive and or destructive political, economic, social and other activities. However, he believes that the NIE has some limitations as transaction costs are difficult to observe and measure. The institutional environment has considerable influence on co-operatives, in terms of both their internal and external relations. The formal laws of the state, as well as local institutions based on custom and tradition, determine whether the environment for co-operatives development is an enabling or a disabling one.

2.4.7 Agency theory

Chibanda (2009) have shown that agency theory is a second branch of NIE which mainly focuses on information asymmetries, especially how opportunistic agents can use them to pursue their own interests. This becomes a problem more especially in traditional co-operatives. The core of the agency theory is the relationship between the owners and their agents. The owner-agent problems, according to Chibanda (2009) arise when the principal has difficulties in controlling agents, and where managers exploit information asymmetries to further their own interests. Agency theory explains that by means of a system of rewards the principal and reach a consensus between his own goal and those of the agent and describes how the principal can direct and control the agent (Chibanda, 2009).

Ortmann & King (2007) believe that agency theory is very relevant to the institutional structure of co-operatives because employed agents (managers), may not act in the best interests of co-operative owner-members (principal). The challenge, therefore, is which ownership and capital structures can be developed to lower agency costs. Principal-agent problems in a co-operative are likely to give rise to member dissatisfaction. They also argue that co-operatives experience greater principal-agent problems than proprietary firms due to “the lack of capital market discipline, a clear profit motive, and the transitive nature of ownership.

2.4.8 Property rights theory

Property rights theory, also referred to as the incomplete contracting theory of the firm, was developed by Grossman and Hart. It is based on the assumption that contracts are necessarily incomplete (e.g., due to asymmetric information between trading parties and bounded rationality), and thus do not “fully specify the division of value in an exchange relationship for every contingency” (Ortmann & King, 2007). Kherallah & Kirsten (2002) reported that the role of property rights is also accounted for in the NIE. According to Kherallah & Kirsten (2002), externalities can be internalised if property rights are well established. In Kherallah’s & Kirsten’s view, if property rights are well established and if there are no transaction costs, an externality can be internalised between two private parties through bargaining and negotiations. He also showed that the outcome would be efficient regardless of who owns the property right. The distribution aspects of the outcome, however, will depend on the initial allocation of the property rights. In the presence of transaction costs, on the other hand, different systems of property rights

may yield different outcomes in terms of efficiency as well as equity (Kherallah & Kirsten, 2002).

Chibanda (2009) highlighted the importance of property rights in scarce resources. Their main proposition was that in the absence of transaction costs, efficient resource allocation will occur with private property rights. He also believed that the ownership rights to an asset have an effect on the incentive of the involved parties to invest when property rights are ill-defined in traditional co-operative. Chibanda (2009) said that “without property rights defined and identified ownership structure, there will be under-investment”. He also believed that contractual difficulties generally arise from weak property rights, bilateral dependence, measurement difficulties and weaknesses in the institutional environment.

2.4.9 Influence cost problem

Ortmann & King (2007) describe influence costs as those costs associated with activities in which members or groups within an organization engage in an attempt to influence the decisions that affect the distribution of wealth or other benefits within an organization. The extent of influence costs depends on factors such as; the existence of a central authority, procedures that govern decision making, and the degree of homogeneity or conflict of interests amongst co-operative members. Traditional cooperatives suffer an influence problem because voting power is not proportional to investment. Potential investors are faced with the prospect that their money will be invested in enterprises preferred by members who have a voting majority (Chibanda, 2009). Co-operatives may experience greater influence costs than other forms of organization because, “the interests of co-operative members, which are linked to individual farm production activities, are more diverse than the interests of corporate stockholders, who share a common objective of maximizing wealth” (Ortmann & King, 2007). The inability of investors to influence investment decisions also discourages lenders from financing co-operatives. Whilst the free-rider, horizon, portfolio and control problems can all be resolved by trading shares at their market value, the influence problem can only be resolved by abandoning the traditional co-operative principle of one-member, one-vote (Chibanda, 2009).

2.5 Cooperation among producers

According to Ortmann & King (2007), co-operatives and farmer organizations are institutional arrangements, the importance of which has re-emerged recently to organize small farmers in

developing countries in the wake of agricultural market liberalization. They believe that advantages of organizing farmers into groups include, among other factors, a reduction in the transaction costs of accessing input and output markets, as well as improving the negotiating power of smaller farmer's *vis-à-vis* large buyers or sellers. Ortmann & King (2006) argue that, the increasing importance and changing nature of food grades and standards is a reason for the rise of co-operatives and contract farming in developing countries, particularly for perishables such as horticultural, meat, dairy and fish products. They also reported that applying grades and standards requires; investments in training, equipment, infrastructure and monitoring systems, which may only be afforded by larger organizations. However, traditional co-operatives often do not invest in long-term assets (improvements) or in intangible assets (such as training and research) due to the "horizon" problem. Forming new generation co-operatives may solve this problem if delivery rights and obligations of members can be enforced. They also highlighted another problem inherent in traditional co-operatives (including free-rider, portfolio, control, and influence cost problems), that may also create disadvantages for members of these co-operatives.

Despite these potential problems, they recommend the use of co-operatives to facilitate the marketing of agricultural products by small-scale (communal) farmers in South Africa. They mention the fact that Most of the livestock farmers have small number per herd (10 – 20 animals), which increase the transaction costs for individual farmers when trying to sell their animals (e.g., selling one animal often involves the same effort as selling 10 or more). Also, specialized (expensive) inputs may be required to better manage and sell animals (e.g., medicines, ear tags, tools, animal brand registration, transport facilities, and holding pens); collective action of livestock farmer co-operatives can provide these services and inputs cheaper than farmers can acquire them individually (Ortmann & King, 2006).

2.6Contract farming

A farming contract is defined as an agreement between farmers and processing or marketing firms for production and supply of agricultural products, often at specified prices, quantities and quality levels. The key feature of contracts is that they provide a framework for developing a relationship between farmers and processors. Contracts provide the basis for sharing value, risk and decision-making between farmers and processors in a way that is mutually beneficial (Moyo, 2010).

There are advantages and also disadvantages in contract farming. Many small scale farmers in developing countries experience disadvantages in contract farming. The problem of smallholder exclusion is especially problematic in South Africa where historical legacies have contributed to the exclusion of small-scale black farmers in the commercial farm sector (Sartorius & Kirsten, 2006). The problems that have plagued contract farming include; inability to enforce contract with farmers, unequal bargaining power between producers and traders, and monopolistic trader behaviour. The danger with some contract farming schemes is also that it displaces decision-making authority from the farmer to the downstream processor or distributor turning the farmers into quasi-employees. Other problems with contract farming relate to the high per unit costs of contracting with small-scale farmers (Kherallah & Kirsten, 2002).

Sartorius & Kirsten (2006) mentioned that, with procurement of agricultural commodities increasingly bypassing the spot market and procurement deals done on the basis of trust and social networks black farmers find them to be even more excluded. Although the increased procurement of raw commodities from black farmers forms part of the national priorities of South Africa, there is no specific vision or policy to promote business linkages that include this category of farmer in the country's agro-processing supply chains. There also appears to be a general unwillingness, on the part of agribusiness, to include black small-scale farmers in their supply chains because of the incremental transaction cost. Although black farmers are contracted in many agricultural industries, the volume of supply from their farmers is limited.

2.7 The future of cooperation as an instrument for agricultural development and economic empowerment of marginalized groups

Co-operatives were created in U.S. agriculture to serve the needs of the farmers and ranchers who own and control them (Hardesty, 2005). Processing and marketing co-operatives played a very strong role in areas like California as growers sought economies of scale and market power, particularly during the 1920s. To assess the future of co-operatives in California agriculture, brief background information is first presented about the economic role of co-operatives. Then, the weaknesses inherent in the co-operative structure are reviewed, followed by examples of how various agricultural co-operatives have overcome these weaknesses. Classic economic justifications for forming a co-operative entail consideration of economies of scale. Processing business, fixed costs of management, plant and equipment, and selling, general, and

administration costs can be spread over greater volumes. Many processing and marketing co-operatives achieve economies of scale unattainable by the individual producer through the vertically integrated activities they provide for their members (Hardesty, 2005).

There are two important phenomena occurring in agricultural co-operative organization in the United States. Cook (1995) explained that traditional co-operatives are adjusting to the property rights constraints by exiting restructuring and shifting. These adjustments appear to have had positive impact on co-operation market share growth since 1988. The second post- 1990 phenomenon that was taking place was a dramatic birth of new generation co-operatives. According to Cook (1995) more than \$ 1, 2 billion has been invested in this type of co-operative on 1996. These phenomena suggest that co-operative strategies are becoming more offensive in nature. There is a new market in which existing preferences are unknown. The co-operative may be the most efficient way of combining the market and political preference articulation to produce desired products. A situation has transaction specific investments on both sides of the exchange but with widely different economies of scale. Shared risk through relational contracts can be accomplished. High- frequency transactions requiring long term commitment in an uncertain environment exist.

With regard to South Africa, co-operatives can be traced back to the apartheid era. During the period of apartheid, a Co-operative Act, No. 91 of 1981 was put in place. The provisions of the Act protected the members' interests, particularly in regard to the board of directors, however, the provisions were poorly spoken and heavy requirements were put in place to register a co-operative. The act was characterised by inadequate definition of what a co-operative entailed – registered co-operatives were not explicitly required to conform to co-operative principles. Because of these reasons there was a need for new democratic government to create a New Co-operatives Act No.14 of 2005 in order to promote the development of sustainable co-operatives that comply with co-operative principles, thereby increasing the number and variety of economic enterprises operating in the formal economy. The New Co-operatives Act No.14 of 2005 also aimed to encourage persons and groups who subscribe to values of self-reliance and self-help, and who choose to work together in democratically controlled enterprises, to register co-operatives in terms of this Act. Furthermore, it sought to promote equity and greater participation by black persons, especially those in rural areas, women, persons with disability and youth in the

formation of jobs, and management of co-operatives which will lead to poverty eradication in rural areas (DTI, 2004).

According to Ortmann & King (2007), the problems inherent in a traditional co-operative raise the question whether cooperatives can survive in, or adapt to, a rapidly changing economic and political environment. They postulated a five-stage co-operative life cycle that seeks to explain the formation, growth, and eventual decline of a co-operative. When the co-operative matures and the members become increasingly aware of the inherent problems as well as the co-operating benefits that may be lost if operations ceased, members and their leadership have to consider their long-term strategic options and decide whether to exit, continue, or convert into another business form.

Besides the above mentioned factors, there are many challenges that are facing traditional co-operatives, including; stiff competition sometimes without clear rules, controlling government policy and legislation and leadership, management and governance challenge, member participation and empowerment and the challenge of capital investment in co-operatives. Where government policy provided rules of competition, some global co-operatives broke them unilaterally. Apart from legislative set backs, co-operatives came face to face with the realities of markets in that they needed entrepreneurial leaders and managers. But today, many agricultural co-operative organizations, have not yet cultivated the right leadership and highly qualified management due to lack of appropriate incentives to attract them (Chambo, 2009).

2.8 Access to agricultural input and rural credit markets

In many developing countries for example South Africa, the withdrawal of parastatals from the provision of subsidized input and credit to small farmers has not been replaced by the private sector. All this is because of high transaction costs including information costs, inability to enforce contract with farmers, and small markets, private traders are unwilling to provide input credit to farmers (Kherallah & Kirsten, 2002). According to Abbott (1987) an efficient marketing sector does not merely link sellers and buyers and react to the current situation of supply and demand. An efficient marketing sector also has a dynamic role to play in stimulating output and consumption, the essentials of economic development. On one hand it creates and activates new demands by improving and transforming farm products and by improving and transforming farm products and by seeking and stimulating new customers and new needs. On

the other hand, side efficient marketing sector guides farmers towards new production opportunities and encourages innovation and improvement in response to demand and prices. Abbott (1987) explains that, provision of organized markets, local assembly, and wholesale, retail at convenient places in a similar central or local public responsibility.

2.9 Evolution of cooperative acts in South Africa

The co-operative has undergone massive legislative and regulative development since its origin, making it one of the most community-friendly and empowering business enterprises in South African today. Since their origin, co-operatives have been noted as enterprises unique and distinguishable from any other as they aim to further both the economic and social interests of their members, while most other business enterprises generally focus on the creation and sustenance of wealth (Schoeman, 2006).

The first co-operative in South Africa was a consumers' co-operative that was established in 1892 under the Companies Act. Several more co-operatives, particularly agricultural co-operatives, were registered under the Companies Act until 1908 when the first Co-operative Act was passed (Ortmann & King, 2007). The pressures of global competition and the lack of dynamic efficiencies forced many of the co-operatives to collapse in many developing countries. The post-apartheid system in South Africa lead to challenge of reconstruction and development agree with an attempt post the Cold War, and in the middle of the neo-liberalisation of the global political economy, to reclaim the true identity of co-operatives. The legal reform of the 1981 Co-operatives Act, which began through a review initiated in 2000, attempted to take on board the lessons of co-operative development during apartheid and was informed by international standards and universal principles defining cooperatives (Satgar, V. 2007).

After 1994, democratic government did not consider Co-operative Act No. 91 of 1981 as suitable vehicle for the development of co-operatives in the current era for various reasons such as; inadequate definition of a co-operative – registered co-operatives were not explicitly required to conform with co-operative principles; presumption that the state play a highly interventionist or paternalistic role in relation to co-operatives; a focus primarily on agricultural co-operatives; provisions protecting members' interests, particularly in regard to the board of directors, are poorly spoken; and heavy requirements to register a co-operative. In August 2005 a New Co-operatives Act No.14 of 2005, was signed by the government of Republic of South Africa as the

law which is based on the international co-operative principles. This act aims to play major role in co-operatives, by promoting socioeconomic development, in particular, by creating employment of people based on black economic empowerment and eradicating poverty(Ortmann & King, 2007).

Furthermore it is important to look at the characteristics of smallholder farmers in South Africa. The word smallholder farmer embraces a wide spectrum of all small-scale indigenous producers in Africa. Smallholder farmer means different things depending on the country one is looking at. With South Africa, the context smallholder farmers refers mostly to black farmers most of whom reside in former homelands. According to Moyo (2010), smallholder farmers suffer from low income and living standards, poor nutrition, housing and health and often unable to sent their children to school. However, it is important to note that not every black farmer is a smallholder, that is, there are black farmers who are commercial farmers (Moyo, 2010). Moyo (2010) reported that smallholder co-operatives are often a significant part of the agricultural structure, especially in developing countries. They often serve as the engine of economic growth and livelihood improvement. However Chibanda (2009) reported that funding opportunities for smallholder farmers and cooperatives remain a challenge since funders such as banks require some form of collateral, which smallholders often do not have. Before 1994, most established smallholder co-operatives in South Africa started their businesses from donated funds from the government, non-governmental organizations or other sponsoring companies.

Chibanda (2009) reported that most roads in rural areas where smallholder producers live are bad and chaotic. State infrastructure deficiencies make transport exceedingly expensive, thus reducing the final profit margin. Smallholder farmers tend to be discriminated in access to infrastructure and services, also reducing their market activities and adding to their transaction cost. This is in partly due to, inadequate public investments by government. According to Moyo (2010), there are few transports available in rural areas to be used by smallholder farmers. He suggested that, government should make effort to attract some transporters to operate in the rural areas especially during the peak marketing period. Another important characteristic of smallholder farmers is that they operate under high transaction costs due to lack of information, which creates higher risk. The poor are especially faced by constraints as they usually are poor in

information including the ability to collect and analyse markets and other types of economic information (Moyo, 2010)

2.10 Issues and forces shaping the external environment of cooperatives

According to Dunn *et al.* (2002), the 1987 report, "Positioning Farmer Co-operatives for the Future," said that, "...to be successful in fulfilling the needs of farmers, co-operatives must be able to provide an appropriate economic response to marketplace situations faced by members. This response generally involves provision of competitive goods and services, or adoption of actions that balance or counter forces present in the business environment."

2.10.1 Changing farm demographics

The average age of U.S. farm operators is in the mid-fifties. As older farmers retire, fewer new, younger farmers are taking their place. Dunn *et al.* (2002) gave a clear example of Low that 40 percent of farmers are more than 55 years of age. The fastest growing category is those 65 years and older. Only 15 percent of the state's producers are under 35 years of age. This is a problem because agriculture is facing many changes, including, the move to vertical integration and contract farming, and the changes to supply management and marketing boards. The changes to long-standing institutions create a new framework within which farm managers must make decisions. The move to vertical integration and contract farming affects the control farmers have over production and marketing decisions, while deregulation creates uncertainty and shifts risk onto the farmer.

According to Stefanson & Fulton (1997), farm managers require new information to enable them to operate effectively in this new environment. Farmers now need to understand chain management and how to position their farm operation in the distribution chain to minimize the negative impact and maximize their opportunities. The emphasis on adding value encourages farmers to reach for profit centres in areas in addition to raw agricultural commodities. They reported that farmers recognized two profit centres: the raw commodity and the processed product. They are able to make decisions and exercise control at both the production and the processing level. They have learned that collective action utilizing an effective and efficient business structure can solve problems and create opportunity.

2.10.2 Technological innovation

Agriculture is closely linked to many concerns, including biodiversity loss, global warming and water availability. Despite significant increases in productivity, malnutrition and poverty still plague many parts of the world (Green, 2008). According to Dunn *et al.* (2002), improved technology has been key to the growth of commercial farms. Mechanical innovations increase capacity and lower the cost of production. A farmer with a 35-foot combine harvester can now harvest more grain in one week than he could in the entire harvest season during his youth. Farmers use Global Positioning Systems to guide their machinery to maximize efficiency in the field and computer generated digital imagery to assess strengths and weaknesses of individual parcels of land.

According to Green (2008), today's world is a place of uneven development, unsustainable use of natural resources, worsening impact of climate change, and continued poverty and malnutrition. Poor food quality and diets are partly responsible for the increase of chronic diseases like obesity and heart disease which affect many households in developing countries. Because of the problems that are mentioned above there was a need for Green Facts to form International Assessment of Agricultural Science and Technology for Development (IAASTD) which focuses on how to make better use of agricultural science, knowledge and technology to reduce hunger and poverty, improve rural livelihoods, and foster equitable and sustainable development (Green, 2008).

Green Facts (2008) reported that the International Assessment of Agricultural Science and Technology for Development (IAASTD) focuses on agriculture as the provider of food, nutrition, health, environmental services, and economic growth that is both sustainable and socially equitable. This assessment recognizes the diversity of agricultural ecosystems and of local social and cultural conditions. It is time to fundamentally rethink the role of agricultural knowledge, science and technology in achieving equitable development and sustainability. The focus must turn to the needs of small farms in diverse ecosystems and to areas with the greatest needs. This means improving rural livelihoods, empowering marginalized stakeholders, sustaining natural resources, enhancing multiple benefits provided by ecosystems, considering diverse forms of knowledge, and providing fair market access for farm products.

2.10.3 Changing competitive environment

Dunn *et al.* (2002), reported that consolidation of firms at the processing, wholesale, and retail levels of the developed countries, for example, U.S. food marketing system continues unabated. Market influence and bargaining strength of even the largest co-operatives are limited as a consequence. Food retailers flex their market muscle by imposing coordination mechanisms that demand strict discipline and conformity from suppliers. Food processors exert greater control over distribution channels by integrating back into the production of raw materials through a variety of ownership and contractual arrangements. Such arrangements rob producers of decision-making authority and market choices (Dunn *et al.*, 2002).

The clear example of competitive environment is shown by the salmon farming industry. The competitive environment of the salmon industry in Chile and Scotland has led to the managers of the trade association, individual producers and public policy bodies to think about the competitive future of their industries. Each country desires to maintain a competitive position in the industry as well as the case of individual companies. Not only focusing on markets and quality but also diversification is also likely play a role in the industry's survival. Therefore it is a clear strategy for marketing of salmon products from the different countries (Felzensztein & Carter, 2006).

2.10.4 Role of the consumers

According to Dunn *et al.* (2002) the consumer drives today's market. While exceptions exist, typical consumers want wholesome, tasty, convenient, and safe food products at the lowest possible price. They have the time, information, and mobility to identify stores that meet their criteria and patronize them on a regular basis. Previous studies reported that as consumers income rise, demand becomes more discriminating which means that wider variety and higher quality are sought, particularly by expanding groups of higher income consumers more especial in urban areas. Previous studies also explain that establishment of processing industries to meet demand for new forms of products and to allow marketing over wider areas increase the complexity and scale of operations. At a later stage that will lead to competitive promotion of sale through merchandising advertising and special services become more important (Abbott, 1987).

As development proceed, the share of economic resources devoted to the various aspects of marketing grows correspondingly in size and importance more and more functions and services

being needed to handle the agricultural produce and inputs, the channels between producers and consumers must be continually developed and broadened or production will be constrained (Abbott, 1987). Dunn *et al.* (2002) believe that encouraging consolidation among food retailers to reduce costs and improve service to consumers, while reducing consumer choices and power by reducing the number of competitors in a market. The increasingly global market crosses national boundaries, exposing consumers to new products and changing expectations for familiar products. It opens new market segments and offers opportunities for suppliers to identify and meet the specific needs of a growing number of demographic groupings. keeping up with these changes requires continuous spending on consumer research, new product development, innovative packaging, and advertising.

2.11 New co-operative act and employment creation

During the era of apartheid in South Africa, many black people were pushed off their ancestral lands to make room for large-scale white-owned properties. These farmers typically have low levels of formal education and there are few employment opportunities for unskilled labourers, consequently, migration is a growing problem, as young people leave their communities for urban centers to look for work. In addition financial contracts in rural areas involve higher transaction costs and risks than those in urban settings because of the greater spatial dispersion of production, lower population densities, the generally lower quality of infrastructure, and the seasonality and often high covariance of rural production activities. The limited ability to accumulate equity and poverty alleviation is another problem which faces the rural communities.

2.11.1 Labour employment

Where there is no strong support environment and lack of ambitious form of starter enterprise, people are exposed to poverty, but co-operatives have a better chance of assisting people to generate an income: which is their most urgent need. The key to achieving this is to identify what works best to enhance the quality of people's lives in a given context, rather than promoting any particular enterprise model for its own sake (Philip, 2003). In South Africa during the era of apartheid many black people were pushed off in their ancestral lands to make room for large-scale white-owned properties. These indigenous farmers were relocated to the outer reaches of the town, where the mountainous landscape is particularly arid and unsuitable for most agriculture. Farmers typically have low levels of formal education and there are few employment

opportunities for unskilled labours as a consequently, migration is a growing problem, as young people leave their communities for urban centers to look for work (Robinson, 2010).

According to Gary (2000) to try to create more jobs in South Africa, wages must be lowered. As such, the firms wouldn't hire more workers from the target groups than before. Rather, they would hire those who aren't part of the problem to begin with – namely, the skilled. By this line of thinking, the social challenge of employing the poor would remain unmet. (Philip, 2003) believes that workers in co-operatives should combine workerownership with mechanisms for the democratic control of production within the enterprise, and these must be usually initiated as part of attempting to find more empowering alternatives to conventional employment and ownership relations in society. Worker co-operation has been seen as the vehicle for job creation and as providing a democratic alternative to conventional forms of work, with user co-ops the 'poor relation' in both respects.

2.11.2 Income

Previous studies (WDR, 2008) reported that the ability of agricultural enterprises and rural households to invest for the long term and make calculated decisions for risky and time-patterned income flows is shaped by an economy's financial services. Financial constraints are more pervasive in agriculture and related activities than in many other sectors, reflecting both the nature of agricultural activity and the average size of firms. Financial contracts in rural areas involve higher transaction costs and risks than those in urban settings because of the greater spatial dispersion of production, lower population densities, the generally lower quality of infrastructure, and the seasonality and often high covariance of rural production activities. Although there is rapid development of financial services, a majority of smallholders worldwide remain without access to the services they need to compete and improve their livelihoods. Broader access to financial services savings and credit products, financial transactions, and transfer services for remittances would expand their opportunities for more efficient technology adoption and resource allocation.

2.11.3 Livelihood and poverty alleviation

Before we can look at poverty alleviation, first we need to understand that what is hunger and poverty. According to Prakash (2003) hunger, which usually follows food shortages, is caused by

a complex set of events and circumstances [social, economic and political factors] that differ depending on the place and time. Although hunger has been a part of human experience for centuries and a dominant feature of life in many low-income countries, the causes of hunger and starvation are not very well understood. Our understanding of the main causes of hunger and starvation has been hampered by myths and misconceptions about the interplay between hunger and population growth, land use, farm size, technology, trade, environment and other factors. He also states that poverty cannot be defined simply in terms of lacking access to sufficient food. It is also closely associated with a person's lack of access to productive assets, services and markets. Without access to these, it is unlikely that production and income earning capacities can be improved on a sustainable basis. Rural poverty is related to food insecurity, access to assets, services and markets: income-earning opportunities; and the organisational and institutional means for achieving those ends (Prakash, 2003)

IST (2004), reported that all over the world, the co-operative movement has proven to be one of the most effective and sustainable methods of combating harsh inequality. By combining the priorities of growth and redistribution, the co-operative movement contributes to a holistic process of social, economic, political, and cultural development. The guiding values and principles of co-operatives produce organizational structures that empower its members and contribute to a democratic distribution of resources (IST, 2004).

2.11.4 Limited ability to accumulate equity

The most important challenge facing co-operatives is accumulating equity capital. Without sufficient equity, cooperatives cannot meet the external challenges they face (Dunn *et al.*, 2002). According to Dunn *et al.* (2002), it will also be difficult for cooperatives to continue to grow and offer services when faced with insufficient equity capital. During the period of apartheid the sales were financed by loans which were often provided by the retailer and usually secured by future earnings flows of the company itself, meaning that loan repayments assumed rising dividends and share prices. In many instances, the purchaser proportion of unissued equity was an association assembled by one or two black individuals, usually with a high political profile but limited experience in business (Acemoglu *et al.*, 2007). Dunn *et al.* (2002) consider that the degree to which accumulating equity is a problem is influenced by the types of services a co-operative provides. A bargaining association, which limits its activity to negotiating prices and

other terms of sale for its members, has a minimal need for capital. The fact that producers can use bargaining to increase their income without a substantial equity investment is one of its advantages. The more an association becomes involved in manufacturing and distribution of either farm supplies or food products, the larger the equity base it is likely to need.

In a study by Dunn *et al.* (2002) revealed that some farmers are willing and able to finance their co-operatives. The development of numerous "new generation" cooperatives shows that if farmers are offered the proper incentive, such as a chance to participate in value-added processing and to realize a gain when they sell their investment in the co-operative, had provide up-front equity. However Dunn *et al.* (2002) reported that in several instances, the farmer-owners of a "new generation" have determined that they couldn't raise adequate equity from the membership to seize important market opportunities. They voted to convert to an investor-owned firm to gain access to advisers must find ways to blend this increasingly diverse base of farmers into a membership with a cohesive business interest in their co-operative.

2.12 Models for the assessment of performance of the cooperatives

Moyo (2010) assess the performance of cooperatives used descriptive analysis; however Chibanda used cluster analysis in his study. He indicated that the basic aim of cluster analysis is to find the “natural groupings”, if any, of a set of individuals (cases or variables). Whilst cluster analysis can be used in several ways, the kind of cluster analysis utilised in his research was a way to form similar sets of variables rather than similar sets of cooperatives. The purpose of the analysis was, therefore, to draw inferences about theoretical propositions and not about a population of cooperatives. In essence, cluster analysis aims to allocate a set of individuals/variables to a set of mutually exclusive groups such that the individuals/variables within a group are similar to one another while individuals/variables in different groups are dissimilar (Chibanda, 2009).

Although previous studies used descriptive and cluster analysis, this study will use descriptive analysis, t-test, and gross margin analysis as well as multiple regression model. A multiple regression allows the simultaneous testing and modeling of multiple independent variables.

2.13. Chapter Summary

The high population growth that is also experienced in Africa, coupled with unequal allocation of resources and inheritance laws which result in land parceling, contribute to environmental degradation as the growing pressure on the land pushes farmers (especially rural women) to overexploit wood, water and other resources in order to meet household requirements. Another challenge according to Moyo (2010), most smallholder producers lose a lot of money due to the quality of their products. The above challenges make traditional cooperative to fail and poverty increase. Most of small-scale farmers in South Africa have limited access to instruments of production, credit and information, and markets are often constrained by inadequate property rights and high transaction costs. Literature reveal that to create more jobs in South Africa, wages must be lowered. As such, the firms wouldn't hire more workers from the target groups than before. Rather, they would hire those who aren't part of the problem to begin with – namely, the skilled.

CHAPTER 3

METHODOLOGY

3.1 Introduction

In this chapter, the methodological approaches and specific data gathering techniques that are used in the study are discussed. It focuses on research methodology which addresses the following sub sections: study area, selection of study area, sampling procedure, sample size for the study, the data, how they have been collected and the procedure for their analysis. Justification of the use of data analysis tools is based on previous studies that focused on the impact of the New Co-operative Act of 2005 through poverty alleviation and creation of job opportunities. The study therefore takes the form of a comparative analysis of the two groups of respondents namely members and non members of sorghum cooperative in terms of their productivity focusing on sorghum which is the major crop grown in the area.

3.2 Description of study area

Lady Frere is located in the Eastern Cape Province, the second largest of the nine provinces in terms of surface area but at the same time, the poorest province of them all. It is situated in the South African temperate grassland geographical region in the interior of the Chris Hani District Municipality. The area is well-endowed with rivers and water springs that originate from the lower Stormberg Mountain Range that is at the foot of the Drakensberg Escarpment. Lady Frere has a typical African grassland climate that is characterized by extremely cold winters and hot summer seasons. The region is quite mountainous, and, despite being characterized by frequent droughts, rivers and other water sources have never been known to dry up (Lupuwana, 2008). Previous studies (Reinders, 2010) revealed that in the western arid areas, the average annual precipitation is between 200mm and 300mm. However in other nearest of Lady Frere has a high rain, for example Comfimvaba town have rainfall average between 700mm-800mm.

Ndonga and Maqhashu are two villages which are located in Lady Frere. Geographical coordinates of the two villages are 31° 42' 0" South, 27° 14' 0" East. Maqhashu and Ndonga fall under Emalahleni Municipality, and are characterised by high levels of poverty and unemployment and also low level of literacy that are a common characteristic of the whole rural Eastern Cape landscape. About 95% of the total population is rural and semi rural. Most of the rural areas are inaccessible due to poor roads conditions (NDA, 2009).

According to Lupuwana (2008), 60% of the households in Emalahleni subsist on an income of less than R1500 per month and an unemployment rate of 73.3% with 44% of households having access to the state social grants. Another critical issue about the area was the absence of an electricity sub-station that could supply the necessary power once an irrigation infrastructure was installed. According to Stats S.A (2001), local municipality population was 115932, with about 54% being female while about 46% were male. The map below (Figure 3.1) shows the area of Lady Frere in Eastern Cape Province.



Figure 3.1: Lady Frere town and its Surrounding Centers/ Town

Source: http://www.ectourism.co.za/accommodation_eastern_cape_services.asp?cat=1:2010

3.3 Sampling procedure

The sampling frame comprised 100 farmers drawn from both Ndonga and Maqhashu areas. Farmers were classified into two groups: members and non-members of the co-operatives. Stratified sampling was used where farmers were clustered according to geographical location because the two communal areas consisted of many villages and the sample had to be representative of the whole areas of Ndonga and Maqhashu. After grouping, the farmer's location was identified and simple random sampling was used to draw the sample for enumeration but paying attention to representativeness of each target group in each selected village.

3.3.1 Selection of study area

The aim of the study was to investigate the impact of the New Co-operative Act of 2005 on poverty alleviation as well as creation of job opportunities for people who were previously disadvantaged. Ndonga and Maqhashu cooperatives located in Lady Frere were selected for the purposes of this study. The area was chosen because of its proximity owing to financial constraints associated with data collection. Also the cooperatives are situated previously disadvantaged areas.

3.3.2 Sample size for the study

As way of improving data quality, a semi-structured questionnaire consisting of both close-ended and open-ended questions was administered for data collection. A total of 100 households was sampled for the purposes of this study. The random sample was composed of 50 households from Maqhashu village and 50 from Ndonga village. The composition of the sample is shown below:

Table 3.1: Composition of the sample size

	Cooperatives members	Non-cooperative members
Maqhashu	25	25
Ndonga	25	25
Total	50	50

3.4 Data for the study

The study made use of primary data on members and non members of the cooperatives operating in Maqhashu and Ndonga communities in 2010. The primary data were gathered by means of interviews with the heads of the households. In addition, the study obtained some secondary data based on literature reviews and document analyses. The different categories of data collected are described in the sections that follow. The primary data was made up of nineteen independent variables and two dependent variables namely assets owned and crop yield which are described below.

3.4.1 Dependent variables

Two dependent variables were considered for the purposes of determining how they affect farmers' decision to produce sorghum through the New Co-operatives Act No.14 of 2005. These include, assets owned and crop yield

3.4.1.1 Total assets owned

Total assets owned was used as a dependent variable since it is a standard measure of development within communities of Ndonga and Maqhashu. The total assets variable is an index of the household socio-economic status constructed by aggregating weighted scores of households' possession and durable assets. The asset index constructed in this study follows the same method as used when constructing indices in economic measurements. The guidelines established by the World Bank have been followed (Filmer *et al.*, 2008). It aggregates various assets owned by the household, to which scores/numbers have been assigned on the basis of the relative importance or value to the household. Where data under household income may be difficult to obtain, this variable serves a very crucial role as a measure of the socio-economic standing that can both influence decision on enterprise choice as well as reflect the impact of the adoption of agricultural practices in the farming systems. This index gives a comparative picture across households and the distribution of assets. Farmers with higher asset scores are more likely to be the same farmers with more produce to market and are also likely to be those farmers with more diverse production from agricultural activities. This can be also explained by the fact that an increase in assets owned implicates that there is large development by producing large agricultural outputs, hence an increase on employment opportunities and poverty reduction. A

dummy variable was introduced as follows; (0 = irrigation tools: 1 = car: 2 if tractor: 3 truck: 4 = farm implement: 5 = fence: 6 = building: 7 = combination) to represent this dependent variable. This quantity is quoted as a continuous variable which varies from one household to the other. However, it very important to note that assets owned is influenced by many number of factors which will be explained below as independent variables.

3.4.1.2 Crop yields

According to Kurukulasuriya & Mendelsohn (2007), expected crop yield is a very important factor to farmers when deciding on which crops to produce. Hence, it was expected that crop yields would have a positive or negative effect towards small grain production. Crop yields were measured in tonnes for the total output produced from, sorghum crop.

3.4.2 Explanatory variables used in the model

Nineteenexplanatory variables were collected to determine how they affect farmers' decision to produce sorghum through the New Co-operatives Act No.14 of 2005. These include, age of household head, educational level of household head, gender of household head, market access, access of capital, sources of income, type of market, marital status, asset ownership, marketing channels, distance to market, who manages the market and marketing process, contribution of the cooperative to poverty alleviation, benefits from co-operation, preferred gender of farm worker employed, production of sorghum in home gardens, contract with reliable market, road conditions, access to market information, and production challenges. The key variables used in the model were divided into dependent and independent variables and are summarized in Table 3.1 below, showing the direction of their expected relationship with one another.

Table 3.2: Definition and of measurement of key variables modeled

<i>Items</i>	<i>Variable measurement</i>	<i>Anticipated sign</i>
<i>Dependent variable</i>		
Asset owned	Irrigation tools=0 car=1 tractor=2 truck=3 farm implement=4 fence=5 building=6 combination=7	
Crop yield	actual number of tonnes	
<i>Explanatory variables</i>		
Age of household head	actual number of years	+/-
Level of education for household head	not educated=0 educated=1	+
Gender of the households head	male=0 female=1	+
Marital status of households head	Married=0 not married=1	+/-
Source of income	Have income=0 not have income=1	+/-
Source of capital	Bank=0 friends=1 your family=2 your own savings=3 state aid=4	-
Access to markets	Yes=0 no=1	+
Type of market	Formal market=0 informal market=1 non=2 both=3	-
distance to market	actual number of km	+/-
Who manages the market	Village group=0 municipality=1 non=2	+/-
Contribution of cooperation to poverty alleviation	Cheap product=0 job opportunities=1 skill=2 combination=3 do not benefit=4	+
Benefit from cooperation	Yes=0 no=1	-
Gender preferred to be employed	Male=0 female=1 both =2	+/-
Production of sorghum in home gardens	Yes=0 no=1	-
Contract with reliable market	Yes=0 no=1	-
Road condition	Excellent=0 good=1 fair=2 poor=3	-
Access to market information	Yes=0 no=1	-
Production challenges	Drought=0 theft=1 birds control=2	-
Marketing channels	Auction=0 private sale=1 speculators=2 supermarket=3 non=4	+

3.4.2.1 Age of household head

Age is a continuous variable which was measured by the actual number of years of the household head. It is expected to influence the perception of farmers either positively or negatively since it has advantages and disadvantages associated with both older farmers and younger farmers. Hofferth (2003) argues that the higher the age of the household head, the more stable the economy of the farm household, because older people have also relatively richer experiences of the social and physical environments as well as greater experience of farming activities. Moreover, older household heads are expected to have better access to land than younger heads, because younger men either have to wait for a land distribution, or have to share land with their families. However, older farmers may be resistant to change, even in times of globalization where the market environment is changing (Kherallah & Kirsten, 2001). On the other hand, young farmers are more active than older farmers and might influence the adoption of production system since it is easier to access information and to adopt the new technologies.

3.4.2.2 Level of education for household head

According to Najafi (2003), educational attainment by the household head could lead to awareness of the possible advantages of crop diversification. Najafi (2003) adds that education enables farmers to modernize agriculture by means of technological inputs because they are able to read instructions on input packs and understand the rationale behind different farming operations. As such educational level was expected to have a positive influence on farmer's decision to produce sorghum. Educational attainment of a household head is considered a qualitative variable. Educational level of household head was obtained by assuming that any person who had completed at least level one at grade 10 was literate.

3.4.2.3 Gender of the households head

Agriculture in communal areas usually revolves around women as men often migrate to urban areas to seek employment. Women are left in charge of the fields and livestock (FAO, 1995). It was expected that sorghum production would be more prevalent in female headed households than male headed households. As such gender of the households head was expected to have a positive influence on farmer's New Co-operatives Act No.14 of 2005. Decision making roles are normally divided between males and females depending on the nature of the economic and social activity involved. However in many parts of the world the legal system regards females as

minors who do not have the power to make decisions in relation to household allocations of productive resources. Whilst on the other hand men are bound to be involved in the production of other crops and different non-farm activities. These non-farm activities such as thatching of huts would be meant to diversify sources of household income. A dummy variable was introduced as follows; (0 = male headed: 1 = female headed) to represent this independent variable.

3.4.2.4 Marital status of households head

According to Randela (2005), in the African context, the marital status of households is usually used to determine the stability of a household in terms of food security. It is generally believed that married household heads tend to be more stable in farming activities than unmarried heads because they are matured (Randela, 2005). Hence, if this holds true, the marital status of household heads was expected to affect agricultural production either positively or negatively because married people support each other. This is in terms of the type of crops grown and hence household food security. A dummy variable was introduced as follows; (0 = married: 1 = not married) to represent this independent variable.

3.4.2.5 Access to markets

Market accessibility was determined by the total time and distance that is required to reach the nearest available market. On the other hand, market availability was measured by whether there is a ready market for a particular crop output. Market access and availability for a particular crop output are expected to influence farmer's crop choice decision positively. This is because of the need for cash by communal households to meet other financial obligations. In view of this, it was expected that there was a positive relationship between market and agricultural production. A dummy variable was introduced as follows; (0=yes: 1, otherwise) to represent this independent variable.

3.4.2.6 Source of capital

The most important challenge facing co-operatives is accumulating equity capital. Without sufficient equity, co-operatives cannot meet the external challenges they face or continue to grow and offer services (Dunn *et al.*, 2002). Ortmann & King (2006), reported that small-scale farmers in South africa have limited access to factors of production. During the period of apartheid the sales were financed by loans which were often provided by the retailer and usually

secured by future earnings flows of the company itself, meaning that loan repayments assumed rising dividends and share prices. In many instances, the purchaser was an association assembled by one or two black individuals, usually with a high political profile but limited experience in business (Acemoglu *et al.*, 2007). In view of this, it is expected that there is a negative relationship between source of capital and New Co-operatives Act No.14 of 2005. A dummy variable was introduced as follows; (0 =bank: 1=friends: 2=your family: 3 =own savings: 4=state aid) to represent this independent variable.

3.4.2.7 Source of income

.Access to non-farm income is expected to influence the production of farmers either positively or negatively since it has both advantages and disadvantages associated with it. Farmers with many sources of income are able to afford the use of improved production inputs, the adoption of new technologies and the expansion of the production area. In certain instances when these sources of income demand the physical involvement of the farmer the farming activities suffer because of limited time devoted to farming. On the contrary farmers without sources of income have difficulties in financing their farming activities. A dummy variable was introduced as follows; (0 =have income: 1 = not have income) to represent this independent variable.

3.4.2.8 Type of market

In developing countries, the price of agricultural products may also be influenced by the socioeconomic characteristics of the owner of the product. The owner's ability to act as a seller and reason of sale were the main socioeconomic variables considered in this study. An owner's production wealth may affect his willingness to accept a lower price for a product. The presence or absence of the owner at the market can also influence prices. Agricultural products owned by women and youth are usually presented for sale at the market place by mature man and therefore may be sold for a lower price (Matthew & Timothy 2002). There are several markets for agricultural products that may be considered niche markets; these include lean, organic, and natural. Large packers and meal processors, operating as alliance-type niches, attempt to capture their share of these niche markets through production verification programs, value added processing, and nutrient labeling. The products sold through these programmes can receive a premium on the market and are less vulnerable to substitution because they have characteristics that make them appeal to a specific amount of money(Emmit, 2002). In view of this, it is

expected that there is a negative relationship between type of market and New Co-operatives Act No.14 of 2005. A dummy variable was introduced as follows; (0 = formal market: 1 = informal market: 2 =non: 3 = both) to represent this independent variable.

3.4.2.9 Distance to market

Distance to marketing outlets has an influence on the marketing of agricultural products in rural areas. The cost of transporting agricultural products to the market is often considered in the analysis of marketing costs. The variable measuring the distance to the markets reflects how far agricultural products have to be transported. Transportation costs increase with increasing distances to the market. The closer the farms are to the markets, the less costly is to transport agricultural product and the lower the information is needed. As Woods (2000) observed, transaction costs limited the availability of veterinary services for subsistence farmers in Uganda and Zimbabwe. It is expected to influence the selling of agricultural output either positively or negatively since it has associated with both short distance and long distance to and from market. A dummy variable was introduced as follows; (actual number of km) to represent this independent variable.

3.4.2.10 Who manages the market

In many communal areas, the sellers of agricultural products normally set the rules for the market, while those selling at commercial markets depend on the rules of the purchaser. It is expected to influence the marketing of the product either positively or negatively since it has advantages and disadvantages associated with the area where the market is situated. A dummy variable was introduced as follows; (0= village group: 1= municipality: 2=non) to represent this independent variable.

3.4.2.11 Gender preferred to be employed

According to Prakash (2003) women play an indispensable role in farming and in improving the quality of life in rural areas. However, their contribution often remains concealed due to some social barriers and gender bias. Even government programmes often fail to focus on women in agriculture. This undermines the potential benefits from programmes, especially those related to food production, household income improvements, nutrition, literacy, poverty alleviation and population control. In many farming activities male are first preference. In view of this, it was expected that there was a negative relationship between gender preferred to be employed and

New Co-operatives Act No.14 of 2005. A dummy variable was introduced as follows; (0 = male; 1= female) to represent this independent variable.

3.4.2.12 Production of sorghum in home gardens

For the purposes of this study it was verified if non-cooperatives farmers were still producing sorghum in their home gardens since co-operatives produce large amounts of sorghum from the fields. If both the members and non members of the co-operative still produce sorghum competition is inevitable. However if the non members of the co-operative are no longer producing sorghum, there will be no competition between members and non members of the co-operative. In view of this, it was expected that there was either negative or positive relationship between production of sorghum in home gardens and sorghum produced in co-operation. A dummy variable was introduced as follows; (0 = yes; 1=otherwise) to represent this independent variable.

3.4.2.13 Contract with reliable market

Sartorius & Kirsten (2006) mentioned that with procurement of agricultural commodities increasingly bypassing the sport market and procurement deals does on the basis of trust and social networks black farmers find them to be even more excluded. Although the increased procurement of raw commodities from black farmers forms part of the national priorities of South Africa, there is no specific vision or policy to promote business linkages that include this category of farmer in the country's agro-processing supply chains. There also appears to be a general unwillingness, on the part of agribusiness, to include black small-scale farmers in their supply chains because of the incremental transaction cost. Although black farmers are contracted in many agricultural industries, the volume of supply from their farmers is limited. In view of this, it was expected that there was a negative relationship between contract with reliable market and New Co-operatives Act No.14 of 2005. A dummy variable was introduced as follows; (0 = yes; 1= otherwise) to represent this independent variable.

3.4.2.14 Road condition

Apart from the distance to formal markets, the poor state of road networks in South African communal areas imposes a serious constraint that affects farmer's ability to attract many buyers in their areas since bad road network systems are associated with very high transport costs (Musemwa *et al.*, 2008). In view of this, it is expected that there was a negative relationship

between road condition to market and sorghum co-operatives at Ndonga and Maqhashu. The poor infrastructure however, may not influence agricultural product marketing since in most cases buyers provide their own loading and transport services. A dummy variable was introduced as follows; (0 if excellent: 1 = good: 2 = fair: 3 = poor) to represent this independent variable.

3.4.2.15 Access to market information

Previous studies showed that much failure amongst small scale farmers can be attributed to the adapted transformation approach to agriculture which is characterized by the introduction of a wide variety of large scale farming and processing technologies. Furthermore the failure can also be attributed to the treatment of information delivery as a matter of course by most African governments. The information provided is exclusively focused on policy makers, researchers, and those who manage policy decisions with scant attention paid to the information needs of the targeted beneficiaries of the policy decisions. The non-provision of agricultural information is a key factor that has greatly limited agricultural development in developing countries (Ozowa, 1995). In view of this, it was expected that there was a negative relationship between access to market information and sorghum co-operatives at Ndonga and Maqhashu. A dummy variable was introduced as follows; (0 = yes: 1=otherwise) to represent this independent variable.

3.4.2.16 Production challenges

In general, the rainfall in Lady Frere is low and highly variable which results in uncertain crop yields. Besides its uncertainty, the distribution of rainfall during the crop period is uneven, receiving high amount of rain, when it is not needed and lack of it when crop needs it. The sowing of crops is delayed resulting in poor yields. Sometimes the rain may cease very early in the season exposing the crop to drought during flowering and maturity stages which reduces the crop yields considerably. In view of this, it was expected that there was a negative relationship between production challenges and sorghum co-operatives at Ndonga and Maqhashu. A dummy variable was introduced as follows; (0 =drought: 1 =theft: 2=birds control) to represent this independent variable.

3.4.2.17 Marketing channels

The main marketing channels were auctions, private sales, speculators and abattoirs. Each individual farmer had some reasons in relation to the choice of the marketing channel. Some of the farmers sold their agricultural products through private sales. Agricultural products sold

through this channel are mainly for functions such as traditional ceremonies, funerals and weddings (Musemwa, 2008). In view of this, it was expected that there was a positive relationship between marketing channels and sorghum co-operatives at Ndonga and Maqhashu. A dummy variable was introduced as follows; (0 = auction: 1 = private sale; 2 = speculators: 3 = supermarket: 4 = non) to represent this independent variable.

3.4.2.18 Benefit from co-operation

Where there is no strong support environment and lack of ambitious form of starter enterprise, people are exposed in poverty but co-operations have a better chance of assisting people to generate an income: which is their most urgent need. The key to achieve this is to identify what works best to enhance the quality of people's lives in a given context, rather than promoting any particular enterprise model for its own sake (Philip, 2003). In view of this, it was expected that there was a positive relationship between non members of the co-operation and sorghum co-operatives at Ndonga and Maqhashu. A dummy variable was introduced as follows; (0 if cheap product: 1 = job opportunities: 2 = skill: 3 = do not benefit) to represent this independent variable.

3.4.2.19 Contribution of co-operation to poverty alleviation

Poverty among rural people is caused by inadequate access to resources (such as land, capital and infrastructure) and the poor availability of social services (e.g. education, health and housing). The South African government has committed itself to creating a favourable environment for cooperative development. In particular, government will focus on its relatively scarce resources to provide physical and legal infrastructure to reduce transaction costs, including risk, so that markets for products and resources (such as land) can work more efficiently. In view of this, it was expected that there was a positive relationship between contribution of co-operative to poverty alleviation and New Co-operatives Act No.14 of 2005. A dummy variable was introduced as follows; (0 = yes: 1=) to represent this independent variable.

3.5 Data collection

A questionnaire was designed as a tool for primary data collection. The questionnaire was then administered to respondents through face-to-face interviews. Face-to-face interviews were chosen because they have several advantages over the other methods. Also, the presence of the

interviewer increases the quality of the responses since the interviewer can probe for more specific answers.

3.5.1 Transect walk

The researcher and a group of farmers, local leadership of the two communal areas and extension officers in the District embarked on a transect walk. Through the walk the researcher got an overview of the area and made general observations. It was during these walks that the researcher saw physically the machinery and equipment given to members of the co-operative. The researchers also talked to some of the committee members of both co-operatives. The key participants, which are Mr Nazo officers and chairpersons of Ndonga and Maqhashu co-operatives who were to be used as numerators helped in identifying issues relating to land use, cultivated crops, cultivation patterns and the information about the co-operatives.

3.5.2 Preparation and Administration of Questionnaires

A structured questionnaire was used for primary data collection. Most of the questions were closed ended to make the coding of responses easier so as to get as much information as possible from the respondents without wasting too much of their time. Open-ended questions were used for the purpose of exploring issues about which knowledge is still very vague. Semi structured questions were also used in a manner in which the questions were designed so that they were tactful and very carefully phrased to avoid ambiguity, sensitive and provocative questions. Interviews were conducted in their local language.

The questionnaire consisted of two sections. The first section contained questions seeking information about the respondents such as gender, age, employment, farming activity, education and marital status, while the second section was designed to collect information about the sorghum cooperative and its operations. The questions were translated in Xhosa during the interview and/or where/when necessary. Most respondents included in the sample were unable to read and write in English, hence the translations. The questionnaires are presented as Appendix 1 and 2 at the end of this document.

3.5.3 Focus Group

The farmers were organized into different groups based on age and gender. Three groups were formed: Group A: males above the age of 35 years, Group B: females above the age of 35 years,

and Group C: both men and women whose ages were below 35 years. Farmers were also grouped according to membership, that is, members of the co-operation and non-members of the coops. They were also grouped according to crop and livestock production systems. These groups interacted on common issues on the questionnaire.

The focus groups actually helped farmers to explore and clarify their views through interacting in ways that would not have been possible in household interviews. Although focus groups were helpful in bringing out several perceptions, attitudes, beliefs, reactions and feelings, the main disadvantage was the difficult role of working with large groups of the facilitators.

3.5.4 Key Informant Interviews

The chairpersons of both cooperatives were chosen as key informants. The following information was sought: when the cooperatives were established, membership at the start of the cooperative, membership to date, hectareage, market outlets, source and nature of support and the challenges that they face.

3.6 Analytical framework

The data collected through questionnaires were coded and entered into an excel spreadsheet before being analyzed using SPSS 19.0. A wide range of analyses were performed to obtain descriptive statistics for purposes of describing and profiling the sample and the production systems and farming system and other important relationships. To test for differences between means, a t-test of independent samples was run on SPSS. Further, a gross margin analysis was used to determine the differences in the performance of the two groups of farmers, namely those who are members of the cooperatives and those who are not members of cooperatives. Finally, two econometric models were fitted to determine the factors influencing the differential performance of the farmers within an environment of cooperation and its absence. The various analyses carried out include gross margin analysis, multiple linear regression and discriminant analysis. These are described below.

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3.6.1 Descriptive Statistics

The results include descriptive statistics which explain some measures of central tendency and dispersion. These include means, standard deviations and variances. Also, a t-test of independent

samples used to compare the means for the sorghum yields and revenues for non-members and members of the co-operative.

3.6.2 Gross Margin Analysis

In order to capture sorghum production costs and returns for each farmer, the gross margin model was used. Final gross margin analysis was used to assess the viability of the sorghum enterprise. When acquiring new technology, it is important to consider the economic value it will contribute to the whole business. As a rule of thumb, an enterprise with higher or positive gross margin is deemed viable. According to Barnard and Nix (1999), the gross margin of farming enterprise is the output less the variable costs attributed to it. Erickson *et al.* (2002) define gross margin as the money that is available to cover the operating expenses and still leave a profit. However, for this study, the definition given by Visagie & Ghebretsadik (2005) was adopted and they note that gross margin is the difference between the gross incomes derived from each enterprise (sorghum production activities) minus the total variable costs. In sorghum production, the variable cost consists primarily of seed, fertilizer, sprays and contract work and casual labour hired. The enterprise output is the total value of the production of the enterprise. It also includes the value of any produce consumed on the farm such as sorghum consumed by the household.

A series of equations were developed to outline the process of gross margin analysis and show very clearly the steps taken to arrive at the actual gross margin for each farming unit. Gross income is a product of output and price. Variable costs are mainly operational costs that vary with changes in scale of operation, to include most of the inputs like, fertilizers, seed, chemicals, transport, causal labour and land preparation. The procedure for the calculation of the gross income (GI) is shown in equation (1), while the calculation of variable costs follows the relationships represented in equation (2). Equation (3) presents the steps for the calculation of the gross margin by deducting the variable costs from the gross income.

$$GI = (P \times X \times A) \dots \dots \dots (1)$$

where: GI = Gross income measured in terms of the Rand

P = Prevailing market price measured in terms of the Rand

Y = Sorghum yield measured in metric tonnes per hectare

A = Area under sorghum production measured in hectares

$$TVC = \sum_{x=1}^n (x_1, x_2, \dots, x_n) \dots \dots \dots (2)$$

where: TVC = Total variable costs measured in terms of the Rand

x_1 = First variable cost to be used during the production process

x_n = Last variable cost to be used during the production process

$$GM = (GI - TVC) \dots \dots \dots (3)$$

where: GM = Gross margin measured in terms of the Rand

GI = Gross income measured in terms of the Rand

TVC = Total variable costs measured in terms of the Rand

3.6.3 Multiple Linear Regression Model

In order to identify the problems and constraints faced by the cooperatives and determine the factors influencing performance of the cooperatives, a linear regression model was fitted of the general form:

$$Y = f(X_1, X_2, X_3, X_4, \dots, \epsilon) \dots \dots \dots (4)$$

where Y is an index of performance of the farmers which is based on the assets owned by the farmers which are assumed to have been paid for from earnings from participation in farming, or maintained where they were bought at some earlier period because the farmers are making enough money from their current employment that they do not need to sell of their possessions to make ends meet. A second regression run was carried out using yield levels of sorghum by the

farming households. The X 's represent various socio-economic and production and environmental factors which are expected to exert some influence on the performance of the farming system. The error term, ε , is included to represent the unexplained variations.

The equation (4) can then be specified as follows:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \dots + \varepsilon \text{-----(5)}$$

Economic theory predicts direct relationships between a vast array of socio-economic and community variables and the results of labour force participation, in this case engagement in agricultural production of smallholder farmers. The elements of the specific equation (5) can be defined as follows:

β_0 = the intercept or constant term

$\beta_1, \beta_2, \dots, \beta_n$ = slope or regression coefficient

$X_1, X_2, \dots, X_n$ = explanatory or independent variables

ε = error or disturbance term.

The model was estimated to identify factors influencing the performance of farmers as reflected in their ownership of assets. Since many variables were included in the analysis, the likelihood of correlation among independent or predictor variables is high. For this reason, the test of multicollinearity was applied. Assuming two variables, X_1 and X_2 , collinearity is suggested if:

$$X_1 = \lambda X_2 \text{-----(6)}$$

However, equation (6) demands that a more robust function be developed to cater for the several predictor variables in the model. This can be presented as:

$$\lambda_1 X_{1i} + \lambda_2 X_{2i} + \dots + \lambda_k X_{ki} = 0 \text{----- (7)}$$

where λ_i are constants and X_i are the exploratory variables that might be linearly correlated.

The speed with which variances and covariances increase can be seen with the variance-inflating factors (VIF), which shows how the variance of an estimator is inflated by the presence of multicollinearity. A formal detection tolerance or the variance inflation factor (VIF) for multicollinearity as illustrated by Gujarati (2003) was used as follows:

$$VIF = \frac{1}{\text{tolerance}} \dots\dots\dots (8)$$

where $\text{tolerance} = 1 - R^2$

Tolerance of less than 0.21 or 0.10 and/or VIF of 5 or 10 and above indicates multicollinearity of variables. Where multi-collinearity was detected on the basis of the value of the VIF, the highly collinear variable, that is those with very high VIF, were deleted from the model.

Finally, a test was conducted to detect any possible serial correlation indicated by the size of the Durbin-Watson (DW) statistic by establishing that:

$$\mu_t = \rho\mu_{t-1} + \varepsilon_t \dots\dots\dots (9)$$

which would mean that the error terms are not correlated.

3.6.4 Discriminant analysis

The discriminant analysis is suitable in situations where variations in a categorical response variable need to be explained. The objective of discriminant analysis is to find a linear function that distinguishes between groups using discriminating variables, measuring characteristics on which the different groups differ (Manley, 1994). In this study, there is interest in the differential performance of members and non-members of cooperative societies in terms of agricultural output and other indicators of performance of the farming system. It is often preferred to perform discriminant analysis as it is more flexible in its assumptions and types of data that can be analyzed.

A discriminant analysis is a parametric analysis whereas the major difference between these two methods of statistical analysis is that for a discriminant analysis the samples are from a normally distributed population while the normality requirement is not needed for a logistic regression because it's a distribution free test (Ramayah *et al.*, 2004; Ramayah *et al.*, 2006). The analysis creates a discriminant function which is a linear combination of the weightings and scores on these variables. The maximum number of functions is either the number of predictors or the number of groups minus one, whichever of these two values is the smaller.

Probably the most common application of discriminant function analysis is to include many measures in the study, in order to determine the ones that discriminate between the groups.

Discriminant analysis can also be used in several other situations, including:

- To determine the proportion of the variations in the dependent variable that are explained by the independent variables;
- To determine the proportion of the variation in the dependent variable explained by the explanatory variables over and above the variance accounted for by control variables using sequential discriminant analysis;
- To assess the extent to which the independent variables contribute in classifying the dependent variable; and
- To discard variables which are less related to group distinctions.

The discriminant function takes the form:

$$D_i = d_{i1}X_1 + d_{i2}X_2 + \dots + d_{ij}X_j + C$$

Where D_i is the discriminant function score

d_{ij} are the weighing coefficients

X_j are the standardised values of the discriminating variables

C is the constant

The discriminant function score is the value resulting from applying a discriminant function formula to the data for a given case. The standardised weighing coefficients ($d_{i,j}$) show the relative contribution of its associated independent variable (X_j) to the linear function. Independent variables with relatively larger (d_{ij}) contribute the most to discrimination between the groups. The discriminant function co-efficients denote the unique (partial) contribution of

each variable to the discriminant function. Estimated discriminant scores for each group are compared to the mean for each classified group, and group membership is classified into the group with the most similar score (Klecka, 1980).

3.7 Chapter Summary

This chapter was discussing the methodological approaches and specific data gathering techniques that are used in the study. It was strictly focuses on research methodology which addresses the following sub sections: study area, sampling procedure, selection of study area, sample size for the study, data which focuses on description of variables collection procedure, sampling and analytical procedure.

CHAPTER 4

EMPIRICAL RESULTS OF THE STUDY

4.1 Introduction

The overall objective of this study is to evaluate the advantages of applying co-operatives as well as the constraints faced by beneficiaries of Ndonga and Maqhashu co-operatives. The specific aim is to evaluate and explore the performance of Ndonga and Maqhashu co-operatives. The major focus of the study was the assessment of the impact of the New Co-operatives Act No.14 of 2005 on employment and poverty reduction. To achieve this aim, a case study of sorghum producers in Ndonga and Maqhashu communities in the Eastern Cape Province was conducted. In this chapter the results of the analysis of survey data based on the foregoing objectives and research questions are presented.

The findings presented in this chapter are in respect to the demographic and socio-economic settings followed by a presentation of the findings in respect of the specific objective to undertake a comprehensive description of the farming system. The cropping patterns, assets ownership and resource use as well as challenges and opportunities are identified. The results of the inferential analysis form the last part of this chapter. In this respect, the results of the Gross Margin analysis carried out to compare the relative performance of members and non-members are presented. Similarly, the results of other hypothesis testing procedures such as student t-test, are also presented. In an attempt to understand the exact relationship between the measure of farm performance adopted for this study, namely asset ownership, and the demographic and socio-economic circumstances of the farmers, a multiple regression model was fitted. The results of the regression are also presented in this chapter and discussed to determine their policy implications as a basis for recommendations taken up in the final chapter of this dissertation.

4.2 Demographic and Socio-economic characteristics of sample farmers

Since the participants were both members and non members of the co-operative who are the household representatives, they all had to be 18 years and older and had to reside in village of Ndonga and Maqhashu at Lady Frere respectively. The age limitation was to ensure only members and non-members of the co-operatives who influence the household head's food production decision were included in the study. Summary statistics of demographic variables

include age, education, household size, gender and marital status are discussed. The summary of the descriptive statistics of the demographic and socio-economic characteristics in respect to the categorical variables are presented in Table 4.1.

Table 4.1: Demographic and socioeconomic characteristics

Variables	Min	Max	Mean	Std
Age	25	87	59.36	12.57
Education	0	1	0.23	0.42
Household size	2	15	7.0	3.01
Gender	0	1	0.55	0.50
Marital status	0	1	0.29	0.45
Source of capital	1	4	3.33	0.79
Source of income	0	2	0.05	0.29
Assets owned	2	9	5.52	2.20
Access to markets	0	1	0.70	0.46
Type of market	0	3	1.24	0.58
Marketing channels	0	4	1.65	1.06
Km to market	0	80	21.40	26.81
Type of transport	0	4	1.46	1.72
Problems when moving crops	0	4	1.50	1.12
Who manage the market	0	2	0.31	0.63

Source: Field survey data, 2010.

4.2.1 Age of household head

Age is one of the factors that affects the probability of a farmer being successful in farming. An individual's age can also pertain to someone's personality make-up, since his/her needs and the way in which he/she thinks and behaves are all closely related to the number of years he has lived (Bembridge, 1987). Usually old farmers are less capable of carrying out physical activities, to adopt new technology, while younger ones are capable and more ready to adopt modern technology. This means that old farmers are not willing to take risks, that is, they like everything to remain the same as before. Therefore it is important to look at age of household head that is in charge of farming practices.

Contrary to the above assumptions, in many communal areas farming is done mostly by old people. This is because they believe that they have many experiences about farming as compared to the young people. Another reason is that in most cases young people migrate to cities for better jobs opportunities which are non-farming activities.

Table 4.1 proves that even in the case of Ndonga and Maqhashu co-operatives older farmers engaged in farming more than the young farmers. This means that young farmers spend much of their time on off farm activities which are their main source of income. Still with reference to age there are no significant differences in the average age of the two groups of farmers within each village and between similar groups across the two study villages, the minimum age is 25, the maximum age is 87 and the mean age is about 59 years. The results are presented in the Figure 4.1

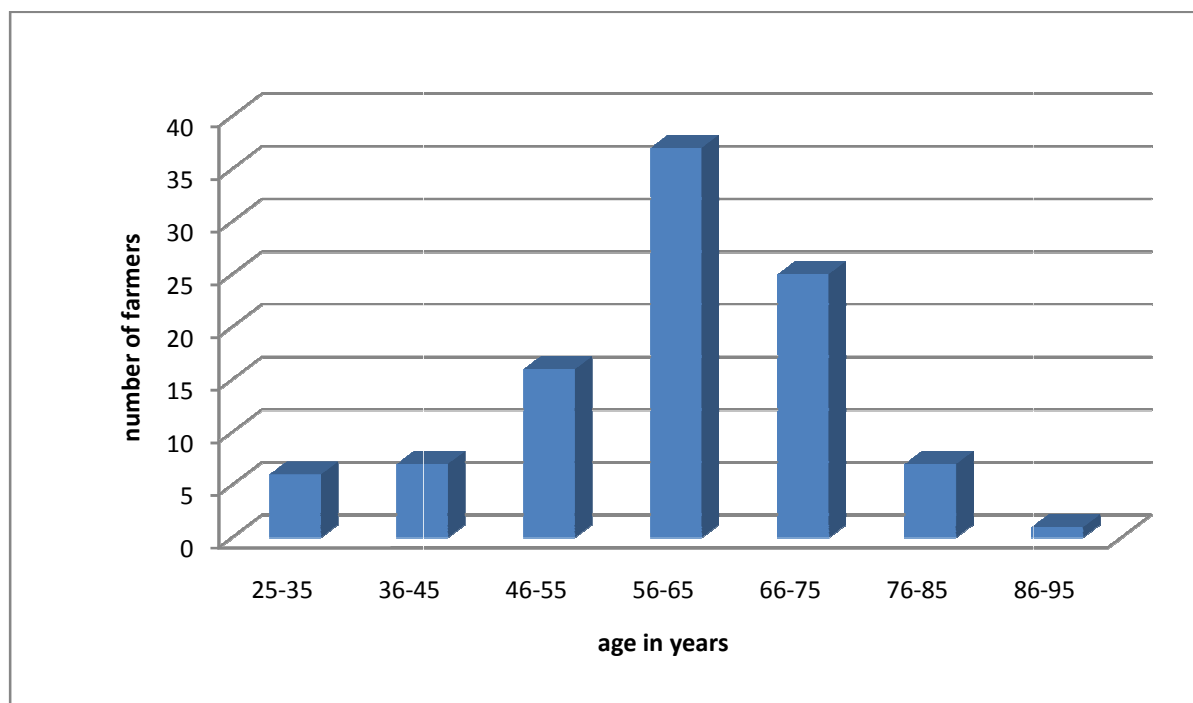


Figure 4.1: Age of the household
Source: Field survey, 2010.

As shown in Figure 4.1 age of household heads range between 25 to 95 years. The majority of farmers are found in 56- 65 age groups and only one is above 85 years. The age of household heads, is usually associated with education because generally older farmers have low levels of education; however it does not mean they lack the potential of being good farm managers,

because they also have indigenous knowledge. Thus these findings clearly prove that in most communal areas farming is done by old people and young people spend much of their time on off farm activities. This is because of the reasons that are already mentioned above.

4.2.2 Gender of household heads

Prakash (2003) revealed that gender is an important factor because it influences traditional farming. It has also been shown that there are still some prevailing law which place barriers for women's participation in agricultural co-operatives and/or farmers' associations like land ownership and head of the household. In many societies the very same women who need to organise to co-operate and prosper lack the time for participation due to multiple work demands (Prakash, 2003). The results are presented in the Figure 4.2

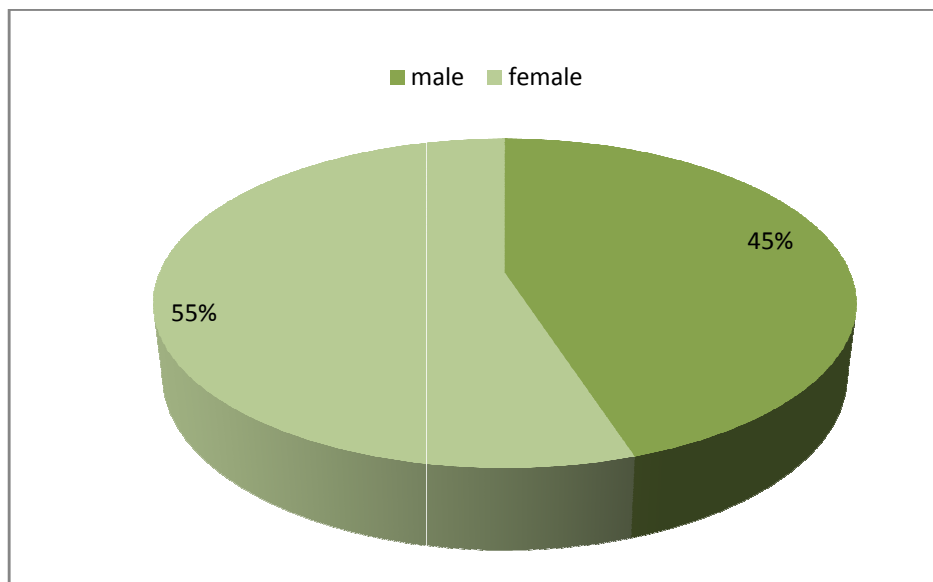


Figure 4.2: Gender of the household head

Source: Field survey (2010)

The results in Figure 4.2 shows that 55% of the sorghum producing households in Ndonga and Maqhashu villages (both in cooperatives and in home gardens) are female headed. This contradicts the findings by Prakash (2003). This means that people who were previously disadvantaged are no longer restricted by the previous laws of the apartheid, particularly women. This shows a positive impact of the New Co-operative Act for the reason that it gives a chance to females who are always responsible for crop production and in most cases responsible for feeding the whole family to partake in agriculture. This shows that the New Co-operative Act of

2005 enshrines the right for all South Africans to equality, and it also provides for specific measures to be taken to redress historical imbalances. Only 45% of male participate in sorghum production in Ndonga and Maqhashu Co-operatives.

4.2.3 Household size

According to Table 4.1, the minimum household size is 2 and the maximum household size is 15 with the average household size being 7. This implies that many households can contribute to production through availability of labour. The results are presented in the Figure 4.3

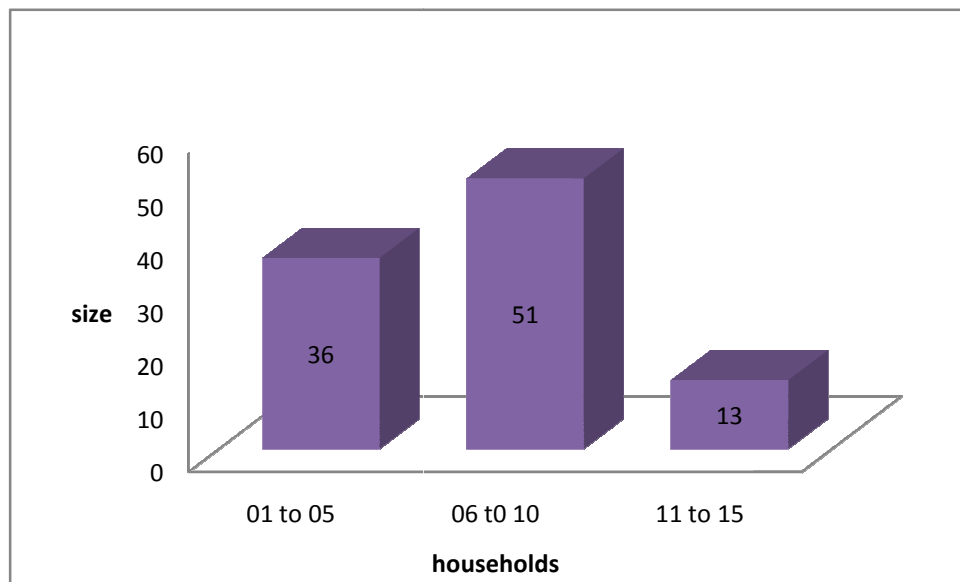


Figure 4.3: Size of the household

Source: Field survey (2010)

This Figure 4.3 shows that many households in Ndonga and Maqhashu have large household size with (10) members. The Figure 4.3 also demonstrated that majority (51%) of household size ranges between 06-10 members while minority (13%) of the household size ranges between 0-5 members.

4.2.4 Marital status

In most African families, the priorities and stability of a household is usually judged based on the marital status. It is normally believed that married household heads tend to be more stable in farming activities than unmarried heads. If this holds true, then marital status tends to have some

influence on agricultural production and marketing (Randela, 2005). This imposes the obligation on them to be productively employed in order to raise the level of their income. Married people normally work hard in order to meet the demands of their families. The results are presented in the Figure 4.4

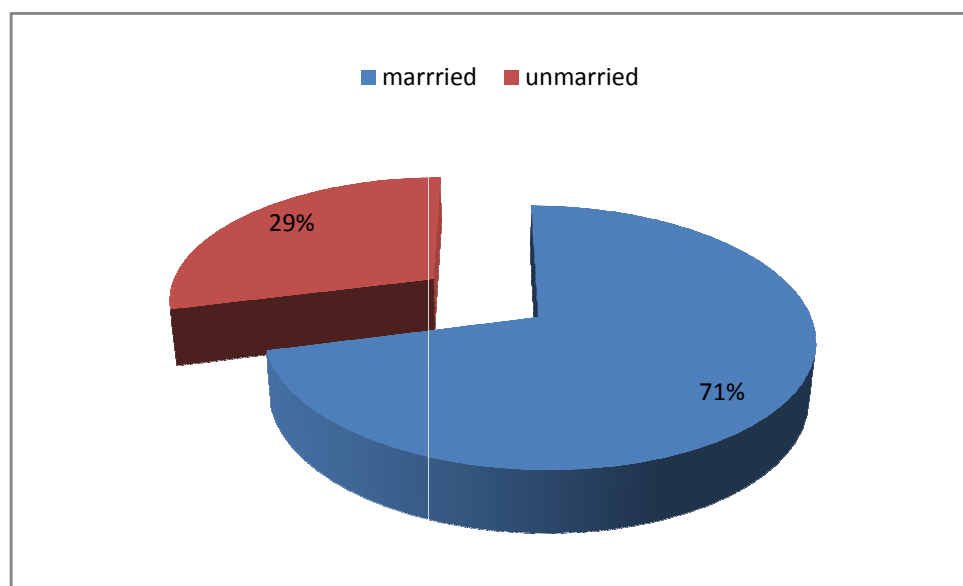


Figure 4.4: Marital status

Source: Field survey (2010)

Figure 4.4 shows that 71% of the members and non members of the co-operative who produce sorghum are married while only 29% of both members and non members are not. Although the majority of respondents are married, their age is counter productive because it limits their participation in farm activities. This is proved by number farmers who are above 59 years as shown in Figure 4.1. This means that they are still faced with poverty even if they are married.

4.2.5 Level of education

Education has long been recognized as a central element in the socio-economic evolution of less developed countries. In agriculture, more years of formal schooling are expected to enhance efficiency. Education also contributes to the knowledge acquired by farmers which they can use and apply to farming (Bembridge, 1987). Illiteracy on the other hand has been noted to be one of the factors that limit development especially in under developed nations. Thus, educational levels

influence adoption of new innovation by farmers. It enables farmers to acquire and process relevant information effectively. The results are presented in the Figure 4.5.

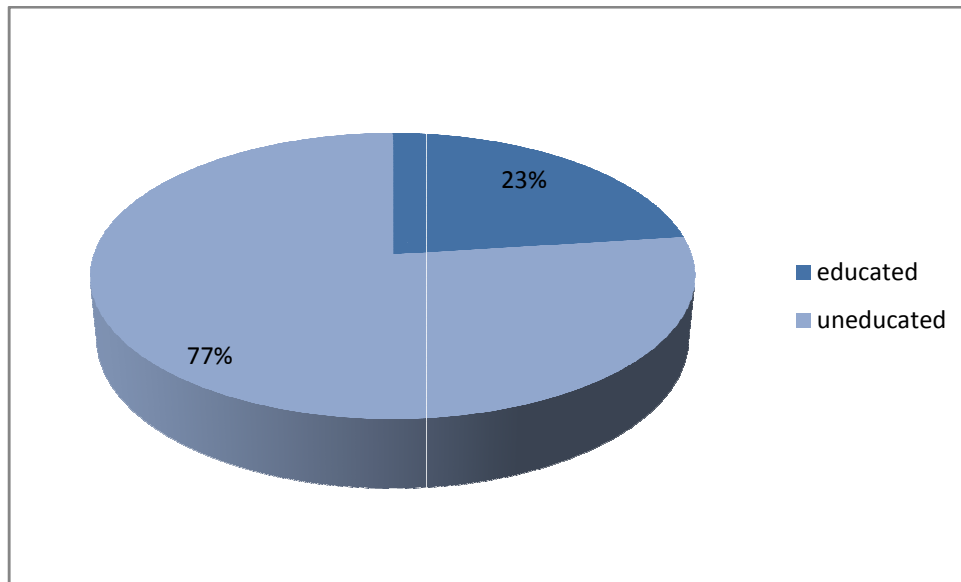


Figure 4.5: Level of education
Source: Field survey (2010)

Figure 4.5 shows that most producers, both members and non members of the co-operative are not educated (77%); meaning that only 23% of farmers are educated. This suggests that most of these producers do not have enough knowledge to manage their farming practices which results in the reduction of yields. This has been attributed to previous laws which limited opportunities of the black population for schooling. Low levels of education of household heads, coupled with their inability to communicate in the nation's business language (English), are the clear manifestations of these state-of-affairs and remain a serious problem today.

4.3 Socio-economic characteristics

The respondents were assessed on different aspects of socio-economic characteristics. This section presents different socio-economic characteristics of sample members and non members of the cooperatives. The main characteristic explored relate to farm income ownership as a result of the ongoing sorghum production activities, source of capital, sources of income, contribution of co-operative to poverty alleviation, benefits derived from co-operation, first preference of employment, gender preferred to be employed, production of sorghum in home gardens, various

farm production challenges and market related variables. These issues are elaborated in the sections that follow.

4.3.1 Source of income

Previous studies show that the majority of small scale famers have limited sources of income because they are unemployed. This means that they depend on government support, that is, grant and old pension for income. For this reason most small scale farmers produce mainly for home consumption as a way to reduce food expenses. The results are presented in the Figure 4.6.

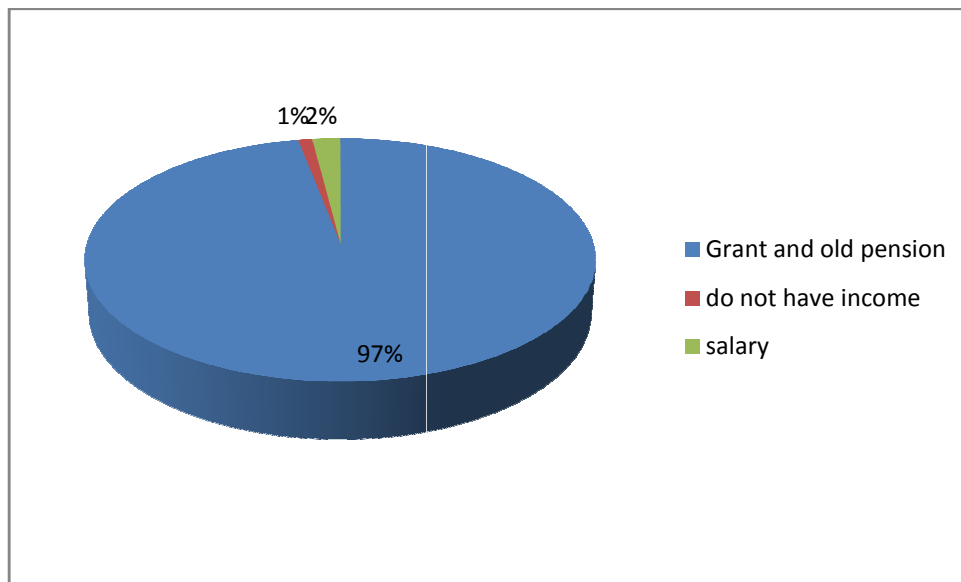


Figure 4.6: Source of income

Source: Field survey (2010)

Figure 4.6 illustrates that 97% of households have their income from grant and old pension, only 1% have a salary and 2% of community members do not earn an income. This indicates that the majority of households in Ndonga and Maqhashu still depend on government support (the grant and old age pension) for living. High rates of unemployment also limit access to income. This means that the impact of the New Co-operative Act of 2005 is negative towards poverty reduction because people in this area are still depending on government support.

4.3.2 Sources of capital

Ortmann & King (2006), reported that small-scale farmers in South Africa have limited access to factors of production. According to Table 4.1 minimum source of capital comes from their

family (1); maximum source of capital comes from state aid (4) and the average source of capital comes from their own savings (3). This implies that many farmers get their sources of capital from the state aid and only a few raise capitals from families. In addition to the table above the study also collected the information by asking the respondents to react to a set of sources of capital. The results are presented in the figure 4.7.

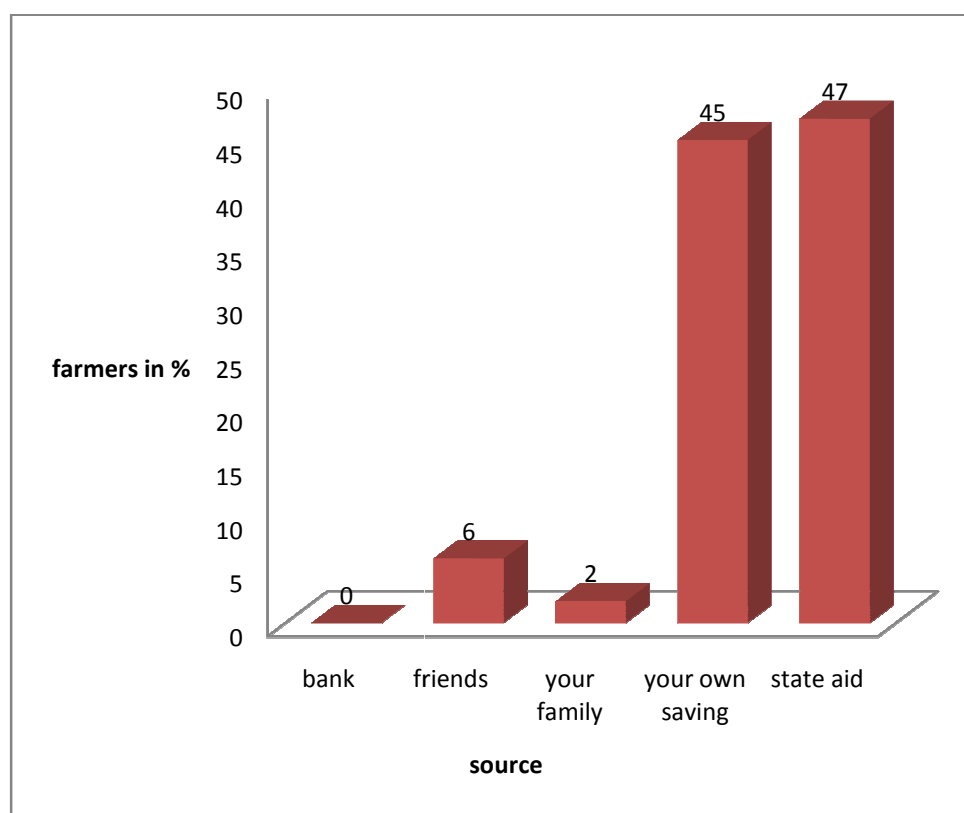


Figure 4.7: Sources of capital
Source: Field survey (2010)

As shown in Figure 4.7, most producers, be they members and non members of the co-operative, receive state aid (47%) while the non members of the co-operation in both areas depend on their own saving (45%) and about (6%) of them receive capital from friends. All of the respondents said none of them receives loan from the bank. The availability of land and state aid results in members of the co-operatives producing more sorghum than non members of the cooperatives.

4.3.3 Contribution of cooperative to poverty alleviation

Co-operative supporters argue that co-operatives exist to improve the standard of living of members, who retain influence over co-operative functions and activities; they can reduce costs,

enhance incomes, and improve the viability of the business activities, and thus have significant potential to contribute towards reducing poverty (Lupuwana, 2008). This study collected the information by asking the respondents to react to a set of contribution of cooperative to poverty alleviation. The results are presented in the Figure 4.8.

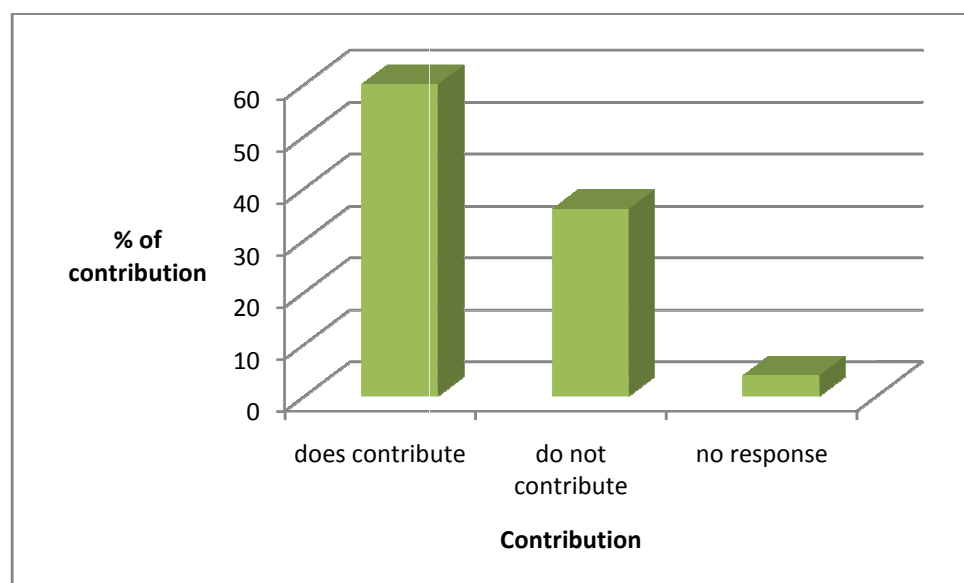


Figure 4.8: Contribution of cooperative to poverty alleviation
Source: Field survey (2010)

Figure 4.8 portrays that about 58% of respondents achieve contribution of co-operative to poverty alleviation; however 39% still face extreme poverty even when co-operatives are available. These results portray the positive role of co-operative in the communities and change after they have cooperative.

4.3.4 Benefit from cooperation

Co-operatives empower people an opportunity to improve their quality of life and enhance their economic opportunities through self-help. The results from the field surveys conducted in Ndonga and Maqhashu show that sorghum co-operative provides members with many benefits. This study collected the information by asking the respondents to react to a set of benefit from cooperation. The results are presented in the Figure 4.9.

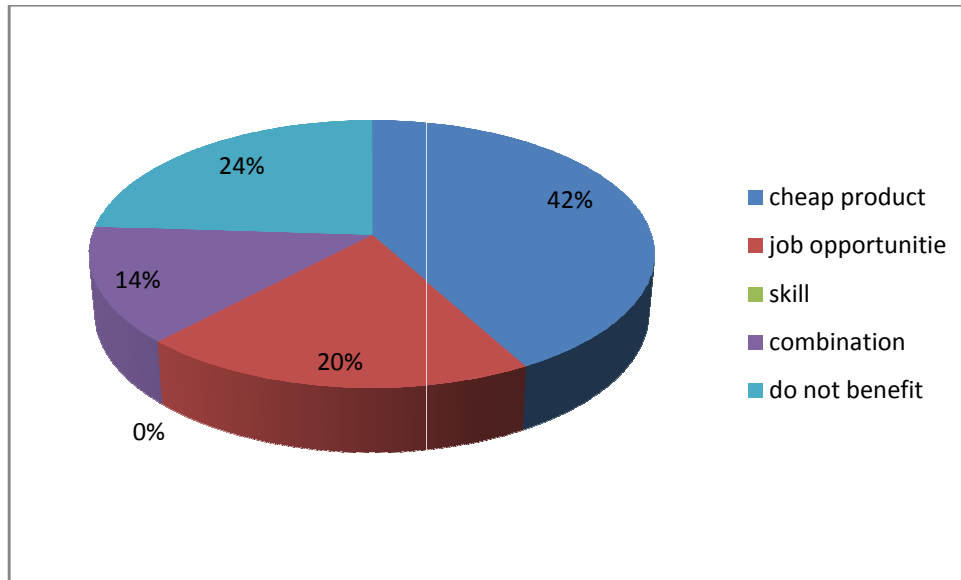


Figure 4.9: Benefit from cooperation

Source: Field survey (2010)

Figure 4.9 suggests that both members and non members benefit from the Ndonga and Maqhashu sorghum co-operative through cheaper product (42%), job opportunities (20%), and combination (14%) while only 24% of respondents revealed that they do not benefit at all. Most of the reasons why co-operatives were formed in the first place also apply to the small-scale farmers in the study area. They are faced with considerable poverty challenges and high transaction cost. Benefit could flow through improved incomes to members if co-operation is well managed and supported so as to alleviate poverty. These imply that Ndonga and Maqhashu sorghum cooperative does not only benefit its members but also the whole community.

4.3.5 Employment effects of the cooperatives

The unemployment rates are very high in South Africa. During the era of apartheid, many black people were removed off their ancestral lands to make room for large-scale white-owned properties. These indigenous farmers were relocated to the outer reaches of the town, where the mountainous landscape is particularly arid and unsuitable for most arable farming. This study collected the information by asking the respondents to react to a set of employment effects of the coreperatives. The results are presented in the Figure 4.10.

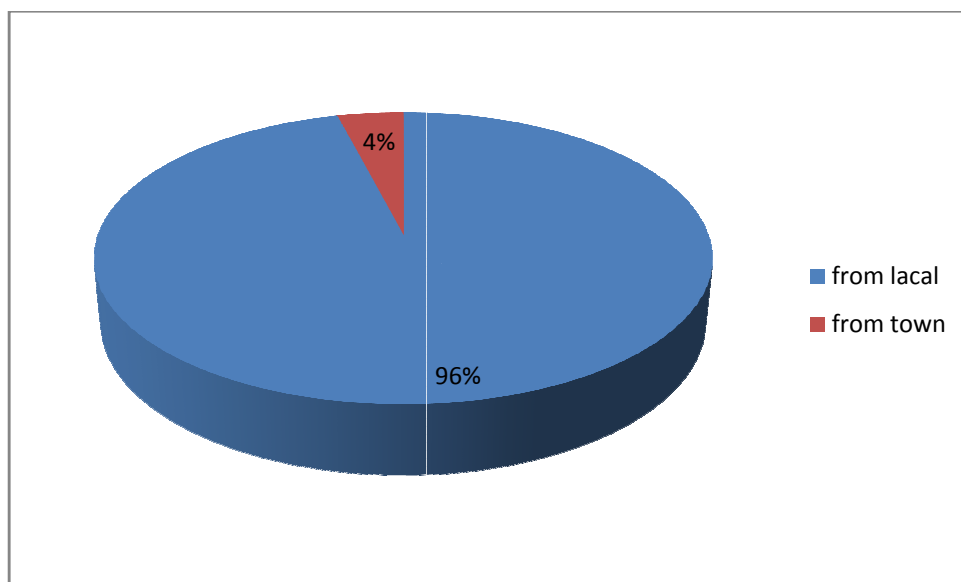


Figure 4.10: First preference to be employed

Source: Field survey (2010)

Figure 4.10 shows that sorghum co-operative provides job opportunities to local people with as much as 96% declaring that they are employed. Many people work around their family, there is no need to go to urban areas for better jobs.

4.3.6 Gender distribution of the employment

According to Punya *et al.* (2000) women play an indispensable role in farming and in improving the quality of life in rural areas. He urges that rural many farm women lack of leadership and inadequate participation in the organisational and economic affairs of their agricultural co-operatives. Absence of property inheritance rights, restriction on acquiring membership of agricultural cooperatives consequently being deprived of farm credit. This study collected the information by asking the respondents to react to a set of gender distribution of the employment. The results are presented in the Figure 4.11.

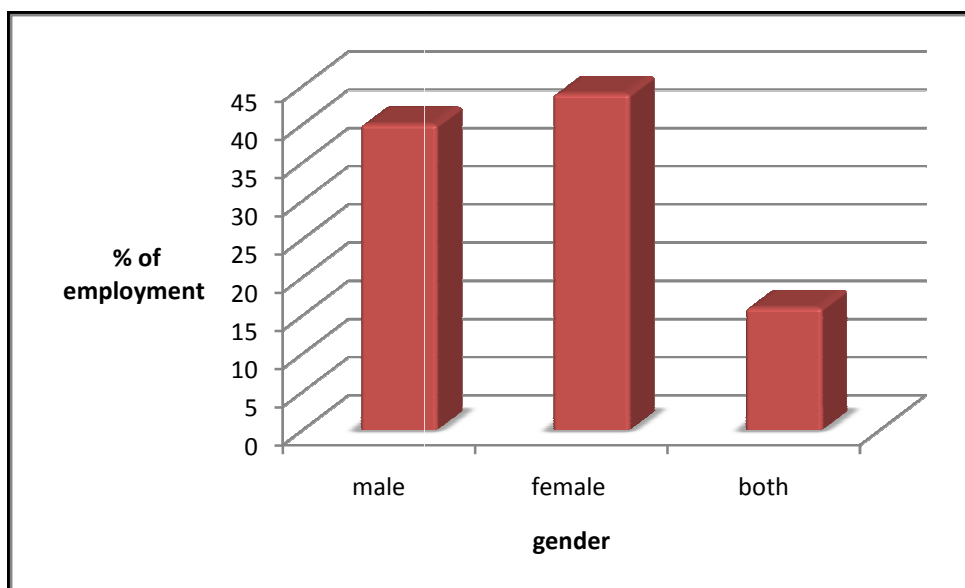


Figure 4.11: Gender preferred for employment

Source: Field survey, 2010.

Figure 4.11 shows that women are numerous in the sorghum co-operative 48% while men are about 42%. However, their contributions often remain concealed due to some social barriers and gender bias. Even government programmes often fail to focus on women in agriculture. This undermines their potential benefits from programmes, especially those related to food production, household income improvements, nutrition, literacy, poverty alleviation and population control.

4.3.7 Production of sorghum in home gardens

Non-members of the co-operative are not producing to sell because their yields are quantitatively smaller and also because the markets and buyers are buying from the sorghum co-operatives. This study collected the information by asking the respondents to react to a set of production of sorghum in home gardens. The results are presented in the Figure 4.12.

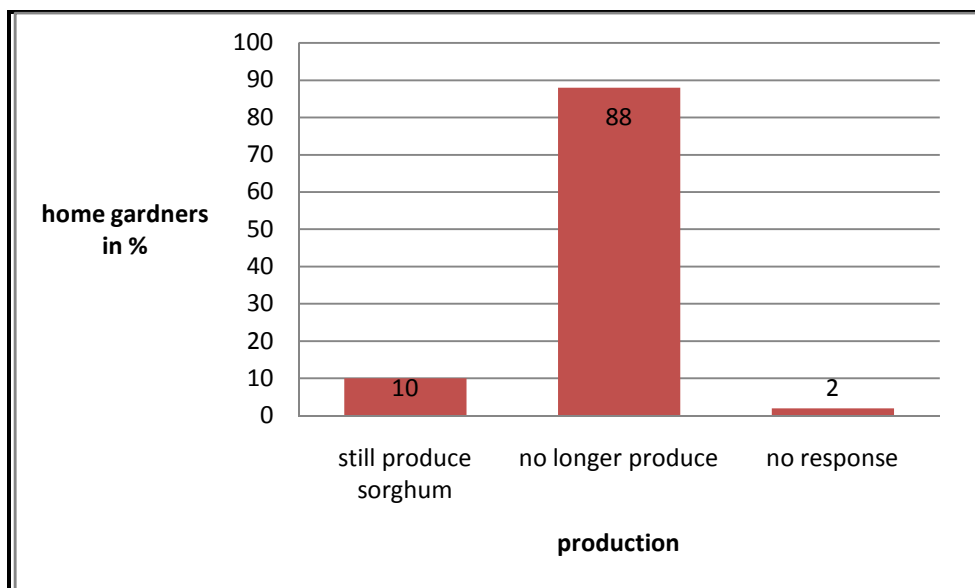


Figure 4.12: production of sorghum in home gardens

Source: Field survey, 2010.

According to Figure 4.2, 10% of non-members of the co-operatives are still producing sorghum as a way to reduce food expenses. It was revealed 88% were no longer producing sorghum because they acquired the product from the cooperative at a very affordable price.

4.3.8 Accesss to the market

In most cases, small-scale farmers in rural areas do not have access to the market; this may be because of number of reasons such as laws of market, that is, grade and standard of the produce. Most small-scale farmers do not meet the requirements of the markets in terms of grade and standard of produce and also their production level which is low for the standards of commercial markets makes it difficult for them to enter the market. Nonetheless, previous studies indicated that co-operatives were being informed to strengthen their bargaining power; maintain access to competitive markets; capitalize on new markets opportunities and obtain needed products and services on a competitive basis. With regard to Ndonga and Maqhashu, the number of markets centers is low or nonexistent. This study collected the information by asking the respondents to react to a set of access to the market. The results are presented in the Figure 4.13

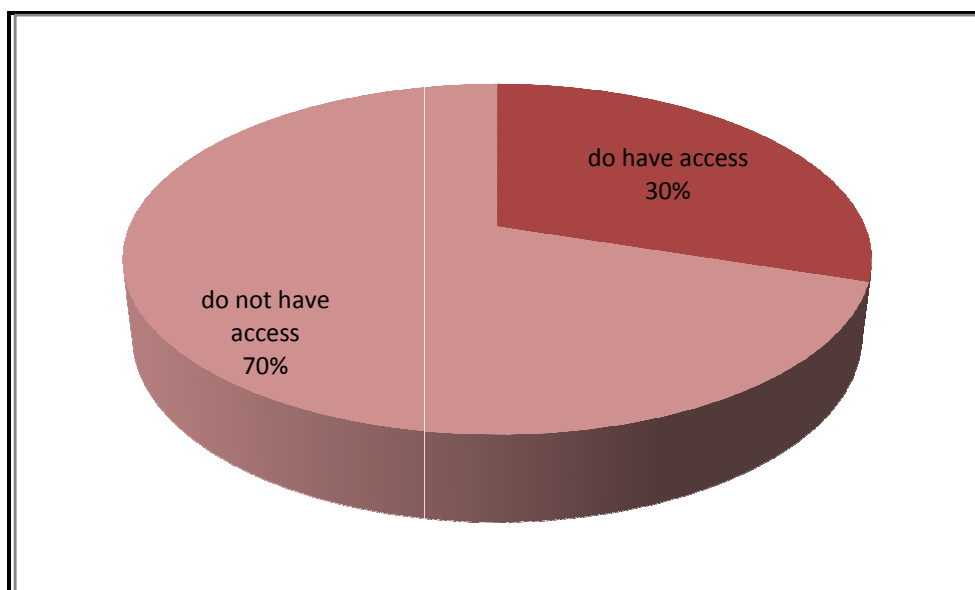


Figure 4.13: Access to the market

Source: Field survey, 2010.

Figure 4.13 shows that many sorghum producers both members and non members of the cooperative; do not have access to the market. Results shows that 70% lack access while only 30% of producers do have access to the market. There were no formal marketing contracts that were signed in either study area; however, some informal arrangements, mainly between friends and local members were mentioned under which exchanges or sales of produce occurred.

4.3.9 Contract with reliable market

The problem of smallholder exclusion is extensive especially in South Africa where historical legacies have contributed to the exclusion of small-scale black farmers from the agricultural economy and the commercial farm sector (Sartorius & Kirsten, 2006). This study collected the information by asking the respondents to react to a set of contract with reliable market. The results are presented in the Figure 4.14.

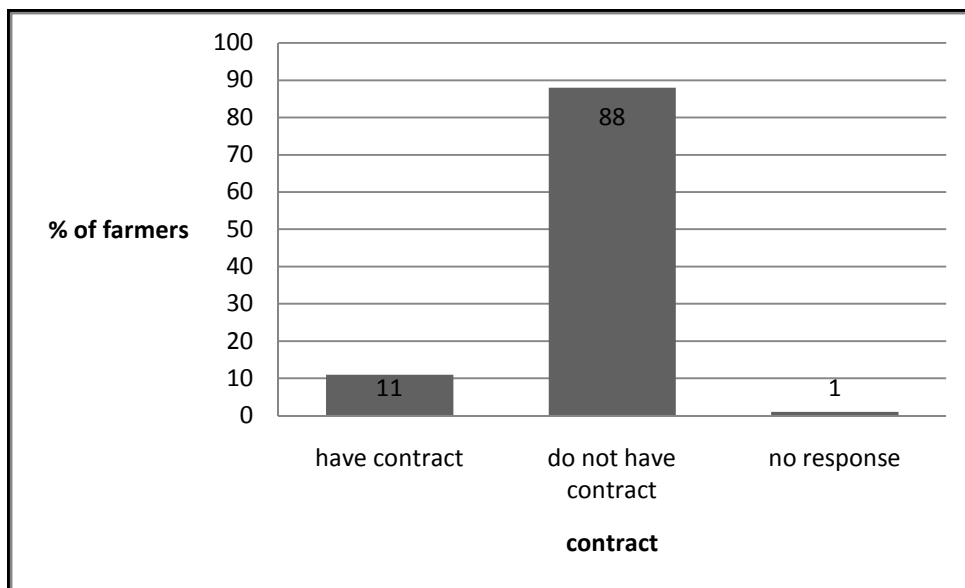


Figure 4.14: Contract with reliable market

Source: Field survey, 2010.

In the case of Ndonga and Maqhashu sorghum co-operation, producers do not have contracts with a reliable market. Figure 4.14 those only 11% farmers have contracts with reliable markets while 88% farmers do not have contracts.

4.4 The comprehensive description of the farming system

The important component of the study was an investigation of the farming system to gain an understanding of its nature and characteristics as well as its constraints, challenges and opportunities. In this regard the study collected data on the principal crops and livestock enterprise, the cropping patterns and livestock production systems, the assets ownership, the structure of costs and returns in the farming system, and the key production challenges in the system. In the next general sub-section below, these issues are dealt with in greater detail.

4.4.1 Principal crops in the farming system

Lady Frere is a semi-arid region which accommodates crops that can tolerate drought. Majority of farmers of Ndonga and Maqhashu villages are producing sorghum as their principal crop. Members and non members of co-operation produce sorghum in their fields. According to Figure 4.2 above 10% of non members of cooperatives are still producing sorghum in their home

gardens. However some farmers of Ndonga and Maqhashu are producing maize and vegetables including, cabbage, potato and carrot in their home gardens.

4.4.2 Animal production system

Farmers of Ndonga and Maqhashu (both members and non members) produce sheep. The reason for this is that climatic conditions of Lady Frere are favourable for the production of sheep. However some of them produce cattle which are not in good condition because of drought. They are very few farmers who produce goats.

4.4.3 Assets ownership

Availability of implements is critical to the farmer as they determine timing and the rate of land preparation (Govereh & Jayne, 1999). Therefore, it was expected that ownership of farm implements such as the hoe, wheelbarrow, axe and scorch cart by the farmer would affect positively sorghum production. In the case of Ndonga and Maqhashu most farmers fail to produce high yields because of the conditions of their assets. Their assets are poor and insufficient which limit them to produce in large area of land. The availability of assets to the farmers is another limiting factor. However, if the co-operative have new equipment becomes highly possible to produce high amount of output. Modern equipment reduces high labour active and large amount of work can be done easily without wasting much time.

4.4.4 Production challenges

Summary statistics of production challenges faced by members and non members of the cooperative (availability of markets, availability of transport, road condition to and from the market, access to market information, production, availability of assets, condition of assets are discussed in this section). These production challenges are presented in Table 4.2.

Table 4.2: The description of the challenges faced by members and non members of the cooperative

Challenges	Frequency	Percent	Cumulative percent
Availability of markets			
Available	25	25.0	25.0
Not available	75	75.0	100.0
Total N=(100)	100	100	
Availability of transport			
Availability	44	44.0	44.0
Not available	56	56.0	100.0
Total N (100)	100.0	100.0	
Road conditions			
Excellent	0.00	0.0	0.0
Good	04	4.0	4.0
Fair	39	39.0	43.0
Poor	57	57.0	100.0
Total N =(100)	100	100	
Access to market information			
Do have access	27	27.0	27.0
Do not have access	73	73.0	100.0
Total N =(100)	100.0	100.0	
Production challenges			
Drought	79	79.0	79.0
Theft	0	0.0	79.0
Bird control	21	21.0	100.0
Total N=(100)	100.0	100.0	

Source: Field survey conducted (2010)

Ndonga and Maqhashu sorghum co-operative is faced with many challenges as shown in Table 4.2 and these include lack of availability of markets within each area. This results from the physical infrastructure (roads, telecommunications, transport) in both areas show that

infrastructure is poorly developed (for example, most roads are of poor quality (57%) and in need of repair and upgrading). Most respondents (75%) expressed the need for marketing outlets for their produce.

Most cooperative farmers (73%) lack market information and they do not know which relative quantities of the produce to produce and the most economic way to produce sorghum with the resources available. The information needs may be grouped into five headings: agricultural inputs; extension education; agricultural technology; agricultural credit; and marketing. Modern farm inputs are needed to raise small farm productivity. These inputs may include fertilizers, improved variety of seeds and seedlings, feeds, plant protection chemicals, agricultural machinery, and equipment and water. An examination of the factors influencing the adoption and continued use of these inputs will show that information dissemination is a very important factor. It is a factor that requires more attention than it gets at the moment.

Although public transport is available throughout the two areas, it is not good/ suitable for transporting produce to markets. The co-operative is also geographically dispersed and most farmers (57%) have to walk long distance to the nearest road served by public transport vehicles. Thus they mostly sell to informal markets. Very few farmers can afford transporting their produce to the market through hired transport. For those who do, this results in them paying high transaction costs.

Another challenging factor is drought. Figure 4.2 shows that about (79%) farmers from both villages expressed that they are limited by drought because that Lady Frere is dry area. However, about (21%) farmers are challenged by birds which lead to a decrease in their production because some amounts their sorghum are consumed by the birds.

4.5. The results of inferential analysis

In this section, the results of the Gross Margin analysis carried out to compare the relative performance of members and non-members would be presented. Similarly, the results of other hypothesis testing procedures such as t-test. In an attempt to understand the exact relationship between the measure of farm performance adopted for this study, namely asset ownership, and the demographic and socio-economic circumstances of the farmers, a multiple regression model was fitted

4.5.1 Gross margin analysis

Previous studies emphasized that age is one of the factors that can affect the probability of a farmer being successful in farming. They further argued that age of household head is usually associated with education because old age farmers have low levels of education; however it does not mean they lack the potential of being farmers, because they also have indigenous knowledge. Although they produce they still lack information to modernize their agriculture and thus produce low yields at high costs. This study collected the information by asking the respondents to react to a set of gross margin for group members of the co-operation. The results are presented below.

Table 4.3: Gross margin for group of members of sorghum co-operation in Ndonga co-operative

Item	Unit	Quantity	Price (R/Unit)	Amount (R/Ha)
INCOME: (Gross value of production)				
Sales of sorghum in 100kg bags	Tonnes	0.13	2080	270.4
Sorghum consumed	Tonnes	0.008	128	1.0
Sorghum stored for livestock	Tonnes			
GROSS INCOME				271.4
VARIABLE COSTS:				
Pre-harvest:				
Seed: sorghum seed	Kg	25	5.96	149
Fertiliser:				
Lime	Kg	25	6.5	162.5
LAN 28%	Kg	25	6	150
Mixture 2-3-2 (22) + 0.5% Zn	Kg	25	5	125
Manure	Kg			
Pest & disease control:				
Kombat	Litre			
Gaucho	Litre			
Atrazine	Litre			
Fire insurance	Rand			
Tractor Hire	Hour	1	100	100
Contract work: Planting	Day	2	40	80
Harvest:				
Packing material: 100kg bags	Bag	5	2	10
Contract: sorghum harvesting	Day	2	40	80
Marketing costs:	Rand	15km	10	150
TOTAL VARIABLE COST				1006.5
GROSS MARGIN				-735.1

Source: Field survey conducted, 2010.

Table 4.3 shows that the average yield for group members of sorghum cooperative is 0.13 t/ha. Members of the co-operative of Ndonga receive a total revenue of R270.4/ha. The total variable costs of R1006.5 were incurred in sorghum production. The bulk of these costs were mainly production costs prior to harvesting. Therefore Gross Margin equals $R270.4/ha - R1006.5$ (R-735.1/ha). The negative sign shows that co-operative are operating at a loss, meaning that they produce less with high production costs. This is because of the various reasons that are already mentioned above. Even if the New Co-operatives Act No.14 of 2005 is working in other areas around South Africa, the above gross margins show that group members of Ndonga still needs support. This study collected the information by asking the respondents to react to a set of gross margin for non members of the co-operation. The results are presented in the Table 4.4.

Table 4.4: Gross margin for non of members of sorghum co-operation in both Maqhashu and Ndonga co-operative

Item	Unit	Quantity	Price (R/Unit)	Amount (R/Ha)
INCOME: (Gross value of production)				
Sales of sorghum in 100kg bags	Tonnes	0.1	1600	160
Sorghum consumed	Tonnes	0.05	128	6.4
Sorghum stored for livestock	Tonnes			
GROSS INCOME				166.4
VARIABLE COSTS:				
Pre-harvest:				
Seed: sorghum seed	Kg	25	5.96	149
Fertiliser:				
Lime	Kg			
LAN 28%	Kg			
Mixture 2-3-2 (22) + 0.5% Zn	Kg	25	5	125
Manure	Kg			
Pest & disease control:				
Kombat	Litre			
Gaucho	Litre			
Atrazine	Litre			
Fire insurance	Rand			
Tractor Hire	Hour	1	100	100
Contract work: Planting	Day	2	40	80
Harvest:				
Packing material: 100kg bags	Bag	10	2	20
Contract: sorghum harvesting	Day	2	40	80
Marketing costs:	Rand	15km	10	150
TOTAL VARIABLE COST				804
GROSS MARGIN				-637.6

Source: Field survey conducted, 2010.

Table 4.4 shows that the average yield for group members of sorghum co-operative was 0.1 t/ha. Non members of the co-operativeof receive a total revenue of R166.4/ha. The total variable costs of R804 were incurred in sorghum production. The bulk of these costs were mainly production costs prior to harvesting. Therefore Gross Margin equals R166.4/ha-R804 (R-637/ha).

Even non members of the co-operative operating at a loss but they are better off compared to members of Ndonga sorghum co-operative.

4.5.2 Hypothesis testing for yield and total revenue

Members of the co-operative receive help from government agencies; however, non members of the co-operative buy inputs out of their own income which hinders them from purchasing high quality inputs. This study collected the information by asking the respondents to react to a set of crop yield. The results are presented in the Table 4.5

Table 4.5: Group statistics on mean sorghum yield and mean revenue

Membership of co-operative	Number of respondents	Mean sorghum yield (kg/ha)	Mean revenue (R/ha)
Non members of co-operative	50	856.00	2111.00
Members of co-operative	25	972.00	3110.80

Source: Field survey conducted, 2010.

The results in table 4.5 on production of sorghum in kg show that 50 non members of the co-operation produce a mean of 856 kg while only 25 members of the cooperation are able to produce about 972 kg of sorghum. These differences show that members of the cooperatives receive support from government while non members of the co-operatives depend on their own savings.

The results above in table 4.5 show that in terms total revenue of sorghum in Rand, 50 non members of the co-operation receive a mean of total revenue R2111.00 while only 25 members of the cooperative are able to receive a mean total revenue of R3110.80. These differences show that many people purchase from the co-operatives.

Independent samples test compare total revenue with the yield. This study collected the information by asking the respondents to react to a set of crop yield. The results are presented in the Table 4.6.

Table 4.6: Independent samples test comparing total revenue with the yield

	t	t-test for Equality of means	
		Sig (2tailed)	Mean Difference
Production kg Equal variances assumed	-.911	.365	-116.000
Equal variances not assumed	-1.098	.276	-116.000
Total revenue Equal variances assumed	-2.370	.020	-999.800
Equal variances not assumed	-2.607	.011	-999.800

**The correlation significant at 5% level

Source: Field survey conducted, 2010.

In Table 4.6 the results indicate that production of members and non members is insignificant in both T- test and 2 tailed test while their total revenue is significant. This means that there is no much difference in their productivity while the significance of the total revenue results from the fact that most people buy sorghum from the co-operative not from individuals (gardeners). These tests reveal that non members depend on their productivity since there is no much difference in the production of members and non members. This implies that the poverty in the communities of both Ndonga and Maqhashu is not alleviated through the New Co-operative Act of 2005.

On the other hand, the significance of total revenue indicate that non members produce mainly for consumption and sell the surplus while the Sorghum Co-operative members produce mainly for sale. In addition, since the sorghum crop is mostly produced in Ndonga and Maqhashu it means that people from other places acquire sorghum from sorghum cooperative of Lady Frere. This reveals that the New Co-operative Act benefits the members of the co-operative.

4.5.3The factors affecting the performance of the farming unit

As already stated in the methodology chapter, a multiple linear regression model was fitted to determine the factors influencing the performance of the farming system so as to be able to isolate the impact of membership of agricultural cooperatives and the possible effects of the New Cooperative Act. Two separate regressions were run, the first with Asset ownership as the

dependent variable and the other with yield level of sorghum as the dependent variable. The results are presented in Tables 4.7 and 4.9.

In the case of Assets ownership as the dependent variable, the results revealed that the coefficient of determination, R^2 , was 0.225. This means that only approximately 23% of the variations in asset ownership levels was explained by the model. This very low R^2 is understandable in view of the fact that the asset ownership indicator may not reflect the level of agricultural production and how well a particular farming unit is performing. The adjusted- R^2 of 15.7% suggested an even poorer fit even when the sample size was taken into account. Assets may be obtained from various sources and at different times in the working life of the farming household and may actually represent the prior and more distant situations than the current production situation. The individual variables also seemed to be only marginally helpful in explaining the variations in asset ownership, with only three of them, namely market type, contractual status, and membership being weakly significant at no more than 5% level of significance. Asset ownership is a reflection of a household's buying behaviour or spending habits. It is obvious that households would not necessarily spend all new earning to acquire durable assets. Therefore, asset ownership, while an important indicator of performance, is probably a weak one. Hence the results of this regression.

In the second run using the yield levels as the dependent variable, the R^2 was considerably better, at 0.428, suggesting that the model explained as much as 43% of the variations in the yield levels of the sorghum crop that was the principal crop in the project area. Similarly, the adjusted- R^2 of 38.5% was reasonably lower than the initial R^2 which was not the case in the first run using Asset Scores. In this case, four variables showed strong significance, namely source of income, input availability, membership, and whether or not the farming unit faced production and marketing challenges.

Tests of model fitness were also carried out and the results are presented in the ANOVA Tables (Tables 4.8 and 4.10). According to the results, the linear models fitted were good, with the yield level model being relatively more robust.

Table 4.7: Results of multiple regression analysis with asset score as dependent variable

Variables	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
Constant	8.169	3.153		2.591	.011		
SOURCE OF INCOME	-1.861	1.773	-.102	-1.050	.297	.899	1.112
MARKET TYPE	.301	.290	.101	1.035	.303	.892	1.121
INPUT AVAILABILITY	-.024	.020	-.120	-1.194	.236	.839	1.192
MARKET DISTANCE	1.573	.885	.171	1.777	.079*	.922	1.085
CONTRACTUAL STATUS	3.999	1.781	.246	2.245	.027**	.709	1.411
CHALLENGES	2.607	1.386	.242	1.880	.063*	.515	1.943
YIELD LEVEL IN BAGS	1.128	.707	.171	1.596	.114	.745	1.342
SOURCE OF INCOME	.001	.001	.196	1.603	.112	.571	1.751

Dependent Variable: ASSET

***indicates significance at 10% ; **indicate significance at 5%**

Asset score was significantly associated with contractual status, challenges and market distance. Farmers with contracts have a guaranteed market helping them to buy assets after obtaining money from their sales. Those in contractual arrangements can sell their product to distant market with whom they have entered into contract. The associated ANOVA is presented as Table 4.8 and the result indicate that the model is a good fit. The F-value which is a measure of the whole model fitness similarly shows that the model contributes significantly towards explaining the observed variations although most of the variables included did not come out significant.

Table 4. 8: ANOVA Table for Testing of Model Goodness-of-Fit (Asset Score)

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	652.626	8	81.578	3.299	.002***
Residual	2250.124	91	24.727		
Total	2902.750	99			

Table 4.8 depicts results of the ANOVA output. The ANOVA table is very important because it shows whether the overall F ratio for the ANOVA is significant. The F ratio (3.299) is significant ($p = .002$) at the .05 alpha level. This proves the goodness of-fit of the model used on fitting the variables on asset score.

Table 4.9 presents the results of the second regression run with yield of sorghum as the dependent variable.

Table 4.9: Results of multiple linear regression analysis with yield as dependent variable

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
Constant	-1034.158	636.405		-1.625	.108		
SOURCE OF INCOME	635.935	356.894	.146	1.782	.078*	.930	1.075
MARKET TYPE	-124.263	58.023	-.175	-2.142	.035**	.936	1.068
INPUT AVAILABILITY	5.115	4.131	.106	1.238	.219	.853	1.173
MARKET DISTANCE	-145.238	180.593	-.066	-.804	.423	.928	1.077
CONTRACTUAL STATUS	-155.232	364.279	-.040	-.426	.671	.710	1.408
CHALLENGES	1533.917	234.321	.594	6.546	.000**	.755	1.324

a. Dependent Variable: YLDBAG

***indicates significance at 10%; **indicate significance at 5**

Yield quantity was significantly associated with source of income, market type and challenges. Farmers with high source of income they afford to buy good production input which help them to harvest high yield. Farmers with high yields are better able to meet the targets of better paying market. Also the high output sold to highly paying markets can offset transport cost making this class of farmers able to supply to any market. Table 4.10 presents the associated ANOVA results which also confirm model goodness of fit.

Table 4.10: ANOVA Table for Testing of Model Goodness-of-Fit (Yield Level)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	71394744.302	7	10199249.186	9.840	.000***
	Residual	95356234.058	92	1036480.805		
	Total	1.668E8	99			

Table 4.10 depicts results of the ANOVA output. The ANOVA table is very important because it shows whether the overall F ratio for the ANOVA is significant. The F ratio (9.840) is significant ($p = .000$) at the .05 alpha level. This proves the goodness of-fit of the model used on fitting the variables on yield level.

4.5.4 Results of Discriminant Analysis

The purpose of the Discriminant Analysis carried out in the study was to further test the extent to which the two groups of farmers, members and non-members, were different from each other in respect to a number of important production and marketing criteria. On the basis of previous work in the project area, it has been established that the source of income, market types, input availability, market distance, contractual status, presence of key production and marketing challenges, and yield levels, featured as important issues in the production and marketing environments of the cooperatives in Ndogo and Maqhashu. As a result, these variables were inserted as explanatory variables in the multiple linear regression reported above. In order to have a good basis for comparing the analytical approaches, the same variables were employed for the discriminant analysis and the results are presented in this section.

The first test tried to answer the question as to whether the groups actually differed in respect to the variables outlined above. This test is referred to as the test of equality of group means and the results are presented in Table 4.11. The results present sufficient basis to conclude that the two groups were different in respect of a good number of the variables. With the exception of market type, input availability and market distance, all the other variables showed strong evidence statistically significant difference between the groups. Contractual status, presence or absence of production and marketing challenges and yield levels of sorghum showed very high significance ($p < 0.05$).

Table 4.11: Test of equality of group means for members and non-members of cooperatives

Predictors	Wilks' Lambda	F	df1	df2	Sig.
SOURCE OF INCOME	.971	2.882	1	98	.093*
MARKET TYPE	1.000	.000	1	98	1.000
INPUT AVAILABILITY	1.000	.000	1	98	1.000
MARKETDISTANCE	.999	.084	1	98	.773
CONTRACTUAL STATUS	.869	14.762	1	98	.000**
CHALLENGES	.927	7.710	1	98	.007*
YIELD LEVEL IN BAGS	.666	49.149	1	98	.000**

In order to determine the proportion of the variations explained by the grouping variable, membership, the eigenvalues table was interpreted. The results are shown in Table 4.12. According to Table 4.12, the canonical correlation stood at 0.696. The procedure of the test is to square the canonical correlation in order to obtain the proportion of the explained variation. In this case, the result yields 48.44% which is close to the R^2 obtained with the multiple regression using yield levels as dependent variable.

Table 4.12: Eigenvalues table

Function	Eigenvalue	% of Variance	Cumulative %	Canonical Correlation
1	.941 ^a	100.0	100.0	.696

Having established the proportion of the variations explained, it is necessary to also determine the proportion of the variations not explained and obtain some idea of the model fitness. That is the function of the Wilk's Lambda test which is presented in Table 4.13 and suggests that some 51.5% of the variation is not explained. However, there is evidence that the model or discriminant function, is a good fit.

Table 4.13: Wilks' Lambda

Test of Function(s)	Wilks' Lambda	Chi-square	df	Sig.
1	.515	62.683	7	.000

Table 4.14 presents the standardized canonical discriminant function coefficients for the predictors included in the model. The results show that the same predictors that stood out as strongly significant in the multiple linear model were also evidently strong predictors of the differences in the performance of the smallholders as a result of membership status. For instance, the variables contractual status, challenges, and yield which were highly significant in the linear model were also the ones that had the highest coefficients in the Discriminant Analysis.

Table 4.14: Standardized Canonical Discriminant Function Coefficients

Predictors	Function
	1
SOURCE OF INCOME	-.082
MARKET TYPE	.083
INPUT AVAILABILITY	.203
MARKET DISTANCE	-.178
CONTRACTUAL STATUS	-.490
CHALLENGES	.644
YIELD LEVEL IN BAGS	.874

Table 4.15 presents the cross-validated classification and shows that 85% of the respondents were classified correctly, with the members of cooperatives being substantially (10% difference) better classified than non-members.

Table 4.15: Classification Results

Membership			Predicted Group Membership		Total
			Member	Non-Member	
Original	Count	Member	45	5	50
		Non-Member	10	40	50
	%	Member	90.0	10.0	100.0
		Non-Member	20.0	80.0	100.0
Cross-validated ^a	Count	Member	45	5	50
		Non-Member	10	40	50
	%	Member	90.0	10.0	100.0
		Non-Member	20.0	80.0	100.0

a. Cross validation is done only for those cases in the analysis. In cross validation, each case is classified by the functions derived from all cases other than that case.

b. 85.0% of original grouped cases correctly classified.

c. 85.0% of cross-validated grouped cases correctly classified.

4.6 Chapter summary

Gross margin results above shows that cooperative are operating at a loss, meaning that they produce less with high production costs. However the results also show that Ndonga and Maqhashu sorghum co-operative does not only benefit its members but also the whole community. Much people work around their family, there is no need to go urban areas for better jobs.

All in all, one can conclude that the introduction of the New Co-operative Act of 2005 has a positive influence to the communities of Ndonga and Maqhashu by alleviating poverty and unemployment basing on the results obtained. This is proved by the differences of the mean yields of production and total revenue between members and non- members of the cooperative. However, there is still the issue of challenges as revealed by the multiple regression model and the discriminant analysis. It's important to note that some of the challenges are natural disasters like droughts and quilea birds. To address the issue of challenges some recommendations can be made to the appropriate authorities including the government and extension officers.

CHAPTER 5

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

Literature review of the study revealed that hunger, which usually follows food shortages, is caused by a complex set of events and circumstances [social, economic and political factors] that differ depending on the place and time. Although hunger has been a part of human experience for centuries and a dominant feature of life in many low-income countries, the causes of hunger and starvation are not very well understood. Our understanding of the main causes of hunger and starvation has been hampered by myths and misconceptions about the interplay between hunger and population growth, land use, farm size, technology, trade, environment and other factors. Literature also states that poverty cannot be defined simply in terms of lacking access to sufficient food. It is also closely associated with a person's lack of access to productive assets, services and markets.

This chapter therefore gives the summary and conclusions arrived based on the findings of the study. Finally, the chapter puts forward some recommendations which are believed to be of future benefit to development of traditional cooperative which may intend to obtain on the employment and poverty reduction. Recommendations made can be used as a referral point to improve ways of implementing in future the New Co-operatives Act No.14 of 2005.

5.2 Summary

The main body of thesis is divided into 4 chapters which covered the introduction and background of the study, the literature review, methodology and area of study, and the presentation of results of the research. In this section, each of the foregoing chapters will be summarized, highlighting the main issues covered and how that links to the overall theme of the thesis. These summaries are presented in the next several sub-sections.

5.2.1 Introduction and Background of the Study

Property rights are poorly defined in traditional co-operatives because they adhere to rules that require member ownership, democratic control, returns to investment, and equity shares. The development of co-operatives resulted in poor performance in Third World countries, including the South African homelands. Evidently, the factors which constrain agricultural development

also inhibit co-operative development in the homelands. These factors were socio-economics and political factors. In addition to these external factors, co-operatives have severally internal problems such as inefficient management and lack of understanding of the co-operative concept and principles. The main objective of the study is to evaluate and explore the employment and poverty reduction impacts of the New Co-operatives Act No.14 of 2005 on the beneficiaries under the Sorghum projects established in Ndonga and Maqhashu communities of the Eastern Cape Province. This entailed investigation and profile of the socio-economic situation of communities with particular emphasis on the employment and poverty situations, as well as the income earning opportunities in the communities. This study also determines the existing structure and operations of the co-operative societies and the trends in the development of the cooperatives in relation to the New Co-operatives Act. Finally the study undertakes a comparison of the members and non-members of the co-operatives in terms of their production results under the sorghum production programmes in the two communities. Thus, it is hypothesized that Co-operative farmers of Ndonga and Maqhashu communities have constraints even after the introduction of New Co-operative Act of 2005. The research fits well into current policy focus on black economic empowerment in Agriculture, agricultural restructuring, integration of the black population in the agricultural economy of South Africa, poverty reduction.

5.2.2 Literature Review

According to the literature, co-operatives have been promoted in many developing countries such as South Africa as a way of driving agricultural growth and rural development. The International Co-operative Alliance defines a co-operative as a large number of people who are united voluntarily to meet their common objective. Such objectives may include economic, legal, political and organizational, goals to acquire access to meet other social needs through a jointly owned and democratically controlled enterprise organised and operated on co-operative principles. It has shown quite clearly that the development of smallholder farmers in the Southern Africa region is severely constrained by a large number of factors linked to the institutional environments and arrangements operating in the region. Many of these constraints relate to the poorly developed extension services that mean that information flows about available inputs and prices are not adequate.

According to the contemporary literature, food security can be defined as a condition where all people at all times have physical and economic access to sufficient safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life. The Universal Declaration of Human Rights by government of South Africa recognised several dimensions of human rights for all people who live in South Africa. Some are physical and proven, such as access to education, health and a decent standard of living and ability to take part in the government of the country. Others are intangible, such as freedom, dignity, and security of person and participation in the cultural life of the community. These promote sharing of work and experience between women and men in the work place as well as in the household. Literature reveals that access to food is generally damaged by income inequality and general income poverty seen as the primary causes. It also argued that, although poverty is generally prevalent in the rural areas of Africa, food access in urban areas has been higher than in the rural areas due to massive rural – urban migration in search of decent jobs in the fast growing urbanization of the African continent. To the countries like Nigeria, they are faced with challenges to improve food security, provide employment and ensure that women are mainstreamed into economic activities.

It has been highlighted that in the developing areas of South Africa, like in other developing countries, smallholder farmers find it difficult to participate in markets because of a range of constraints and barriers reducing the incentives for participation. Among those barriers are incomplete contracts caused mainly by bounded rationality (i.e. limits on the capacity of individuals to process information, deal with complex issues and consider all possible contingencies), difficulties in specifying or measuring performance, and asymmetric information will inevitably result in opportunism and transaction costs. According to literature production costs and transaction costs are interrelated. Literature explained that vertical integration, having transaction cost origin may be examined through the dimensions of transactions, which are: asset specificity, uncertainty, frequency, and externalities. Literature reveals that agricultural productivity has grown rapidly where modern varieties and fertilizers have been widely adopted, but not where adoption has been delayed. In much of Asian countries and parts of Latin America, promoting seed and fertilizer use was accompanied by complementary investments in irrigation, rural roads, marketing infrastructure, financial services, and other factors that made using seed and fertilizer profitable and paved the way for dynamic commercial input markets. But

throughout most of Africa, these complementary investments are small or absent, and private input markets have yet to emerge on a large scale. Recent initiatives to build seed and fertilizer markets provide lessons that can inform future policy design.

Literature reveals that where there is no strong support environment and lack of ambitious form of starter enterprise, people are exposed to poverty, but co-operatives have a better chance of assisting people to generate an income: which is their most urgent need. The key to achieving this is to identify what works best to enhance the quality of people's lives in a given context, rather than promoting any particular enterprise model for its own sake. In South Africa during the era of apartheid many black people were pushed off in their ancestral lands to make room for large-scale white-owned properties. These indigenous farmers were relocated to the outer reaches of the town, where the mountainous landscape is particularly arid and unsuitable for most forms of agriculture. WDR (2008) explained that the ability of agricultural enterprises and rural households to invest for the long term and make calculated decisions for risky and time-patterned income flows is shaped by an economy's financial services. Financial constraints are more pervasive in agriculture and related activities than in many other sectors, reflecting both the nature of agricultural activity and the average size of firms. Financial contracts in rural areas involve higher transaction costs and risks than those in urban settings because of the greater spatial dispersion of production, lower population densities, the generally lower quality of infrastructure, and the seasonality and often high covariance of rural production activities.

Finally, the literature review revealed that some farmers are willing and able to finance their co-operatives. The development of numerous "new generation" cooperatives shows that if farmers are offered the proper incentive, such as a chance to participate in value-added processing and to realize a gain when they sell their investment in the co-operative, they will provide up-front equity. However it is reported that in several instances, the farmer-owners of a "new generation" have determined that they couldn't raise adequate equity from the membership to seize important market opportunities. They voted to convert to an investor-owned firm to gain access to advisers must find ways to blend this increasingly diverse base of farmers into a membership with a cohesive business interest in their co-operative.

5.2.3 Area of Study and Methodology

Ndonga and Maqhashu are two villages which are located in Lady Frere. Geographical coordinates of the two villages are 31° 42' 0" South, 27° 14' 0" East. Maqhashu and Ndonga fall under Emalahleni Municipality, and are characterised by high levels of poverty and unemployment and also low level of literacy that are a common characteristic of the whole rural Eastern Cape landscape. The sampling frame comprised of 100 farmers drawn from both Ndonga and Maqhashu areas. Farmers were classified into two groups: members and non-members of the co-operatives. Stratified sampling was used where farmers were clustered according to geographical location because the two communal areas consisted of many villages and the sample had to be representative of the whole areas of Ndonga and Maqhashu. After grouping, the farmer's location was identified and simple random sampling was used to represent each target group in each selected village. As way of improving data quality, a semi-structured questionnaire consisting of both closed ended questions open-ended question were used for data collection.

The data collected through questionnaires was coded and entered into an excel spread sheet before being analyzed using SPSS 18.0. The results were included descriptive statistics which explains some measures of central tendency and dispersion. These include means, standard deviations and variances. Also, a T-test of independent samples was used to compare the means for the sorghum yields and revenues for non members and members of the co-operative. Gross margin and graphs was also used to explain important relationships. In addition to that, a multiple regression model was fitted to model the effect of predictor variables on the response variable. In our study Assets owned was treated as the response variable and all the other variables on the questionnaire were treated as predictor variables.

5.2.4 Presentation of Results

In respect to these, the participants were both members and non members of the co-operative who are the household representatives, they all had to be 18 years and older and had to reside in village of Ndonga and Maqhashu at Lady Frere respectively. The age limitation was to ensure only members and non-members of the co-operatives who influence the household head's food production decision were included in the study. The descriptive statistics of the demographic and socio-economic characteristics in respect to the categorical variables were presented in details. The study shows that, the age of household heads range between 25 to 95 years. The majority of

farmers are found in 56- 65 age groups and only one is above 85 years. The age of household heads, is usually associated with education because generally older farmers have low levels of education; however it does not mean they lack the potential of being good farm managers, because they also have indigenous knowledge.

It was revealed that most producers, both members and non members of the co-operative are not educated (77%); meaning that only 23% of farmers are educated. This suggests that most of these producers do not have enough knowledge to manage their farming practices which results in the reduction of yields. It was also revealed that 71% of the members and non members of the co-operation who produce sorghum are married people while only 29% of both members and non members are not married. Although the majority of respondents are married people, their age is counter productive because it limits their participation in farm activities. This means that they are still faced with poverty even if they are married people. The results also explained that 97% of households have an income from grant and old pension, only 1% has a salary and 2% of community members do not have an income. This indicates that the majority of households in Ndonga and Maqhashu still depend on government support (the grant and old age pension) for living. The results reported that many sorghum producers both members and non members of the cooperative; do not have access to the market. Results shows that 70% lack access while only 30% of producers do have access to the market. There were no formal marketing contracts that were signed in either study area; however, some informal arrangements, mainly between friends and local members were mentioned under which exchanges or sales of produce occurred.

The first result of gross margin shows that the average yield for group members of sorghum cooperative is 0.13 t/ha. Members of the coops of Ndonga receive a total revenue of R270.4/ha. The total variable costs of R1006.5 were incurred in sorghum production. The bulk of these costs were mainly production costs prior to harvesting. Therefore Gross Margin equals R270.4/ha-R1006.5 (R-735.1/ha). The negative sign shows that co-operative are operating at a loss, meaning that they produce less with high production costs. However the second results of gross margin shows that the average yield for group members of sorghum coops was 0.1 t/ha. Non members of the coops of receive a total revenue of R166.4/ha. The total variable costs of R804 were incurred in sorghum production. The bulk of these costs were mainly production costs prior to harvesting. Therefore Gross Margin equals R166.4/ha-R804 (R-637/ha).

T-test results shows that production of sorghum in kg show that 50 non-members of the co-operation produce a mean of 856 kg while only 25 members of the cooperation are able to produce about 972 kg of sorghum. These differences show that members of the cooperatives receive support from government while non-members of the co-operatives depend on their own savings. The results also show that in terms total revenue of sorghum in Rand, 50 non-members of the co-operation receive a mean of total revenue R2111.00 while only 25 members of the cooperative are able to receive mean total revenue of R3110.80. These differences show that many people purchase from the co-operatives. On other hand side the results indicate that production of members and non-members is insignificant in both T- test and 2 tailed test while their total revenue is significant. This means that there is no much difference in their productivity while the significance of the total revenue results from the fact that most people buy sorghum from the co-operative not from individuals (gardeners). These tests reveal that non-members depend on their productivity since there is no much difference in the production of members and non-members.

The results of multiple regression shows the coefficient of determination was 0.45. This meant that approximately 45% of the response variable was explained by the model, thus our model explains 45% of the assets owned by both members and non-members of the co-operative. However, it was noticed from the Anova table that the model was slightly statistically insignificant with a p value of 0.06. It can be seen from Coefficients section, that only contract market, sources of information and challenges of production were significant. Consequently, another multiple regression model was fitted using only significant explanatory variables from the previous output, thus applying the backward elimination method of regression. The new results showed that challenges of production was the only significant predictor variable after applying the backward elimination method. It was important to note that the two predictor variables namely, contract market and sources of information were now insignificant, maybe due to some interactional effects between some variables. Also, it was very important to note that the model was now significant from the Anova table with a new p-value of 0.020. Furthermore, in order to test the validity and reliability of that variable, another multiple regression model was fitted with challenges of production as the only independent variable and it was significant.

The above discovery further supports the descriptive results which revealed that 39% of people were still affected by poverty despite the introduction of the New Co-operative Act of 2005. Since challenges of production was the only significant factor influencing assets owned, one can argue that the 39% mentioned above is still facing the challenges of production hence their reluctance in supporting the New Co-operative Act of 2005.

5.3 Conclusions

This study was assessing the impact of the New Co-operatives Act No.14 of 2005 on employment and Poverty Reduction: A case study of Sorghum producers in Ndonga and Maqhashu communities in the Eastern Cape Province.

The study focused on assessing the employment and poverty reduction based on production levels of sorghum crops in both villages. The literature revealed that farmers in Maqhashu village were allocating fragmented plots about two hectares land from 200 hectares. There are about 100 members of co-operative, however members of the co-operative in Ndonga village had agreed to combine their land in order to produce equal product. They are using 1000 hectares of land and they are about 523 members. The land which was used by non members of the sorghum is ranging from 2 to 4 hectares.

This research used data of employment creation and poverty reduction through communal farmers to investigate the impact of the New Co-operatives Act No.14 of 2005. The results reveal significant differences between the two groups; members and non members of the co-operatives, not only in household production levels and income generation but also in challenges that farmers are facing. The results suggest that members of co-operatives are more productive than non members of the co-operatives. The source of this productivity differential lies in support from extension officers and capital from state aid and unity among members of the co-operative.

The study also examined the impact of New Co-operation Act No.14 of 2005 through constraints in smallholder farmers and their implications on sustainable agriculture and food security in Lady Frere at large. This research is therefore aimed at providing a comparative analysis among members and non member of the co-operation. It is expected that the results will provide a

platform for policy makers to come up with sound policy that is essential in uplifting the living standards of smallholder farmers in the province.

5.4 Recommendations

Traditional cooperative farmers lack of marketable grade and standard of products they produce. The amounts of produce in communal areas are generally low per producer as compared to those of commercial farming sector. Farmers often have inadequate or no insurance coverage on crops and condition of crop. This results in farmers having insufficient access to markets, especially during dry spell. More often, it results in farmers selling their products to the community. In order for the farmer to sell his/her produce in the markets they must first meet the high quality levels. However, African producers have no control over management of basic resources such as soil, water and other essential inputs thus they lack motivation for the maintenance and improvement of these resources. The main issues arising from the results include availability of transport, access to information, production inputs.

5.4.1 Extension services

There is need to enhance the capacity of agricultural extension personnel through addressing the following areas: mobility, communication, training, incentives and operational resources for efficient dissemination of information on new technologies such as the mechanization programme. This will lead to increase in production of sorghum in Lady Frere.

5.4.2 The approaches that government must use in order to support traditional co-operative

Firstly, government must try to support people of rural areas through provision of basic needs so that they can produce for themselves. Secondly, there must be a provision of information on how to grow crops such as sorghum, which ways of controlling diseases, pest and birds which are most dangerous to crop, which market they can use to sell their product, what is the current market price. The information is important for small scale farmers in order to develop and be able to supply to international markets. Thirdly, government must provide rural people with proper infrastructure, such as proper roads network which link rural areas with good markets. Fourthly, government must build dams to conserve water because some of the areas are

extremely dry due to little amount of annual rainfall which makes it difficult to even produce other crops such maize, spinach and cabbage. Finally, government must train people to work together because collective action is important; they must help one another because their level of intelligence is not equal. When government promotes cooperative in many communities, farmers can increase their source of income. The more income increases farmers will be able to obtain high yield. This is because farmers will be able to afford to use improved production inputs, adoption of new technology and expand the area of production.

5.4.3 The approach that must be used by members in order to improve cooperation

Small scale farmers must increase competition in order for them to be able to produce high quality products. Small-scale farmers are geographically dispersed, with roads and telecommunication usually of poor quality. The co-operation of members of the co-operative with large commercial farmers will assist members of the co-operative to gain skill of production and also to know exactly what is required in the market. It would be advantageous if members of the co-operative can combine their money and purchase milling machinery, which is their problem currently. They are selling sorghum which is not processed and its value is low, but if they can sell a processed sorghum the value can increase. The members of the co-operative must encourage their children to study agriculture more especially at tertiary level if they want sustainability of their product in future. The results indicated that youth are not participating in agricultural activities; it would be of great benefit if old members of the co-operation can encourage as many young people as possible to partake in agricultural activities as they are more malleable towards new technological developments. Adoption of new technology can help increase the yields of small scale farmers. To conclude, the members of the co-operative agreed that they benefit from the New Co-operation Act No.14 of 2005, as such, they must utilize this opportunity to improve job creation and reduce poverty in rural areas.

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APPENDIX 1

All information supplied will be treated with the strictest confidentiality

The Employment and Poverty Reduction Impacts of the New Co-operatives Act (No.14 of 2005): Case Studies of Sorghum producers in Ndonga and Maqhashu communities in the Eastern Cape Province.

For members of cooperative

Name

Full Address

General Information

Name of interviewer	
Date of interview	
Respondent's Name	
Address:	
P. O Box	
Town	
Code	
Telephone Number	
Province	

1. *Biographical characteristics*

1.1 Gender	Male	1
	Female	2
1.2 Age in years		Years

1.3 Household size	
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1.4. Marital status	Single	1	Married	2	Divorce	3	Widow	4
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2. *Human Capital endowment*

Educational attainment

2.1 How many years of schooling?

yrs

Additionally indicate below with an x, what terminal level obtained.

No formal education	Primary school only	Secondary/High school	Tertiary education	Other
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2.1 List all sources of household income of this year and also rank the sources.

(a)..... (b).....(c)..... (d)..... (e).....

3 Overview of cooperation of sorghum crops in Ndonga and Maqhashu

3.1 In which year did you start your cooperation?

dd/mm/yyyy

3.2 when was your cooperative registered?

dd/mm/yyyy

3.3 What were the reasons to start the business?

3.4.1 How many members started the cooperation?

Actual number

3.4.2 Are the founding members still part of your cooperatives?

(a) yes (b) no

3.4.3 If no why have they left?

(a) financial crisis (b) social conflict (c) death (d) i don't know

3.4.4 How many members are currently in cooperative has?

Actual number

3.5.1 What is the current vision for your cooperative?

3.5.2 Has vision changed since the cooperative started?

(a) yes (b) no

3.5.3 If yes what has changed and what caused the change of the vision?

3.6 What are the objectives of the cooperation?

3.7 Indicate the land tenure system on the land in use and how you acquired it?

Land tenure system				How you acquired the land		
communal	rent	lease	Privately owned	bought	inherited	other

3.8 How many hectares of land cooperation have?

3.9 Do you use all the land that you have?

If no, why?

3.10 Why do you choose to produce sorghum out of many other agricultural products?

(a) Because is the drought resistance crop (b) Because the extension officer recommended it

3.11 How many jobs opportunities cooperation created?

Actual number

3.12 What types of labours are currently employed by cooperation?

(a) Skilled labour only (b) skilled and unskilled labour (c) non

3.13 Where do you get your implements such as tractor for production?

(a) Cooperation do have them (b) do you hire them from other people who are not the part of the cooperation (c) from government

3.14 Do you have storage to store your product after harvest?

(a) Yes (b) no

3. 15 Do you have offices?

(a) Yes (b) no

3.16 who run the office?

(a) Manager (b) Secretary (c) other members of coop

3.17 How much gross production of your sorghum crop?

Actual number

3.18 How much do you spend when you produce?

Actual number

3.19 Where do you get money (capital) to invest in coop?

Sources	amount
Borrowing from bank	
Borrowing from friends	
Borrowing from your family	
Your own saving	
State aid	
Other (such as)	

3.20 Which government entities do you relate with?

(a) National department of agriculture (b) national development agency (c) Eastern cape department of agriculture (d) Municipality department of agriculture

3.21 What type of assistance cooperative is receiving from the above mentioned different agencies?

(a) Support of money (b) support of farm implements

3.22 How do you increase your knowledge for the future?

By sending your members to the (a) conferences (b) workshops

3.23 What assets you have?

Assets owned	Which year bought	conditions of your Assets now
Irrigation tools		
Cars		
Tractor		
Truck		
Farm implements		
Fence		
Dams		
Buildings		

3.24 Indicate production inputs that you use

Input	Amount per ha	Cost per ha
Treated seeds		
Fertilizer		
Pesticides		
Insecticide		
Fuel		

3.25 Production activities

Items	Frequency per season	Amount paid (R)
Weeding		
Irrigation		
Land preparation		
Planting		
Harvesting		
Pest control		

4. Registration and operation

4.1 What benefits were or are available for registered cooperative? (for example, funding, external support, extension support, ect)?

(a) before the 2005 cooperatives act?

(b) after the 2005 cooperative act?

4.2 How would you categorise your cooperative?

(a) input supply cooperative (b) marketing cooperative (c) producer cooperative

5. Marketing Management

5.1 Are there output and input markets available with in an accessible distance for the following?

Sorghum crop	Yes	No
--------------	-----	----

5.2 Do you have access to markets?

Yes		No	
-----	--	----	--

5.3 Which type of markets do you usually use for selling your sorghum crop?

MARKET	Reason
Formal markets	
Informal markets	

5.4 Which marketing channels do you use when you sell your sorghum?

(a) Auctions (b) private sales (c) speculators

5.5 How far is it to get to your main market outlet? State in km.

	km
--	----

5.6 Are you in contract with any reliable market?

Yes		No	
-----	--	----	--

5.7 How is your sorghum crop moved to the marketing points? (Tick as appropriate)

	TYPE OF TRANSPORT				
	Bike	Truck	Tractor	Bus	Other (Specify)
Own transport					
Hired vehicles (individual)					
Hired vehicle (group)					

Public transport					
Buyers transport					
Move animals by foot /head balancing crops					

5.8 How much do you pay for a single trip to the market? R.....

5.9 What general problem do you experience in moving your produce?

Small size of transport	Lack of transport	High transport cost	Other (Specify)

5.10 Who manage the market?

(a) The village group (b) the municipality

5.11 What product do they sell in your market?

(a) sorghum market only (b) sorghum and maize market (c) potato market and sorghum market

5.12 What are the condition of the road linking the village and market?

(a) Excellent (b) good (c) fair (d) poor

5.13 How many people in the community who also sell sorghum crops?

Actual number

6. Market information

6.1 Do you have access to market information?

Yes		No	
-----	--	----	--

6.2 Do you receive market information prior to sales?

Yes		No	
-----	--	----	--

6.3 What are your sources of information?

SOURCE		TYPE OF INFORMATION provided					
	Rank	Prices	Dates for sales	Buyers	Market demand	Market opportunities	Other (<i>Specify</i>)
Media							
Extension offices							
Friends							
Co-farmers							
Buyers							
Other (<i>Specify</i>)							

6.4 How often do you receive the information?

Daily	Weekly	Monthly	Bi-annually	Annually	Other (<i>Specify</i>)

6.5 Which language is mostly used to deliver the information?

.....

6.6 Marketing of sorghum by the cooperative

Output		No. farmers	How does the coop reward each farmer?		
Yield/ha					
Losses					
Crop sales					

Marketing channel		Quantity (ton)	Price (R/t) (R/kg)	Total revenue
Street trade				
Small shop				
Local people				
Supermarket/retailer				
Marketing costs				
Packaging material cost				

7. What is the traditional environment like?

7.1 Any restrictions or cultural requirements for farming with sorghum crop?

(a) Yes (b) no

7.2 Is there any role of the traditional rulers or other traditional groups that perhaps control the use of communal resources such as water for irrigation?

(a) Yes (b) no

7.3 What factors influence the demand for the sorghum crop?

(a) Traditional beer (b) mathabela porridge

7.4 Which is the most challenging factor that affect the production of crops.

(a) Drought (b) theft of the products (c) birds control

APPENDIX 2

All information supplied will be treated with the strictest confidentiality
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The Employment and Poverty Reduction Impacts of the New Co-operatives Act (No.14 of 2005): Case Studies of Sorghum producers in Ndonga and Maqhashu communities in the Eastern Cape Province.

For non members cooperative

Name

Full Address

General Information

Name of interviewer	
Date of interview	
Respondent's Name	
Address:	
P. O Box	
Town	
Code	
Telephone Number	
Province	

1. Biographical characteristics

1.1 Gender	Male	1
	Female	2
1.2 Age in years		Years

1.3 Household size	
--------------------	--

1.4. Marital status	Single	1	Married	2	Divorce	3	Widow	4
---------------------	--------	---	---------	---	---------	---	-------	---

2. Human Capital endowment

Educational attainment

2.1 How many years of schooling?

yrs

Additionally indicate below with an x, what terminal level obtained.

No formal education	Primary school only	Secondary/High school	Tertiary education	Other
---------------------	---------------------	-----------------------	--------------------	-------

3. List all sources of household income of this year and also rank the sources.

(a)..... (b).....(c)..... (d)..... (e).....

4 Overview of cooperation of sorghum crops from non members of the coops

4.1 Were there any changes after cooperative was formed?

(a) Yes (b) no

If yes explain-----

4.2 How do you benefit from the establishment of cooperative?

(a) Cheap product (b) job opportunities (c) skills (d) all of the above (e) do not benefit

4.3 Does cooperative contribute in poverty alleviation?

(a) Yes (b) no

4.5 How does cooperative contribute in poverty alleviation?

4.6 Do you still produce sorghum in your home gardens?

(a) Yes (b) no

4.7 Do you produce other crops in your home gardens except of sorghum?

(a) Yes (b) no

If yes what other kind of crops do you produce?.....

4.8 Where do you buy your seeds?

(a) From the cooperative (b) from other market (c) other (specify)-----

4.9 Is the product sold by cooperative?

(a) Processed (b) unprocessed

If is unprocessed where do you process it and how much do you pay to process it?-----

4.10 What is grade and standard of sorghum of the cooperative?

(a) Excellent (b) good (c) fair (d) poor

4.11 Which gender get job easy in cooperative?

(a) male (b) female

4.12 Do you continue to buy sorghum even if income is increasing?

(a) yes (b) no

4.13 Are there any challenges that you are facing as a community because of production of cooperation?

(a) shortage of land (b) shortage of water (c) air pollution because of application of fertilizer

4.14 Do you get help from implements of the cooperative for example tractor as members of the community?

(a) yes (b) no

4.15 Is cooperative involved in community activities?

(a) yes (b) no

4.16 Do you see yourself depending in sorghum cooperative for the future?

(a) yes (b) no

4.17 Which age group is dominant in getting jobs in sorghum cooperation?

(a) 15-25 (b) 26-35 (c) 36-45 (d) 46-55

4.18 Who are there first preferences to employed in cooperation?

(a) people from local villages (b) people from other towns

4.19 Where do you get money (capital) to invest in farm?

Sources	Amount
Borrowing from bank	

Borrowing from friends	
Borrowing from your family	
Your own saving	
State aid	
Other (such as)	

4.20 What assets you have?

Assets owned	Which year bought	conditions of your Assets now
Irrigation tools		
Cars		
Tractor		
Truck		
Farm implements		
Fence		
Dams		
Buildings		

4.21 Indicate production inputs that you use

Input	Amount per ha	Cost per ha
Treated seeds		

Fertilizer		
Pesticides		
Insecticide		
Fuel		

5. Marketing Management

5.1 Are there output and input markets available within an accessible distance for the following?

Sorghum crop	Yes	No
--------------	-----	----

5.2 Do you have access to markets?

Yes		No	
-----	--	----	--

5.3 Which type of markets do you usually use for selling?

MARKET	Reason
Formal markets	
Informal markets	

5.4 Which marketing channels do you use when you sell your sorghum?

(a) Auctions (b) private sales (c) speculators

5.6 How far is it to get to your main market outlet? State in km.

	km
--	----

5.7 Are you in contract with any reliable market?

Yes		No	
-----	--	----	--

5.7 How is your sorghum crop moved to the marketing points? (Tick as appropriate)

	TYPE OF TRANSPORT				
	Bike	Truck	Tractor	Bus	Other (Specify)
Own transport					
Hired vehicles (individual)					
Hired vehicle (group)					
Public transport					
Buyers transport					
Move animals by foot /head balancing crops					

5.9 How much do you pay for a single trip to the market? R.....

5.9 What general problem do you experience in moving your produce?

Small size of transport	Lack of transport	High transport cost	Other (Specify)

5.10 Who manage the market?

(b) The village group (b) the municipality

5.11 What product do they sell in your market?

(b) sorghum market only (b) sorghum and maize market (c) potato market and sorghum market

5.13 What are the condition of the road linking the village and market?

(a) Excellent (b) good (c) fair (d) poor

5.13 How many people in the community who also sell sorghum crops?

Actual number

6. Market information

6.1 Do you have access to market information?

Yes		No	
-----	--	----	--

6.3 Do you receive market information prior to sales?

Yes		No	
-----	--	----	--

6.3 What are your sources of information?

SOURCE		TYPE OF INFORMATION provided					
	Rank	Prices	Dates for sales	Buyers	Market demand	Market opportunities	Other (Specify)
Media							
Extension offices							
Friends							
Co-farmers							
Buyers							
Other (Specify)							

7.5 How often do you receive the information?

Daily	Weekly	Monthly	Bi-annually	Annually	Other (Specify)

7.6 Which language is mostly used to deliver the information?

.....

6.6 Marketing of crops buy non members of the coops

Output		How does the coop reward each farmer?		
Yield/ha				
Losses				
Crop sales				
Marketing channel		Quantity (ton)	Price (R/t) (R/kg)	Total revenue
Street trade				
Small shop				
Local people				
Supermarket/retailer				
Marketing costs				
Packaging material cost				